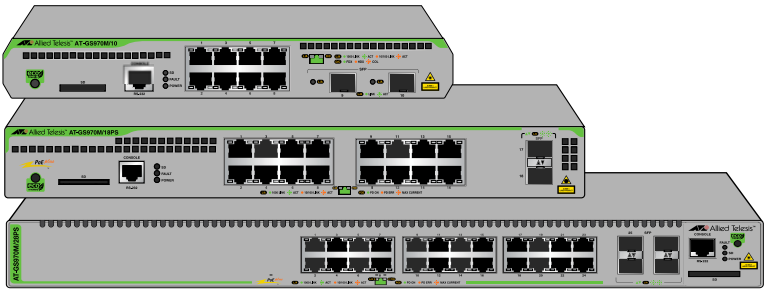
Allied Telesis

CentreCOM® GS970M Series

Gigabit Ethernet Switches

AlliedWare Plus™

GS970M/10	GS970M/10PS
GS970M/18	GS970M/18PS
GS970M/28	GS970M/28PS



Quick Installation Guide

613-003051 Rev. A

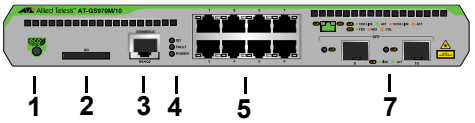
Introduction

This guide contains a short version of the installation instructions for the GS970M Series of Gigabit Ethernet Switches. For more instructions, refer to the *GS970M Series of Gigabit Ethernet Switches Installation Guide* on the Allied Telesis web site at **www.alliedtelesis.com/us/en/services-support**. This guide contains the following sections:

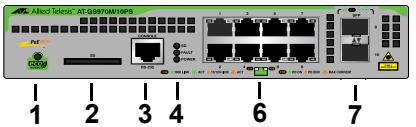
Front Panels

The front panels of the switches are illustrated here.

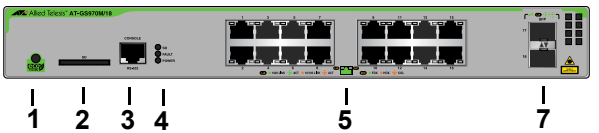
GS970M/10



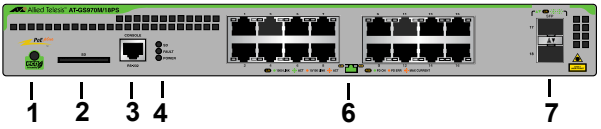
GS970M/10PS



GS970M/18

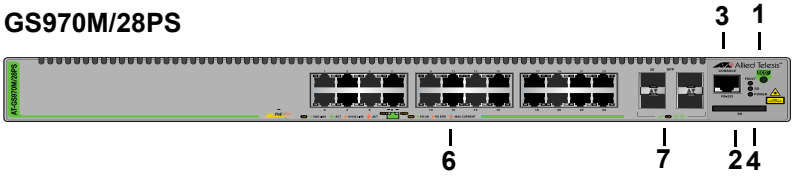


GS970M/18PS



GS970M/28

GS970M/28PS



1	eco-friendly button for turning the LEDs on and off
2	SD card slot for storing copies of switch configuration files
3	Console port for local switch management
4	System LEDs
5	10/100/1000Mbps Ethernet copper ports
6	10/100/1000Mbps Ethernet copper ports with PoE+
7	Ports for 100Mbps and1Gbps SFP transceivers

Here are the 10/100/1000Mbps Ethernet copper ports on the switches.

Switch	10/100/1000Mbps Ports	10/100/1000Mbps Ports with PoE+
GS970M/10	Ports 1 to 8	-
GS970M/10PS	-	Ports 1 to 8
GS970M/18	Ports 1 to 16	-

Switch	10/100/1000Mbps Ports	10/100/1000Mbps Ports with PoE+
GS970M/18PS	-	Ports 1 to 16
GS970M/28	Ports 1 to 24	-
GS970M/28PS	-	Ports 1 to 24

Here are the 100Mbps and 1Gbps SFP transceiver ports.

