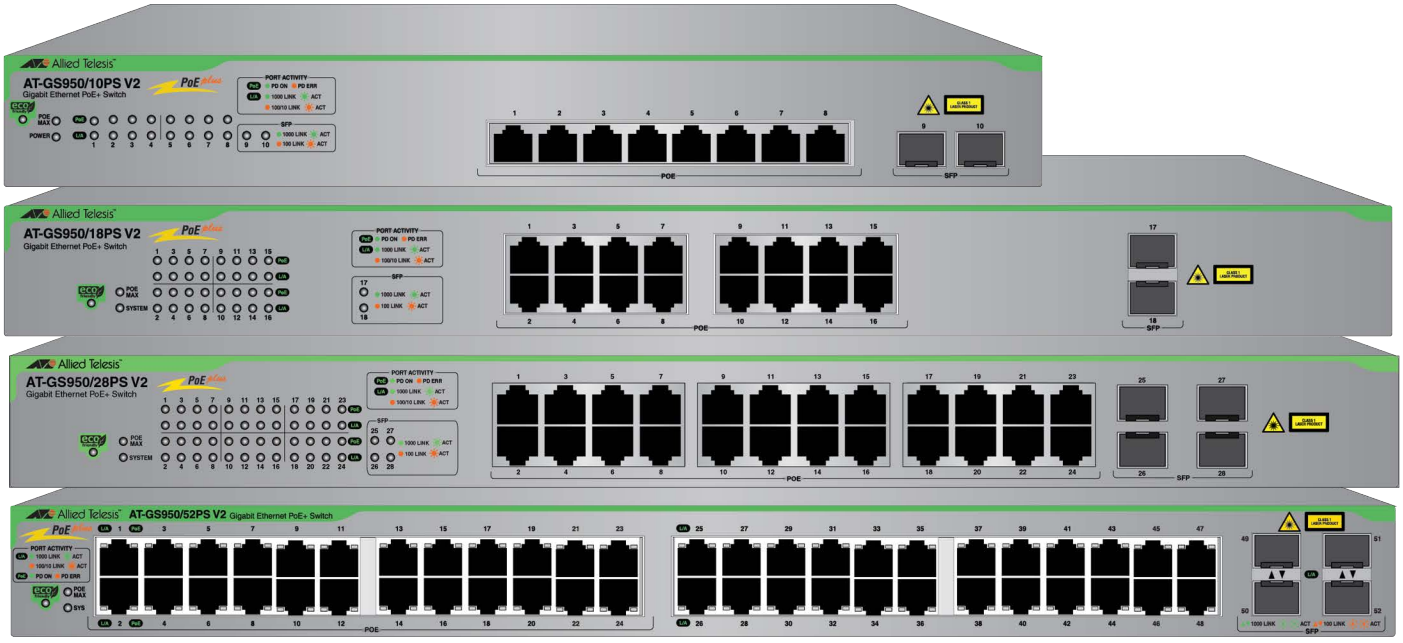
GS950 V2 and GS950 PS V2 Series

Gigabit Ethernet WebSmart Edge Switches

GS950/10 V2	GS950/10PS V2
GS950/18 V2	GS950/18PS V2
GS950/28 V2	GS950/28PS V2
GS950/52 V2	GS950/52PS V2



Installation Guide

613-002861 Rev. C

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.

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

 Laser Safety IEC/EN 60825-1:2014 & IEC/EN 60825-2:2004/A2:2010

. Safety Certificates

Euro Zone	CE
North America	FCC/ICES (ICES-003)/UL
Australia/New Zealand	RCM (CISPR 32)
Japan	VCCI
Safety	UL 62368-1 EN 62368-1 (TUV), CE IEC 62368-1 AEL Class I, US FDA/CDRH EN(IEC) 60825-1 EN(IEC) 60825-2 CAN/CSA-C22.2 No 62368-1

Electromagnetic Certificates

Electromagnetic Interference (EMI)	FCC Part 15 Subpart B Class A EN 55032 Class A CISPR 32 VCCI Class A RCM
Electromagnetic Susceptibility (EMS)	IEC 61000-4-2: 2008 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 (IEC 61000-4-8) IEC 61000-4-11 IEC 61000-3-2 IEC 61000-3-3
RoHS	EU RoHS Directove (2011/65/EU) (2015/863) China RoHS
Additional	JGPSSI/JIG Level A

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

Contents

Figures

Tables

Preface

This guide contains the installation instructions for the GS950 V2 and GS950 PS V2 Series of Gigabit Ethernet WebSmart Edge Switches. The preface contains the following sections:

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

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

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

Warning
Laser warnings inform you that an eye or skin hazard exists due to the presence of a Class 1 laser device.

Translated Safety Statements

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

- Übersetzte Sicherheitserklärungen

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

- Declaraciones de seguridad traducidas

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

- Consignes de sécurité traduites

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

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- Översatta säkerhetsförklaringar

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

Chapter 1
Overview

The sections in this chapter describe the hardware features of the GS950 V2 and GS950 PS V2 Series of Gigabit Ethernet WebSmart Edge Switches:

Note

Not all models in the GS950 V2 and GS950 PS V2 Series may be available in your region. Contact your Allied Telesis Partner for further information.

Front and Rear Panels on the GS950 V2 Series

Figure 1 illustrates the front panel on the GS950/10 V2 Switch.

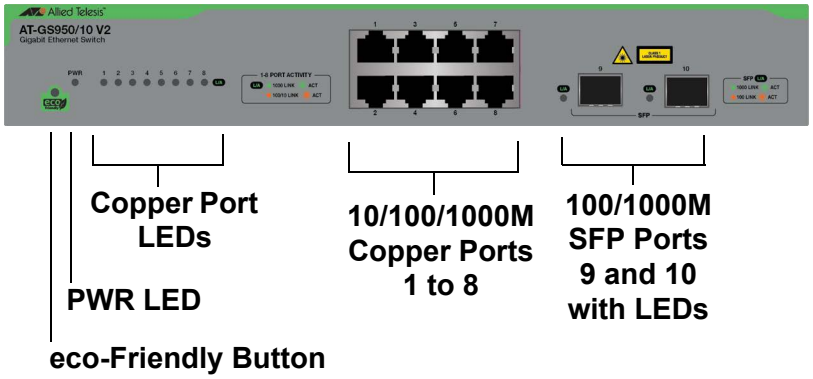


Figure 1. Front Panel on the GS950/10 V2 Switch

Figure 2 illustrates the front panel on the GS950/18 V2 Switch.

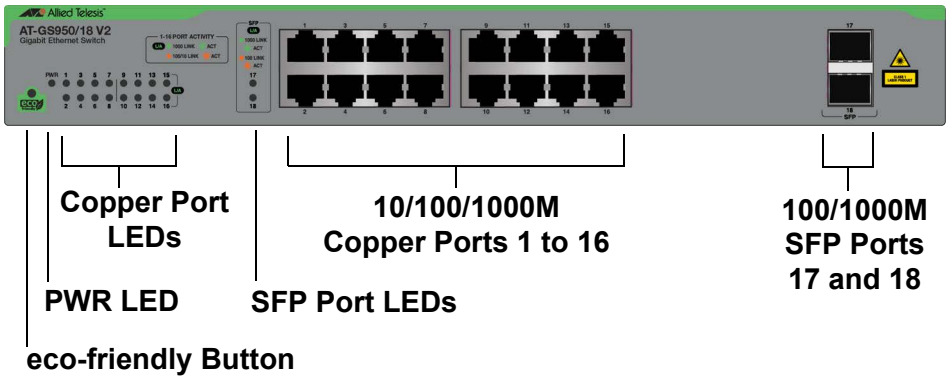


Figure 2. Front Panel on the GS950/18 V2 Switch

Figure 3 illustrates the front panel on the GS950/28 V2 Switch.

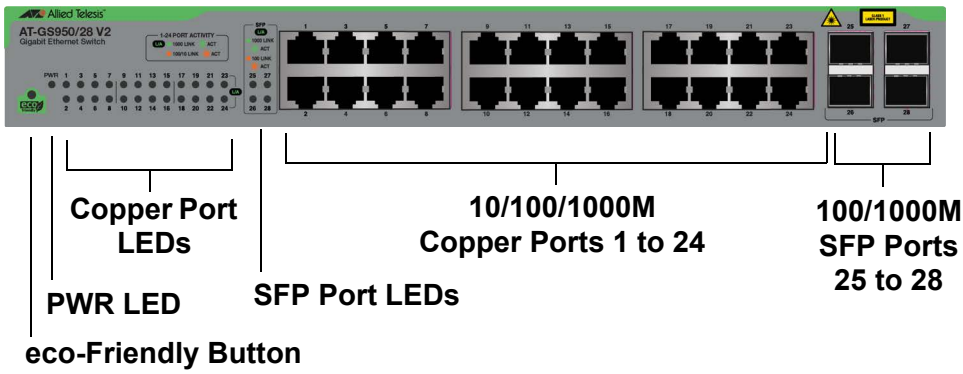


Figure 3. Front Panel on the GS950/28 V2 Switch

Figure 4 illustrates the front panel on the GS950/52 V2 Switch.

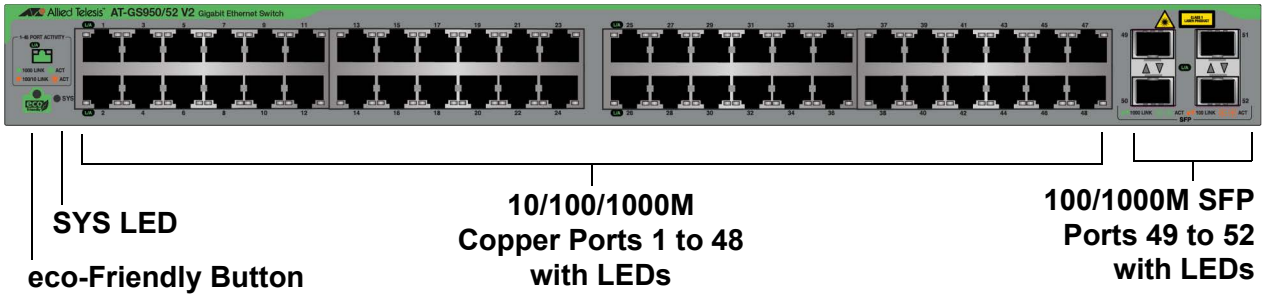


Figure 4. Front Panel on the GS950/52 V2 Switch

Figure 5 illustrates the rear panel on the GS950/10 V2 Switch.

Figure 5. Rear Panel on the GS950/10 V2 Switch

Figure 6 illustrates the rear panel on the GS950/18 V2 and GS950/28 V2 Switches.

Figure 6. Rear Panel on the GS950/18 V2 and GS950/28 V2 Switches

Figure 7 illustrates the rear panel on the GS950/52 V2 Switch.

Figure 7. Rear Panel on the GS950/52 V2 Switch

Front and Rear Panels on the GS950 PS V2 PoE+ Series

Figure 8 illustrates the front panel on the GS950/10PS V2 Switch.

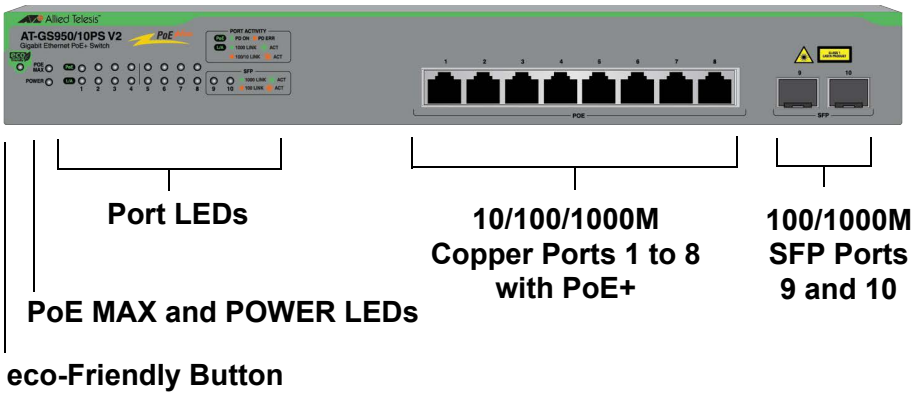


Figure 8. Front Panel on the GS950/10PS V2 Switch

Figure 9 illustrates the front panel on the GS950/18PS V2 Switch.

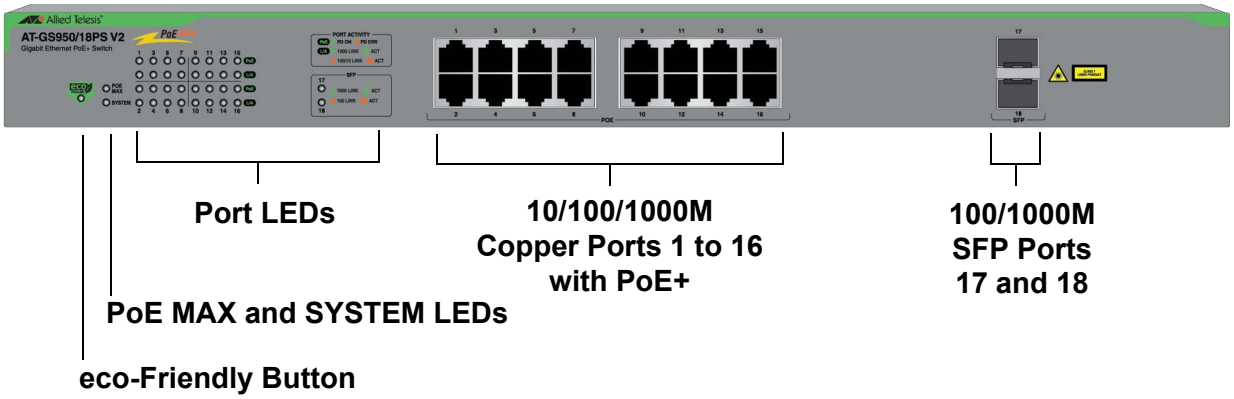


Figure 9. Front Panel on the GS950/18PS V2 Switch

Figure 10 illustrates the front panel on the GS950/28PS V2 Switch.

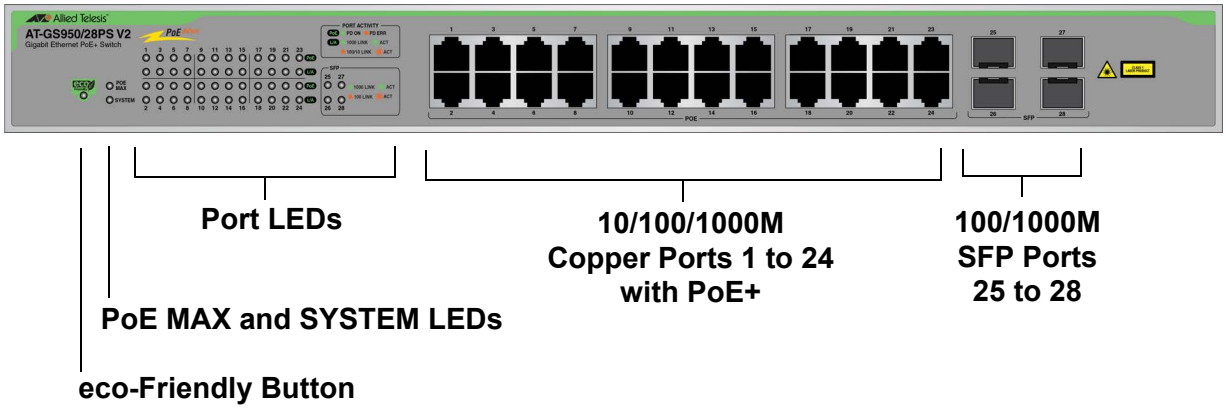


Figure 10. Front Panel on the GS950/28PS V2 Switch

Figure 11 illustrates the front panel on the GS950/52PS V2 Switch.

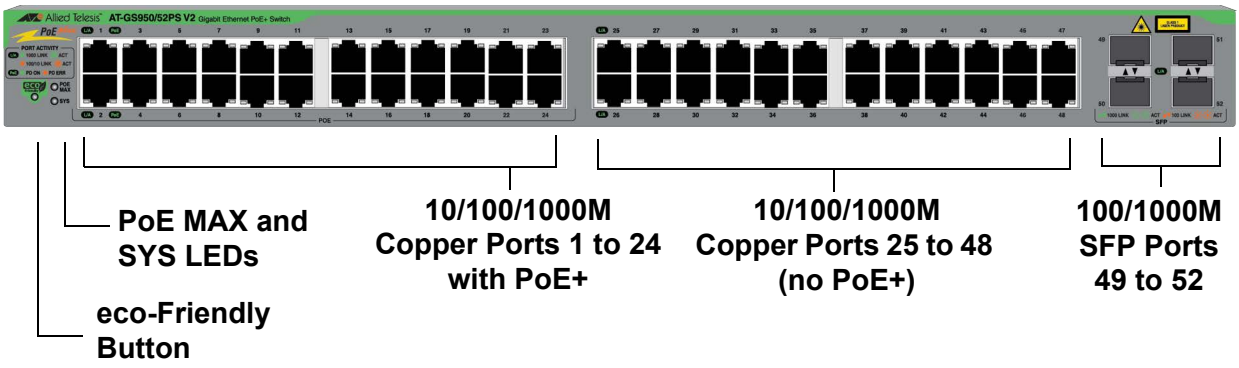


Figure 11. Front Panel on the GS950/52PS V2 Switch

Figure 12 illustrates the rear panel on the GS950/10PS V2 Switch.

Figure 12. Rear Panel on the GS950/10PS V2 Switch

Figure 13 illustrates the rear panel on the GS950/18PS V2 and GS950/28PS V2 Switches.

Figure 13. Rear Panel on the GS950/18PS V2 and GS950/28PS V2 Switches

Figure 14 illustrates the rear panel on the GS950/52PS V2 Switch.

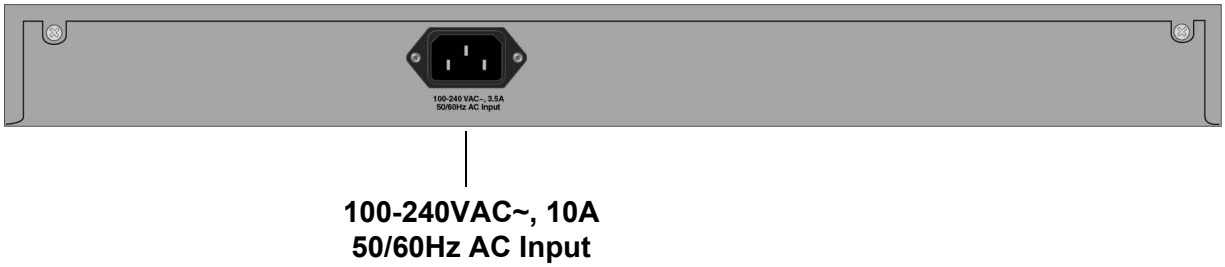


Figure 14. Rear Panel on the GS950/52PS V2 Switch

Copper Ports

Table 1 lists the hardware features on the copper ports.

