

iGS950 Series

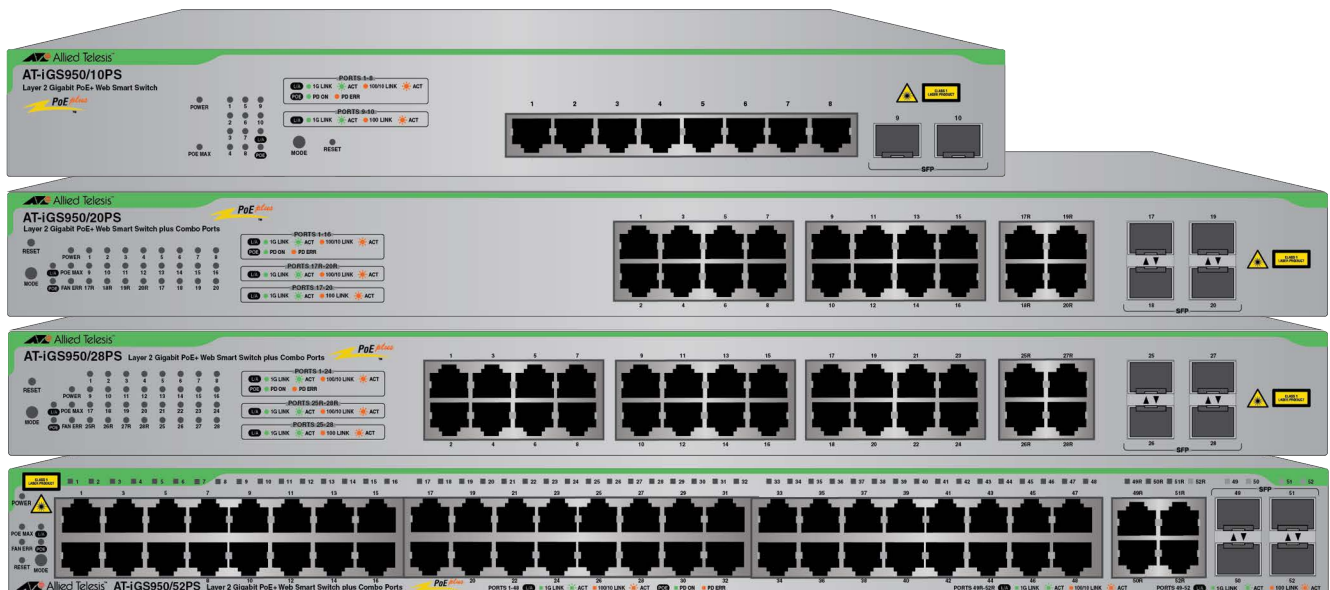
Layer 2 Gigabit Ethernet PoE+ WebSmart Switches

AT-iGS950/10PS

AT-iGS950/20PS

AT-iGS950/28PS

AT-iGS950/52PS



Installation Guide

Copyright © 2025 Allied Telesis, Inc.

All rights reserved. No part of this publication may be reproduced without prior written permission from Allied Telesis, Inc.

Allied Telesis and the Allied Telesis logo are trademarks of Allied Telesis, Incorporated. All other product names, company names, logos or other designations mentioned herein are trademarks or registered trademarks of their respective owners.

Allied Telesis, Inc. reserves the right to make changes in specifications and other information contained in this document without prior written notice. The information provided herein is subject to change without notice. In no event shall Allied Telesis, Inc. be liable for any incidental, special, indirect, or consequential damages whatsoever, including but not limited to lost profits, arising out of or related to this manual or the information contained herein, even if Allied Telesis, Inc. has been advised of, known, or should have known, the possibility of such damages.

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

Note

For safety and regulatory compliance certificates, refer to Table 23 on page 90.

Note

For electromagnetic certificates, refer to Table 24 on page 90.

Contents

Preface	11
Document Conventions	12
Translated Safety Statements	13
Chapter 1: Overview	15
Front and Rear Panels on the iGS950 Series	16
Hardware Features	20
Copper Ports	21
Power over Ethernet PoE+	22
PoE+ Ports	22
Maximum PoE+ Power Budget	23
PoE+ Standards	23
Powered Device Classes	23
Mode A Power Delivery	24
PoE+ Port Priorities	24
Combo Copper Ports	26
Copper Cable Requirements	27
SFP Ports	28
LEDs	29
POWER LED	29
FAN ERR LED	29
POE MAX LED	30
Copper Port LEDs and the MODE Button	31
SFP LEDs	34
RESET Button	36
Power Supply and Fans	37
Power Supply	37
Ventilation Fans	37
Management Interfaces	38
Chapter 2: Beginning the Installation	39
Reviewing Safety Precautions	40
Installation Options	45
Reviewing Site Requirements	46
Enclosure Requirements	47
Unpacking the Switch	48
Recording the Serial Number and MAC Address	49
Chapter 3: Installing the Switch on a Table or Desktop	51
Chapter 4: Installing the Switch in an Equipment Rack	53
Beginning the Installation	54
Required Items	54
Switch Orientations in the Equipment Rack	54
Installing the Switch	56
Chapter 5: Cabling the Networking Ports	59
Cabling the Copper Ports	60
Installing SFP Transceivers	62
Installing SFP Modules	62

Chapter 6: Powering On the Switch	65
Powering On the Switch	66
Verifying the Switch's Operations	68
Starting a Web Browser Management Session	69
Chapter 7: Troubleshooting	73
Switch Does Not Power On	74
Switch Shuts Down or Operates Intermittently	75
All Copper and SFP+ Port LEDs are Off	76
No Link to a Network Device Over Copper Cable	77
No Power to a PoE Network Device	79
No Link to a Network Device Over Fiber Optic Cable	80
Appendix A: Technical Specifications	83
Physical Specifications	84
Environmental Specifications	87
Power Specifications	88
Certifications	90
RJ-45 Copper Port Pinouts	92
Ethernet Network Standards	95

Figures

Figure 1: Front and Rear Panels on the AT-iGS950/10PS Switch	16
Figure 2: Front and Rear Panels on the AT-iGS950/20PS Switch	17
Figure 3: Front and Rear Panels on the AT-iGS950/28PS Switch	18
Figure 4: Front and Rear Panels on the AT-iGS950/52PS Switch	19
Figure 5: POWER LED	29
Figure 6: FAN ERR LED	30
Figure 7: POE MAX LED	30
Figure 8: Copper Port LEDs on the AT-iGS950/20PS Switch	31
Figure 9: Copper Port LEDs on the AT-iGS950/52PS Switch	32
Figure 10: MODE Button with L/A and POE LEDs	32
Figure 11: LEDs for SFP Ports 9 and 10 on the AT-iGS950/10PS Switch	34
Figure 12: Link/Activity (L/A) LEDs for SFP Ports	35
Figure 13: RESET Button	36
Figure 14: Ventilation Airflow of Switches with Fans	37
Figure 15: Table and Equipment Rack Installation Options.....	45
Figure 16: Shipping Box Contents.....	48
Figure 17: Serial Number and MAC Address Labels.....	49
Figure 18: Installing the Switch on a Table.....	51
Figure 19: Unsupported Table Installations.....	51
Figure 20: Affixing the Bumper Feet.....	52
Figure 21: Switch Orientations in an Equipment Rack	54
Figure 22: Switch in a Vertical Equipment Rack - Not Supported	55
Figure 23: Attaching the Equipment Rack Brackets	57
Figure 24: Installing the Switch in a 19-inch Equipment Rack.....	57
Figure 25: Installing an SFP Transceiver.....	63
Figure 26: Removing the Dust Cover from an SFP Transceiver	63
Figure 27: Positioning the SFP Handle in the Upright Position	64
Figure 28: Connecting a Fiber Optic Cable to an SFP Transceiver.....	64
Figure 29: Connecting the AC Power Cord	67
Figure 30: Connecting the Power Cord to an AC Power Source.....	67
Figure 31: Login Window.....	70
Figure 32: Dashboard View	70
Figure 33: Switch View	71
Figure 34: Web Browser Logout Icon	71
Figure 35: Dimensions of the AT-iGS950/10PS Switch.....	84
Figure 36: Dimensions of the AT-iGS950/20PS Switch.....	85
Figure 37: Dimensions of the AT-iGS950/28PS Switch.....	85
Figure 38: Dimensions of the AT-iGS950/52PS Switch.....	85
Figure 39: Ventilation Direction in the AT-iGS950/20PS, AT-iGS950/28PS and AT-iGS950/52PS Switches.....	86
Figure 40: Pin Layout (Front View) of the RJ-45 Copper Ports	92

Tables

Table 1: Hardware Features	20
Table 2: Hardware Features of the Copper Port	21
Table 3: PoE+ Ports	22
Table 4: PoE+ Maximum Power Budgets	23
Table 5: PoE Standards	23
Table 6: IEEE Powered Device Classes Supported by the iGS950 Series	23
Table 7: Combo Copper Port Numbers	26
Table 8: POWER LED	29
Table 9: FAN ERR LED	30
Table 10: POE MAX LED	31
Table 11: MODE Button L/A and POE LEDs	32
Table 12: Copper Port LEDs in Link/Activity (L/A) Mode	33
Table 13: Copper Port LEDs in PoE+ Mode	34
Table 14: Link/Activity LEDs for the SFP Ports	35
Table 15: Product Dimensions (H x W x D)	84
Table 16: Product Weights	86
Table 17: Minimum Ventilation Requirements	86
Table 18: Environmental Specifications of the iGS950 Series	87
Table 19: Maximum Power Consumptions of the iGS950 Series	88
Table 20: Input Voltages of the iGS950 Series	88
Table 21: Heat Dissipations of the iGS950 Series	88
Table 22: Maximum Power Supply Efficiencies	89
Table 23: Safety and Regulatory Compliance Certificates	90
Table 24: Electromagnetic Certificates	90
Table 25: Pin Signals on the RJ-45 Copper Ports at 10/100M without PoE+	92
Table 26: Pin Signals on the RJ-45 Copper Ports at 10/100M with PoE+	92
Table 27: Pin Signals on Copper Ports at 1000M without PoE+	93
Table 28: Pin Signals on Copper Ports at 1000M with PoE+	93

Preface

This guide contains the hardware installation instructions for the iGS950 Series of Layer 2 Gigabit Ethernet PoE+ WebSmart Switches. The preface contains the following sections:

- “Document Conventions” on page 12
- “Translated Safety Statements” on page 13

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: Safety statements with  symbols are translated in the PDF document **Translated Safety Statements** on the Allied Telesis website at alliedtelesis.com/library/search.


Übersetzte Sicherheitserklärungen:

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


Declaraciones de seguridad traducidas:

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


Consignes de sécurité traduites:

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

Dichiarazioni di sicurezza tradotte:

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

Översatta säkerhetsförklaringar:

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

Chapter 1

Overview

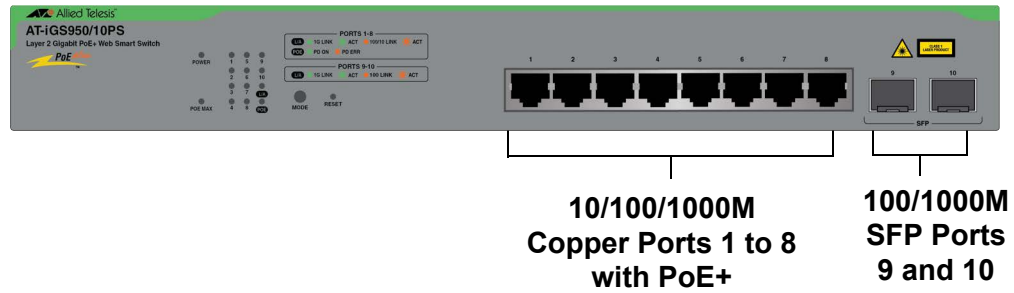
This chapter describes the hardware features of the iGS950 Series of Layer 2 Gigabit Ethernet PoE+ WebSmart Switches:

- ❑ “Front and Rear Panels on the iGS950 Series” on page 16
- ❑ “Hardware Features” on page 20
- ❑ “Copper Ports” on page 21
- ❑ “Power over Ethernet PoE+” on page 22
- ❑ “Combo Copper Ports” on page 26
- ❑ “Copper Cable Requirements” on page 27
- ❑ “SFP Ports” on page 28
- ❑ “LEDs” on page 29
- ❑ “RESET Button” on page 36
- ❑ “Power Supply and Fans” on page 37
- ❑ “Management Interfaces” on page 38

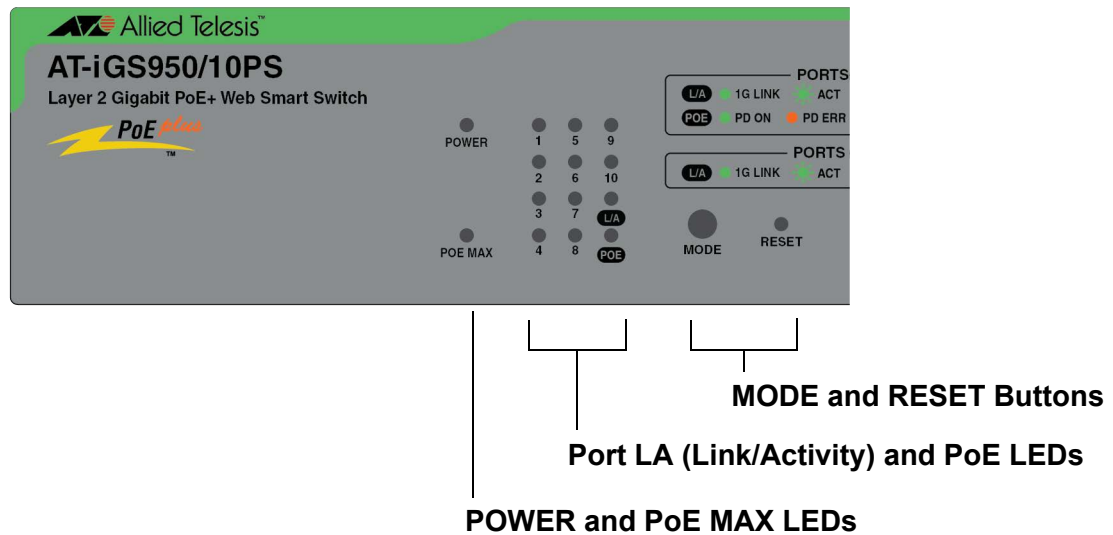
Front and Rear Panels on the iGS950 Series

Figure 1 illustrates the front and rear panels of the AT-iGS950/10PS Switch.