Switch	SFP Transceiver Ports
GS970M/10	Ports 9 and 10
GS970M/10PS	Ports 9 and 10
GS970M/18	Ports 17 and 18
GS970M/18PS	Ports 17 and 18
GS970M/28	Ports 25 to 28
GS970M/28PS	Ports 25 to 28

PoE+ Power Budgets

The PoE+ power budgets of the GS970M/10PS, GS970M/18PS, and GS970M/28PS switches are listed here. Power budgets are the maximum amounts of power that PoE+ switches can supply to powered devices on the Ethernet copper ports. The switches support IEEE 802.3at Classes 0 to 4 (maximum 30.0W at the ports).

Switch	PoE+ Budget
GS970M/10PS	124 watts
GS970M/18PS	247 watts
GS970M/28PS	370 watts

Beginning the Installation

Reviewing Safety Precautions

Review the following safety precautions before installing the product.

Note: The ✍ symbol indicates that a translation of the safety statement is available in the PDF document "**Translated Safety Statements**" on the Allied Telesis website at **www.alliedtelesis.com/us/en/documents/translated-safety-statements**.

Warning: Class 1 Laser product. ✍ L1

Warning: Do not stare into the laser beam. ✍ L2

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

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 cables. ✍ E1

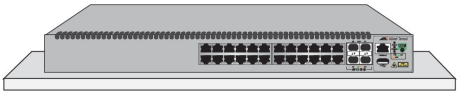
Warning: Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. ✍ E4

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

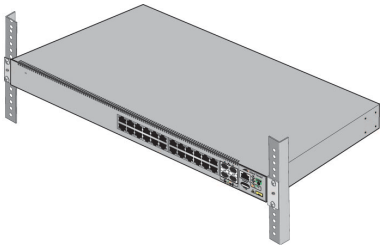
Warning: To reduce the risk of electric shock, the PoE ports on this product must not connect to cabling that is routed outside the building where this device is located. E40

Installation Options

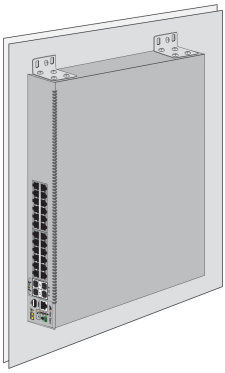
This figure illustrates the installation options.



Table



Standard 19-inch equipment rack



Wood or concrete wall

Unpacking the Switch

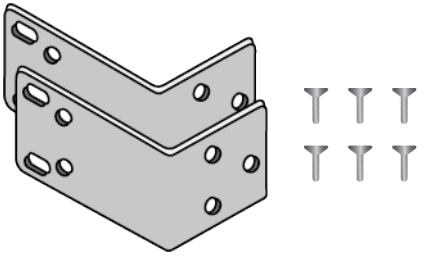
The switches come with these items:

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

One AC power cord

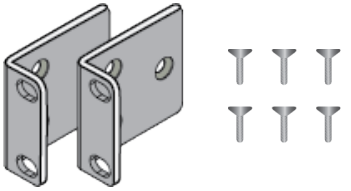
One AC power cord retaining clip

The GS970M/28 Switch comes with these additional items:



Two RKMT-J13 brackets and six M4x8 flathead screws for installing the switch in a standard 19-inch equipment rack

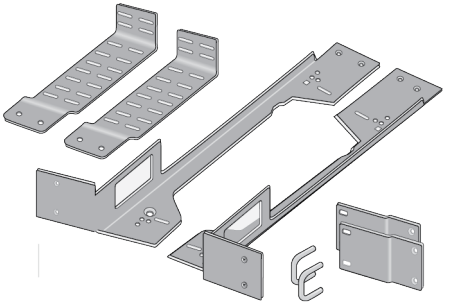
The GS970M/28PS Switch comes with these additional items:



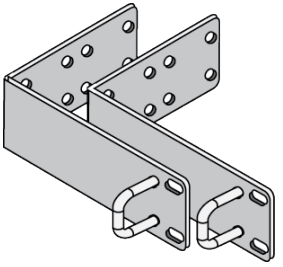
Two brackets and six M4x8 flathead screws for installing the switch in a standard 19-inch equipment rack

Optional Wall and Equipment Rack Brackets

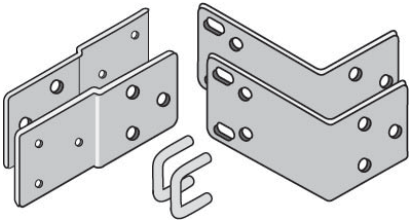
The following brackets for the GS970M Series are sold separately.



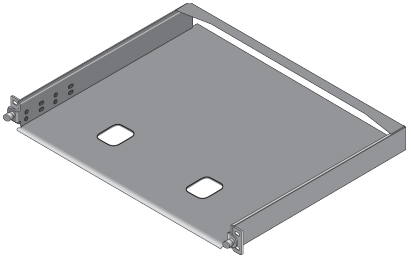
RKMT-J05 bracket kit for installing the GS970M/10 Switch in an equipment rack.



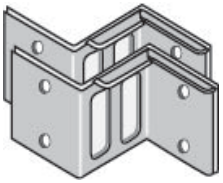
RKMT-J14 bracket kit for installing the GS970M/10PS Switch in an equipment rack.



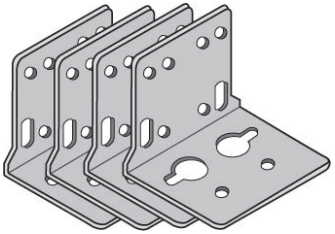
RKMT-J13 bracket kit for installing the GS970M/18 and GS970M/18PS Switches in an equipment rack.



RKMT-J15 rack mount shelf for installing two GS970M/10PS Switches in an equipment rack.



BRKT-J23 brackets for installing the GS970M/10 Switch on a wall.



BRKT-J24 brackets for installing the GS970M/10PS, GS970M/18, GS970M/18PS, GS970M/28, and GS970M/28PS Switches on a wall.

Choosing a Site for the Switch

Review these site recommendations and requirements.

- ❒ Before installing the switch in an equipment rack, verify that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom of the rack, with the heavier devices near the bottom.
- ❒ Before installing the switch on a table, verify that the table is level and stable.

- ❒ Before installing the switch on a wall, verify that the wall's material is strong enough to hold the switch's weight. You should position the device so that it can be screwed into the wall's framing timber or equivalent structural element.
- ❒ The power outlet should be located near the switch and be easily accessible.
- ❒ The site should allow for easy access to the ports on the front of the switch so that you can easily connect and disconnect cables, and view the port LEDs.
- ❒ The site should allow for adequate air flow around the unit and through the cooling vents on the front and rear panels. (The ventilation direction is from front to back.)
- ❒ 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 use dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- ❒ Do not install the switch in a wiring or utility box that does not have adequate airflow. The switch might overheat and shutdown.

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

Installing the Switch

Installing the Switch on a Desk or Table

The switch comes with four bumper feet installed on the bottom panel, To install the switch on a desk or table, perform the following procedure:

1. Verify that the table is secure and level. Verify that the location has adequate ventilation.
2. Place the switch at the selected location.
3. Go to "Ports" on page 13.