Table 1. Hardware Features on the Copper Ports

Feature	Description
Speeds	Port speeds are listed here: - 10M (IEEE802.3 10Base-T) - 100M (IEEE802.3u 100Base-TX) - 1000M (IEEE802.3ab 1000Base-T) Speeds can be set manually or with IEEE 802.3u Auto-Negotiation.
Duplex modes	Duplex modes are listed here: - Half duplex mode at 10/100M - Full duplex mode at 10/100/1000M Duplex modes can be set manually or automatically with IEEE 802.3u Auto-Negotiation.
Wiring	Auto-MDI/MDIX at 10/100M
Distance	100 meters (328 feet)
Cable	Minimum cable requirements are listed here: - 10/100M - Standard TIA/EIA 568-B-compliant Category 3 unshielded cable. - 1000M - Standard TIA/EIA 568-B-compliant Category 5 or Category 5e unshielded cable.
Connectors	8-pin RJ-45
Additional features	Additional features include: - IEEE 802.3x Back Pressure in 10/100M half-duplex mode - IEEE 802.3x Flow Control in 10/100M full-duplex mode - IEEE803.3z 1000Base-T Flow Control - Non-blocking, wire speed supported at all speeds. - Supports up to 10K jumbo frames - 1.5MB packet buffer

For the port pinouts, refer to “RJ-45 Copper Port Pinouts” on page 111.

Note

Copper ports that are connected to devices that do not support Auto-Negotiation should not use Auto-Negotiation to set speed and duplex mode. A speed or duplex mode mismatch may occur between the devices, resulting in reduced performance. Speed and duplex mode should be set manually on ports connected to devices that do not support Auto-Negotiation.

Power over Ethernet on the GS950 PS V2 Series

The GS950 PS V2 Series features PoE+ on the copper ports. This feature enables the switches to supply power to network devices over the same cables that carry the network traffic. The value of PoE+ is that it can make installing a network easier. Selecting locations for network devices are often limited by whether there are power sources nearby. This often limits equipment placement or requires the added time and cost of having additional electrical sources installed. But with PoE+, you can install PoE-compatible devices wherever they are needed without having to worry about whether there are adjacent power sources.

A device that provides PoE+ to other network devices is referred to as *power sourcing equipment* (PSE). The GS950 PS V2 Switches act as PSE units by adding DC power on the network cables connected to its ports, thus functioning as a 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 switches automatically determine whether a device connected to a port is a powered device. 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.

Maximum PoE+ Budgets

The maximum PoE+ budgets are the total amounts of power the switches can supply to powered devices on their ports. The maximum PoE+ budgets of the switches are listed in Table 2.

Table 2. PoE+ Maximum Power Budgets and Ports

Switch	PoE+ Budget	PoE+ Ports
GS950/10PS V2	75W	1 to 8
GS950/18PS V2	185W	1 to 16
GS950/28PS V2	185W	1 to 24
GS950/52PS V2	370W	1 to 24[1]

1. Copper ports 25 to 48 on the GS950/52PS V2 Switch do not support PoE+.

PoE Standards

The GS950 PS V2 Series supports these PoE standards:

- PoE (IEEE 802.3af): This standard provides up to 15.4 watts at the switch port to support powered devices that require up to 12.95 watts.
- PoE+ (IEEE 802.3at): This standard provides up to 30.0 watts at the switch port to support powered devices that require up to 25.5 watts.

Powered Device Classes

Powered devices are grouped into classes, based on their power requirements. The GS950 PS V2 Series supports the five classes listed in Table 3.

Table 3. IEEE Powered Device Classes

Class	Maximum Power Output at the Switch Port	Powered Device Power Range
0	15.4W	0.44W to 12.95W
1	4.0W	0.44W to 3.84W
2	7.0W	3.84W to 6.49W
3	15.4W	6.49W to 12.95W
4	30.0W	12.95W to 25.5W

Note

The switches can support any combination of powered devices up to their maximum PoE power budgets.

Mode A Power Delivery

The GS950 PS V2 Series supports Mode A of the IEEE 802.3at standard. Mode A is one of two modes that define the connector pins that carry the power from the port in the switch to the powered device. In Mode A, the power is carried on pins 1, 2, 3, and 6 on the RJ-45 port, the same pins that carry the network traffic. The second mode, Mode B, defines pins 4, 5, 7, and 8 as the power carriers. The GS950 PS V2 Series does not support Mode B.

PoE+ Port Priorities

If the power requirements of the powered devices exceed the switch's power budget, the switch will deny power to some ports based on a system called PoE+ port priorities. You can use this feature to ensure that powered devices critical to the operations of your network are given preferential treatment by the switch in the allocation of power should the demands of the devices exceed the available power budget.

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 should be assigned to this level. If there is not enough power to support all the ports set to the Critical priority level, power is allocated to 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 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’s power budget is at maximum usage and new powered devices connected to ports with higher priorities become active.

SFP Ports

The SFP ports support the following types of fiber optic transceivers:

- SFP 100M, 100Base-FX transceivers with MMF cables
- SFP 1000M, 1000Base-SX transceivers with MMF cables
- SFP 1000M, 1000Base-LX transceivers with SMF cables
- SFP 1000M bidirectional 20 or 40 km transceivers with SC or LC connectors and SMF cables

Transceivers are hot-swappable. You can install and remove them while the switch is powered on.

Note

Transceivers are purchased separately. For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.

Note

To ensure compatibility, use only transceivers that have been approved by Allied Telesis for use in this product.

LEDs

The switch LEDs are described in the following sections:

Note

If all the port LEDs are off, the switch may be operating in the low power mode. Use the eco-friendly button on the front panel to toggle on the LEDs. See “eco-friendly Button” on page 35 for more information.

POWER and PWR LEDs

The following switches have a POWER or PWR LED on the front panels:

- ❒ GS950/10 V2
- ❒ GS950/18 V2
- ❒ GS950/28 V2
- ❒ GS950/10PS V2

An example is shown in Figure 15.

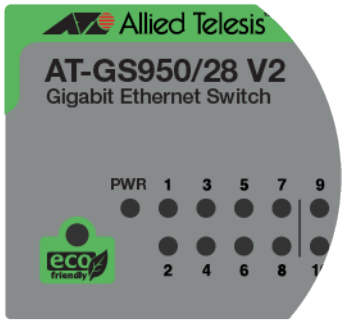


Figure 15. PWR LED

Table 4 defines the LED states.

Table 4. POWER and PWR LEDs

State	Description
Green	The switch is operating normally.
Off	Possible sources of this condition are: - The AC power cord is disconnected. - The AC power source is powered off or has failed. - The switch overheated and shutdown. - The switch experienced a hardware or software failure. - The switch shutdown from a power surge. - The power supply failed. - The power cord is faulty.

SYSTEM and SYS LEDs

The following switches have a SYSTEM or SYS LED on the front panels:

- GS950/52 V2
- GS950/18PS V2
- GS950/28PS V2
- GS950/52PS V2

An example is shown in Figure 16.

Figure 16. SYS LED

Table 5 defines the LED states.

Table 5. SYSTEM and SYS LEDs

State	Description
Green	The switch is operating normally.
Red	The switch is experiencing a fault condition that may be preventing it from forwarding ingress and/or egress traffic. Fault conditions can include: - The system is overheating. - For switches with a ventilation fan, the fan may have failed. - The AC input voltage is above or below the normal operating range. - The system experienced a hardware or software failure. - The power supply is failing. - The switch is attempting to restore network operations after experiencing a power surge.
Off	Possible sources of this condition are: - The AC power cord is disconnected. - The AC power source is powered off or has failed. - The switch overheated and shutdown. - The switch experienced a hardware or software failure. - The switch shutdown from a power surge. - The power supply failed. - The power cord is faulty.

Copper Port LEDs on the GS950 V2 Series

The copper ports in the GS950 V2 Series have a single Link/Activity (L/A) LED. The copper port LEDs on the GS950/10 V2, GS950/18 V2, GS950/28 V2 Switches are grouped on the left side of the front panel. The example in Figure 17 is the GS950/28 V2 Switch.

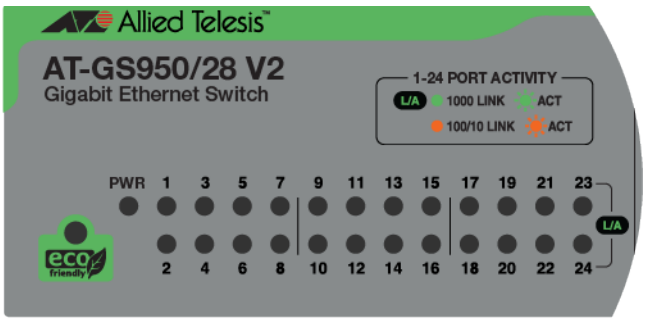


Figure 17. Link/Activity (L/A) LEDs for the Copper Ports on the GS950/28 V2 Switch

The Link/Activity LEDs for the copper ports on the GS950/52 V2 Switch are directly above and below the ports. Refer to the Figure 18.

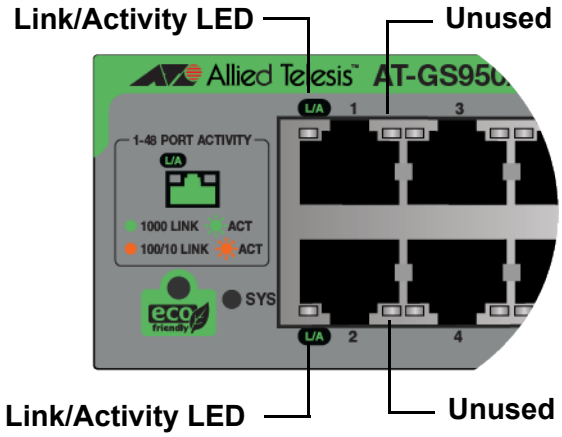


Figure 18. Link/Activity (L/A) LEDs for the Copper Ports on the GS950/52 V2 Switch

Note

The right-hand LEDs on the copper ports on the GS950/52 V2 Switch are unused.

Table 6 defines the states of the Link/Activity LEDs on the copper ports.

Table 6. Link/Activity (L/A) LEDs for the Copper Ports

State	Description
Off	The port has not established a link to a network device.
Steady Green	The port has established a 1000M link to a network device.
Blinking Green	The port is receiving or transmitting network traffic at 1000M.
Steady Amber	The port has established a 10M or 100M link to a network device
Blinking Amber	The port is receiving or transmitting network traffic at 10M or 100M.

Copper Port LEDs on the GS950 PS V2 Series

The copper ports on the switches in the GS950 PS V2 Series have Link/Activity and PoE+ LEDs. The LEDs are grouped together on the left side of the front panels, when facing the front, on the GS950/10PS V2, GS950/18PS V2, and GS950/28PS V2 Switches. The example in Figure 19 is the GS950/28PS V2 Switch.

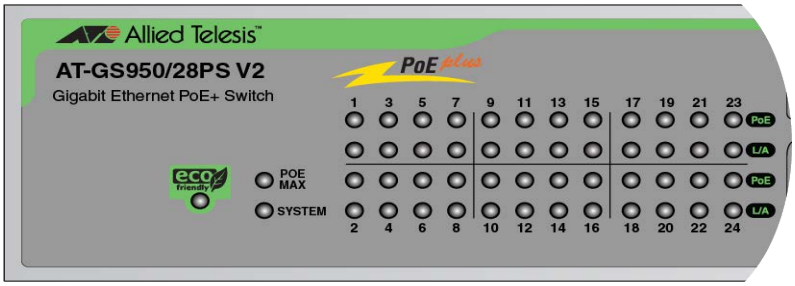


Figure 19. Link/Activity and PoE+ LEDs for the Copper Ports on the GS950/28PS V2 Switch

The Link/Activity and PoE+ LEDs for ports 1 to 24 on the GS950/52PS V2 Switch are located above and below the ports. Refer to Figure 20.

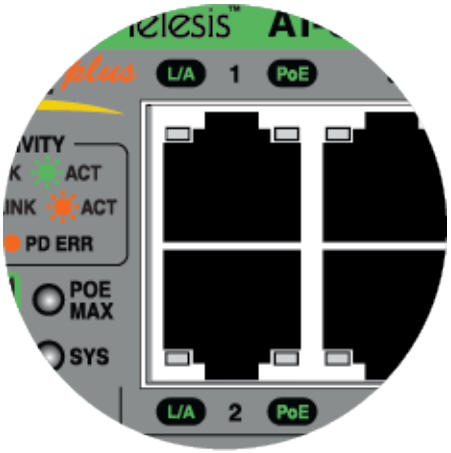


Figure 20. Link/Activity and PoE+ LEDs on Ports 1 to 24 on the GS950/52PS V2 Switch

Ports 25 to 48 on the GS950/52PS V2 Switch do not support PoE+. Consequently, they have only Link/Activity LEDs. The right-hand port LED is unused. Refer to Figure 21 on page 32.

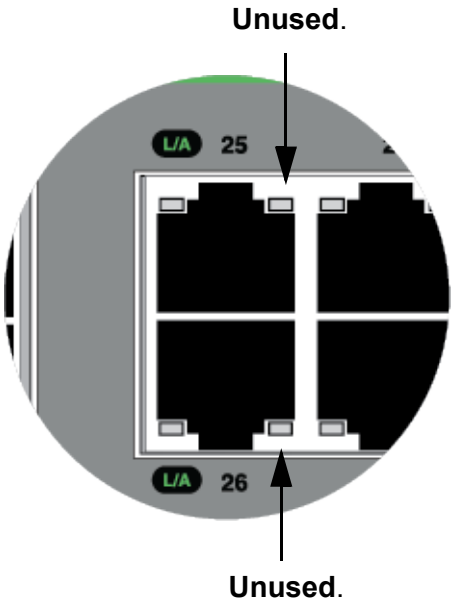


Figure 21. Link/Activity LEDS for Copper Ports 25 to 48 on the GS950/ 52PS V2 Switch

For definitions of the states of the Link/Activity LEDs, refer to Table 6 on page 30.

The states of the PoE+ LEDs are defined in Table 7.

Table 7. Port PoE+ LEDs on the GS950 PS V2 Series

State	Description
Green	The port is transmitting power to a powered device.
Amber	The switch has detected an error condition on the port. Examples include the following: - The powered device is requiring more power than its device class. - There is a terminal short in the network cable or connector.
Off	This state has the following possible causes: - The port is not connected to a network device. - The port is connected to a non-PoE device. - The port is connected to a powered device, but the switch is denying power to it because it has reached its maximum power budget. - The port is connected to a powered device that does not support the Mode A power delivery on pins 1, 2, 3, and 6 on the RJ-45 port.

SFP LEDs

The SFP ports have Link/Activity (L/A) LEDs. The LEDs on the GS950/10 V2 are adjacent to the ports. Refer to Figure 22.

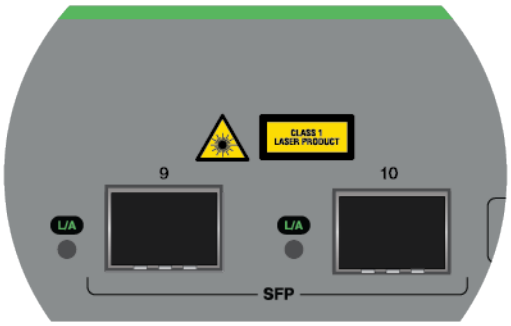


Figure 22. Link/Activity (L/A) LEDs for the SFP Ports on the GS950/10 V2 Switch

The Link/Activity LEDs for the SFP ports on all other switches, except the 52-port switches, are located next to the copper port LEDs. Figure 23 shows the LEDs on the GS950/28 V2 Switch.

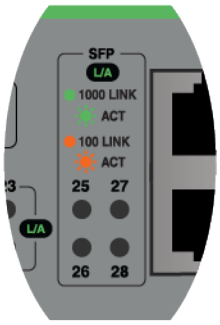


Figure 23. Link/Activity (L/A) LEDs for the SFP Ports on the GS950/28 V2 Switch

The Link/Activity LEDs for the four SFP ports on the GS950/52 V2 and GS950/52PS V2 Switches are located between the ports. Refer to Figure 24.

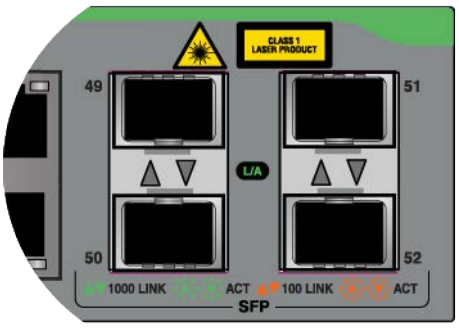


Figure 24. Link/Activity (L/A) LEDs on the SFP Ports on the GS950/52 V2 Switch

The states of the SFP port LEDs are defined in Table 8.

Table 8. Link/Activity LEDs for the SFP Ports

State	Description
Off	The port is empty or the transceiver has not established a link with a network device.
Steady Green	The port has established a 1000M link to a network device.
Blinking Green	The port is receiving and transmitting network traffic at 1000M.
Steady Amber	The port has established a 100M link to a network device.
Blinking Amber	The port is transmitting or receiving network packets at 100M.

PoE MAX LED on the GS950 PS V2 Series

The switches in the GS950 PS V2 Series have a PoE MAX LED on the left sides of the front panels. Refer to “Front and Rear Panels on the GS950 PS V2 PoE+ Series” on page 18. Table 9 defines the states of the PoE MAX LED.

Table 9. PoE MAX LED on the GS950 PS V2 Series

State	Description
Off	The total power requirements of the powered devices connected to the ports are below the switch’s maximum power budget. The switch is providing power to all powered devices on its ports.
Red	The total power requirements of the powered devices meet or exceed the switch’s maximum power budget. The switch cannot support additional powered devices and may be denying power to some ports.

eco-friendly Button

The eco-friendly button, shown in Figure 25, has the following functions:

- Toggling the eco-friendly mode: Pressing the button for less than five seconds toggles the front panel LEDs on and off. You may turn off the LEDs to conserve electricity when you are not using them to monitor the switch. (The PWR and SYS LEDs are not controlled by the eco-friendly button.)
- Rebooting the switch: Pressing and holding the button for five to nine seconds reboots the switch. You might perform this action if the switch is experiencing a problem.
- Restoring the default settings: Pressing and holding the button for more than 10 seconds restores the factory default values to the switch's configuration. You might perform this action to discard the switch's current configuration or if you lost the management login password.

Figure 25. eco-friendly Button

Note

Restoring the default settings returns the management IP address to the default 192.168.1.1. You may need to change the IP address on your workstation before you can manage the switch again. Refer to "Starting the First Management Session" on page 83.

Caution

The switch temporarily stops forwarding network traffic when you reboot it or restore the default settings. Some network traffic may be lost. E113

Note

You can disable both the reboot and factory default reset functions of the eco-friendly button In the management software. Refer to the *GS950 V2 and GS950 PS V2 Series Web Browser User Guide.*

Rebooting or Restoring the Switch

To reboot the switch or restore the default settings, do the following:

Caution

The switch temporarily stops forwarding network traffic when you reboot it or restore the default settings. Some network traffic may be lost. E113

- To reset the switch, press the eco-friendly button for 5 to 9 seconds. The switch takes several minutes to initialize its management software and the settings in its configuration file before resuming network operations.
- To reboot the switch and reset the switch to its factory default settings, press the eco-friendly button for more than 10 seconds.