Front Panel - Ports



System and Port LEDs



Rear Panel

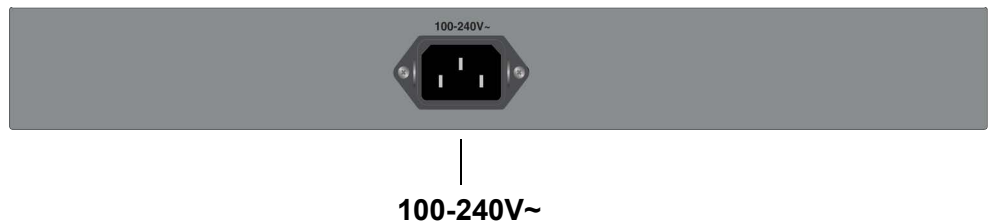
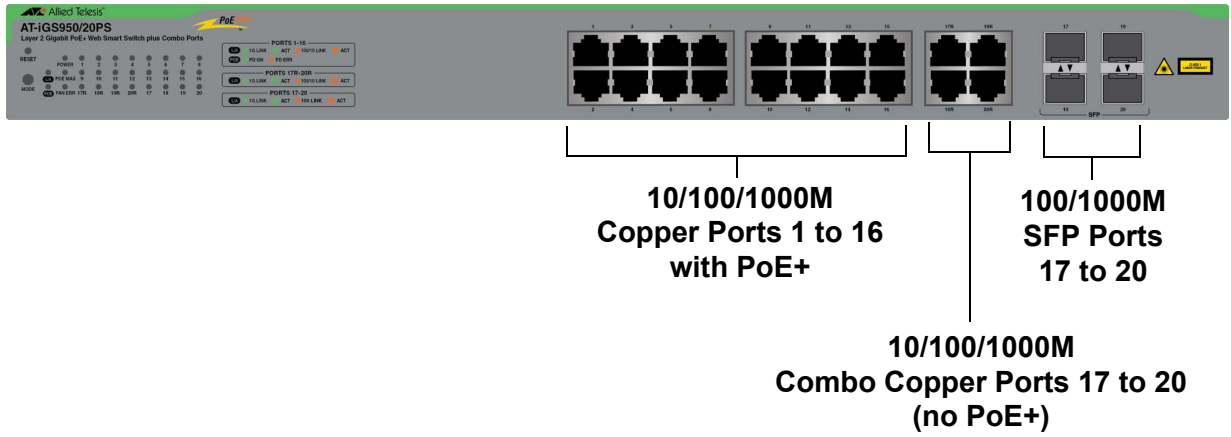


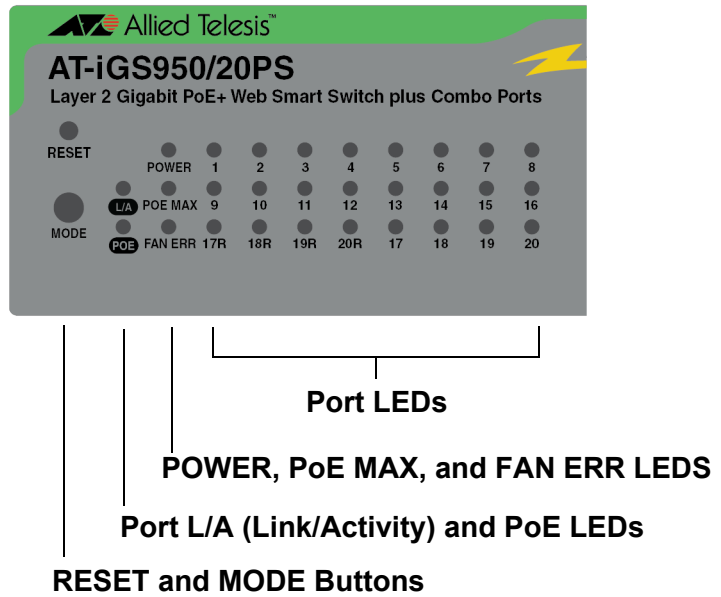
Figure 1. Front and Rear Panels on the AT-iGS950/10PS Switch

Figure 2 illustrates the front and rear panels of the AT-iGS950/20PS Switch.

Front Panel - Ports



System and Port LEDs



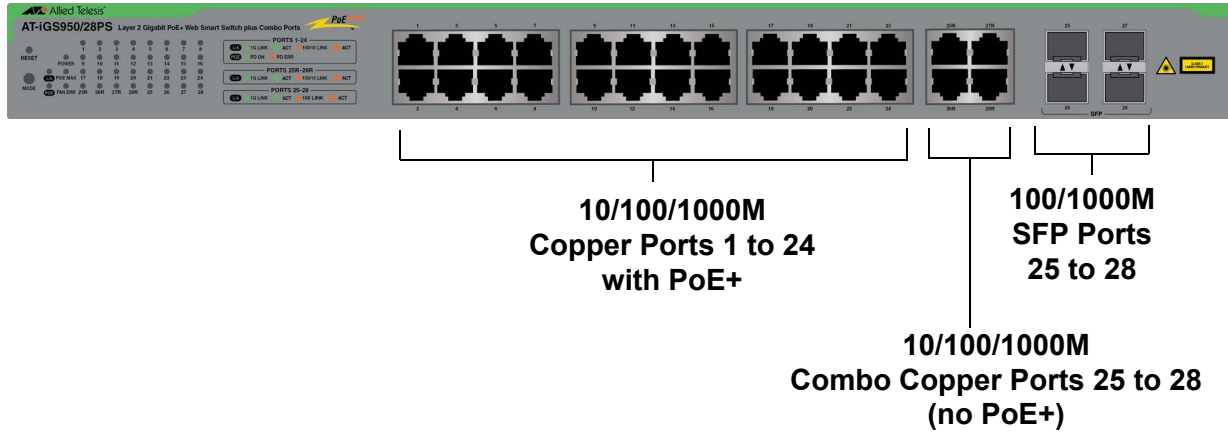
Rear Panel



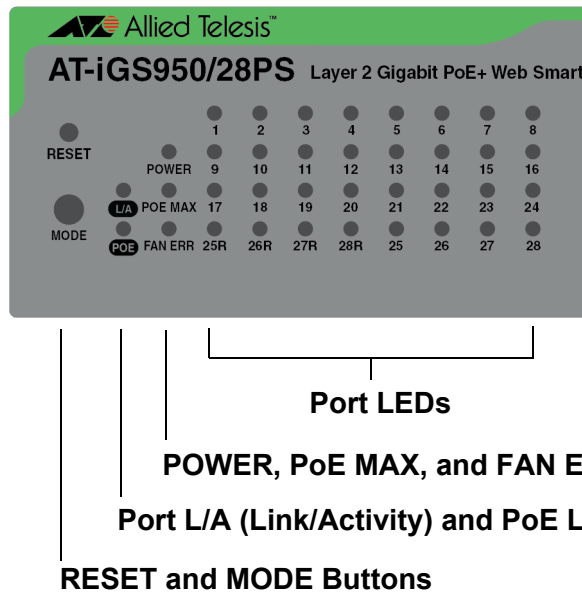
Figure 2. Front and Rear Panels on the AT-iGS950/20PS Switch

Figure 3 illustrates the front and rear panels of the AT-iGS950/28PS Switch.

Front Panel - Ports



System and Port LEDs



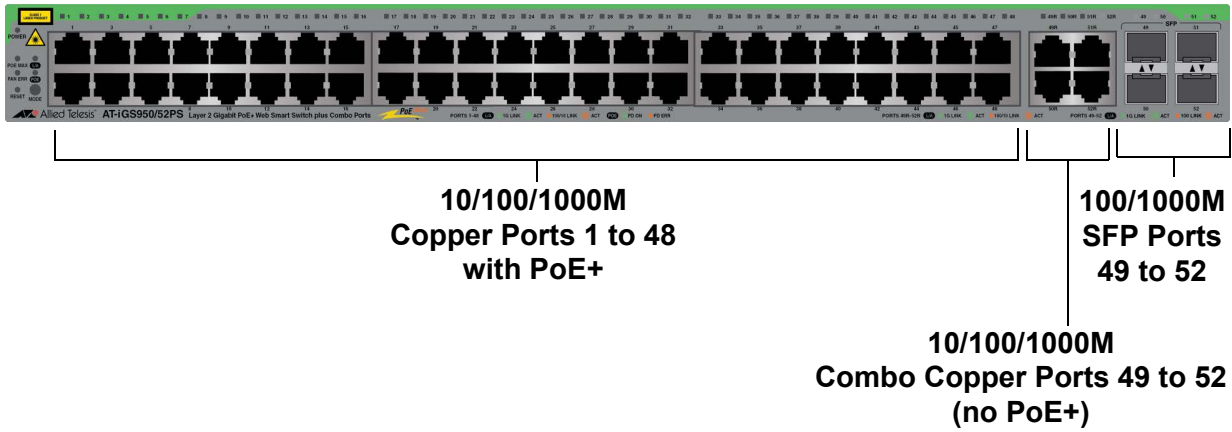
Rear Panel



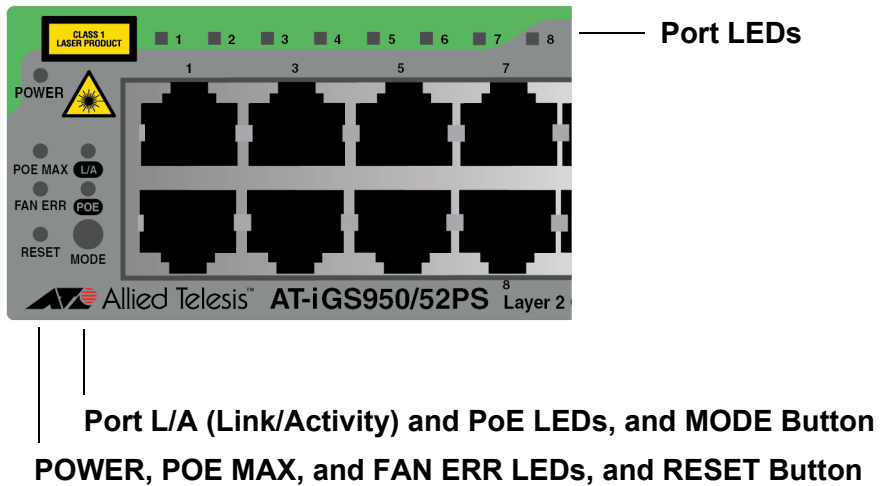
Figure 3. Front and Rear Panels on the AT-iGS950/28PS Switch

Figure 4 illustrates the front and rear panels of the AT-iGS950/52PS Switch.

Front Panel - Ports



System and Port LEDs



Rear Panel



Figure 4. Front and Rear Panels on the AT-iGS950/52PS Switch

Hardware Features

Table 1 lists the hardware features of the switches.