Installing the Switch in an Equipment Rack

Review the following:

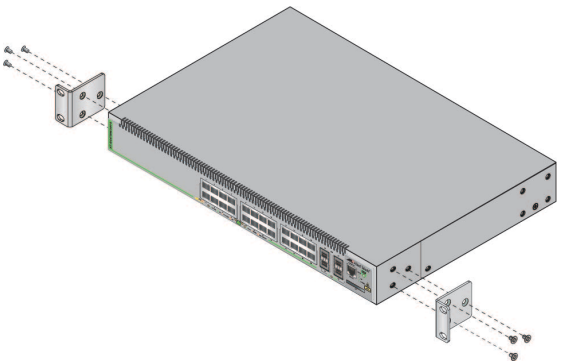
- ❒ For installation instructions for the GS970M/10 Switch and the RKMT-J05 equipment rack bracket kit, refer to the *GS970M Gigabit Ethernet Switch Series Installation Guide*
- ❒ For installation instructions for the GS970M/10PS Switch and the RKMT-J15 rack mount shelf, refer to the *RKMT-J15 Rack Mount Installation Guide*.

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

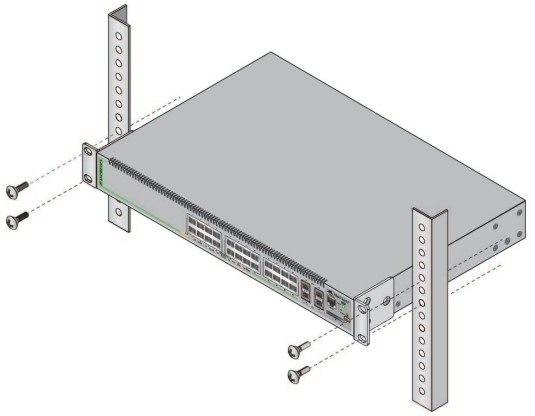
- ❒ Two equipment rack brackets (Included with the GS970M/28 and GS970M/28PS Switches. For other switches, refer to “Optional Wall and Equipment Rack Brackets” on page 7.)
- ❒ Six M4x8mm bracket screws included with the brackets
- ❒ Cross-head screwdriver (not provided)
- ❒ Four standard equipment rack screws (not provided)

To install the switch, perform the following procedure:

1. If the bumper feet are attached to the bottom panel of the switch, remove them with a flat-head screwdriver.
2. Attach the two brackets to the sides of the switch with the six M4x8mm screws included with the brackets. The figure shows the GS970M/28PS Switch.



3. Have another person hold the switch in the equipment rack while you secure it using four standard equipment rack screws (not provided).



4. Go to “Ports” on page 13.

Installing the Switch on a Wall

For installation instructions for the GS970M/10 Switch and the BRKT-J23 wall brackets, refer to the *GS970M Gigabit Ethernet Switch Series Installation Guide*.

Here are the tools and material for installing switches on a wall with the optional BRKT-J24 brackets:

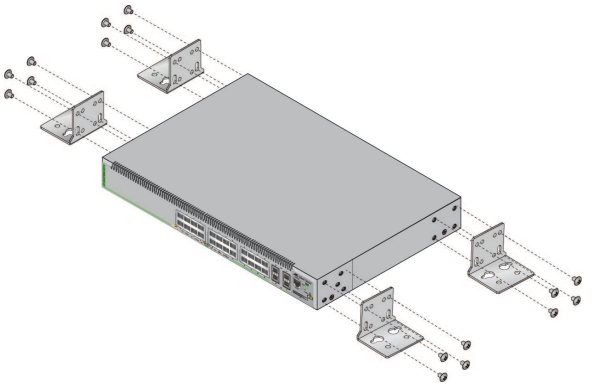
- ❒ BRKT-J24 brackets and sixteen screws
- ❒ Four wood or concrete wall screws (not provided)
- ❒ Four wall anchors for concrete walls (not provided)
- ❒ Cross-head screwdriver (not provided)
- ❒ Flat-head screwdriver (not provided)
- ❒ Stud finder for a wooden wall, capable of identifying the middle of wall studs and hot electrical wiring (not provided)
- ❒ Drill and 1/4” carbide drill bit for a concrete wall (not provided)

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

Note: You can install the switch on a wall with the front panel facing up, left, or right. Do not install it with the front panel facing down.