Management Interfaces

The GS950 V2 and GS950 PS V2 Series have three management interfaces that are accessed over your network from your workstation. The interfaces are listed here:

- Web browser interface: This interface consists of a series of web browser windows that support non-secure HTTP and secure HTTPS. The default is HTTP. This interface allows you to configure all of the features and functions of the switches. For instructions, refer to the *GS950 V2 and GS950 PS V2 Series Web Browser User Guide*.
- Command line Interface: This interface is accessed with a Telnet or Secure Shell (SSH) client from your workstation. It consists of a series of command line commands. The commands let you configure a limited subset of the software features, such as the IPv4 and IPv6 addresses. The default settings for the Telnet server is enabled. This server cannot be disabled. The default setting for the Secure Shell server is disabled. To enable the server, use the web browser management interface. For instructions, refer to *GS950 V2 and GS950 PS V2 Series Command Line User Guide*
- SNMPv1, v2c, and v3: This interface consists of SNMP MIBs and objects. Only experienced technicians should manage devices with SNMP.

Allied Telesis may periodically release updates to the management software and provide them on our public web site for customers to download. For instructions, see the product's user guide.

Power Supplies and Fans

The switches have one internal power supply with a single AC power supply socket on the rear panel. You power the switch on or off by connecting and disconnecting the power cord. The power cord is supplied with the switch.

Note

For power requirements, refer to “Power Specifications” on page 106.

The following switches come with one or more internal ventilation fans:

- GS950/52 V2
- GS950/18PS V2
- GS950/28PS V2
- GS950/52PS V2

The fans are located on the right sides of the switches, when facing the front of the units. They draw air out of the switches, with airflow direction from left to right. Refer to Figure 26.

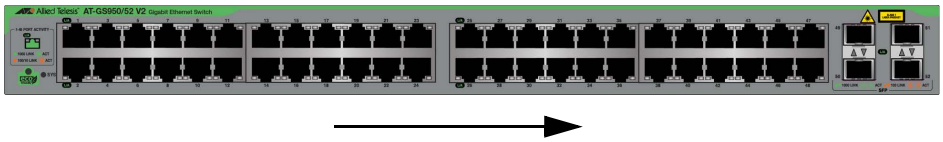


Figure 26. Ventilation Airflow of Switches with Fans

Fans are not field replaceable. Fan status is indicated with the SYSTEM or SYS LED. Refer to “SYSTEM and SYS LEDs” on page 28.

The GS950/10 V2, GS950/18 V2, and GS950/28 V2, and GS950/10PS V2 Switches do not have internal ventilation fans. They rely on surrounding airflow for cooling.

Note

Be sure the installation site provides adequate airflow to prevent the systems from overheating and shutting down.

Chapter 2

Beginning the Installation

The chapter contains the following sections:

Reviewing Safety Precautions

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

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

Warning
Laser Radiation.
Class 1 Laser product. ⁂ L9

Note
The optical transceiver ports should use UL listed optical transceiver products, rated Laser Class I, 3.3Vdc.

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 45°C. E52

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

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

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

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

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

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

Warning
SFP transceivers can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an anti-static wrist strap, to avoid damaging transceivers. E40

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

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
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

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 slots or plugs. E44

Warning
This equipment shall be installed in a Restricted Access location. E45

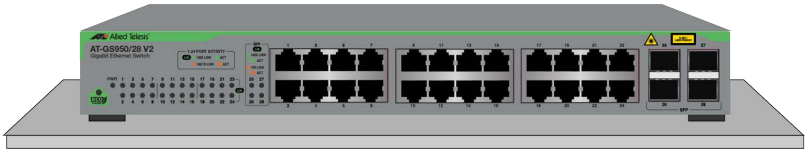
Caution
The unit does not contain serviceable components. Please return damaged units for servicing. E42

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

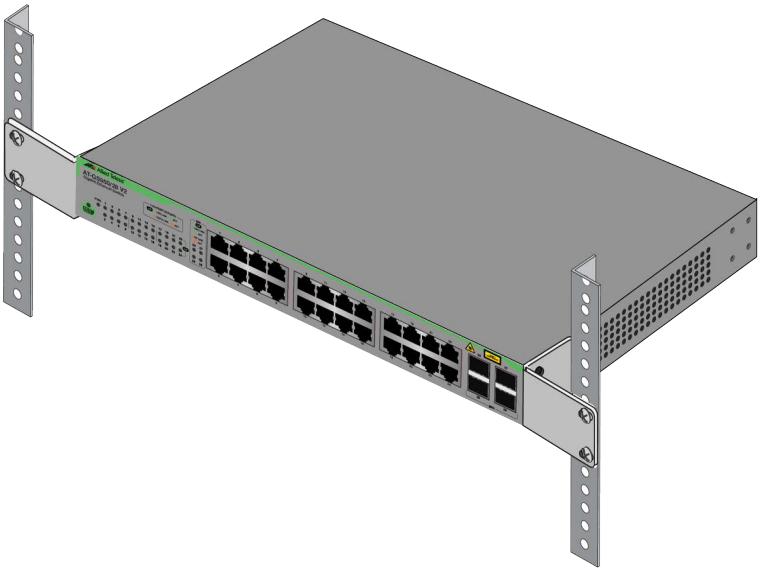
Installation Options

Figure 27 illustrates the installation options.

Desk or Table (All Models)



19-inch Equipment Rack (All Models)



Wall (All Models)

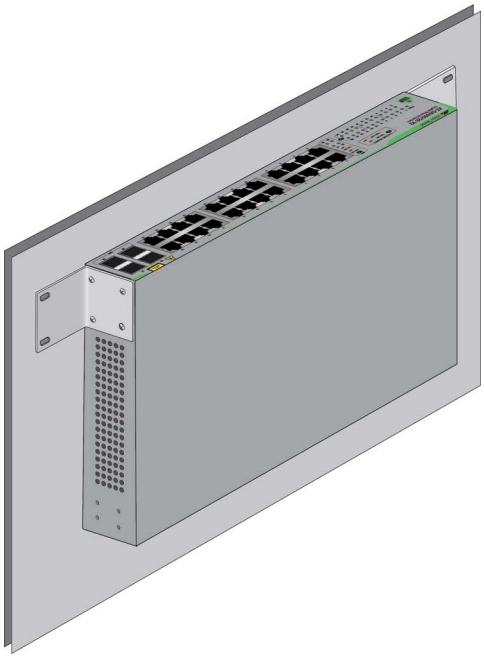


Figure 27. Installation Options

Choosing a Site for the Switch

Observe these site requirements.

- ❒ If you are installing the device in an equipment rack, check that the rack is safely secured so that it will not tip over. Devices should be installed in the rack starting at the bottom, with the heavier devices near the bottom of the rack.
- ❒ If installing the device on a table, verify that the table is level and secure.
- ❒ The power outlet should be located near the chassis and be easily accessible.
- ❒ The site should allow for easy access to the ports on the front of the switch, so that you can easily connect and disconnect cables, and view the LEDs.
- ❒ The site should allow for adequate airflow around the unit and through the cooling vents on the side panels.
- ❒ Do not place objects on top of the switch.
- ❒ The site should not expose the switch to moisture or water.
- ❒ The site should be a dust-free environment.
- ❒ The site should include dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- ❒ Copper cabling should not be exposed to sources of electrical noise, such as radio transmitters, broadband amplifiers, power lines, electric motors, or fluorescent fixtures.
- ❒ Switch ports are suitable for intra-building connections, or where non-exposed cabling is required.
- ❒ If installing the device in a wiring or utility box, verify that the enclosure has adequate airflow to prevent overheating.

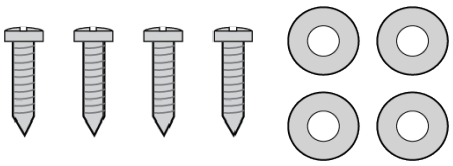
Caution

The GS950/10 V2, GS950/18 V2, GS950/28 V2, and GS950/10PS V2 Switches do not have ventilation fans. The installation site has to provide adequate airflow to prevent overheating and system failure.

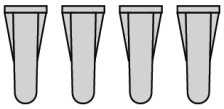
Unpacking the Switch

Warning
The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. E94

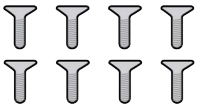
After unpacking the switch from the shipping box, visually inspect it for damage and verify the contents. The switch should include the items in Figure 28. Contact your Allied Telesis sales representative for assistance if any items are missing or damaged.



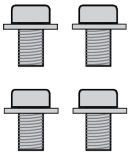
Four 3.5mm x 16mm wall screws and washers



Four 4mm x 22.2mm wall anchors

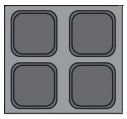


Eight M3 3mm x 6mm bracket screws



Four 10#-32T 4.7mm x 11mm equipment rack screws with captive washers

One AC power cord

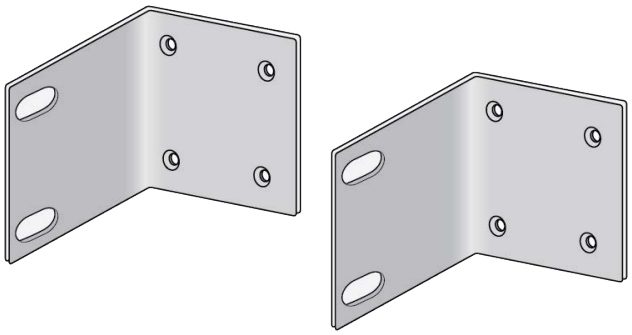


Four bumper feet

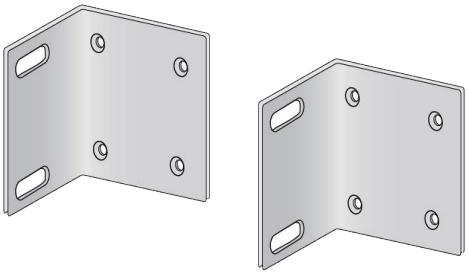
Power cord retaining clip (GS950 PS V2 Series only)

Figure 28. Package Contents

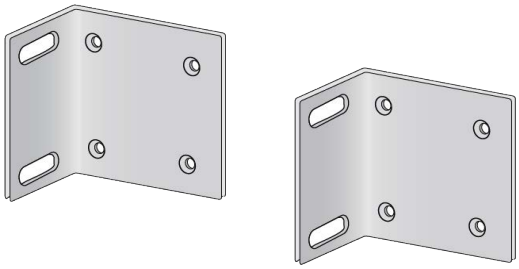
The switch also comes with two equipment rack/wall brackets. Refer to Figure 29.



Equipment rack/wall brackets for the GS950/10 V2 and GS950/10PS V2 Switches



Equipment rack/wall brackets for the GS950/18 V2 and GS950/28 V2 Switches



Equipment rack/wall brackets for the GS950/52 V2, , GS950/18PS V2, GS950/28PS V2, and GS950/52PS V2 Switches

Figure 29. Equipment Rack/Wall Brackets

Chapter 3

Installing the Switch on a Table or Desktop

You can install the switches on a table or desktop, with the bumper feet include with the device. Refer to Figure 30.

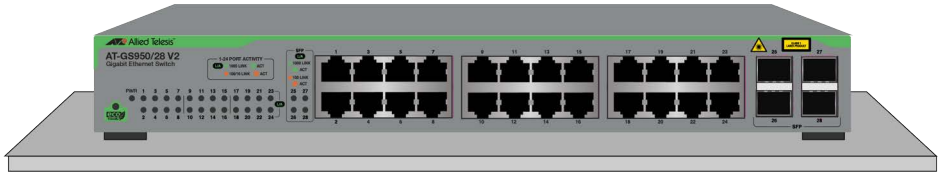


Figure 30. Switch on a Table

The following guidelines are in addition to those in “Choosing a Site for the Switch” on page 45.

- Do not stack switches on a table.
- Do not install switches upside down on a table.
- Do not install switches vertically on a table.
- Leave sufficient space around the switches for ventilation. Do not block the ventilation holes on the side panels.

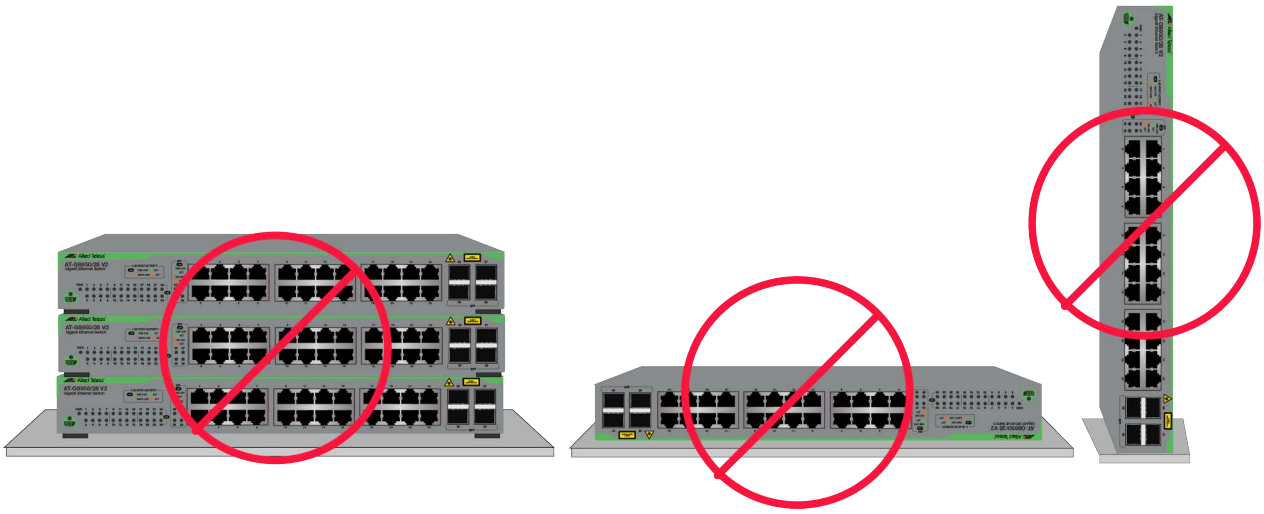


Figure 31. Unsupported Table Installations

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

Warning
The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. E94

Note
Bumper feet are required for tabletop installations. They promote cooling by permitting airflow beneath the switches.

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

1. Verify that the selected site is suitable for the switch by reviewing “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Switch” on page 45.
2. Verify that the table is strong enough to support the weight of the switch.
3. Verify the contents of the accessory kit by referring to “Unpacking the Switch” on page 46.
4. Lift the switch from the shipping box and place it upside down on a table.
5. Affix the bumper feet to the four corners on the bottom panel of the switch. Refer to Figure 32.

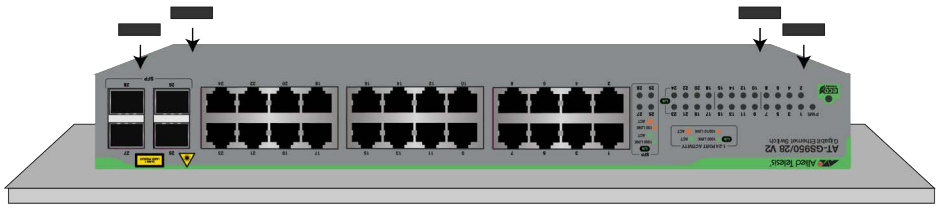


Figure 32. Affixing the Bumper Feet

6. Turn the switch over and place it on a flat, secure desk or table, leaving ample space around it for ventilation.
7. Go to Chapter 6, “Cabling the Networking Ports” on page 73.

Chapter 4

Installing the Switch in an Equipment Rack

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

Beginning the Installation

This chapter contains the procedure for installing the switch in a standard 19-inch equipment rack with the brackets included 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)
- Four standard equipment rack screws (included with the switch)
- Cross-head screwdriver (not provided)

Switch Orientations in the Equipment Rack

The illustrations in Figure 33 show the four possible orientations for the GS950/10 V2, GS950/18 V2, and GS950/28 V2 Switches in an equipment rack. The GS950/52 V2 Switch and GS950/ PS V2 Series support only the two top orientations.

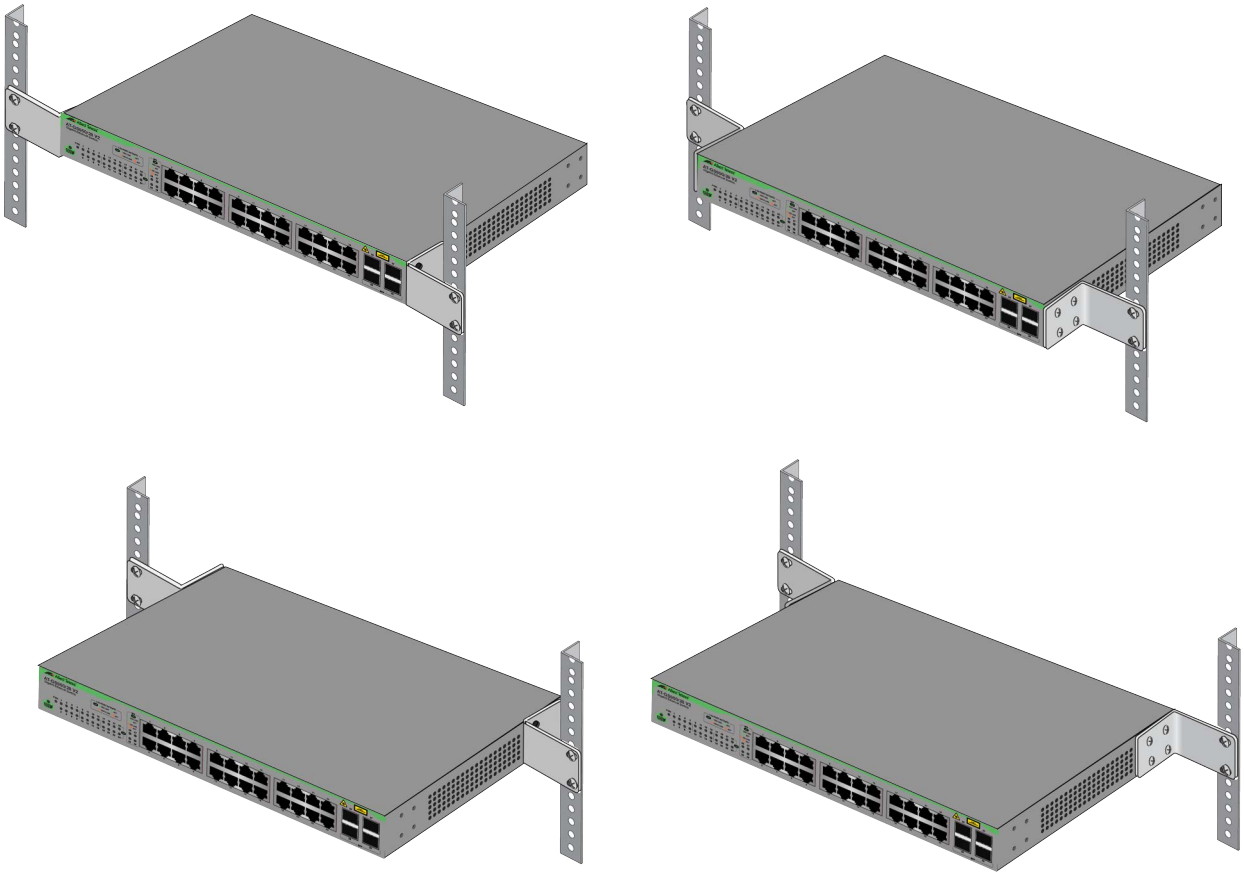


Figure 33. Switch Orientations in an Equipment Rack

Installing the Switch

Please review the information in Chapter 2, “Beginning the Installation” on page 39 before installing the switch.