Table 1. Hardware Features

Feature	10PS	20PS	28PS	52PS
Port numbers of 10/100/1000M copper ports with PoE+	1 - 8	1 - 16	1 - 24	1 - 48
Port numbers of 10/100/1000M combo copper ports without PoE+	-	17R - 20R	25R - 28R	49R - 52R
Port numbers of 1000M SFP ports	9 - 10	17-20	25-28	49-52
Maximum PoE+ power	130W	370W	370W	740W
Supported PoE+ device classes	0 to 4	0 to 4	0 to 4	0 to 4
PoE+ power range at the switch ports	15.4W to 30.0W	15.4W to 30.0W	15.4W to 30.0W	15.4W to 30.0W
Auto-negotiation for speed and duplex mode on copper ports	Yes	Yes	Yes	Yes
MODE button	Yes	Yes	Yes	Yes
RESET button	Yes	Yes	Yes	Yes
MAC address table	8 Kbytes	8 Kbytes	8 Kbytes	16Kbytes
Maximum jumbo frames	10 Kbytes	10 Kbytes	10 Kbytes	12 Kbytes
Packet buffer	4.1 Mbit	4.1 Mbit	4.1 Mbit	12 Mbit
Tabletop and 19-inch equipment rack mountable	Yes	Yes	Yes	Yes

Copper Ports

Table 2 lists the hardware features of the copper ports.

Table 2. Hardware Features of the Copper Port

Feature	Description
Port speeds	Copper port speeds are listed here: <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Supports half or full duplex mode at 10/100M - Supports full duplex mode at 1000M Duplex modes can be set manually or automatically with IEEE 802.3u Auto-Negotiation.
Connector hardware	8-pin RJ-45
Connector wiring	<ul style="list-style-type: none"> - 10/100M Auto-MDI/MDIX. Refer to Table 25 on page 92 (without PoE+) and Table 26 on page 92 (with PoE+). - 1000M. Refer to Table 27 on page 93 (without PoE+) and Table 28 on page 93 (with PoE+).
Maximum distance	100 meters (328 feet)
Minimum cable requirements	<ul style="list-style-type: none"> - 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.
Additional features	<ul style="list-style-type: none"> - IEEE 802.3x Back Pressure in 10/100M half-duplex mode - IEEE 802.3x Flow Control in 10/100M full-duplex mode - IEEE802.3z 1000Base-T Flow Control - Non-blocking, wire speed supported at all speeds.

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 PoE+

The iGS950 Series of Layer 2 Gigabit Ethernet Switches 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 it easier to install networks. 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 switches in the iGS950 Series 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.

PoE+ Ports Table 3 lists the ports that support PoE+ on the switches.

Table 3. PoE+ Ports

Switch	PoE+ Ports
AT-iGS950/10PS	1 to 8
AT-iGS950/20PS	1 to 16
AT-iGS950/28PS	1 to 24
AT-iGS950/52PS	1 to 48

Note

PoE+ is not supported on the combo copper ports on the AT-iGS950/20PS, AT-iGS950/28PS, and AT-iGS950/52PS Switches. Refer to Table 1 on page 20 for the combo port numbers.

Maximum PoE+ Power Budget

The maximum PoE+ power budget is the maximum amount of power the switches have for powered devices on their ports. Table 4 lists the maximum PoE+ power budgets for the switches.

Table 4. PoE+ Maximum Power Budgets

Switch	PoE+ Maximum Power Budget
AT-iGS950/10PS	130W
AT-iGS950/20PS	370W
AT-iGS950/28PS	370W
AT-iGS950/52PS	740W

PoE+ Standards

The iGS950 Series supports the PoE standards listed in Table 5.

Table 5. PoE Standards

PoE Standard	IEEE Standard	Definition
PoE	IEEE 802.3af, IEEE 802.3at Type 1	Supplies up to 15.4 watts at switch ports for powered devices requiring up to 12.95 watts.
PoE+	IEEE 802.3at Type 2	Supplies up to 30.0 watts at switch ports for powered devices requiring up to 25.5 watts.

Powered Device Classes

Powered devices are grouped into classes, based on their power requirements. The iGS950 Series supports the five classes in Table 6.

Table 6. IEEE Powered Device Classes Supported by the iGS950 Series

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 iGS950 Series can support any combination of powered devices, up to the maximum PoE+ power budgets. Refer to Table 4 on page 23.

Mode A Power Delivery

The PoE IEEE 802.3at standard defines two modes for delivering power over copper cables from a PSE, such as the iGS950 Series, to PDs. The two modes define the pins on the RJ-45 copper ports of the PSE that supply power to the PDs.

The modes are called Mode A and Mode B. In Mode A, the PSE uses pins 1, 2, 3, and 6 on its copper ports to supply power over the copper cables to the PDs. In Mode B, the PSE uses pins 4, 5, 7, and 8 on its copper ports as the power output.

The iGS950 Series supports Mode A of the IEEE 802.3at standard. The switches use pins 1, 2, 3, and 6 on copper ports to deliver power to PDs.

Most PDs are designed to support both modes. However, older PDs might support only one mode. You should review the documentation included with your PDs before connecting them to the switches to confirm that they support both modes. If they are older units that support only one mode, they must support Mode A to be compatible with the iGS950 Series.

Note

Older PDs that only support Mode B are not compatible with the iGS950 Series.

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 or business are given preferential treatment by the switch in the allocation of power should the demands of the devices exceed the available power.

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.

Combo Copper Ports

The AT-iGS950/20PS, AT-iGS950/28PS, and AT-iGS950/52PS Switches have four combo ports. These ports are identified with the letter “R” in their port numbers. Refer to Table 7.

Table 7. Combo Copper Port Numbers

Switch	Combo Copper Port Numbers
AT-iGS950/10PS	None
AT-iGS950/20PS	17R, 18R, 19R, and 20R
AT-iGS950/28PS	25R, 26R, 27R, 28R
AT-iGS950/52PS	49R, 50R, 51R, 52R

Note

The AT-iGS950/10PS Switch does not have combo ports.

Each combo copper port is paired with an SFP port. Using the AT-iGS950/20PS Switch as an example, the 17R combo copper port is paired with the 17 SFP port, the 18R combo copper port is paired with the 18 SFP port, and so forth. Only one port in a pair, either the copper port or the corresponding SFP port, can be active at a time. Here are the rules and guidelines to using the combo copper ports:

- ❑ Combo copper ports do not support PoE+.
- ❑ Other than not supporting PoE+, these ports support the same operating properties and features as the other copper ports in the switches. Refer to Table 2 on page 21.
- ❑ The copper port is the active port of a pair when there is no transceiver in the corresponding SFP port or the SFP transceiver does not have an active connection to a network device.
- ❑ If both the combo copper port and SFP port of a pair are connected to active network devices, the SFP port becomes the active port and the combo copper port automatically transitions to a redundant status.
- ❑ In nearly all cases, the copper and SFP ports of a pair share the same configuration settings, including port settings, VLAN assignments, access control lists, and spanning tree.
- ❑ One exception to the shared settings of paired ports is port speed. If you disable Auto-Negotiation on a copper port and set the speed and duplex mode manually, the speed reverts to Auto-Negotiation when the SFP port in the port pair establishes a link to an end node.

Copper Cable Requirements

The minimum copper cable requirements for non-PoE devices are listed here:

- ❑ 10/100M - Standard TIA/EIA, 568-B-compliant cable, Category 5, 100 ohm, shielded or unshielded cabling, complying with IEEE 802.3u 100Base-TX specifications
- ❑ 1000M - Standard TIA/EIA, 568-B-compliant cable, Category 5, 100 ohm, 4-pair, shielded or unshielded cabling, complying with IEEE 802.3ab 1000Base-T specifications. Category 5e is recommended.

The minimum copper cable requirements for PoE devices are listed here:

- ❑ Category 5 unshielded or better is recommended for ITE immunity levels (i.e., EN 55035)
- ❑ Category 6 or 6a shielded twisted pair cable or shielded foil twisted pair cable is required to meet immunity levels in high RF noise environments, such as industrial Ethernet sites, electric power utility stations, electric power substations, and rail yards.

Note

Shielded or unshielded Category 5 or better cable is required to meet EN55035 immunity levels.

SFP Ports

The SFP ports support 100M and 1000M fiber optic transceivers and copper connector transceivers. The ports support the following types of 100M fiber optic transceivers:

- ❑ 100M SFP multi-mode fiber (MMF) optic transceivers with operating distances up to 2 kilometers
- ❑ 100M SFP single-mode fiber (SMF) optic transceivers with operating distances up to fifteen kilometers

The SFP ports the following types of 1000M fiber optic and copper connector transceivers:

- ❑ 1000M SFP SMF and MMF fiber optic transceivers
- ❑ 1000M SFP SMF and MMF fiber optic transceivers with extended operating temperature ranges
- ❑ 1000M SFP SMF single core, bi-directional fiber optic transceivers
- ❑ 1000M copper cable transceivers

Fiber optic transceivers are available with operating distances over 40 kilometers and wide industrial temperature ranges.

Transceivers are hot-swappable. You can install or 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 with this product.

LEDs

The following sections describe the LEDs:

- “POWER LED” next
- “FAN ERR LED” on page 29
- “POE MAX LED” on page 30
- “Copper Port LEDs and the MODE Button” on page 31
- “SFP LEDs” on page 34

POWER LED The switches have a POWER LED. An example is shown in Figure 5.

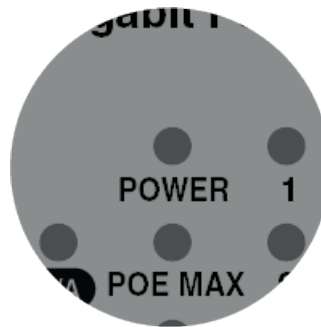


Figure 5. POWER LED

The LED is defined in Table 8.

Table 8. POWER LED

State	Description
Solid Green	The switch is operating normally.
Off	<p>Possible sources of this condition are:</p> <ul style="list-style-type: none"> - The AC power cord is disconnected. - The AC power source is powered off or has failed. - The switch experienced a hardware or software failure. - The switch shutdown from a power surge. - The power supply failed. <p>For troubleshooting suggestions, refer to “Switch Shuts Down or Operates Intermittently” on page 75.</p>

FAN ERR LED AT-iGS950/20PS, AT-iGS950/28PS, and AT-iGS950/52PS Switches have FAN ERR LEDs. The LED displays the status of the internal ventilation fans. (The AT-iGS950/10PS Switch does not have this LED.) An example of the LED is shown in Figure 6 on page 30.

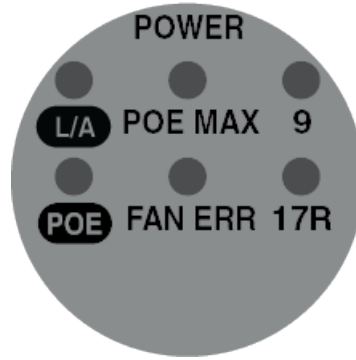


Figure 6. FAN ERR LED

Table 9 describes the states of the LED.

Table 9. FAN ERR LED

State	Description
Off	The internal fans are operating properly or the switch is powered off.
Amber	One or more fans are experiencing a problem. Use the management software to view fan status. If necessary, replace the switch.

POE MAX LED

Switches have a POE MAX LED on the front panels. An example is shown in Figure 7.

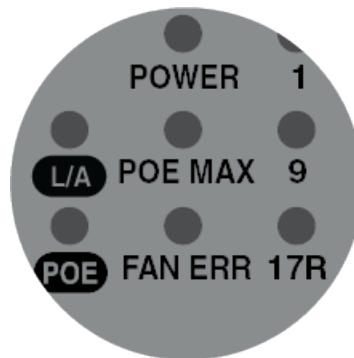


Figure 7. POE MAX LED

Table 10 details the states of the POE MAX LED.

Table 10. POE MAX LED

State	Description
Off	<p>Possible causes of this state are:</p> <ul style="list-style-type: none"> ❑ The switch is not connected to any powered devices. ❑ The switch is supplying power to one or more powered devices, and has sufficient PoE power to support additional powered devices.
Amber	<p>The switch is nearing or has reached its maximum PoE budget from supporting the power requirements of the powered devices on its copper ports. The switch will not support additional powered devices and may be denying power to some ports.</p>

Copper Port LEDs and the MODE Button

Each copper port on the switch has an LED that displays link and activity status, or PoE+ status information. The copper port LEDs on the AT-iGS950/10PS, AT-iGS950/20PS, and AT-iGS950/28PS Switches are grouped on the left sides of the front panels. An example is shown in Figure 8.

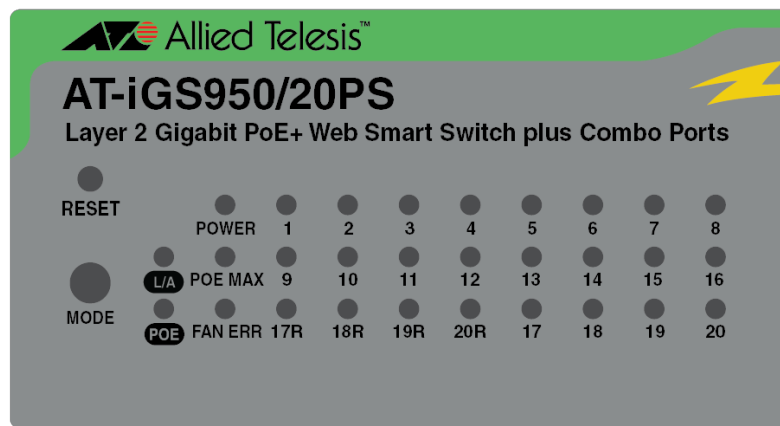


Figure 8. Copper Port LEDs on the AT-iGS950/20PS Switch

The copper port LEDs on the AT-iGS950/52PS Switch are located in a row across the top of the front panel. Refer to Figure 9 on page 32.