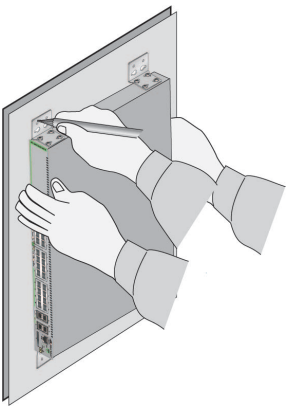
To install the switch on a wall, perform the following procedure:

1. If the bumper feet are attached to the bottom panel of the switch, remove them with a flat-head screwdriver.
2. Install the four BRKT-J24 wall brackets to the sides of the unit with sixteen M4x8mm screws. This figure shows the GS970M/28PS Switch.



Note: If you need to drill holes in the wall for the screws, perform steps 3 to 7. Otherwise, go to step 8.

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



4. Place the switch on a table or desk.
5. Use the stud finder to check for hot electrical wires at the locations of the screw holes.

Warning: Do not install the switch on a wall near hot electrical wires.

6. If the wall material requires pre-drilling the screw holes, use an appropriate drill to drill the holes.
7. If the wall material requires anchors, insert the anchors into the screw holes.
8. Have another person hold the switch on the wall while you secure it with appropriate screws.
9. Go to “Ports” next.

Ports

Ethernet Copper Cable Specifications

The minimum cable requirements for the Ethernet copper ports are:

- ❒ 10/100Mbps ports: Standard TIA/EIA 568-B-compliant unshielded Category 3 cabling.
- ❒ 1000Mbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant unshielded Enhanced Category 5 (Cat 5e) cabling.

Cabling Ethernet Copper Ports

Observe the following guidelines when connecting Ethernet copper cables to the ports on the switch:

- ❒ The connectors on the cables should fit snugly into the ports, and the tabs should lock the connectors into place.
- ❒ The default speed setting for the ports is Auto-Negotiation. This setting is appropriate for ports connected to network devices that also support Auto-Negotiation.
- ❒ The ports must be set to Auto-Negotiation, the default setting, to operate at 1000Mbps.
- ❒ The ports support half- and full-duplex at 10Mbps or 100Mbps.
- ❒ The ports support only full-duplex at 1000Mbps.

- Do not attach cables to ports of static or LACP port trunks until after configuring the switch trunks. Otherwise, the ports will form network loops that can adversely affect network performance.
- PoE+ is enabled by default on the ports on PoE+ switches.

Installing SFP Transceivers

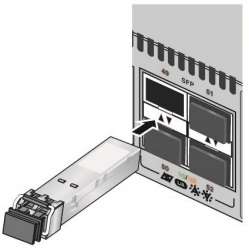
Here are general installation guidelines:

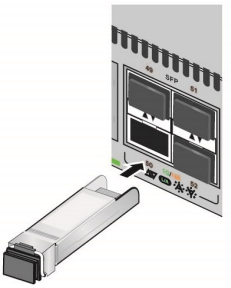
- You can install SFP transceivers while the switch is powered on.
- For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.
- The operational specifications and fiber optic cable requirements are included with the transceivers.
- Install the transceivers before connecting their fiber optic cables.
- Fiber optic transceivers are dust sensitive. Always keep the dust cover in the optical ports when a fiber optic cable is not installed.
- Unnecessary removal and insertion of transceivers can lead to premature failures.

Warning: Transceivers can be damaged by static electricity. Observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the devices. E86

To install SFP transceivers, perform the following procedure:

1. To install a transceiver in a top port, position it with the Allied Telesis label facing up. To install it in a bottom port, position it with the label facing down.





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

   To attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat steps 1 ans 2 to install the remaining transceivers in the switch.

3. Remove the dust cover from the transceiver.

4. Connect the fiber optic cable to the transceiver. The connector should fit snugly into the port, and the tab should lock the connector into place.

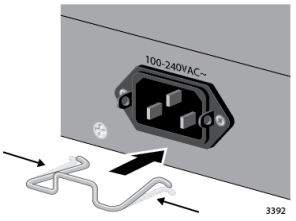
5. Repeat this procedure to install additional transceivers.