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

Note
The bumper feet included with the switch should not be used when installing the device in an equipment rack. If they are already installed, remove them before performing the installation procedure:

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

1. Place the unit on a level, secure surface.
2. If you have not chosen an orientation for the switch in the equipment rack, review “Switch Orientations in the Equipment Rack” on page 52.
3. Attach the two rack mount brackets to the sides of the switch in the selected positions, with the eight M3x6mm screws included with the unit. Figure 34 shows the brackets positioned so that the front panel is even with the front of the equipment rack.

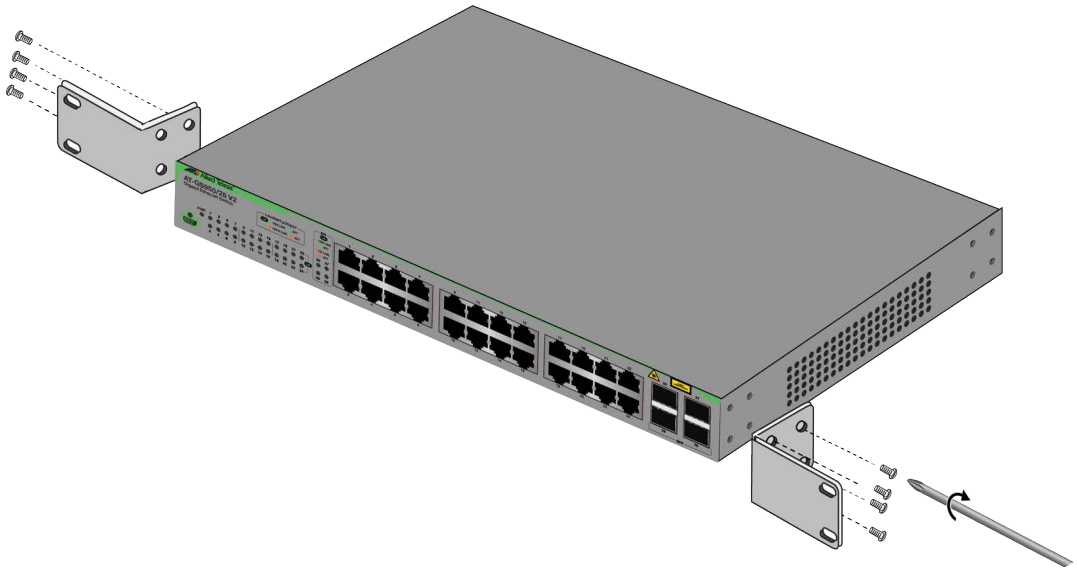


Figure 34. Attaching the Equipment Rack Brackets

4. Have another person hold the switch in the equipment rack while you secure it using the four equipment rack screws provided with the switch. Refer to Figure 35.

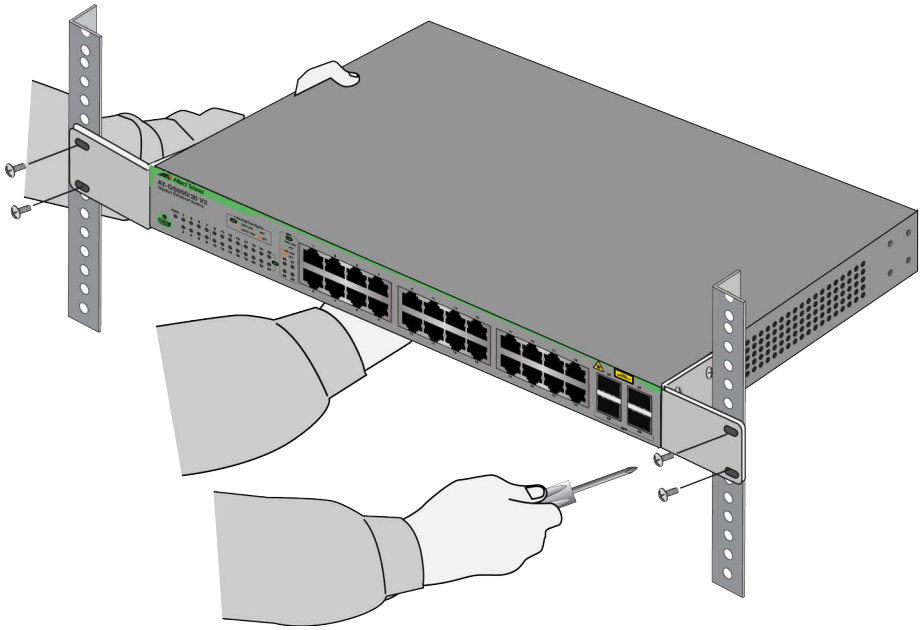


Figure 35. Installing the Switch in an Equipment Rack

5. Go to Chapter 6, “Cabling the Networking Ports” on page 73.

Chapter 5

Installing the Switch on a Wall

The procedures in this chapter are listed here:

Orientations of the GS950 V2 Series on a Wall

You can install the GS950/10 V2, GS950/18 V2, and GS950/28 V2 Switches on a wall with the front panel facing up, down, left, or right. Figure 36 illustrates the GS950/28 V2 Switch.

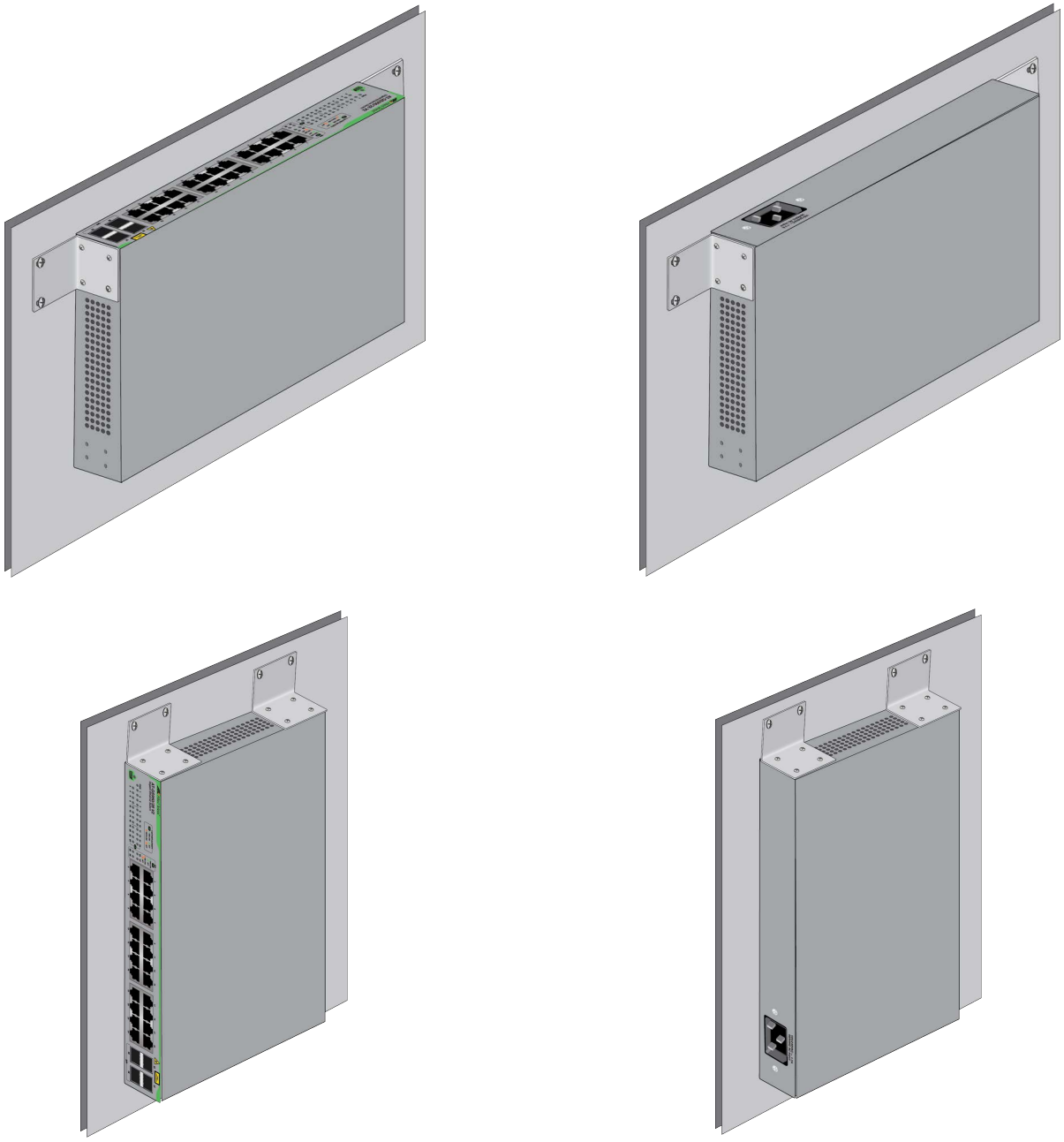


Figure 36. Wall Installations of the GS950/10 V2, GS950/18 V2, and GS950/28 V2 Switches

You can install the GS950/52 V2 Switch on a wall with the front panel facing up or down. Refer to Figure 37.

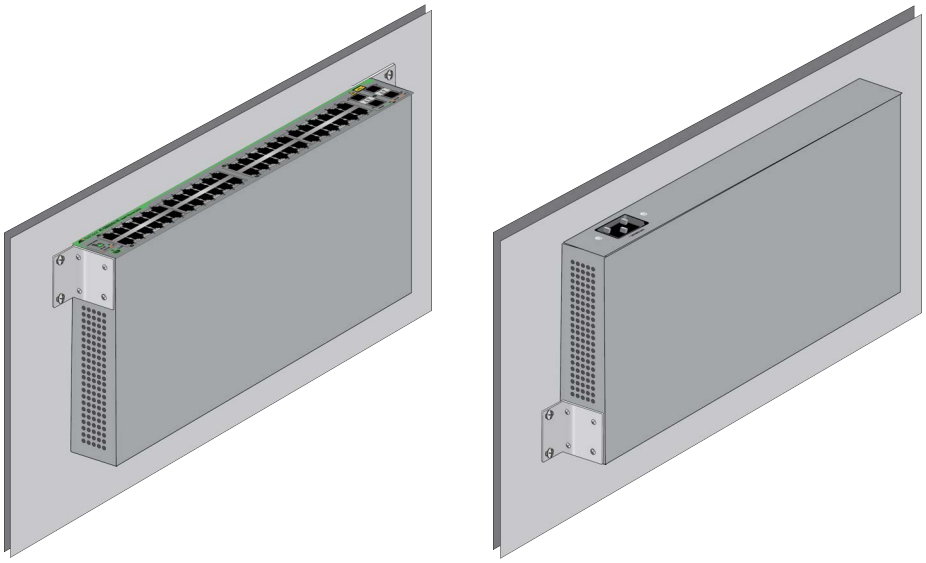


Figure 37. Wall Installations of the GS950/52 V2 Switch

Warning
Do not install the GS950/52 V2 Switch on a wall with the front panel facing left or right. These orientations may reduce airflow though the device, which might result in overheating and system failure. Refer to Figure 38.

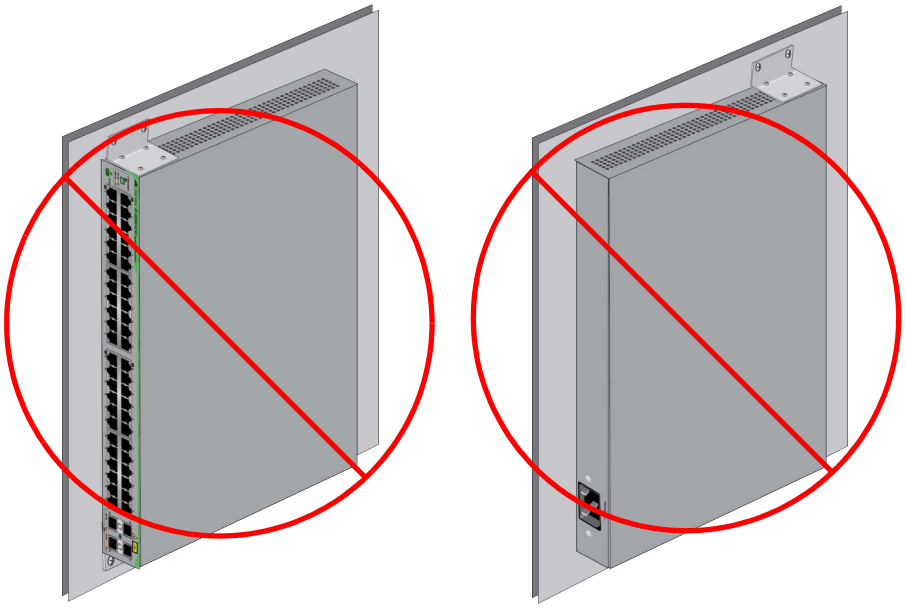


Figure 38. Unsupported Wall Installations of the GS950/52 V2 Switch

Orientations of the GS950 PS V2 Series on a Wall

You can install the switches in the GS950 PS V2 Series on a wall with the front panel facing up or down. Figure 39 illustrates the GS950/28PS V2 Switch.

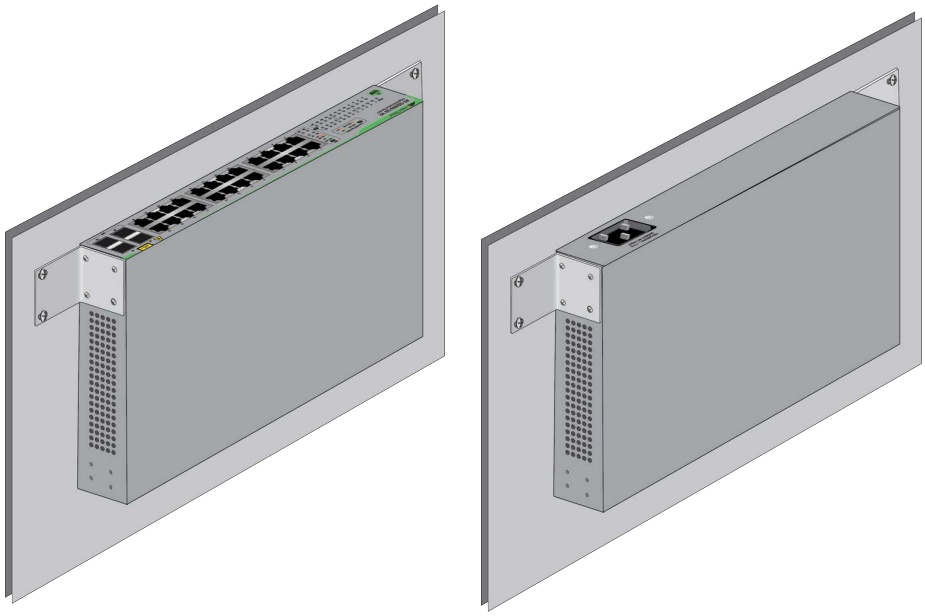


Figure 39. Wall Installations for the GS950 PS V2 Series

Figure 39 illustrates the GS950/52PS V2 Switch.

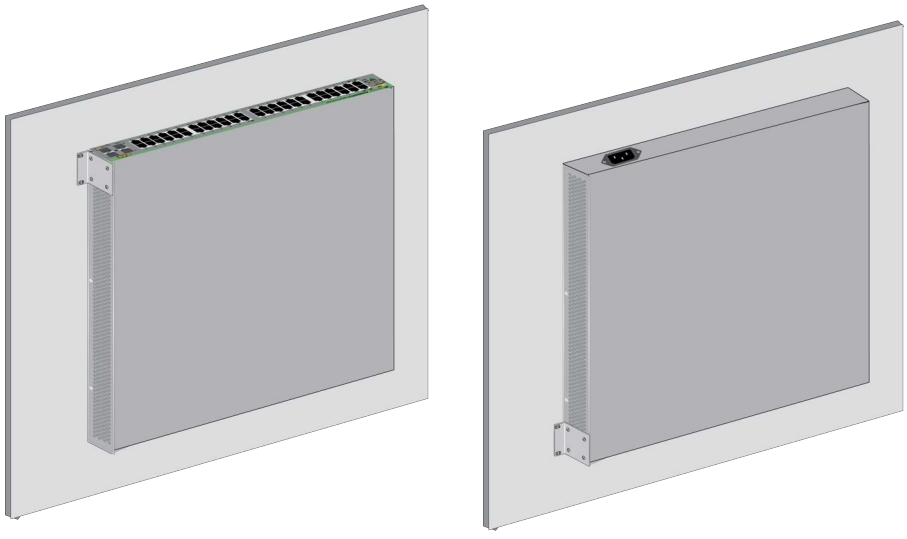


Figure 40. Wall Installations for the GS950/52PS V2 Switch

Warning
Do not install the GS950 PS V2 Series on a wall with the front panel facing left or right. These orientations may reduce airflow though the switch, which might result in overheating and system failure. Refer to Figure 41.