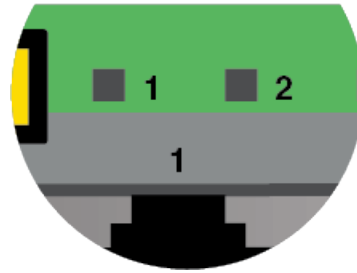


Figure 9. Copper Port LEDs on the AT-iGS950/52PS Switch

The copper port LEDs display the following information:

- ❑ Link/Activity (L/A) status
- ❑ PoE+ status

The switches have a MODE button that controls the status of the port LEDs. Refer to Figure 10. The button toggles the copper port LEDs between displaying link/activity information or PoE+ status. The status of the copper port LEDs is displayed by the L/A and POE LEDs next to the MODE button.

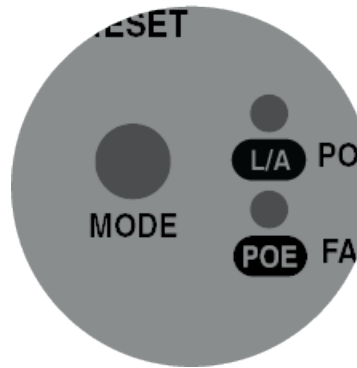


Figure 10. MODE Button with L/A and POE LEDs

Table 11. MODE Button L/A and POE LEDs

LED	State	Description
L/A	Green	The copper port LEDs are displaying link/activity status.
POE	Green	The copper port LEDs are displaying PoE+ status.

Note

The MODE button does not control the LEDs on the combo copper ports or SFP ports. Those port LEDs always display link/activity status.

Table 12 defines the states of the copper port LEDs when displaying link/activity status.

Table 12. Copper Port LEDs in Link/Activity (L/A) Mode

State	Description
Off	Possible causes of this state: <ul style="list-style-type: none"> <li data-bbox="919 667 1463 768">❑ The port is not connected to a network device or the network device is powered off. <li data-bbox="919 785 1463 953">❑ The port is connected to a network device but the switch is unable to establish a connection to it. Refer to “No Link to a Network Device Over Copper Cable” on page 77. <li data-bbox="919 970 1463 1104">❑ If the copper port is a combo port, its corresponding SFP port may have a link to a network device, in which case the copper port is disabled.
Steady Green	The copper port has established a 1000M connection to a network device.
Flashing Green	The copper port is transmitting or receiving network traffic from a network device 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.

Table 13 defines the states of the copper port LEDs when displaying PoE+ status.

Table 13. Copper Port LEDs in PoE+ Mode

State	Description
Off	This state has the following possible causes: <ul style="list-style-type: none"> - The port is not connected to a network device. - The port is connected to a non-PoE device. - The port is connected to a older powered device that does not support the Mode A power delivery on pins 1, 2, 3, and 6 on the RJ-45 port.
Green	The copper port is delivering power to a PoE or PoE+ device.
Amber	The switch has detected an error condition on the port. Examples include the following: <ul style="list-style-type: none"> - The powered device is requiring more power than its device class. - There is a terminal short in the network cable or connector. Refer to “No Power to a PoE Network Device” on page 79.

SFP LEDs

The SFP ports have Link/Activity (L/A) LEDs. The LEDs for SFP ports 9 and 10 on the AT-iGS950/10PS Switch are located on the left side of the faceplate, with the copper port LEDs. Refer to Figure 11.

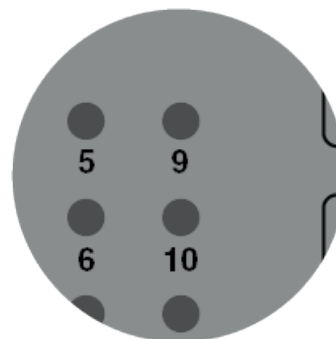


Figure 11. LEDs for SFP Ports 9 and 10 on the AT-iGS950/10PS Switch

The SFP port LEDs for all other switches in the iGS950 Series are located between the SFP ports. An example is shown in Figure 12 on page 35.

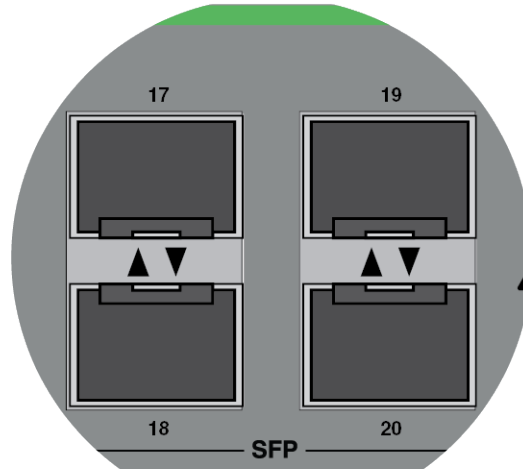


Figure 12. Link/Activity (L/A) LEDs for SFP Ports

The states of the SFP port LEDs are defined in Table 14.

Table 14. Link/Activity LEDs for the SFP Ports

State	Description
Off	Possible causes of this state are: <ul style="list-style-type: none"> <input type="checkbox"/> The SFP slot is empty. <input type="checkbox"/> The SFP transceiver has not established a link with a remote network device. <input type="checkbox"/> The remote network device is powered off.
Steady Green	The port has established a 1000M link to a remote 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 remote network device.
Blinking Amber	The port is transmitting or receiving network packets at 100M.

RESET Button

The RESET button, shown in Figure 13, has these two functions:

- ❑ Reboots the switch so that it initializes its management software and reloads its saved configuration. To reboot the switch, press the RESET button for one to five seconds.
- ❑ Restores the default configuration settings on the switch. You might perform this action to discard the switch’s current configuration or if you lost the management login password. To restore the default configuration settings on the switch, press the RESET button for more than six seconds. The switch turns off all the port LEDs to indicate that the configuration reset has started.

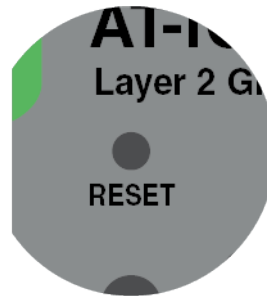


Figure 13. RESET Button

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 to manage the switch again. Refer to “Starting a Web Browser Management Session” on page 69.



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 the RESET button with the management software. For instructions, refer to the *iGS950 Series Web Browser User Guide*.

Power Supply and Fans

Power Supply 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 88.

Ventilation Fans Three of the switches come with two or three internal ventilation fans:

- AT-iGS950/10PS - none
- AT-iGS950/20PS - 2 fans
- AT-iGS950/28PS - 2 fans
- AT-iGS950/52PS - 3 fans

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 14.



Figure 14. Ventilation Airflow of Switches with Fans

Review the following:

- Fans are not field replaceable.
- Fan status is indicated with the FAN ERR LED. Refer to “FAN ERR LED” on page 29.
- The AT-iGS950/10PS Switch does not have internal ventilation fans. It relies on surrounding airflow for cooling.

Note

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

Management Interfaces

The iGS950 Series has three management interfaces that are accessed over your network from your workstation:

- ❑ 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 the features and functions of the switches. The default setting for this interface is enabled.
- ❑ Command line Interface: This interface is accessed with a Telnet or Secure Shell (SSH) client from your workstation. It has a series of command line commands that configure a subset of the software features, such as the IPv4 and IPv6 addresses.

The default setting for the Telnet server is enabled. The default setting for the SSH server is disabled. To enable the server, you have to use the SSH Settings option under the System menu in the web browser management interface.

- ❑ SNMPv1, v2c, and v3: This interface consists of SNMP MIBs and objects. Only experienced technicians should manage devices with SNMP.

For management instructions, refer to *iGS950 Series Web Browser User Guide*.

Note

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

Chapter 2

Beginning the Installation


The chapter contains the following sections:

- “Reviewing Safety Precautions” on page 40
- “Installation Options” on page 45
- “Reviewing Site Requirements” on page 46
- “Unpacking the Switch” on page 48
- “Recording the Serial Number and MAC Address” on page 49

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 50°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 (T_{mra}). *ES* 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. *ES* 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). *ES* 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. *ES* E40



Warning

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




Warning


Only trained and qualified personnel are allowed to install or replace this equipment. *ES* 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

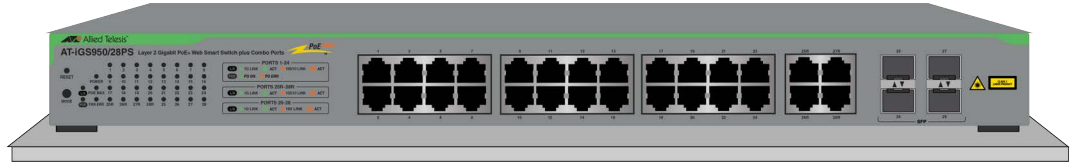


Warning

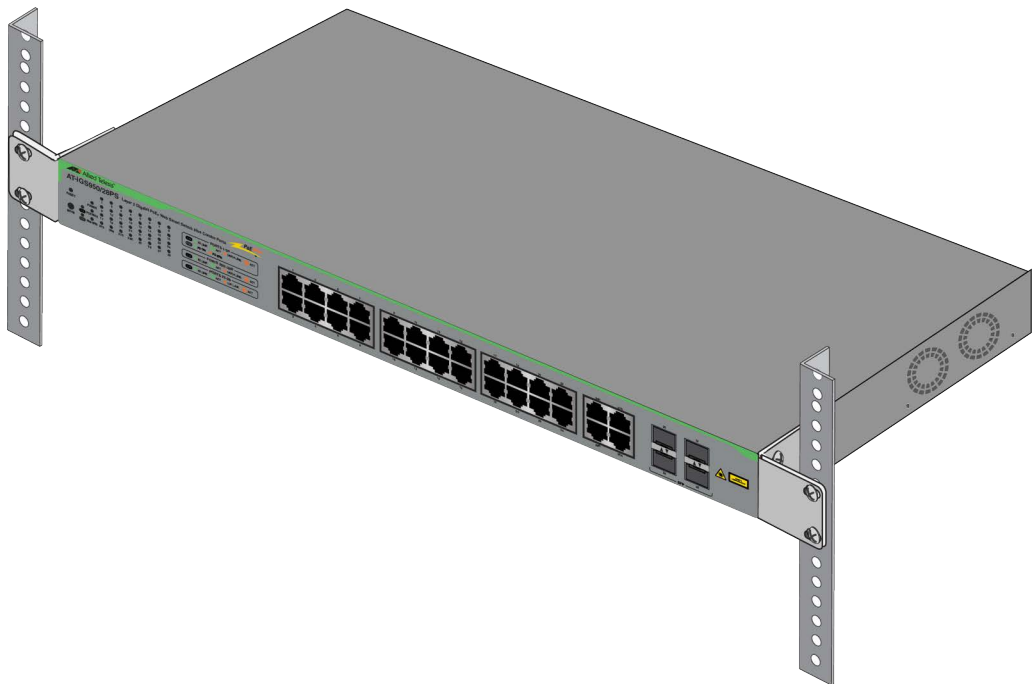
The temperature of an operational SFP transceiver may exceed 70° C (158° F). Exercise caution when removing or handling transceivers with unprotected hands.  E43

Installation Options

Figure 15 and illustrates the installation options.



Desk or table installation with the bumper feet Included with switch.



19-inch equipment rack installation with the equipment rack/ wall brackets included with the switch.

Figure 15. Table and Equipment Rack Installation Options

Note

Allied Telesis does not support installing this device on a wall.

Reviewing Site Requirements

Please observe the following requirements and guidelines when choosing a site for the switch:

- ❑ The switch must be installed in a Restricted Access Location.
- ❑ The switch does not require an enclosure when installed in most indoor environments.
- ❑ If you are installing the device in an equipment rack, visually inspect the rack to ensure that it 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.
- ❑ When installing the switch in environments vulnerable to shock, seismic movement, and/or high vibration, Allied Telesis recommends the following:
 - All cables connected to the switch should be properly strain relieved to prevent cable tension from damaging the interface connectors during vibration.
 - If you are installing the switch on a wall, apply threadlocking adhesive (e.g., Loctite) to the screws that attach the wall mount brackets to the switch and also to the screws that attach the wall mount brackets to the wall.