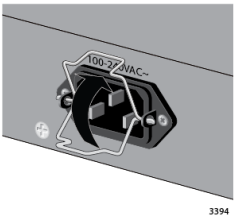
6. Go to “Powering On the Switch” on page 15.

Powering On the Switch

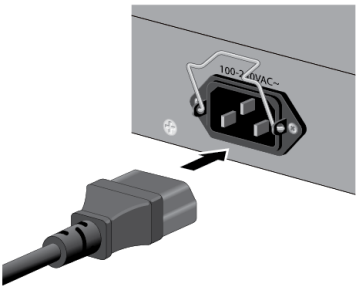
Warning: Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. E3

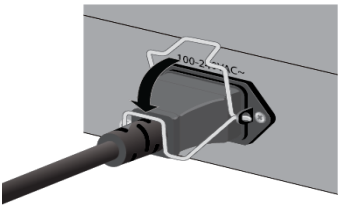
1. Install the power cord retaining clip on the AC power connector on the rear panel of the switch, and raise the clip.





2. Connect the power cord to the connector and lower the retaining clip to secure the power cord.



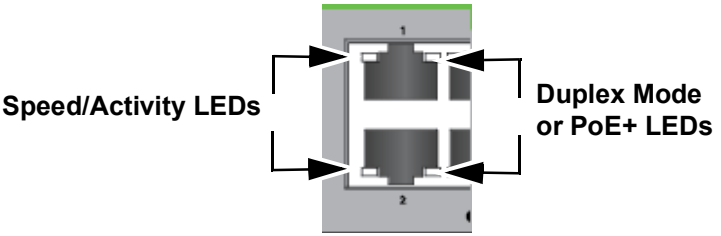


3. Plug the other end of the power cord into a wall outlet.
4. Wait two minutes for the switch to initialize its management software.
5. Verify that the POWER LED is green. If the LED is OFF, see “Troubleshooting” on page 20.

LEDs

Ethernet Copper Port LEDs

The Ethernet copper port LEDs on the switches are described here.

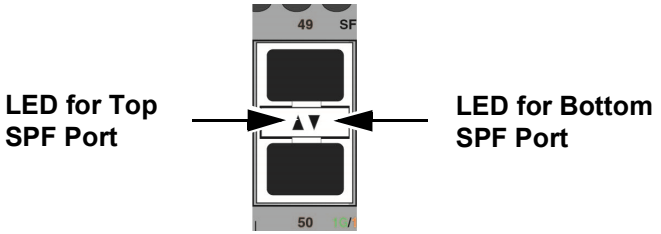


Speed/Activity LEDs	
Solid Green	The port has established a 1Gbps link to a network device.
Flashing Green	The port is transmitting or receiving packets at 1Gbps.
Solid Amber	The port has established a 10 or 100Mbps link to a network device.
Flashing Amber	The port is transmitting or receiving packets at 10 or 100Mbps.
Off	Possible causes of this state are listed here: - The port has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.
Duplex Mode LEDs - Non-PoE+ Switches	
Solid Green	The port is operating in full-duplex mode.

Solid Amber	The port is operating in half-duplex mode at 10 or 100Mbps. (Half-duplex mode does not apply to 1000Mbps.)
Flashing Amber	The port is encountering collisions in half-duplex mode.
PoE+ LEDs	
Solid Green	The port is delivering power to a powered device.
Solid Amber	The switch shut down PoE+ on the port because of a fault condition.
Flashing Amber	The switch has detected a powered device on the port but cannot supply power to it because it is already providing its maximum power to other devices. The maximum power budgets are listed in “PoE+ Power Budgets” on page 4.
Off	This LED state can result from the following conditions: - The port is not connected to a powered device or the device is powered off. - The port is disabled in the management software. - PoE+ is disabled on the port. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

SFP Port LEDs

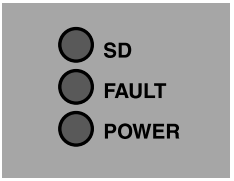
The SFP port LEDs are described here.