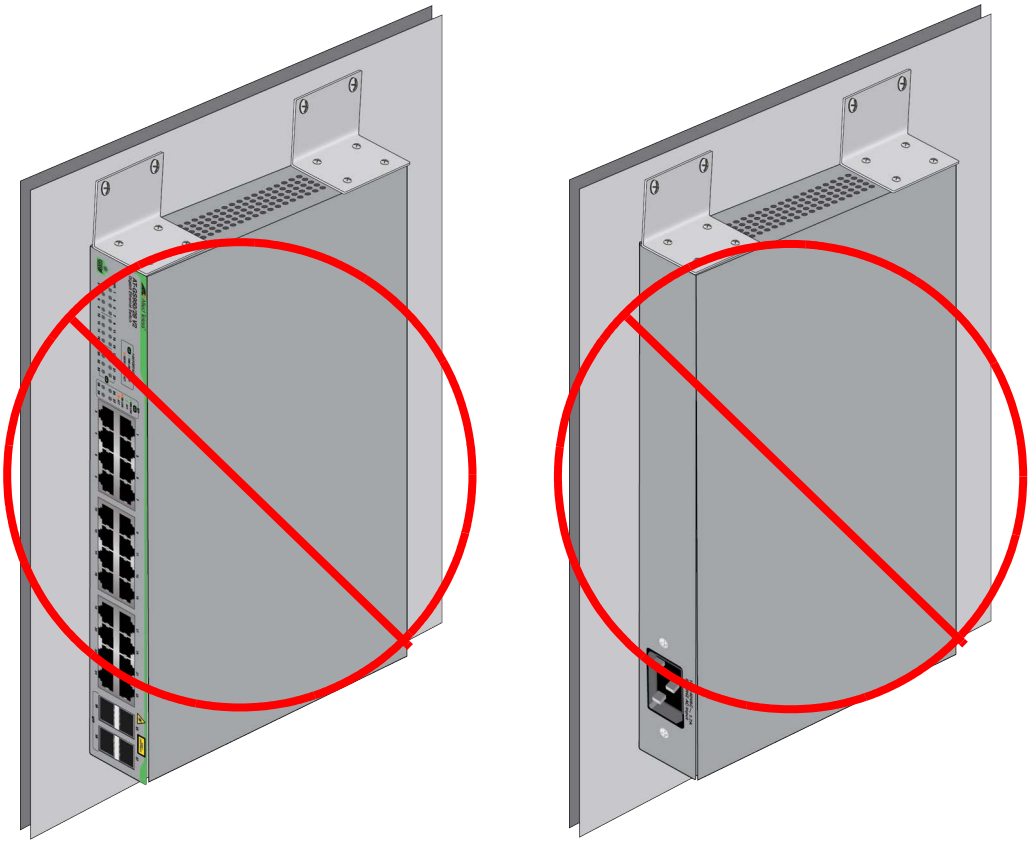


Figure 41. Unsupported Orientations on a Wall for the GS950 PS V2 Series

Installation Guidelines

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

- ❒ You can install the switch on a wooden and or concrete wall.
- ❒ If you are installing the switch on a wall with wooden studs, you should use a plywood base to support the device. For more information, refer to “Plywood Base for a Wall with Wooden Studs” on page 63.
- ❒ You should not install the switch on a wall that has metal studs. Metal studs may not be strong enough to safely support the device.
- ❒ You should not install the switch only on sheetrock or similar material. Sheetrock might not be strong enough to safely support the device.

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

Warning
The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. E94

Recommended Minimum Reserved Wall Area

Figure 42 and Figure 43 on page 62 illustrate the recommended minimum reserved wall area around the switch, with the front panel facing up or down, respectively.

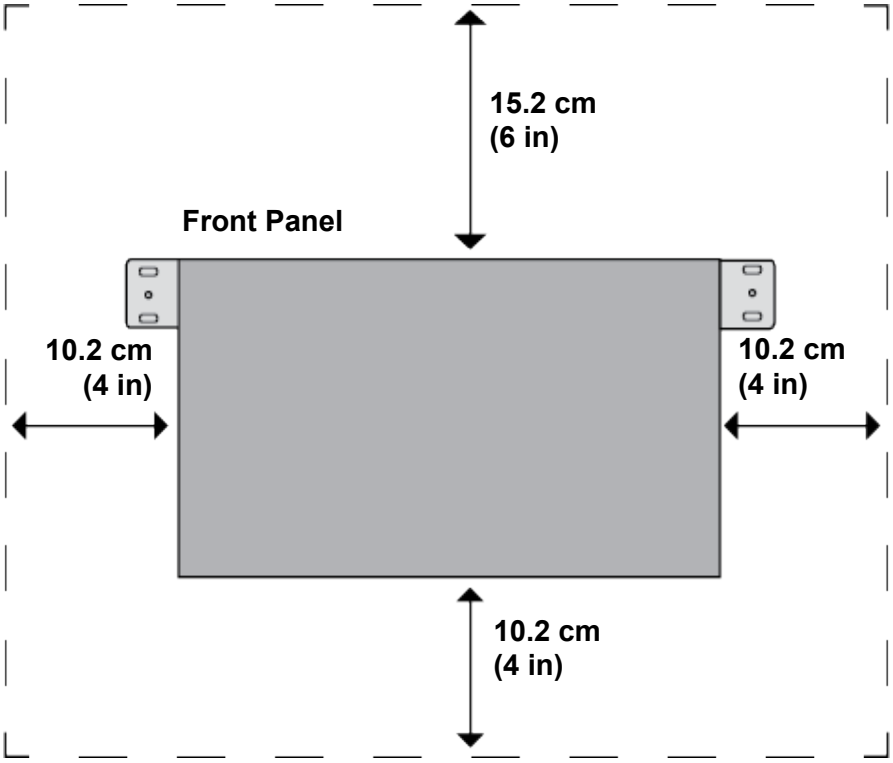


Figure 42. Recommended Minimum Reserved Wall Area with the Front Panel Facing Up

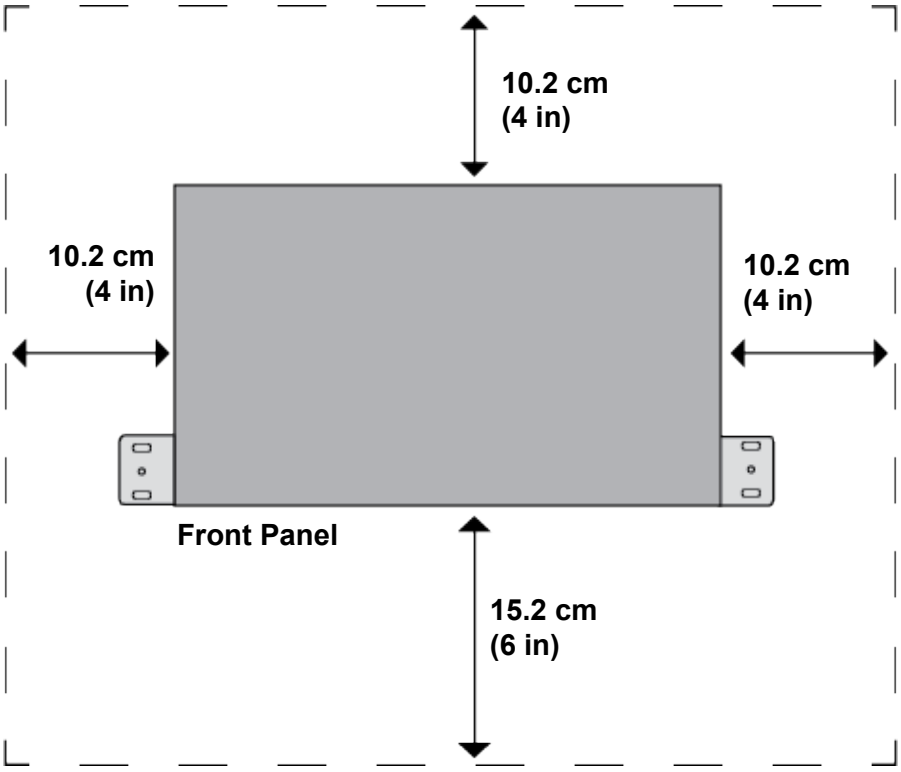


Figure 43. Recommended Minimum Reserved Wall Area with the Front Panel Facing Down

Plywood Base for a Wall with Wooden Studs

Allied Telesis recommends using a plywood base to install the switch on a wall that has wooden studs. Refer to Figure 44. A plywood base allows you to attach the switch on two wall studs for a more secure installation.

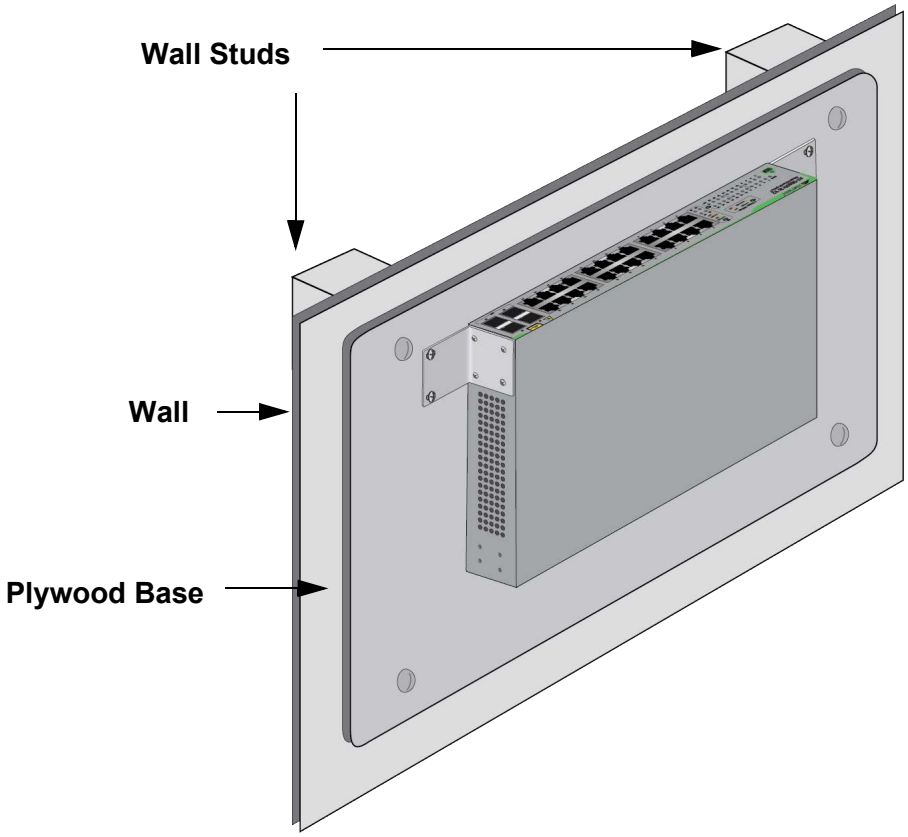


Figure 44. Switch on a Wall with a Plywood Base

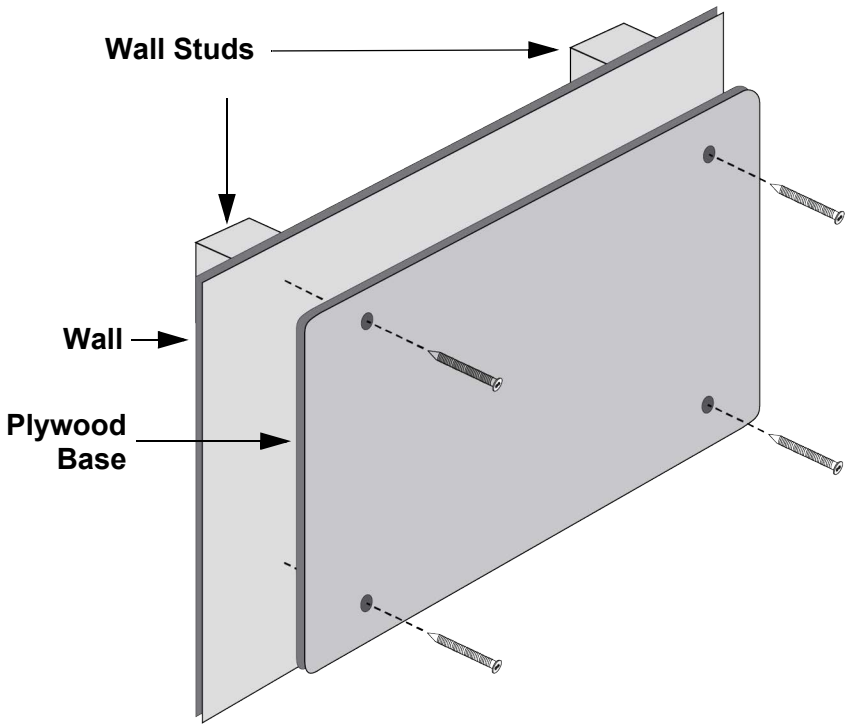
The recommended minimum dimensions of the plywood base are listed here:

- Width: 60 centimeters (24 inches)
- Height: 30 centimeters (12 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 from the industry standard, or the height of the base, depending on the switch model.

You should install the plywood base on the wall and then install the switch on the base. Refer to Figure 45.

Step 1: Install the plywood base on the wall.



Step 2: Install the switch on the plywood base.

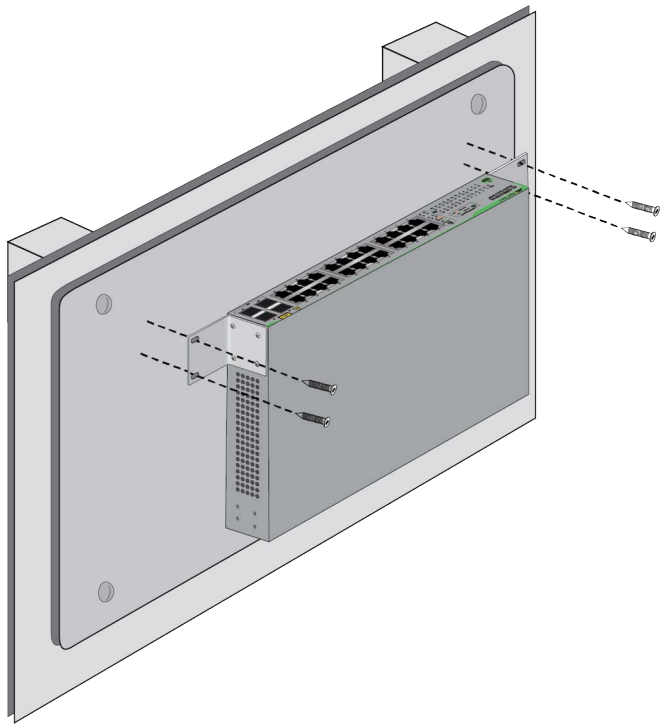


Figure 45. Steps to Installing the Switch on a Wall with a Plywood Base

Tools and Material

Here are the required tools and material for installing the switch on a wooden wall with the standard brackets that come with the device:

- ❒ Two wall/equipment rack brackets
- ❒ Eight screws to secure the brackets to the switch (included with the switch)
- ❒ Four wood or concrete wall screws (included with the switch)
- ❒ Four concrete wall anchors (included with the switch)
- ❒ Cross-head screwdriver (not provided)
- ❒ Stud finder for a wooden wall, capable of identifying the middle of wall studs and hot electrical wiring (not provided)
- ❒ Drill and 1/4” carbide drill bit for a concrete wall (not provided)
- ❒ Plywood base if you are installing the switch on a wall with wooden studs (not provided.) Refer to “Plywood Base for a Wall with Wooden Studs” on page 63 for illustrations.
- ❒ Four screws and anchors for attaching the plywood base to the wall (not provided)

Caution

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

Installing the Plywood Base

A plywood base is recommended when installing the switch on a wall that has wooden studs, with the standard brackets. Consult a qualified building contractor for installation instructions for the base. The installation guidelines are listed here:

- The recommendations dimensions of the base are provided in “Plywood Base for a Wall with Wooden Studs” on page 63.
- 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 should adhere to the recommendations in “Choosing a Site for the Switch” on page 45 and “Recommended Minimum Reserved Wall Area” on page 61.

Installing the Switch on the Plywood Base

This procedure assumes that the plywood base for the switch is installed on the wall. Please review “Reviewing Safety Precautions” on page 40 and “Choosing a Site for the Switch” on page 45 before performing this procedure. Allied Telesis recommends two people for this procedure, one person to hold the switch on the wall while the other person secures it by installing the screws.

Warning
The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. E94

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

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

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

1. Place the switch on a table.
2. Install the two brackets to the sides of the unit with the eight screws that come with the switch. Refer to Figure 46 on page 68.

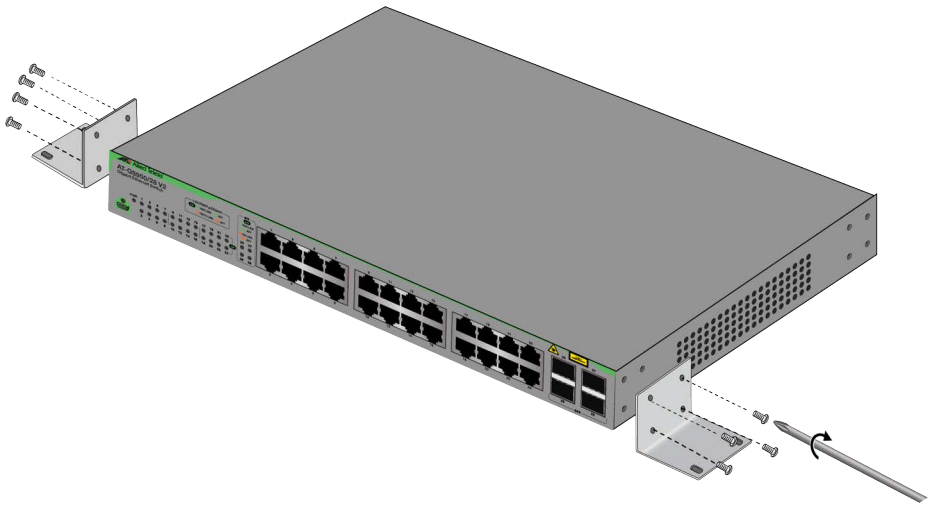


Figure 46. Attaching the Brackets to the Switch for Wall Installation

3. Have another person hold the switch on the plywood base on the wall while you secure it with the four provided screws. Refer to Figure 47 on page 69.

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

   - Position the switch so that the front panel is facing up or down. Refer to Figure 39 on page 58. Do not install the switch with the front panel facing right or left.
   - Leave sufficient space from other devices or walls so that you can access the front and back panels. Refer to “Recommended Minimum Reserved Wall Area” on page 61.

4. Go to Chapter 6, “Cabling the Networking Ports” on page 73.

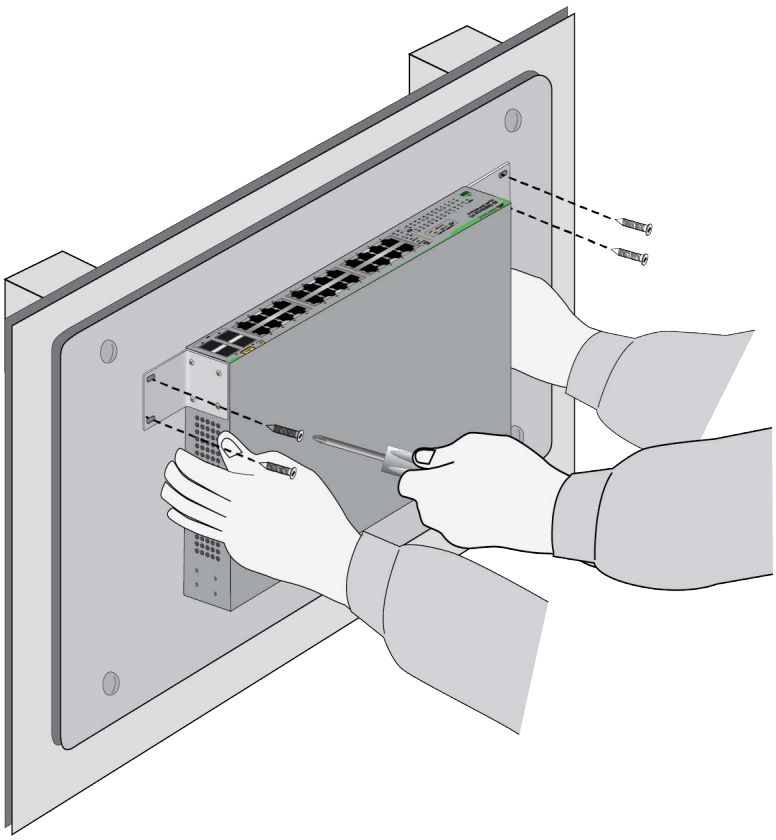


Figure 47. Attaching the Switch to the Plywood Base

Installing the Switch on a Concrete Wall

Allied Telesis recommends a minimum of two people for this procedure.