Enclosure Requirements

If the device will be installed in an enclosure, review these additional guidelines:

- ❑ The enclosure must be large enough for the switch and all other necessary equipment.
- ❑ Verify that the enclosure has adequate airflow to prevent overheating.
- ❑ The enclosure size must be determined by considering multiple factors, including the outside ambient temperature, total heat generated by the installed equipment, sealed or unsealed enclosure type, enclosure material, paint color, mounting method (wall, pole, ground, etc.), and sun exposure. The smaller the enclosure size, the higher the risk of the product overheating.
- ❑ The enclosure BTU/hour rating must be higher than the total BTU/hour values of equipment installed in the enclosure, over the expected operating temperature range. For the operating temperature range of the product, refer to Table 18 on page 87. For heat dissipation, refer to Table 21 on page 88.
- ❑ If you are installing the switch in a metal enclosure, the enclosure must be properly grounded to a protective earth ground following local electrical codes and the instructions in the manufacturer's installation guide.

Note

If the product overheats in an enclosure that was selected without taking into account the above factors, the warranty of the product might be voided. Consult Allied Telesis when assistance is needed.

Unpacking the Switch

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 16. Contact your Allied Telesis sales representative for assistance if any items are missing or damaged.

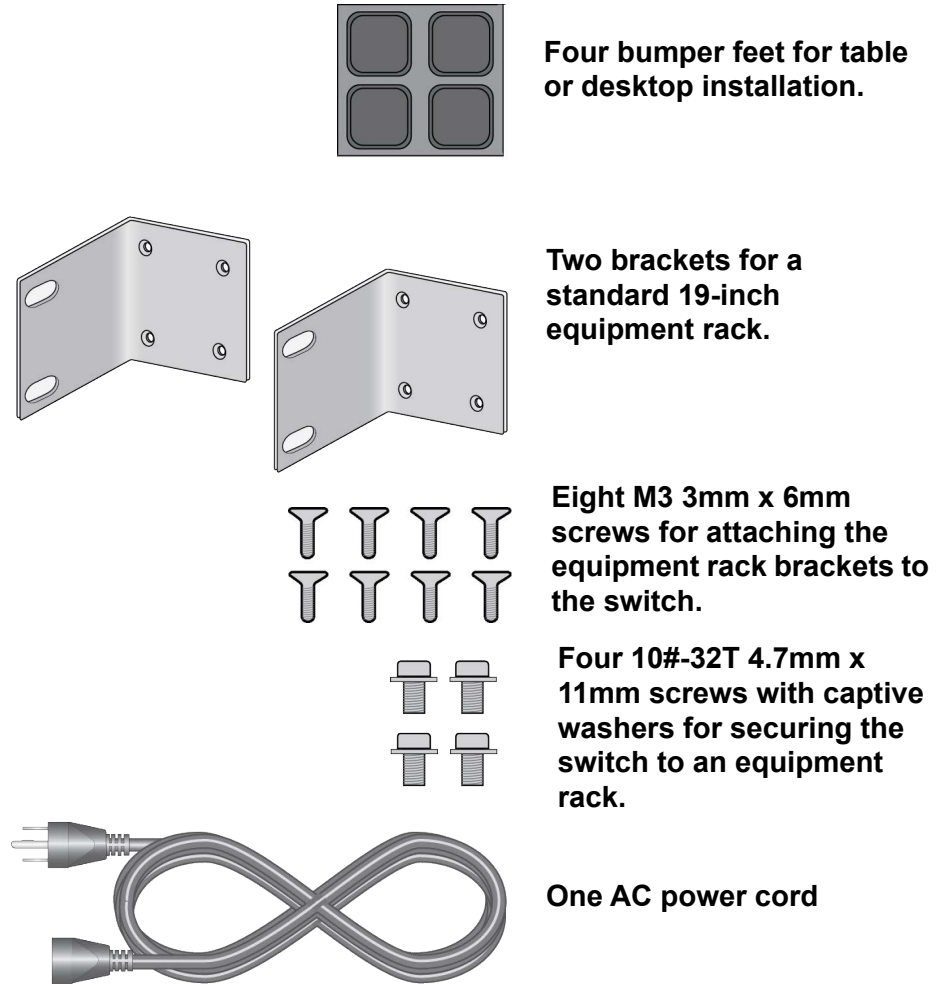
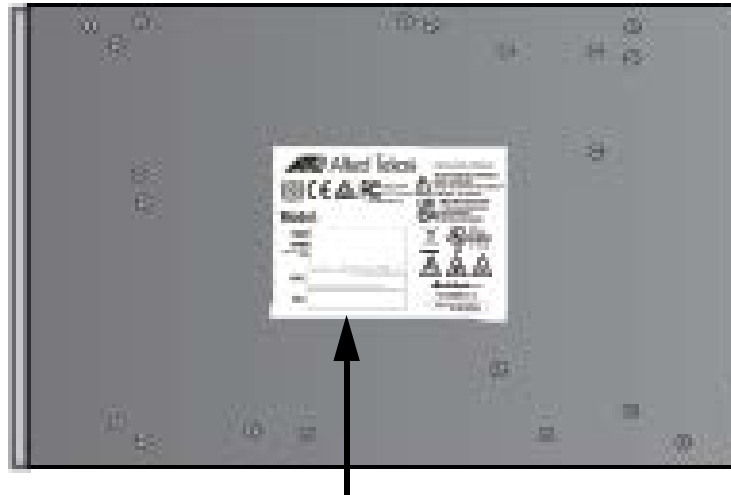


Figure 16. Shipping Box Contents

Recording the Serial Number and MAC Address

The serial number and MAC address of the switch are located on a label on the bottom panel. Refer to Figure 17. You should record the numbers for your records before installing the device.



**Serial number and MAC
address labels**

Figure 17. Serial Number and MAC Address Labels

Note

You can also view the serial number and MAC address of the switch with the management software.

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 18.

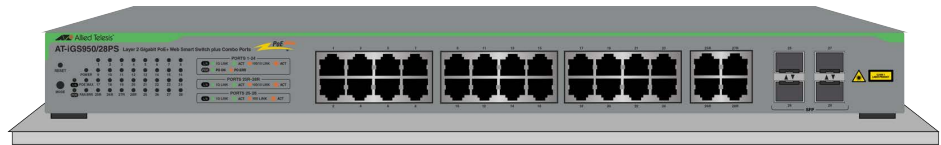


Figure 18. Installing the Switch on a Table

The following guidelines are in addition to those in “Reviewing Site Requirements” on page 46.

- 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.

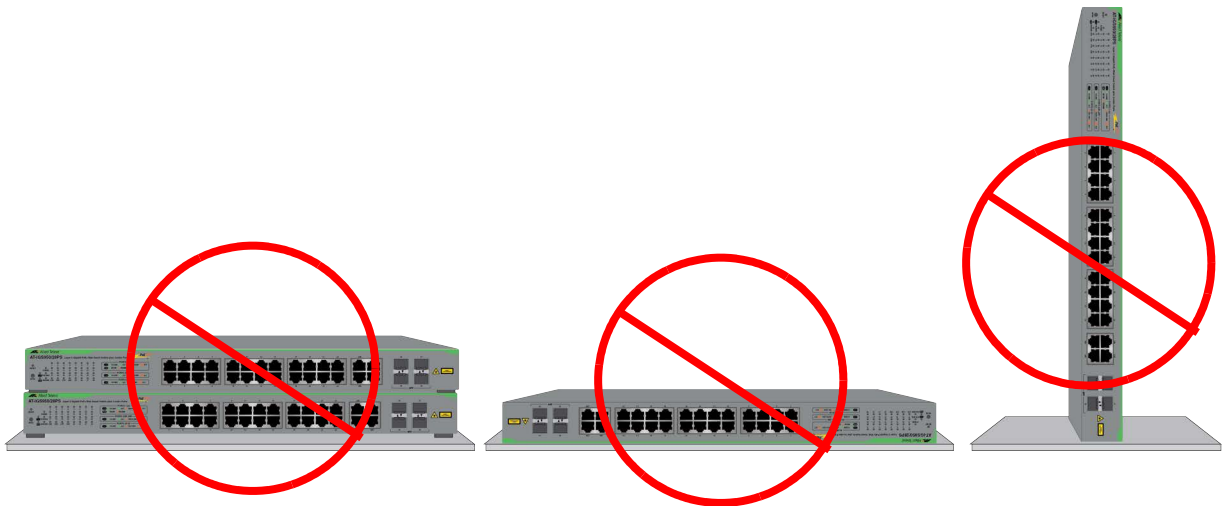


Figure 19. Unsupported Table Installations



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. *GS* E91



Warning

The device is heavy. Use both hands to lift it. You might injure yourself or damage the device if you drop it. *GS* 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 “Reviewing Site Requirements” on page 46.
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 48.
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 20.

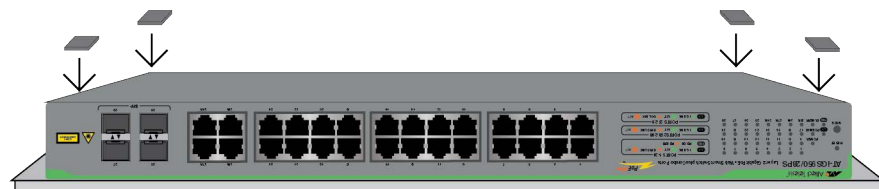


Figure 20. Affixing the Bumper Feet

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 5, “Cabling the Networking Ports” on page 59.

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” on page 54
- “Installing the Switch” on page 56

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 M3 3x6mm bracket screws (included with the switch)
- ❑ Four #10-32T 4.7mm x 11mm standard equipment rack screws with captive washers (included with the switch)
- ❑ Cross-head screwdriver (not provided)

Switch Orientations in the Equipment Rack

You can install the switch in an 19-inch equipment with the front panel flush with the front of the rack or extending in front of the rack. Refer to Figure 21.

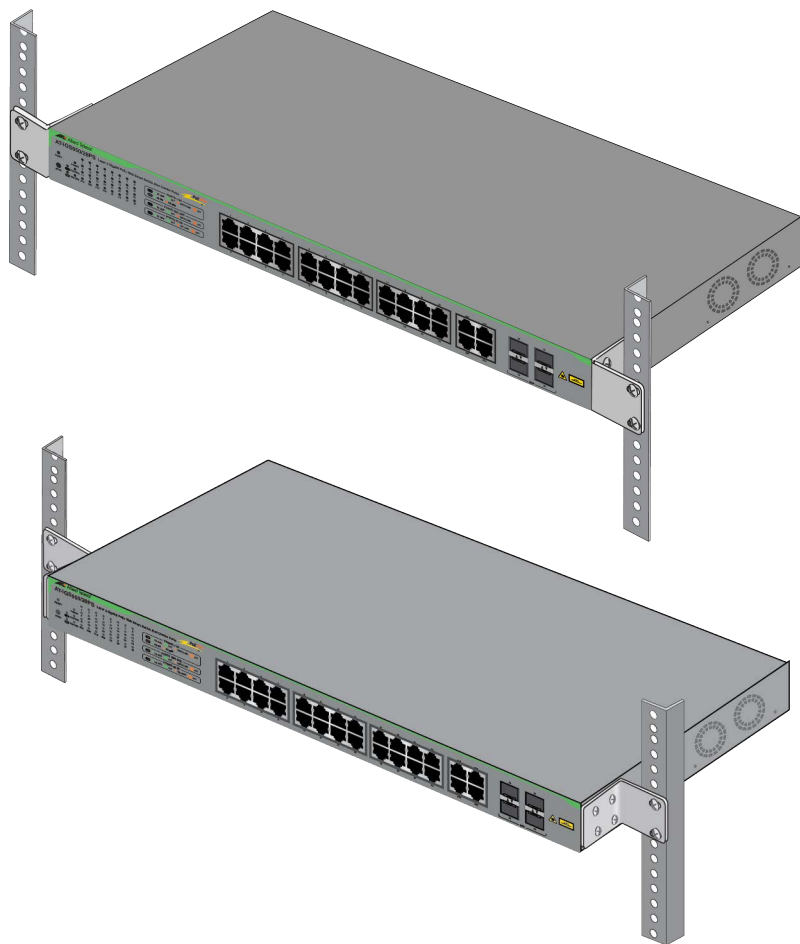


Figure 21. Switch Orientations in an Equipment Rack



Warning

Do not install the switch in a vertical equipment rack. The switch may overheat from inadequate airflow. Refer to Figure 22.



Figure 22. Switch in a Vertical Equipment Rack - Not Supported

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. *ES* 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. Unpack the switch from the shipping box and place the unit on a level, secure surface.
2. Check the shipping box for the accessory items shown in Figure 16 on page 48.
3. If you have not chosen an orientation for the switch in the equipment rack, review “Switch Orientations in the Equipment Rack” on page 54.
4. 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 23 shows the brackets positioned so that the front panel is even with the front of the equipment rack.