Solid green	The port has established a 1Gbps link to a network device.
Flashing green	The port is transmitting or receiving packets at 1Gbps.
Off	Possible causes of this state are listed here: - The SFP transceiver port is empty. - The SFP transceiver has not established a link with another network device. - The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

System LEDs

The System LEDs are described here.



SD LED	
Solid green	The switch has detected an SD card in the SD slot.
Flashing green	The switch is writing to or reading from the SD card.
Flashing amber	The switch encountered an error with the SD card.
Off	The SD slot is empty or the LEDs are off.
Fault	
Flashing red once	The switch's fan is failing or has stopped.
Flashing red six times	The switch is overheating and might shut down.
Off	The switch is operating normally.

Power	
Solid green	The power supply is operating normally.
Off	Possible conditions of this state include: - The power supply is not receiving power. - The switch has overheated and shut down. - The input AC power is outside its operating range. - The power supply has failed.

Starting a Local Management Session

The Console port on the front panel is used to manage the switch. locally. The switch does not need an IP address for local management.

Local management through the Console port requires a management cable. There are two cables. One cable comes with the switch. It is 2m (6.6 ft) long with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors. See “Unpacking the Switch” on page 6.

For workstations without a DB-9 connector, such as laptop computers, Allied Telesis offers the VT-Kit3 management cable. It has a USB-A male connector that connects to a USB port on your workstation. The cable requires a software driver from Allied Telesis. The VT-Kit3 management cable is sold separately.

To start a local management session, perform this procedure:

1. Connect the RJ-45 connector on the management cable to the Console RS-232 port on the management panel.
2. Connect the other end of the cable to an RS-232 port on a terminal or personal computer with a terminal emulation program.
3. Configure the VT-100 terminal or terminal emulation program as follows:

- ❒ Default baud rate is 9600 bps (The range of the port is 1200 to 115200 bps.)
- ❒ Data bits: 8
- ❒ Parity: None
- ❒ Stop bits: 1
- ❒ Flow controller: None

4. Press Enter. You are prompted for a user name and password.
5. Enter the default user name and password. They are “manager” and “friend” (without quotes), respectively. The user name and password are case sensitive. The local management session starts when the User Exec mode `awplus>` prompt is displayed.

   For more information, refer to the *Software Reference for GS970M Series Switches, AlliedWare Plus Operating System* from **www.alliedtelesis.com/us/en/services-support**.

Troubleshooting

Problem: All port and system LEDs are off, and the fan has stopped.

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

- ❒ Verify that the power cord is securely connected to the power source and the AC connector on the back panel of the switch.
- ❒ Verify that the power outlet has power by connecting another device to it.

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

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

Problem: A LINK/ACT LED is off for a Ethernet copper port that is connected to an active network device.

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

- ❒ Verify that the network device connected to the Ethernet copper port is powered on and is operating properly.
- ❒ Verify that the port is connected to the correct Ethernet copper cable.

Problem: The LINK/ACT LED is off for an SFP transceiver that is connected to an active network device.

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

- ❒ Verify that the fiber optic cable is securely connected to the port on the transceiver and to the port on the remote network device.

- ❒ Check that the transceiver is fully inserted in the slot.

Problem: A port on the GS970M/28PS Switch is not providing power to a PoE+ device.

Solutions: Try the following:

- ❒ Check the port's PoE LED. Refer to "Ethernet Copper Port LEDs" on page 16. If the LED is flashing amber, the switch cannot support additional PoE devices device because it is already providing its maximum power to other devices. Refer to "PoE+ Power Budgets" on page 4.
- ❒ Review the powered device's documentation to confirm that the device supports Mode A of the IEEE 802.3at standard and that it uses pins 1, 2, 3, and 6 on the RJ-45 port to receive power.
- ❒ Check that the device's power requirements do not exceed 25.5W by reviewing its documentation or data sheet.