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

Warning
The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. E94

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

1. Place the switch on a table.
2. Install the two brackets to the sides of the unit with the eight screws that come with the switch. Refer to Figure 46 on page 68.
3. Have another person hold the switch on the concrete wall at the selected location for the switch while you use a pencil or pen to mark the wall with the locations of the four screw holes in the two brackets. Refer to Figure 48 on page 71.

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

   - Position the switch so that the front panel is facing up or down. Refer to Figure 39 on page 58. Do not install the switch with the front panel facing right or left.
   - Leave sufficient space from other devices or walls so that you can access the front and back panels, and to allow for adequate ventilation. Refer to “Recommended Minimum Reserved Wall Area” on page 61.

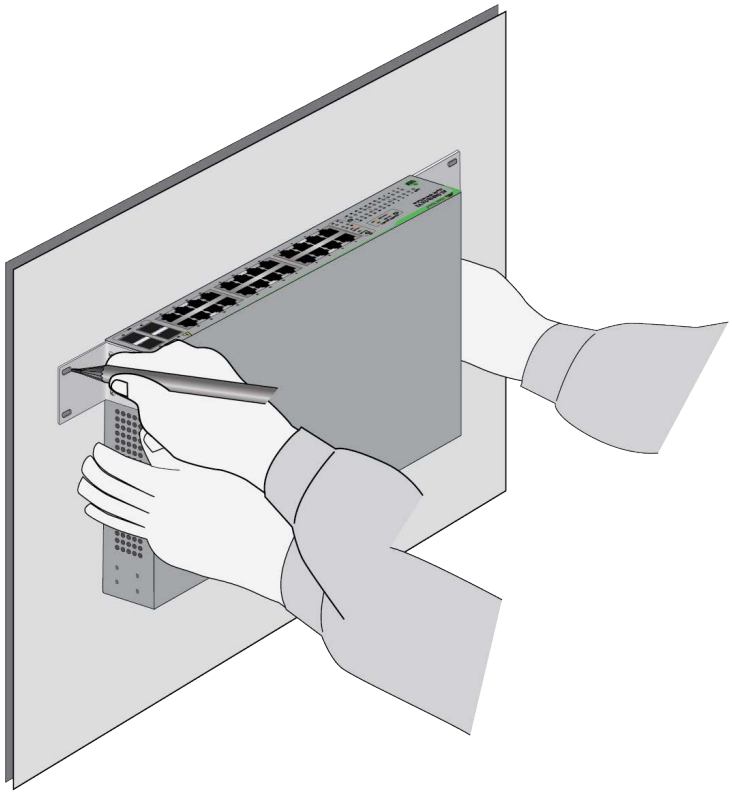


Figure 48. Marking the Locations of the Bracket Holes on a Concrete Wall

4. Place the switch on a table or desk.
5. Use a drill and 1/4” carbide drill bit to pre-drill the four holes you marked in step 3. Please review the following guidelines:
   - ❒ Prior to drilling, set the drill to hammer and rotation mode. The modes break up the concrete and clean out the hole.
   - ❒ Clean out the holes with a brush or compressed air.
6. Insert the four anchors into the holes.
7. Have another person hold the switch at the selected wall location while you secure it to the wall with the four provided screws. Refer to Figure 49 on page 72.

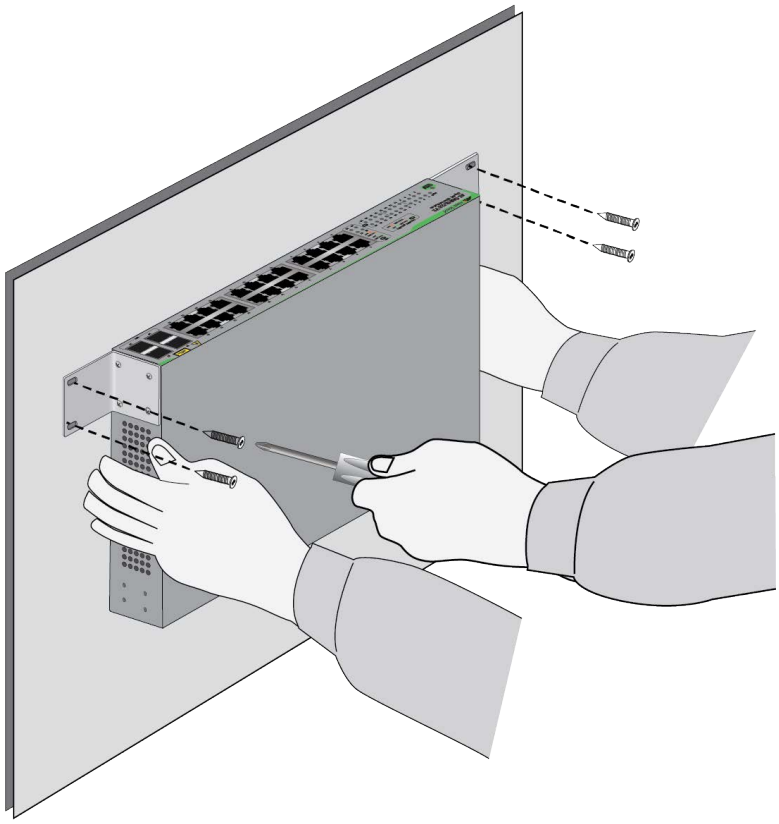


Figure 49. Installing the Switch on a Concrete Wall

8. Go to Chapter 6, “Cabling the Networking Ports” on page 73.

Chapter 6

Cabling the Networking Ports

This chapter contains the following procedures:

Cabling the Copper Ports

Here are the guidelines to cabling the 10/100/1000M copper ports:

- The cable specifications are listed in Table 1 on page 21.
- The connectors on the cables should fit snugly into the ports, and the tabs should lock the connectors into place.
- The default speed setting is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation.
- The default speed setting of Auto-Negotiation is not appropriate for ports connected to 10/100M network devices that do not support Auto-Negotiation and have fixed speeds. For those switch ports, you should disable Auto-Negotiation and set the port's speed manually to match the speeds of the network devices.
- The 10/100/1000M ports must be set to Auto-Negotiation, the default setting, to operate at 1000M.
- The default duplex mode setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation for duplex modes.
- The default duplex mode setting of Auto-Negotiation is not appropriate for ports connected to network devices that do not support Auto-Negotiation and have a fixed duplex mode. You should disable Auto-Negotiation on those ports and set their duplex modes manually to avoid the possibility of duplex mode mismatches. A switch port using Auto-Negotiation defaults to half-duplex if it detects that the end node is not using Auto-Negotiation. This can result in a mismatch if the end node is operating at a fixed duplex mode of full-duplex.
- The default setting for wiring configurations for ports at 10/100M is auto-MDI/MDI-X. The default setting is appropriate for network devices that also support auto-MDI/MDI-X.
- The default auto-MDI/MDI-X setting is not appropriate for switch ports that are connected to 10/100M network devices that do not support auto-MDI/MDI-X and have a fixed wiring configuration. For switch ports connected to these types of network devices, you should disable auto-MDI/MDI-X and set the wiring configurations manually.
- The appropriate MDI/MDI-X setting for switch ports connected to 10/100M devices with a fixed wiring configuration depends on the setting of the network device and whether the switch and network device are connected with straight-through or crossover cable. If you are using straight-through copper cable, the wiring configurations of a port on the switch and a port on a network device must be opposite each other, such that one port uses MDI

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

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

Installing SFP Transceivers

This section contains guidelines and a procedure for installing SFP transceivers. Here are general installation guidelines:

- SFP transceivers are hot-swappable. You may install them while the chassis is powered on.
- For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.
- The operational specifications and fiber optic cable requirements are included with the transceivers.
- Install the transceivers before connecting their fiber optic cables.
- Fiber optic transceivers are dust sensitive. Always keep the plug in the optical bores when a fiber optic cable is not installed, or when you store the transceiver. When you do remove the plug, keep it for future use.
- Unnecessary removal and insertion of a transceiver can lead to premature failure.

Warning
A transceiver can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. E86

Installing SFP Modules

This section contains the procedure for installing SFP transceivers in the SFP slots. The illustrations show a transceiver with a duplex-LC connector. The connectors on your transceivers may be different. For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.

To install SFP transceivers, perform the following procedure:

1. Remove the transceiver from its shipping container and store the packaging material in a safe location.
2. If you are installing the transceiver in a top slot, position the transceiver with the handle on top. If you are installing the transceiver in a bottom slot, position the transceiver with the handle beneath the module.
3. Slide the transceiver into the slot until it clicks into place. Refer to Figure 50 on page 77.

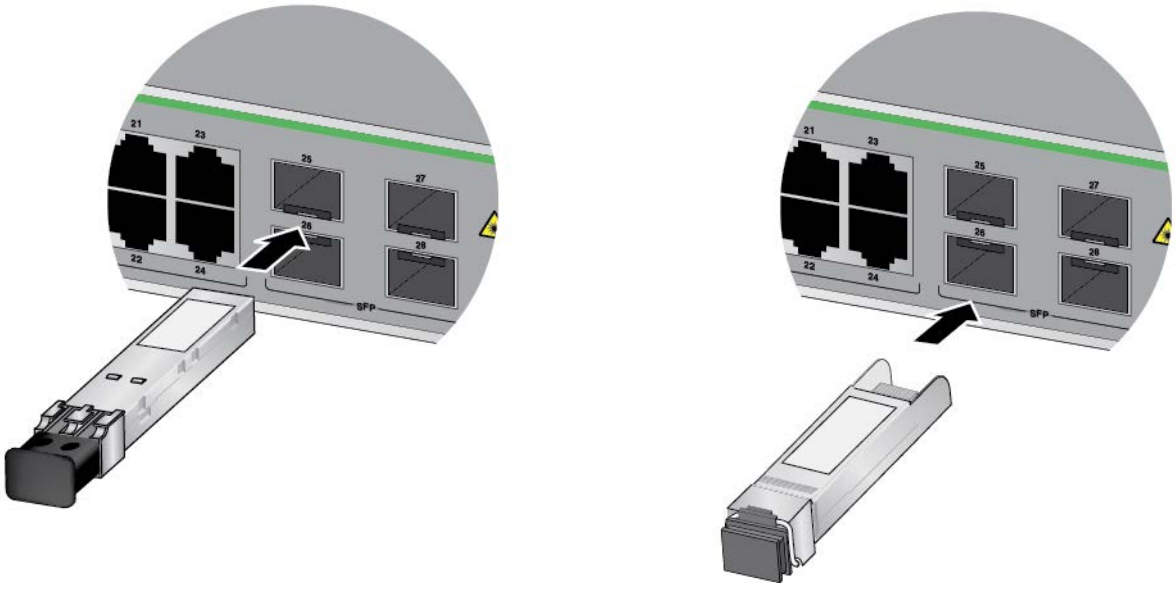


Figure 50. Installing an SFP Transceiver

Note
If you are ready to attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat steps 1 to 3 to install another SFP transceiver in the switch.

4. Remove the dust cover from the transceiver, as shown in Figure 51.

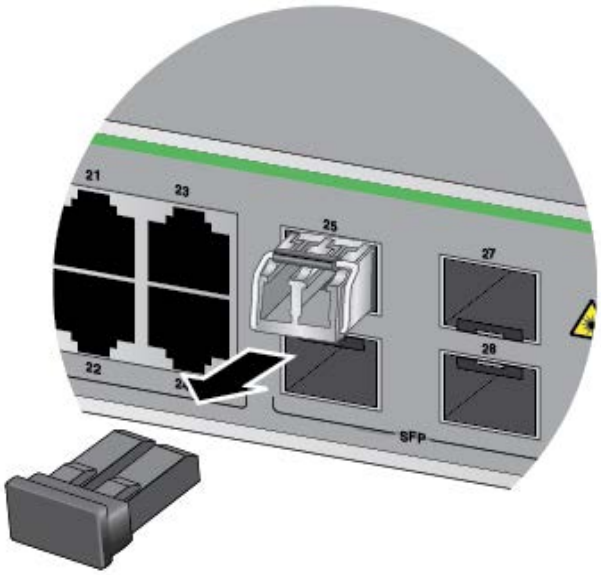


Figure 51. Removing the Dust Cover from an SFP Transceiver

5. Verify the position of the handle on the SFP transceiver. If the transceiver is in a top slot, the handle should be in the upright position, as shown in Figure 52. If the transceiver is in a bottom slot, the handle should be in the down position.

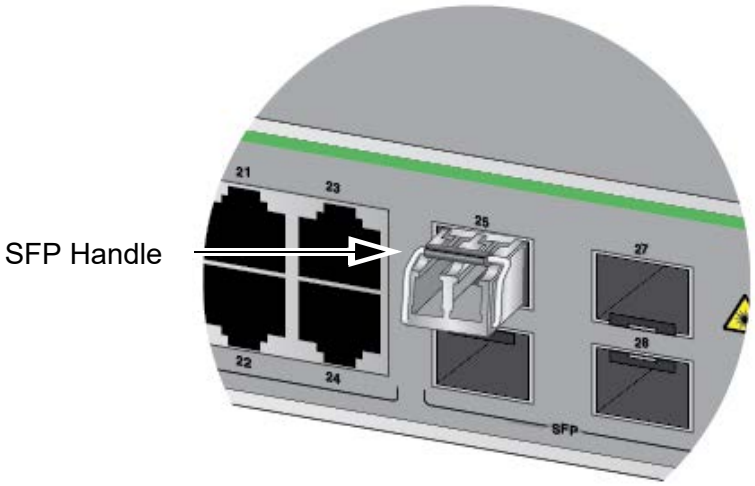


Figure 52. Positioning the SFP Handle in the Upright Position

6. Connect the fiber optic cable to the transceiver, as shown in Figure 53. The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.

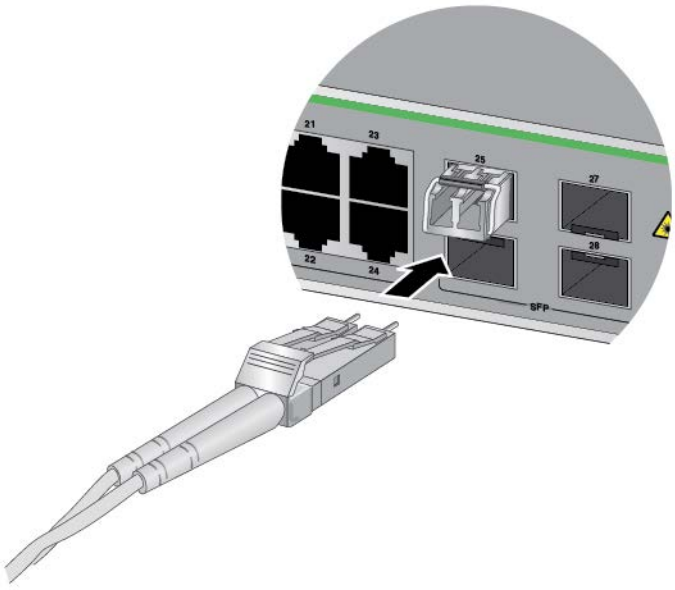


Figure 53. Connecting a Fiber Optic Cable to an SFP Transceiver

7. Repeat this procedure to install additional transceivers.

Chapter 7

Powering On the Switch

This chapter contains the following sections:

Powering On the Switch

This section contains the procedure for powering on the switch. Refer to “Power Specifications” on page 106 for the power specifications before performing the procedure.

Review the following information before powering on the unit:

- The switch comes with the static default IP address 192.168.1.1. The address is assigned to VLAN1, which contains all ports.
- The switch has DHCP and BOOTP clients. Their default setting is disabled.
- If you enable the DHCP or BOOTP client and the switch does not receive a response from a server, it operates without an IP address.
- If you are installing several switches, power them on one at a time. Change the IP address of each switch from the default before powering on the next one. Otherwise, multiple switches will have the same IP address.

Note
The switch should be supplied power by a grounded three wire AC source.

To power on the switch, perform the following procedure:

1. For the GS950 PS V2 Series, install and raise the power cord retaining clip included with the switch, on the AC power connector. Refer to Figure 54.

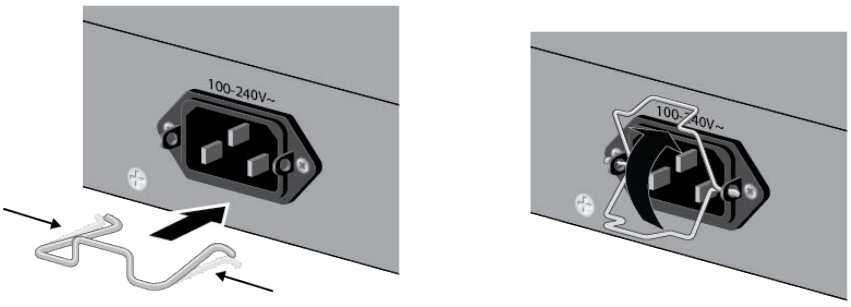


Figure 54. Installing the Power Cord Retaining Clip

2. Connect the AC power cord to the AC power connector on the rear panel. Refer to Figure 55 on page 81.

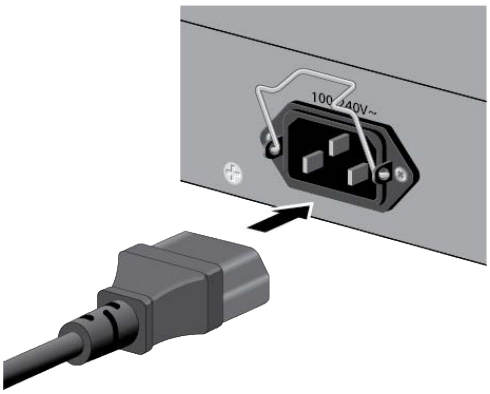


Figure 55. Connecting the AC Power Cord

3. For the GS950 PS V2 Series, lower the power cord retaining clip to secure the cord to the switch. Refer to Figure 56.

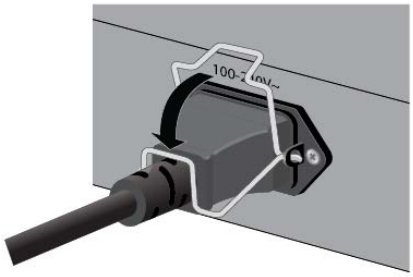


Figure 56. Lowering the Power Cord Retaining Clip

4. Connect the other end of the power cord to an appropriate AC power source. Refer to Figure 57 on page 82.

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

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

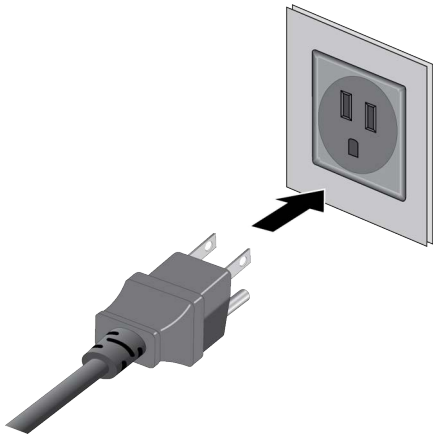


Figure 57. Connecting the Power Cord to an AC Power Source

Starting the First Management Session

This section contains the following procedures:

- “Starting a Web Browser Session,” next
- “Starting a Command Line Session” on page 85

Review the following information before starting a management session with the switch:

- The switch comes with the default IPv4 address 192.168.1.1 and subnet mask 255.255.255.0. If you have not yet assigned a new address to the switch, you have to use the default address to establish the management session.
- The switch does not have a default IPv6 address.
- If you have already assigned the switch a new IPv4 or IPv6 address either manually or with a DHCP or BOOTP server, use that address to establish your management sessions with the unit.
- If the switch still has the default IPv4 address, you will need to change the IP address of your workstation to the same subnet as the switch’s default address. For example, you might change the workstation’s IP address to 192.168.1.4. Refer to the computer’s documentation of instructions on how to set its IP address.
- The command line interface supports both Telnet and SSH protocols. The default settings for the Telnet and SSH servers on the switch are enabled and disabled, respectively.
- The switch has IPv4 BOOTP and DHCP clients, and an IPv6 DHCP client. Their default status is disabled.