Caution

The product warranty may be voided if the product is damaged from attaching the rack mount brackets to the switch with screws other than those supplied with the product.

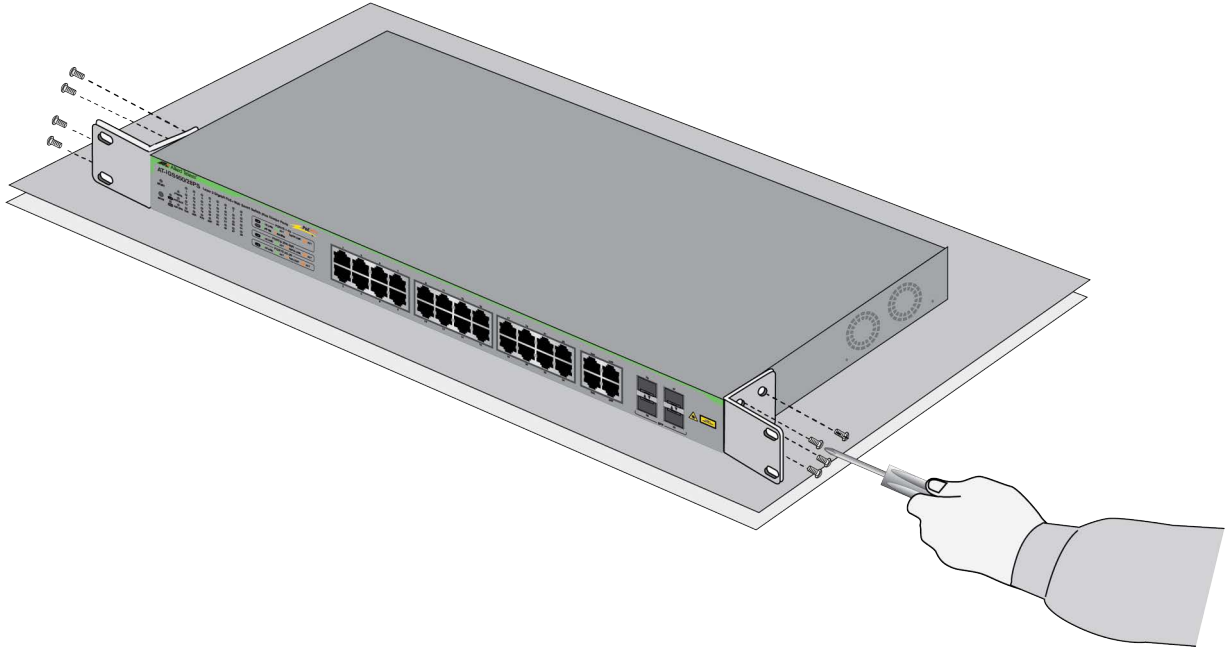


Figure 23. Attaching the Equipment Rack Brackets

5. Have another person hold the switch in the equipment rack while you secure it using four standard equipment rack screws. Equipment rack screws are provided with the switch. Refer to Figure 24.

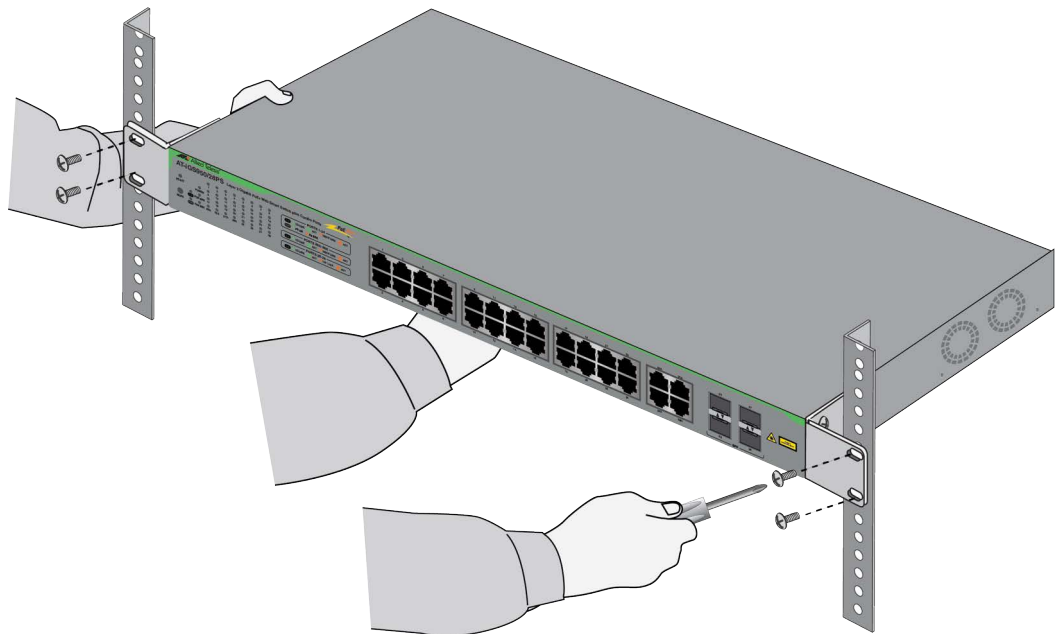


Figure 24. Installing the Switch in a 19-inch Equipment Rack

6. Go to Chapter 5, “Cabling the Networking Ports” on page 59.

Chapter 5

Cabling the Networking Ports

This chapter contains the following procedures:

- ❑ “Cabling the Copper Ports” on page 60
- ❑ “Installing SFP Transceivers” on page 62

Cabling the Copper Ports

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

- ❑ The cable specifications are listed in Table 2 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 setting for PoE+ on the switch ports is enabled. If the switch is powered on, it will immediately begin supplying power to powered devices connected to its copper ports.
- ❑ 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. For instructions, refer to the *iGS950 Series Web Browser User Guide*.
- ❑ The 10/100/1000M copper 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. For instructions, refer to *iGS950 Series Web Browser User Guide*.
- ❑ 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.

After cabling all the copper and SFP ports, go to Chapter 6, “Powering On the Switch” on page 65.

Installing SFP Transceivers

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

- ❑ For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.
- ❑ SFP transceivers are hot-swappable. You may install them while the chassis is powered on.
- ❑ 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 anti-static 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 25 on page 63.

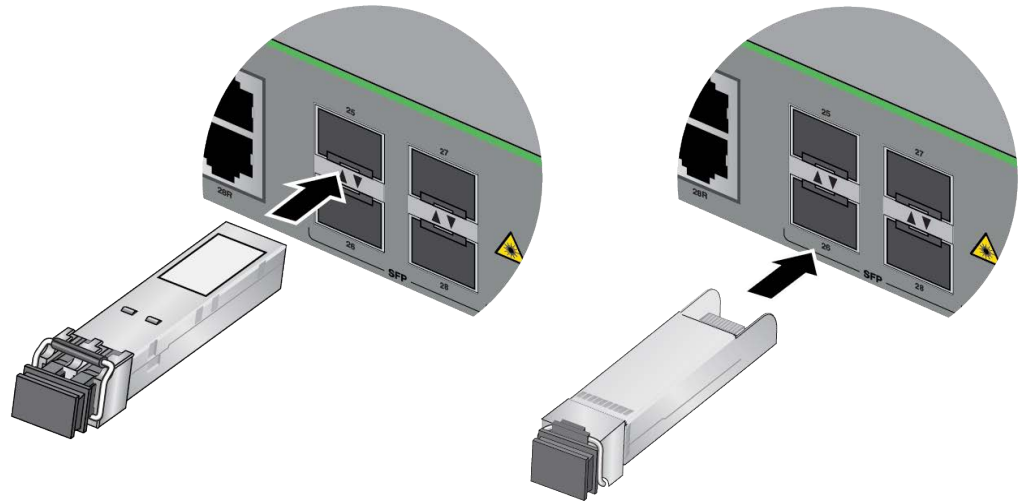


Figure 25. Installing an SFP Transceiver

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 additional SFP transceivers in the switch.

Note

Do not remove the dust covers from fiber optic transceivers until you are ready to attach the cables. Dust contamination can adversely affect the operations of fiber optic transceivers.

4. Remove the dust cover from the transceiver. Refer to Figure 26.

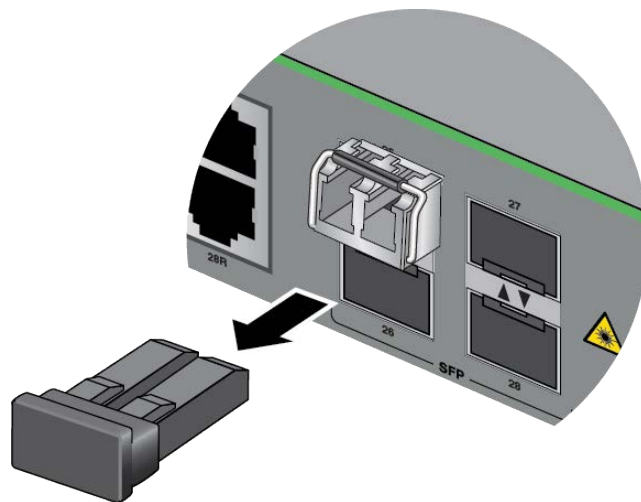


Figure 26. Removing the Dust Cover from an SFP Transceiver

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 27. If the transceiver is in a bottom slot, the handle should be in the down position.

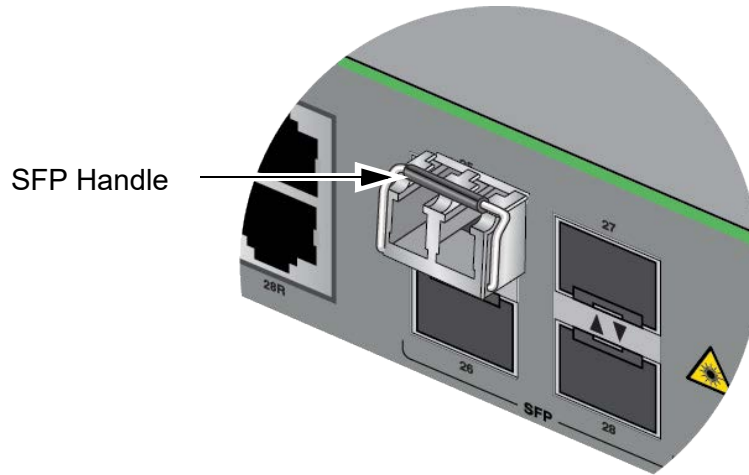


Figure 27. Positioning the SFP Handle in the Upright Position

6. Connect the fiber optic cable to the transceiver. Refer to Figure 28. The connector on the cable should fit snugly into the port, and the tab should lock the connector into place.

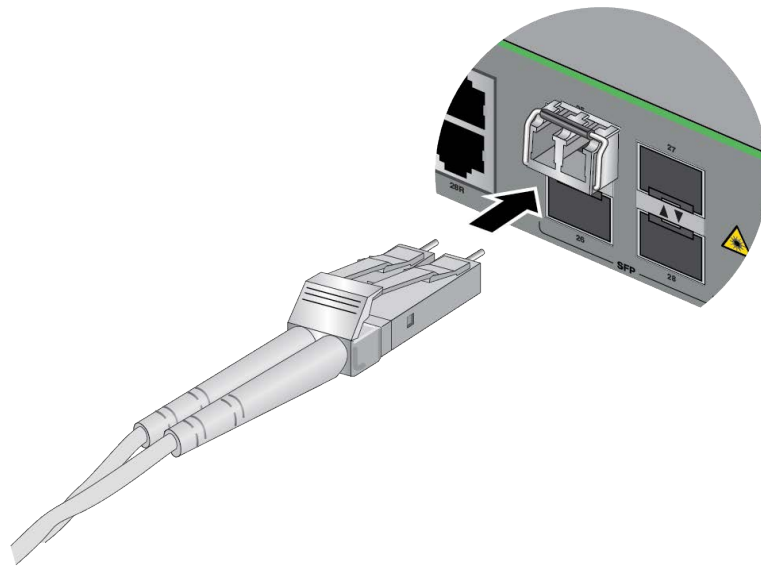


Figure 28. Connecting a Fiber Optic Cable to an SFP Transceiver

7. Repeat this procedure to install additional transceivers.
8. After cabling all the copper and SFP ports, go to Chapter 6, "Powering On the Switch" on page 65.

Chapter 6

Powering On the Switch

This chapter contains the following sections:

- “Powering On the Switch” on page 66
- “Verifying the Switch’s Operations” on page 68
- “Starting a Web Browser Management Session” on page 69

Powering On the Switch

This section contains the procedure for powering on the switch. Refer to “Power Specifications” on page 88 for the power specifications before performing the procedure. Please 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 for obtaining its IP address from a DHCP or BOOTP server on your network. The default setting for the clients is disabled.
- ❑ 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.
- ❑ The default setting for PoE on the copper ports is enabled. The switch can automatically detect the presence of powered devices on its ports. On ports connected to non-PoE devices, the switch supplies networking functions, without PoE.

Note

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



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

Note

Depending on the model, there may be a delay of several seconds before the switch activates the ventilation fans. The AT-iGS950/10PS Switch does not have ventilation fans.

Note

The POWER LED on the front panel flashes as the switch initializes the management software, a process that may take up to a minute to complete. The POWER LED changes to solid green when the switch completes its initialization process.

To power on the switch, perform the following procedure:

1. Connect the AC power cord to the AC power connector on the rear panel. Refer to Figure 29 on page 67.



Figure 29. Connecting the AC Power Cord

2. Connect the power cord to an appropriate AC power source. Refer to Figure 30.

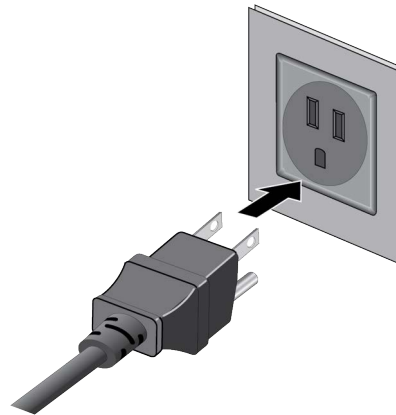


Figure 30. Connecting the Power Cord to an AC Power Source

Note

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

Note

The switch is operational when the POWER LED stops flashing and is solid green, indicating that it has initialized the management software.

3. Go to “Verifying the Switch’s Operations” on page 68.

Verifying the Switch's Operations

To verify the switch's operations, review the following:

- ❑ Inspect the POWER LED. The LED should be solid green. If the POWER LED is off, refer to “Switch Shuts Down or Operates Intermittently” on page 75.
- ❑ Press the MODE button until the POE LED on the front panel is illuminated. Inspect the port LEDs of devices connected to powered devices. The LEDs should be green for ports connected to powered devices. Verified that the powered devices are powered on and operating normally. If there are powered devices that are not receiving power from the switch, refer to “No Power to a PoE Network Device” on page 79.
- ❑ Press the MODE button again until the L/A LED is illuminated. Check the port LEDs for the copper ports. The LEDs for ports that have established connections with network devices should be solid or flashing green at 1G, or solid or flashing amber at 10/100M. If there are ports without connections to network devices, refer to “No Link to a Network Device Over Copper Cable” on page 77
- ❑ Check the port LEDs of the SFP ports. For SFP ports that have established connections to network devices, their LEDs should be solid or flashing green for 1G connections, or solid or flashing amber for 100M connections. If there are SFP ports without connections to network devices, refer to “No Link to a Network Device Over Fiber Optic Cable” on page 80.
- ❑ Inspect the POE MAX LED. It should be off. If it is amber, the switch has reached its max power budget powering the powered devices on its copper ports.
- ❑ Inspect the FAN ERR LED. It should be off. If it is amber, a fan is experiencing a problem. Establish a management session to view the fan status.

Go to “Starting a Web Browser Management Session” on page 69.

Starting a Web Browser Management Session

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

- ❑ The switch has 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 a management session.
- ❑ The switch does not have a default IPv6 address.
- ❑ The switch has IPv4 BOOTP and DHCP clients, and an IPv6 DHCP client. Their default status is disabled.
- ❑ 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 its default IPv4 address, you must 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.

To start a web browser management session on 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 start its management firmware.
3. Connect the Ethernet network port on your computer 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 31.

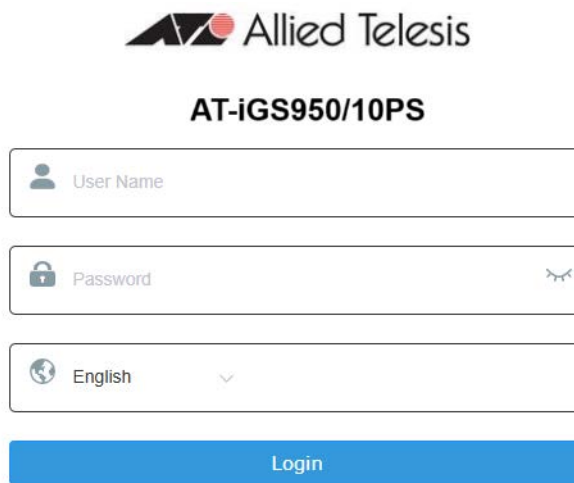


Figure 31. Login Window

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 **Login** button.

The switch displays the Dashboard view. Refer to Figure 32.

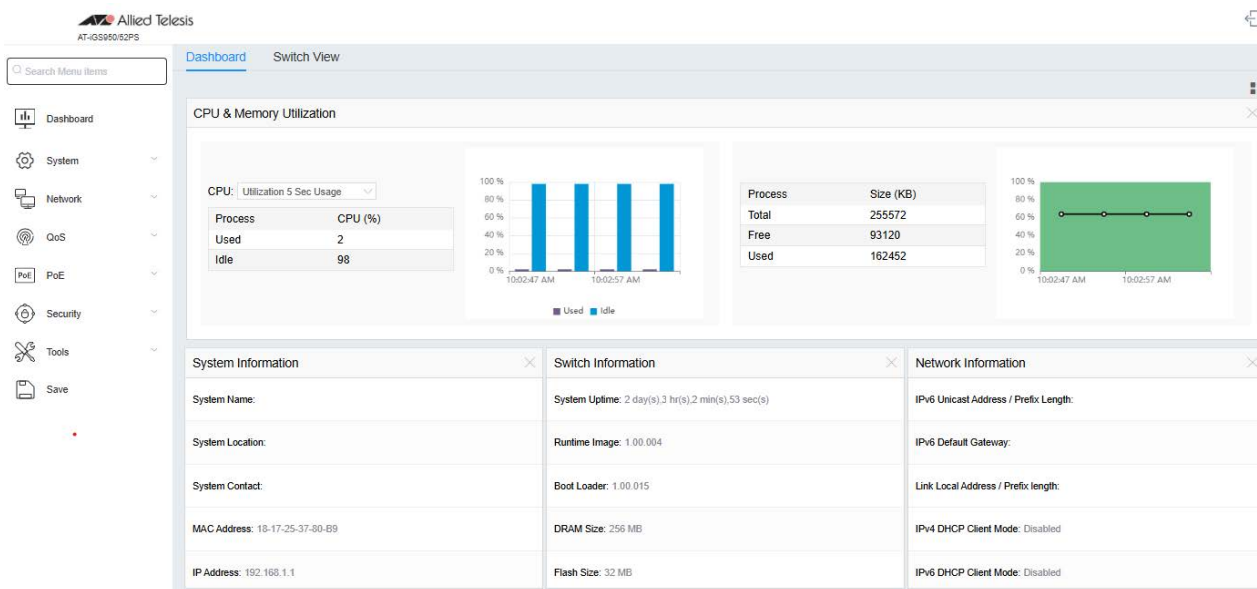


Figure 32. Dashboard View

You are now logged into the web browser interface on the switch. To view port status, click Switch View in the upper left corner.

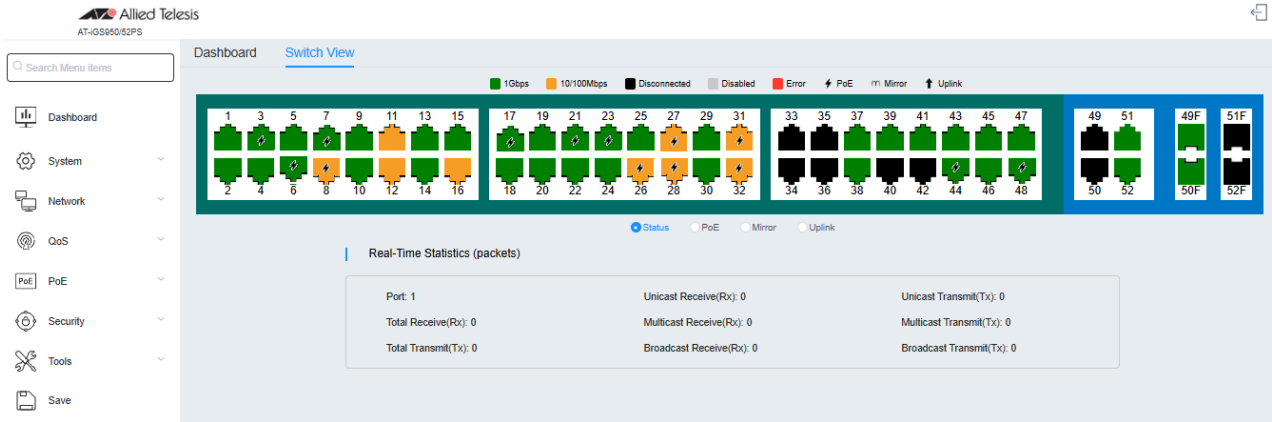


Figure 33. Switch View

To end a web browser management session, click the logout icon in the upper right corner of the window.



Figure 34. Web Browser Logout Icon

For instructions on the web browser management interface, refer to the *iGS950 Series Web Browser User Guide* for instructions.

Chapter 7

Troubleshooting

This chapter contains the following troubleshooting sections:

- ❑ “Switch Does Not Power On” on page 74
- ❑ “Switch Shuts Down or Operates Intermittently” on page 75
- ❑ “All Copper and SFP+ Port LEDs are Off” on page 76
- ❑ “No Link to a Network Device Over Copper Cable” on page 77
- ❑ “No Power to a PoE Network Device” on page 79
- ❑ “No Link to a Network Device Over Fiber Optic Cable” on page 80

Note

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

Switch Does Not Power On

There may be a problem with the AC power source. 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 the AC power source.
- ❑ Connect another device to the AC power source to verify that the power source has power.
- ❑ Try replacing the power cord. If the switch operates with the new power cord, then the original power cord is faulty.
- ❑ Test the output voltage from the AC power source to determine that it is within the normal operating range and that it is stable. For the power requirements of the switch, refer to “Power Specifications” on page 88.

There may also be a problem with the switch itself. Try the following:

- ❑ Try connecting the switch to another power source. If the switch operates properly with the new power source, then the problem is with the original power source. If the switch fails to operate with the new power source, then the problem may be with the switch itself. Replace the switch.
- ❑ The switch experienced a hardware or software failure. Replace the switch.

Switch Shuts Down or Operates Intermittently

A switch that unexpectedly powers off or functions intermittently may be overheating. Try the following:

- ❑ Verify that the location of the switch allows for adequate airflow and cooling.
- ❑ If the switch is installed in a wiring box or closet, verify that there is adequate ventilation to maintain cooling. Refer to “Enclosure Requirements” on page 47.
- ❑ Verify that there are no obstructions blocking the ventilation vents on the left and right sides of the switch.
- ❑ Verify that the ambient temperature of the installation site is within the operating range of the switch. Refer to “Environmental Specifications” on page 87.
- ❑ For the AT-iGS950/20PS, AT-iGS950/28PS, or AT-iGS950/52PS Switch, establish a management session and verify that the fans are operating properly. (The AT-iGS950/10PS Switch does not have fans.)
- ❑ There may be a problem with the AC power source or the switch itself. Review “Switch Does Not Power On” on page 74.

All Copper and SFP+ Port LEDs are Off

Try the following:

- ❑ The switch may be operating in the eco-friendly mode. Try pressing the eco-friendly button.
- ❑ “Switch Does Not Power On” on page 74
- ❑ Review “Switch Shuts Down or Operates Intermittently” on page 75.

No Link to a Network Device Over Copper Cable

Press the MODE button on the front panel of the switch until the L/A LED is green. The port LEDs are now displaying the link/activity status of the ports. Note the following:

- ❑ If a copper port's LED is green, the port has established a 1000M link to the device.
- ❑ If a copper port's LED is amber, the port has established a 10M or 100M link to the device.

If a copper port on the switch is connected to a network device, but its LED is off, the port and network device have not established a link. Try the following:

- ❑ Verify that the remote network device is powered on and operating properly.
- ❑ Verify that the copper cable is securely connected to the ports on the switch and the remote network device.
- ❑ Verify that the copper cable from the remote network device is connected to the correct port on the switch.
- ❑ 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 copper cable does not exceed 100 meters (328 feet).
- ❑ Verify that you are using the appropriate category of copper cable. Refer to Table 2 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

1000M connections may require five to ten seconds to establish links.

Note

If the copper port has the letter "R" in its port number on the front panel, it is a combo port, meaning it is paired with an SFP port. Only one port in a combo pair can be active at a time. Refer to "Combo Copper Ports" on page 26.

If the network performance between the switch and a network device over copper cable is slow or intermittent, try these additional recommendations:

- ❑ Verify that the network device supports Auto-Negotiation for speed and duplex mode. If it does not, there may be a speed or duplex mode mismatch between the switch port and the network device. To resolve this, disable Auto-Negotiation on the switch port and manually adjust the speed and duplex mode port settings.
- ❑ Verify that the copper cable is not installed in close proximity to equipment that generates strong electromagnetic fields.