Starting a Web Browser Session

To start a web browser management session with the switch, perform the following procedure:

Note
If the switch has its default IPv4 address 192.168.1.1, start with step 1. If you already assigned the switch a new address, start with step 2.

1. Change the IPv4 address of your computer to 192.168.1.*n*, where n is any number from 2 to 254. Refer to the computer’s documentation for instructions.
2. Power on the switch and wait several minutes for it to initialize its management firmware.

3. Connect the Ethernet port on your workstation to any Ethernet port on the switch.

4. Start the web browser on your computer.

5. Enter the IP address of the switch in the URL field of the web browser. The default address is 192.168.1.1.

   The switch displays the login window. Refer to Figure 58.

Figure 58. Login Window

6. Enter the username and password for the switch. The default settings are “manager” and “friend”, respectively. The username and password are case sensitive. (The password appears in the Password field as a series of asterisks.)

7. Click the **Sign In** button.

   The switch displays the Main Menu, shown in Figure 59.

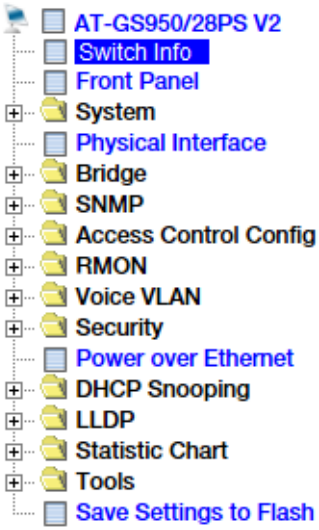


Figure 59. Web Browser Main Menu

You are now logged into the web browser interface on the switch. Refer to the *GS950 V2 and GS950/28PS V2 Web Browser User Guide* for instructions.

Note
To end a web browser management session, close your web browser.

Starting a Command Line Session

To start a command line management session with the switch, perform the following procedure:

Note
If the switch has its default IPv4 address 192.168.1.1, start with step 1. If you already assigned the switch a new address, start with step 2.

1. Change the IPv4 address of your computer to 192.168.1.*n*, where n is any number from 2 to 254. Refer to the computer's documentation for instructions.
2. Power on the switch and wait several minutes for it to initialize its management firmware.
3. Connect the Ethernet port on your workstation to any Ethernet port on the switch.
4. Start the Telnet protocol client on your workstation.
5. Enter the IP address of the switch in the Telnet client. Use the default address 192.168.1.1 if this is the first management session.

   Your Telnet client displays the prompt in Figure 60.

```
      AT-GS950/28PS V2 Gigabit Ethernet WebSmart Switch

                  Command Line Interface
               Firmware Version: <version #>
   Copyright (C) 2023 Allied Telesis. All rights reserved.

User Access Verification

Username:
```

Figure 60. Login Prompt for the Command Line Interface

6. Enter the manager name. The default name is "manager". The name is case sensitive.

7. When prompted for the password, enter the account's password. The default password is "friend". The password characters are not displayed on the screen. The password is case sensitive.

   The switch displays the command line prompt for the Privileged Exec mode. The prompt is the model name of the switch. Here is the prompt for the GS950/28 V2 Switch:

   ```
   ATGS950_28 V2#
   ```

   You are now logged into the command line interface on the switch. Refer to the *GS950 V2 and GS950/28PS V2 Command Line User Guide* for instructions.

Chapter 8
Troubleshooting

This chapter contains the following troubleshooting sections:

Note

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

AC Power

The switch is functioning intermittently or shut down and powered off. One possible cause is the unit may have overheated. Try the following:

- ❒ Verify that the location of the switch allows for adequate airflow.
- ❒ Verify that the ambient temperature is within the operating range of the switch. Refer to “Environmental Specifications” on page 105.
- ❒ For the GS950/52 V2, GS950/18PS V2, GS950/28PS V2, and GS950/52PS V2 Switches, use the management software to verify that the fan is operating properly.

Another possible cause is the AC power. Try the following:

- ❒ Verify that the AC power source is powered on.
- ❒ Verify that the AC power cord is securely connected to the switch and power source.
- ❒ Connect another device to the AC power source to verify that the source has power.
- ❒ Try replacing the power cord.
- ❒ Verify that the AC power is within the operating range of the switch. Refer to Table 20 on page 106.

POWER, PWR, SYSTEM, and SYS LEDs

The POWER, PWR, SYSTEM, or SYS LED on the front panel of the switch is off. Try the following:

- ❒ The AC power cord is disconnected. Verify that the power cord is securely connected to the AC power source and the AC connector on the back panel of the switch.
- ❒ The AC power source is powered off. Verify that the power source is powered on.
- ❒ The AC power source has failed. Test the power source by connecting another device to it or by connecting the unit to another AC power source.
- ❒ The switch overheated and shutdown. Verify that the air vents on the sides of the switch are not blocked and that the installation site allows for adequate airflow around the switch.
- ❒ The switch experienced a hardware or software failure.
- ❒ The switch shutdown from a power surge or because the input power is above or below the normal operating range.
- ❒ The power cord is faulty. Try replacing the cord.

The SYSTEM or SYS LED is red on the GS950/52 V2, GS950/18PS V2, GS950/28PS V2, or GS950/52PS V2 Switch. The switch is experiencing a fault condition that may be preventing it from forwarding ingress and/or egress traffic. Try the following:

- ❒ The system is overheating. Verify that the air vents on the sides of the switch are not blocked and that the installation site allows for adequate airflow around the switch.
- ❒ For the GS950/52 V2, GS950/18PS V2, GS950/28PS V2, or GS950/52PS V2 Switch, the internal ventilation fan may have failed. Use the management software to view the status of the fan.
- ❒ The AC input voltage is above or below the normal operating range. Use the management software to display the status of the input voltage.
- ❒ The system experienced a hardware or software failure.
- ❒ The power supply is failing. Use the management software to display the status of the power supply.
- ❒ The switch experienced a power surge and is attempting to restore network operations.

Port LEDs

All the port LEDs are off even though the ports are connected to active network devices. The switch might be operating in low power mode. To toggle on the LEDs, press the eco-friendly button on the front panel.

Note

The eco-friendly button is also used to reboot the switch and restore the default settings to the features. Refer to “eco-friendly Button” on page 35.

Caution

The switch does not forward network traffic during the reboot process. Some network traffic may be lost. E113

Copper Ports

A copper port on the switch is connected to a network device, but its Link/ Activity LED is off. This indicates the port is not able to establish a link to a network device. Try the following:

- ❒ Verify that the network device connected to the copper port is powered on and operating properly.
- ❒ Verify that the twisted pair cable is securely connected to the port on the media converter channel and to the port on the remote network device.
- ❒ Verify that the port is connected to the correct twisted pair cable. This is to confirm that the port is not connected to the wrong network device, such as a powered-off device.
- ❒ Try connecting another network device to the copper port with a different cable. If the copper 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 Table 1 on page 21.
- ❒ Verify that the switch is not in the low power mode by pressing the eco-friendly button on the front panel.

Note
1000Mbps connections may require five to ten seconds to establish links.

Network performance between a copper port and a network device is slow:

- ❒ 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 Table 1 on page 21.
- ❒ Verify that the network device supports Auto-Negotiation for speed and duplex mode. If it does not, a speed or duplex mode mismatch between the switch port and the network device may have occurred. To resolve this, disable Auto-Negotiation on the switch port and manually adjust its settings to match the settings on the network device. Refer to the *GS950 V2 and GS950 PS V2 Series Web Browser User Guide*.

SFP Ports

The Link/Activity LED for an SFP transceiver is off. The fiber optic port on the transceiver has not established a link to a remote network device. Try the following:

- ❒ Verify that the switch supports the transceiver. Refer to “SFP Ports” on page 26.
- ❒ Verify that the remote network device is operating properly.
- ❒ Verify that the fiber optic cable is securely connected to the ports on the switch and remote network device.
- ❒ Verify that the SFP transceiver is fully inserted in the slot in the switch.
- ❒ Verify that the operating specifications, including wavelength and operating distance, of the fiber optic ports on the SFP transceiver and remote network device are compatible. The operating specifications for the transceivers are included with the modules.
- ❒ Verify that the correct type of fiber optic cabling is being used.
- ❒ Verify that the port is connected to the correct fiber optic cable. This is to confirm that the port is not connected to the wrong remote network device, such as a powered off device.
- ❒ Try connecting another network device to the fiber optic port using a different cable. If the port is able to establish a link, then the problem is with the cable or other network device.
- ❒ Use the switch’s management software to verify that the port is enabled.
- ❒ If the remote network device is a management device, use its management firmware to verify that its port is enabled.
- ❒ Test the attenuation 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).
- ❒ Check the two strands of the fiber optic cable to be sure that the receive fiber connector is connected to the transmit connector on the remote end node, and that the transmit fiber connector is connected to the receive connector on the end node.
- ❒ If the problem is with bi-directional transceivers, refer to their data sheets to verify that their transmission and reception frequencies are opposite each other. For instance, a bi-directional transceiver that transmits and receives at 1310nm and 1550nm, respectively, has to be connected to a transceiver that transmits and receives at 1550nm and 1310nm, respectively. Two bi-directional transceivers will not be able to establish a link if they transmit and receive at the same frequencies.

Power Over Ethernet

A switch in the GS950 PS V2 Series is not supplying power to a PoE+ powered device. Try the following:

- ❒ Use the management software to determine whether the switch has already reached its maximum power budget and cannot support additional powered devices. Maximum power budgets are listed in Table 2 on page 23.
- ❒ Review the powered device's documentation to confirm that it supports Mode A of the IEEE 802.3at standard. In Mode A, the switch delivers power to the powered devices on pins 1, 2, 3, and 6 on the RJ-45 port, the same pins that carry the network traffic. The second mode, Mode B, defines pins 4, 5, 7, and 8 as the power carriers. The GS950 PS V2 Series does not support Mode B. Most powered devices are designed to accept power by either mode, but some legacy devices may only support one mode. This can be verified by reviewing the device's documentation or data sheet. The switch will not support legacy devices that support only Mode B.
- ❒ Verify that the device's power requirements do not exceed 25.5 W. This can be confirmed by reviewing the device's documentation or data sheet.
- ❒ If the powered device is connected to a port on the GS950/52PS V2 Switch, verify that it is connected to a port in the range of 1 to 24. Ports 25 to 48 do not support PoE+.
- ❒ Verify that you are using the appropriate category of copper cable. Refer to Table 1 on page 21.
- ❒ 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.

Appendix A
Technical Specifications

This appendix contains the following sections:

Physical Specifications of the GS950 V2 Series

Dimensions (H x W x D)

Table 10 lists the product dimensions of the GS950 V2 Series.

Table 10. Product Dimensions of the GS950 V2 Series

GS950/10 V2	4.4 cm x 28.0 cm x 18.0 cm (1.7 in. x 11.0 in. x 7.1 in.)
GS950/18 V2	4.4 cm x 33.0 cm x 20.0 cm (1.7 in. x 13.0 in. x 7.9 in.)
GS950/28 V2	4.4 cm x 33.0 cm x 20.0 cm (1.7 in. x 13.0 in. x 7.9 in.)
GS950/52 V2	4.4 cm x 44.0 cm x 25.0 cm (1.7 in. x 17.3 in. x 9.8 in.)

The dimensions of the GS950/10 V2 Switch are shown in Figure 61.

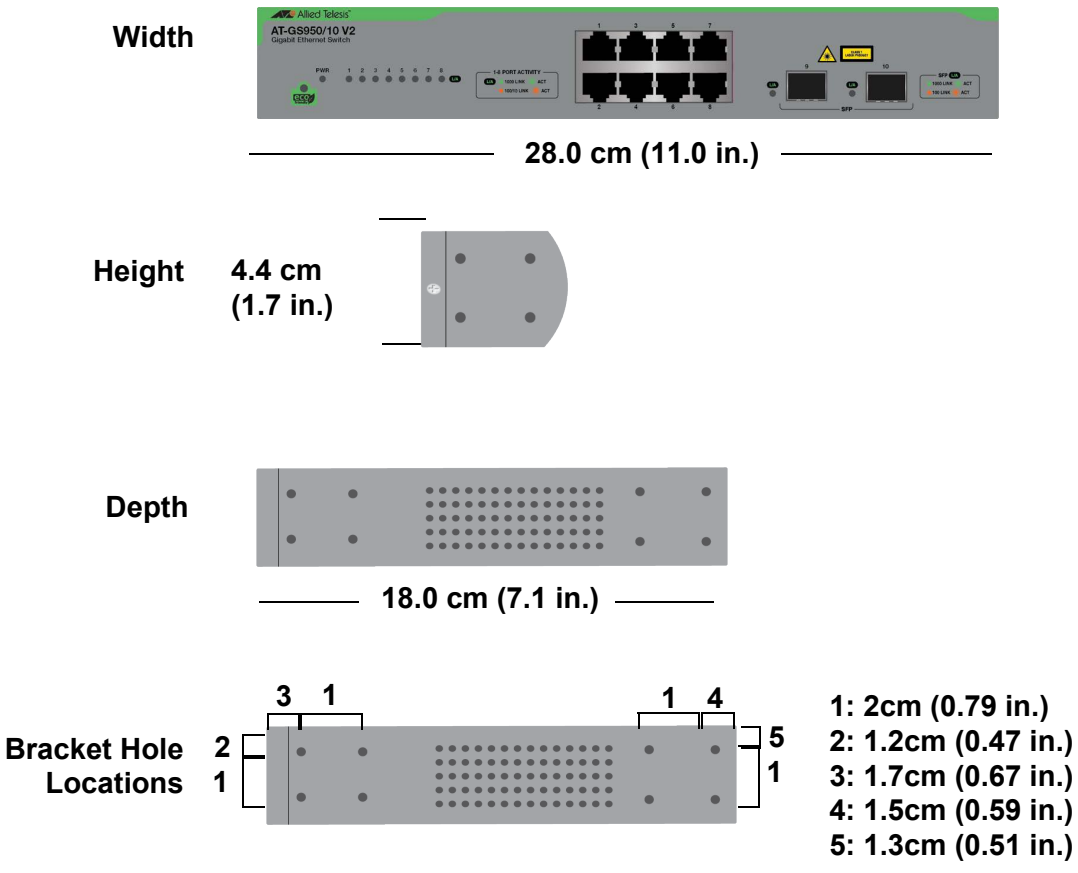


Figure 61. Dimensions of the GS950/10 V2 Switch

The dimensions of the GS950/18 V2 Switch are shown in Figure 62.

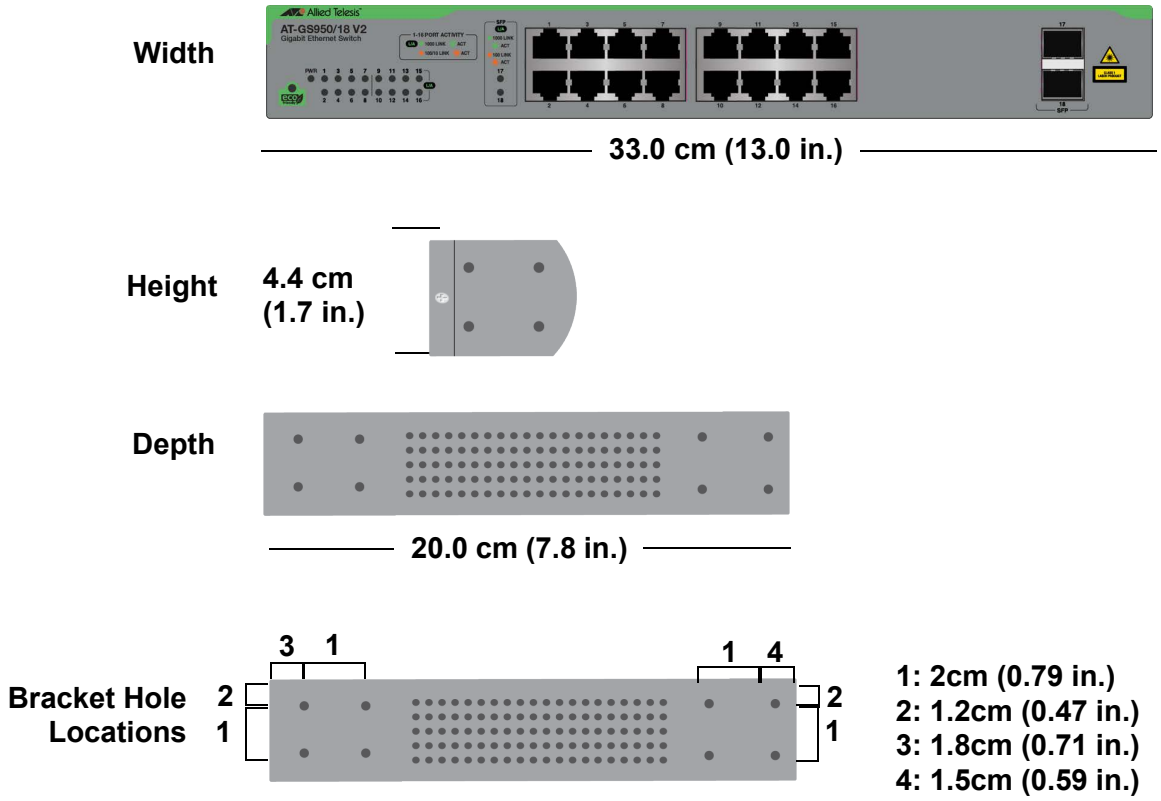


Figure 62. Dimensions of the GS950/18 V2 Switch\

The dimensions of the GS950/28 V2 Switch are shown in Figure 63.