No Power to a PoE Network Device

If the switch is not providing power to a remote PoE network device, press the MODE button until the PoE LED is green. The port LEDs are now displaying PoE+ status. Note the following:

- ❑ If the corresponding port LED is steady green, the switch is supplying power to the network device.
- ❑ If the LED is steady amber, the switch is not supplying power to the network device because of an error condition. An error condition can occur if the device is requiring more power than its device class, or there is a terminal short in the network cable or connector.

If the LED is off, the switch has not detected a PoE network device on the port. Try the following:

- ❑ Review the PoE network device's documentation for its PoE class, which determines its power requirements. The iGS950 Series supports PoE Classes 0 to 4. The series does not support PoE devices above Class 4.
- ❑ Review the PoE network device's documentation for its wiring mode. The mode specifies the pins on the RJ-45 port on which the device receives power. There are two modes, Mode A and Mode B. 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. Mode B defines pins 4, 5, 7, and 8 as the power carriers. The iGS950 Series supports Mode A, but not Mode B. Most powered devices are designed to accept power by either mode, but some legacy devices may only support one mode. Review the device's documentation or data sheet to confirm that it supports Mode A. The switch cannot support legacy devices that support only Mode B.
- ❑ Verify that you are using the appropriate category of copper cable. Refer to Table 2 on page 21.
- ❑ Try connecting the powered device to a different port on the switch.

Establish a management session with the switch and try the following:

- ❑ Verify that the switch has not reached its maximum power budget supporting other PoE devices. The switch cannot support additional PoE devices if it has reached its maximum power budget. Maximum power budgets are listed in Table 4 on page 23.
- ❑ Verify that PoE is enabled on the port. The default setting for PoE is enabled.
- ❑ Verify that the PoE power setting for the port has not been reduced to a value below the power requirements of the device.

No Link to a Network Device Over Fiber Optic Cable

Press the MODE button on the front panel of the switch until the L/A LED is green. The port LEDs are now displaying the link/activity status of the ports. Note the following:

- ❑ If an SFP port's LED is green, the port has established a 1000M link to a network device.
- ❑ If an SFP port's LED is amber, the port has established a 100M link to a network device.

If the L/A LED for an SFP transceiver is off, the fiber optic port on the transceiver has not established a link to the network device. Try the following:

- ❑ Verify that the corresponding SFP transceiver is fully inserted in the transceiver slot in the switch.
- ❑ Verify that the switch supports the transceiver by referring to the product's data sheet.
- ❑ Verify that the fiber optic cable is securely connected to the transceiver in the switch and the port on the remote network device.
- ❑ Verify that the remote network device is operating properly.
- ❑ Verify that the operating specifications, including wavelengths and operating distances, of the fiber optic ports on the SFP transceiver and the remote network device are compatible. A transceiver's operating specification are included with the modules.
- ❑ Verify that the correct type of fiber optic cabling is being used.
- ❑ Verify that the fiber optic cable from the remote network device is connected to the correct SFP transceiver in the switch.
- ❑ Try connecting another network device to the SFP transceiver using a different cable. If the switch can establish a link, then the problem is with the original cable or the other network device.
- ❑ Establish a management session with the switch and 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).
- ❑ 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 establish a link if they transmit and receive at the same frequencies.

Appendix A

Technical Specifications

This appendix contains the following sections:

- "Physical Specifications" on page 84
- "Environmental Specifications" on page 87
- "Power Specifications" on page 88
- "Certifications" on page 90
- "RJ-45 Copper Port Pinouts" on page 92
- "Ethernet Network Standards" on page 95

Physical Specifications

Dimensions

Table 15 lists the physical dimensions of the iGS950 Series.

Table 15. Product Dimensions (H x W x D)

AT-iGS950/10PS	4.4 cm x 33.0 cm x 18.0 cm (1.7 in. x 13.0 in. x 7.1 in.)
AT-iGS950/20PS	4.4 cm x 44.0 cm x 25.0 cm (1.7 in. x 17.3 in. x 9.8 in.)
AT-iGS950/28PS	4.4 cm x 44.0 cm x 25.0 cm (1.7 in. x 17.3 in. x 9.8 in.)
AT-iGS950/52PS	4.4 cm x 44.0 cm x 43.1 cm (1.7 in. x 17.3 in. x 17.0 in.)

Figure 35 illustrates the dimensions of the AT-iGS950/10PS Switch.

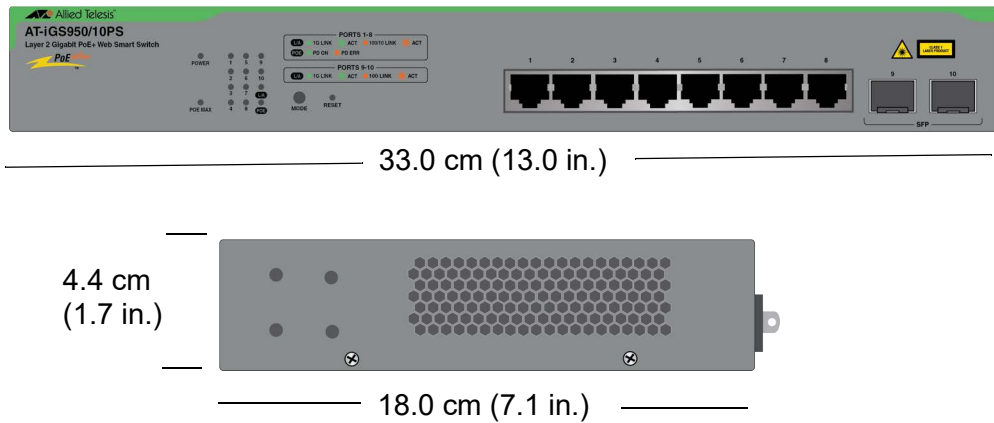


Figure 35. Dimensions of the AT-iGS950/10PS Switch

Figure 36 illustrates the dimensions of the AT-iGS950/20PS Switch.

Weights

Table 16 lists the product weights of the iGS950 Series.

Table 16. Product Weights

AT-iGS950/10PS	1.77 kg (3.90 lb.)
AT-iGS950/20PS	3.89 kg (8.58 lb.)
AT-iGS950/28PS	3.92 kg (8.64 lb.)
AT-iGS950/52PS	6.58 kg (14.51 lb.)

Ventilation

Note the following:

- ❑ The AT-iGS950/10PS Switch does not have any ventilation fans. Cooling is supplied by convection and surrounding airflow.
- ❑ The AT-iGS950/20PS and AT-iGS950/28PS Switches have two fans on the right side when facing the front of the units. The AT-iGS950/52PS Switch has three fans on the right side when facing the front of the unit. In all three switches, ventilation is from left to right, with the fans drawing air out of the devices.



Figure 39. Ventilation Direction in the AT-iGS950/20PS, AT-iGS950/28PS and AT-iGS950/52PS Switches

Note

Fan speed is automatically adjusted by the switch, according to internal temperature.

Table 17 lists the minimum ventilation requirements.

Table 17. Minimum Ventilation Requirements

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

Environmental Specifications

Table 18 lists the environmental specifications of the iGS950 Series.

Table 18. Environmental Specifications of the iGS950 Series

Operating Temperature	-5° C to 50° C (32° F to 122° F)
Storage Temperature	-25° C to 70° C (-13° F to 158° F)
Operating Humidity	5% to 90% noncondensing
Storage Humidity	5% to 95% noncondensing
Maximum Operating Altitude	3,000 m (9,843 ft)

Power Specifications

This section contains maximum power consumptions and input voltages.

Maximum Power Consumptions

Table 19 lists the maximum power consumptions of the iGS950 Series.

Table 19. Maximum Power Consumptions of the iGS950 Series

AT-iGS950/10PS	152.3 watts
AT-iGS950/20PS	434.3 watts
AT-iGS950/28PS	446.1 watts
AT-iGS950/52PS	889.8 watts

Input Voltages

Table 20 lists the input voltages of the iGS950 Series.

Table 20. Input Voltages of the iGS950 Series

AT-iGS950/10PS	100-240V~, 50/60Hz, 3A maximum
AT-iGS950/20PS	100-240V~, 50/60Hz, 7A maximum
AT-iGS950/28PS	100-240V~, 50/60Hz, 7A maximum
AT-iGS950/52PS	100-240V~, 50/60Hz, 10A maximum

Heat Dissipation

Table 21 lists the heat dissipations of the iGS950 Series.

Table 21. Heat Dissipations of the iGS950 Series

AT-iGS950/10PS	519.5 BTU/hr
AT-iGS950/20PS	1,482.0 BTU/hr
AT-iGS950/28PS	1,521.9 BTU/hr
AT-iGS950/52PS	3,036.1 BTU/hr

Maximum Power Supply Efficiencies

Table 22 lists the maximum power supply efficiencies.

Table 22. Maximum Power Supply Efficiencies

AT-iGS950/10PS	Up to 80%
AT-iGS950/20PS	Up to 80%
AT-iGS950/28PS	Up to 80%
AT-iGS950/52PS	Up to 80%

Certifications

Table 23 lists the safety certificates.

Table 23. Safety and Regulatory Compliance Certificates

Euro Zone	CE - Conformité Européenne
United Kingdom	UKCA (United Kingdom Conformity Assessed)
North America	FCC/ICES (ICES-003)/UL - Federal Communication Control / Interference-Causing Equipment Standards
Safety	UL 62368-1 3 rd edition EN 62368-1 2 nd edition IEC 62368-1 3 rd edition
Communications	IEEE 8-02.1 IEEE 8-02.3 IEEE 8-02.3u IEEE 8-02.3z IEEE 8-02.3x IEEE 802.3ab/802.3af
	TÜV

Table 24 lists the electromagnetic certificates.

Table 24. Electromagnetic Certificates

Electromagnetic Interference (EMI)	FCC Part 15 Subpart B Class A CE Class A EN 55032:2015+A1:2020 EN 55035:2017+A11:2020 UKCA ICES-003 issue 7
Electromagnetic Susceptibility (EMS) EN55035	IEC 61000-4-2: 2008 IEC 61000-4-3:2020 IEC 61000-4-4:2012 IEC 61000-4-5:2014/AMD1:2017 IEC 61000-4-6:2013 IEC 61000-4-8:2009 IEC 61000-4-11:2020 EN IEC 61000-3-2:2019+A1:2021 EN IEC 61000-3-3:2013+A2:2021
RoHS	Comply with Green Procurement Practice Regulations

Table 24. Electromagnetic Certificates (Continued)

Declaration of non-use of the nine prohibited substances regulated in JGPSSI/JIG Level A without the six substances prohibited on RoHS Directive.	JGPSSI/JIG Level A
---	--------------------

RJ-45 Copper Port Pinouts

Figure 40 illustrates the pin layout of the RJ-45 copper port connectors.

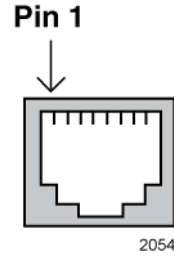


Figure 40. Pin Layout (Front View) of the RJ-45 Copper Ports

Table 25 lists the pin signals at 10/100M without PoE+.

Table 25. Pin Signals on the RJ-45 Copper Ports at 10/100M without PoE+

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 26 lists the pin signals at 10/100M with PoE+.

Table 26. Pin Signals on the RJ-45 Copper Ports at 10/100M with PoE+

Pin	MDIX Signal
1	RX+ and Power-0V
2	RX- and Power-0V
3	TX+ and Power +48V
4	Not used

Table 26. Pin Signals on the RJ-45 Copper Ports at 10/100M with PoE+

Pin	MDIX Signal
5	Not used
6	TX- and Power +48V
7	Not used
8	Not used

Table 27 lists the pin signals at 1000M without PoE+.

Table 27. Pin Signals on Copper Ports at 1000M without PoE+

Pin	Pair	Signal
1	1 +	TX and RX+
2	1 -	TX and RX-
3	2 +	TX and RX+
4	3 +	TX and RX+
5	3 -	TX and RX-
6	2 -	TX and RX-
7	4 +	TX and RX+
8	4 -	TX and RX-

Table 27 lists the pin signals at 1000M with PoE+.

Table 28. Pin Signals on Copper Ports at 1000M with PoE+

Pin	Pair	Signal
1	1 +	TX and RX+ and Power-0V
2	1 -	TX and RX- and Power-0V
3	2 +	TX and RX+ and Power +48V
4	3 +	TX and RX+
5	3 -	TX and RX-

Table 28. Pin Signals on Copper Ports at 1000M with PoE+ (Continued)

6	2 -	TX and RX- and Power +48V
7	4 +	TX and RX+
8	4 -	TX and RX-

Ethernet Network Standards

For the list of the product's Ethernet standards, refer to the product datasheet.