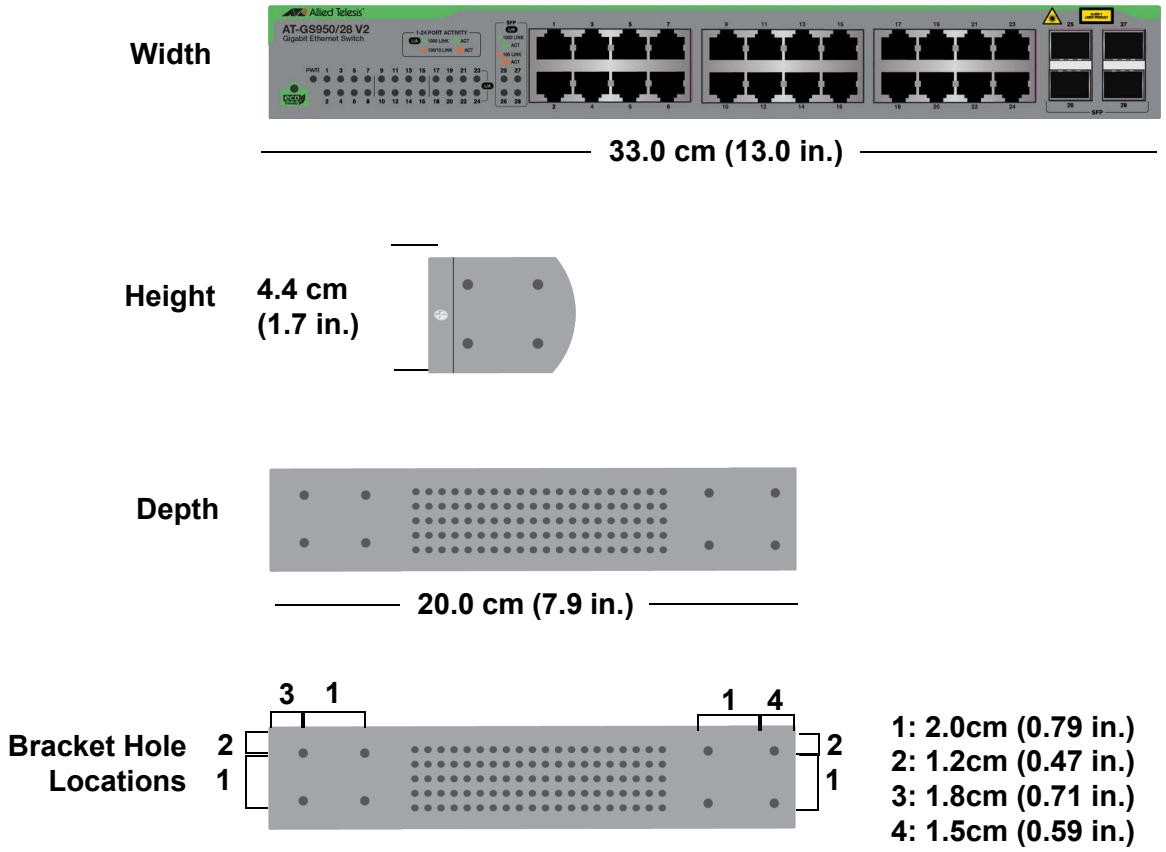
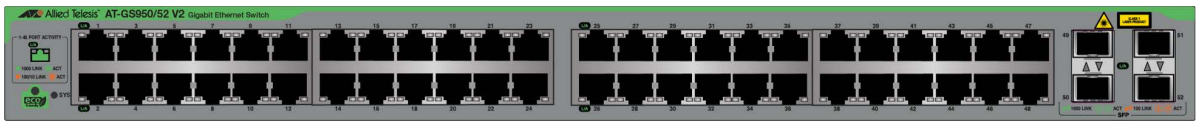


Figure 63. Dimensions of the GS950/28 V2 Switch

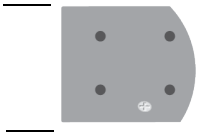
The dimensions of the GS950/52 V2 Switch are shown in Figure 64.

Width

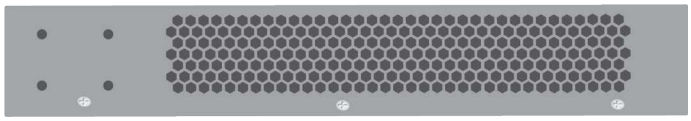


44.0 cm (17.3 in.)

Height **4.4 cm (1.7 in.)**

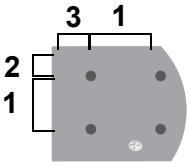


Depth



25.0 cm (9.8 in.)

Bracket Hole Locations



1: 2.0cm (0.79 in.)
2: 1.2cm (0.47 in.)
3: 1.7cm (0.67 in.)

Figure 64. Dimensions of the GS950/52 V2 Switch

Weights

Table 11 lists the product weights of the GS950 V2 Series.

Table 11. Product Weights of the GS950 V2 Series

GS950/10 V2	1.3 kg (2.9 lb.)
GS950/18 V2	2.1 kg (4.6 lb.)
GS950/28 V2	2.2 kg (4.8lb.)
GS950/52 V2	3.6 kg (7.9 lb.)

Ventilation

Table 15 lists the minimum ventilation requirements.

Table 12. Minimum Ventilation Requirements

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

Physical Specifications of the GS950 PS V2 Series

Dimensions (H x W x D)

Table 13 lists the product dimensions of the GS950 PS V2 Series.

Table 13. Product Dimensions of the GS950 PS V2 Series

GS950/10PS V2	4.4 cm x 33.0 cm x 18.0 cm (1.7 in. x 13.0 in. x 7.1 in.)
GS950/18PS V2	4.4 cm x 44.0 cm x 25.0 cm (1.7 in. x 17.3 in. x 9.8 in.)
GS950/28PS V2	4.4 cm x 44.0 cm x 25.0 cm (1.7 in. x 17.3 in. x 9.8 in.)
GS950/52PS V2	4.4 cm x 44.0 cm x 43.1 cm (1.7 in. x 17.3 in. x 17.0 in.)

The dimensions of the GS950/10PS V2 Switch are shown in Figure 65.

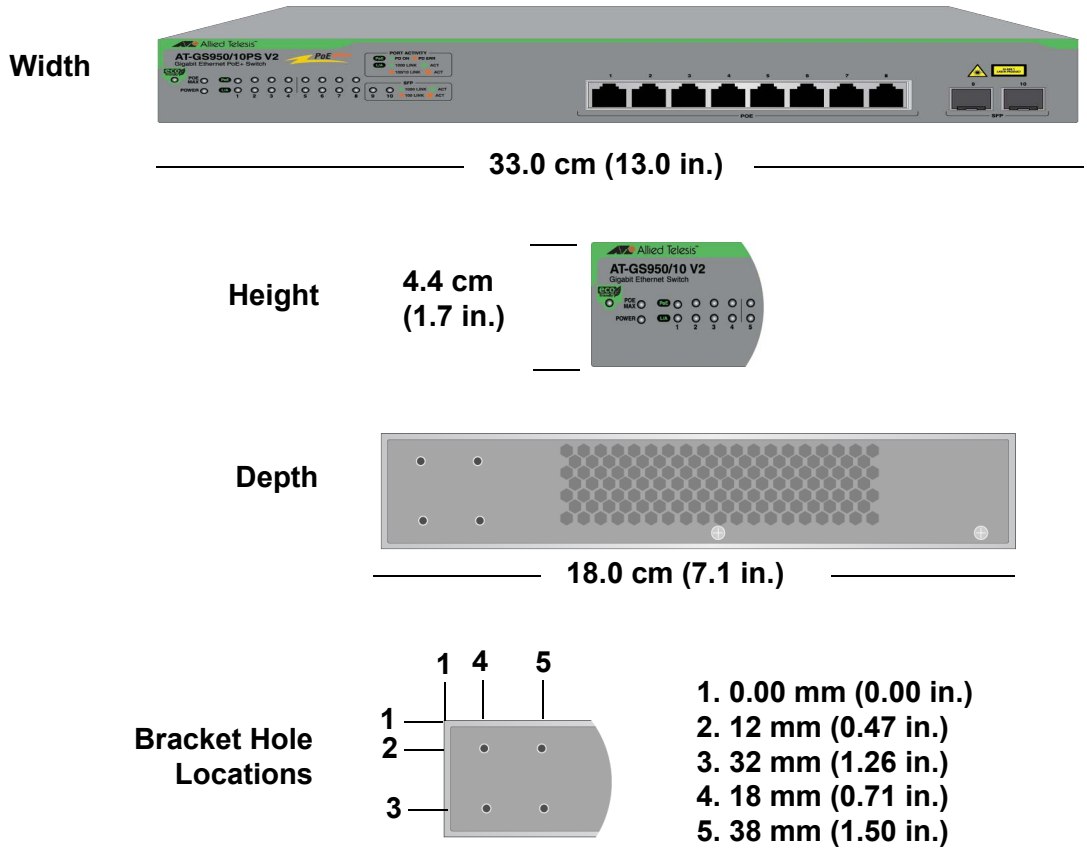


Figure 65. Dimensions of the GS950/10PS V2 Switch

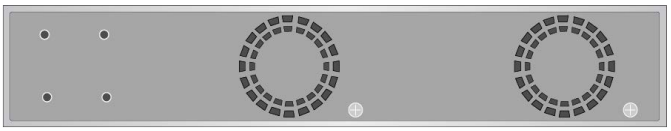
The dimensions of the GS950/18PS V2 and GS950/28PS V2 Switches are shown in Figure 66.

Width

44.0 cm (17.3 in.)

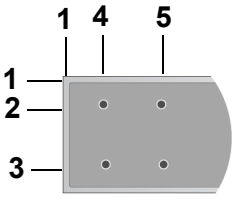
Height **4.4 cm (1.7 in.)**

Depth



25 cm (9.8 in.)

Bracket Hole Locations



1. 0.00 mm (0.00 in.)
2. 12 mm (0.47 in.)
3. 32 mm (1.26 in.)
4. 17 mm (0.67 in.)
5. 37 mm (1.46 in.)

Figure 66. Dimensions of the GS950/18PS V2 and GS950/28PS V2 Switches

The dimensions of the GS950/52PS V2 Switch are shown in Figure 67.

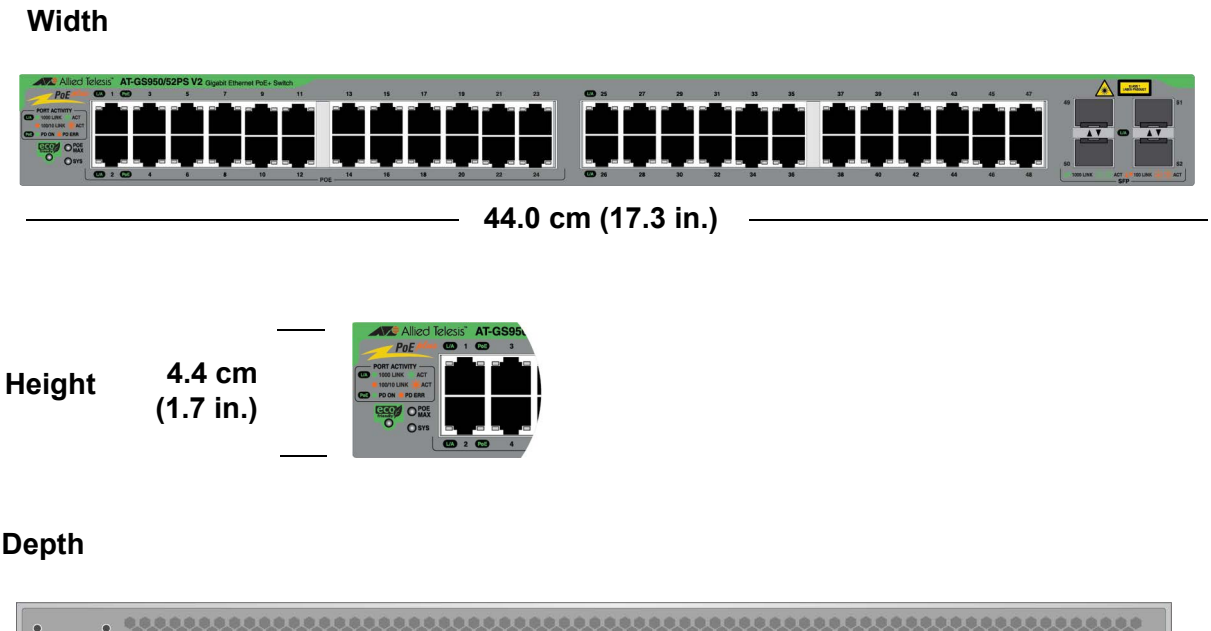


Figure 67. Dimensions of the GS950/52PS V2 Switch

Weights

Table 14 lists the product weights of the GS950 PS V2 Series.

Table 14. Product Weights of the GS950 PS V2 Series

GS950/10PS V2	1.9 kg (4.2 lb.)
GS950/18PS V2	3.7 kg (8.2 lb.)
GS950/28PS V2	3.8 kg (8.4lb.)
GS950/52PS V2	6.1 kg (13.4 lb.)

Ventilation

Table 15 lists the minimum ventilation requirements.

Table 15. Minimum Ventilation Requirements

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

Environmental Specifications

Table 16 lists the environmental specifications of the GS950 V2 Series.

Table 16. Environmental Specifications of the GS950 V2 Series

Operating Temperature	0° C to 45° C (32° F to 113° 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 (9,843 ft)

Table 17 lists the environmental specifications of the GS950 PS V2 Series.

Table 17. Environmental Specifications of the GS950 PS V2 Series

Operating Temperature: GS950/10PS V2	0° C to 40° C (32° F to 104° F)
Operating Temperature: GS950/18PS V2 GS950/28PS V2 GS950/52PS V2	0° C to 45° C (32° F to 113° 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 (9,843 ft)

Power Specifications

This section contains maximum power consumption and input voltage.

Maximum Power Consumptions

Table 18 lists the maximum power consumptions of the GS950 V2 Series.

Table 18. Maximum Power Consumptions of the GS950 V2 Series

GS950/10 V2	11.21 watts
GS950/18 V2	15.21 watts
GS950/28 V2	19.16 watts
GS950/52 V2	37.75 watts

Table 19 lists the maximum power consumptions of the GS950 PS V2 Series.

Table 19. Maximum Power Consumptions of the GS950 PS V2 Series

GS950/10PS V2	97.7 watts
GS950/18PS V2	239.7 watts
GS950/28PS V2	247.4 watts
GS950/52PS V2	475.3 watts

Input Voltage

Table 20 lists the input voltages of the GS950 V2 Series.

Table 20. Input Voltages of the GS950 V2 Series

GS950/10 V2	100-240V~, 50/60Hz, 0.5A maximum
GS950/18 V2	100-240V~, 50/60Hz, 0.9A maximum
GS950/28 V2	100-240V~, 50/60Hz, 0.9A maximum
GS950/52 V2	100-240V~, 50/60Hz, 2.5A maximum

Table 20 lists the input voltages of the GS950 PS V2 Series.

Table 21. Input Voltages of the GS950 PS V2 Series

GS950/10PS V2	100-240V~, 50/60Hz, 1.7A maximum
GS950/18PS V2	100-240V~, 50/60Hz, 3.5A maximum
GS950/28PS V2	100-240V~, 50/60Hz, 3.5A maximum
GS950/52PS V2	100-240V~, 50/60Hz, 10A maximum

Heat Dissipation

Table 22 lists the heat dissipations of the GS950 V2 Series.

Table 22. Heat Dissipations of the GS950 V2 Series

GS950/10 V2	38.25 BTU/hr
GS950/18 V2	51.90 BTU/hr
GS950/28 V2	65.37 BTU/hr
GS950/52 V2	128.80 BTU/hr

Table 22 lists the heat dissipations of the GS950 PS V2 Series.

Table 23. Heat Dissipations of the GS950 PS V2 Series

GS950/10PS V2	333.37 BTU/hr
GS950/18PS V2	817.89 BTU/hr
GS950/28PS V2	844.16 BTU/hr
GS950/52PS V2	1621.79 BTU/hr

Typical Power Savings in eco-friendly Mode

Table 24 lists the typical power savings in eco-friendly mode.

Table 24. Typical Power Savings in eco-friendly Mode

GS950/10 V2 and GS950/10PS V2	~0.4 watt
GS950/18 V2 and GS950/18PS V2	~0.6 watt
GS950/28 V2 and GS950/28PS V2	~1.0 watt

Table 24. Typical Power Savings in eco-friendly Mode (Continued)

GS950/52 V2 and GS950/52PS V2	~0.9 watt

Maximum Power Supply Efficiency

Table 25 lists the maximum power supply efficiency.

Table 25. Maximum Power Supply Efficiency (Based on 100V Input Voltage)

GS950/10 V2 and GS950/10PS V2	Up to 80%
GS950/18 V2 and GS950/18PS V2	Up to 80%
GS950/28 V2 and GS950/28PS V2	Up to 80%
GS950/52 V2 and GS950/52PS V2	Up to 80%

Certifications

Table 26 lists the safety certificates.

Table 26. Safety Certificates

Euro Zone	CE
North America	FCC/ICES/UL
Australia/New Zealand	RCM
Japan	VCCI
Safety	UL 62368-1 EN 62368-1 (TUV), CE IEC 62368-1 AEL Class I, US FDA/CDRH EN(IEC) 60825-1 EN(IEC) 60825-2 CAN/CSA-C22.2 No 62368-1

Table 27 lists the electromagnetic certificates.

Table 27. Electromagnetic Certificates

Electromagnetic Interference (EMI)	FCC Part 15 Subpart B Class A EN 55032 Class A CISPR 32 VCCI Class A RCM
Electromagnetic Susceptibility (EMS)	IEC 61000-4-2: 2008 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 (IEC 61000-4-8) IEC 61000-4-11 IEC 61000-3-2 IEC 61000-3-3
RoHS	EU RoHS Directove (2011/65/EU) (2015/863) China RoHS
Additional	JGPSSI/JIG Level A

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

RJ-45 Copper Port Pinouts

Figure 68 illustrates the pin layout of the RJ-45 connectors.

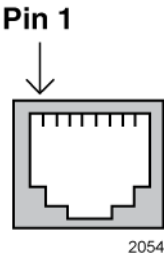


Figure 68. Pin Layout (Front View) of Copper Ports

Table 28 lists the pin signals at 10/100M.

Table 28. Pin Signals on RJ-45 Copper Ports at 10/100M

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

Table 29 lists the pin signals at 1000M.

Table 29. Pin Signals on Copper Ports at 1000M

Pin	Pair	Signal
1	1 +	TX and RX+
2	1 -	TX and RX-
3	2 +	TX and RX+
4	3 +	TX and RX+

Table 29. Pin Signals on Copper Ports at 1000M (Continued)

5	3 -	TX and RX-
6	2 -	TX and RX-
7	4 +	TX and RX+
8	4 -	TX and RX-