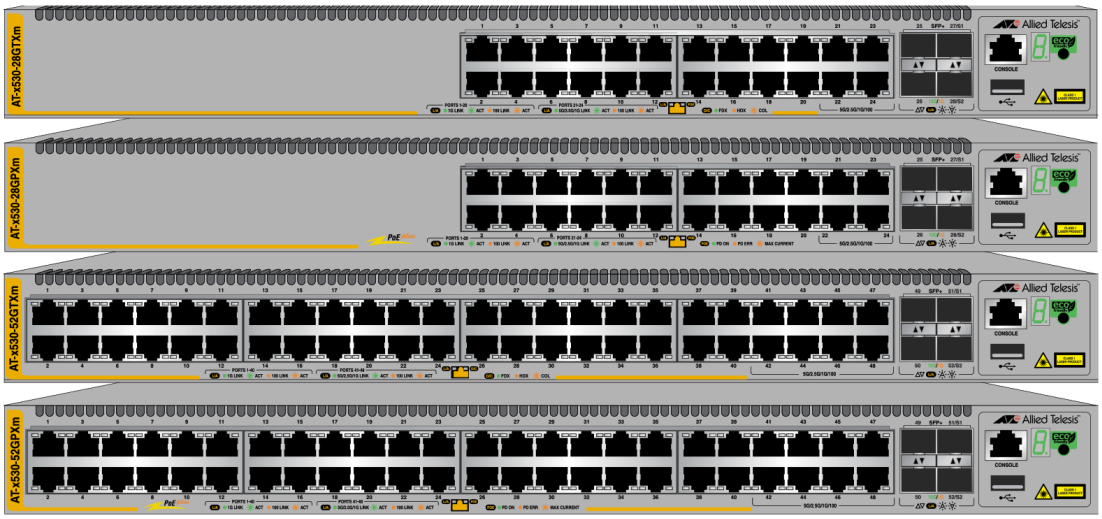
Allied Telesis x530 Multi-Gigabit Layer 3 Ethernet Switches Installation Guide

x530 Series
Stackable Multi-Gigabit Layer 3 Ethernet Switches
AlliedWare Plus™
x530-28GTXm
x530-28GPXm
x530-52GTXm
x530-52GPXm



Quick Installation Guide

613-003075 Rev. A

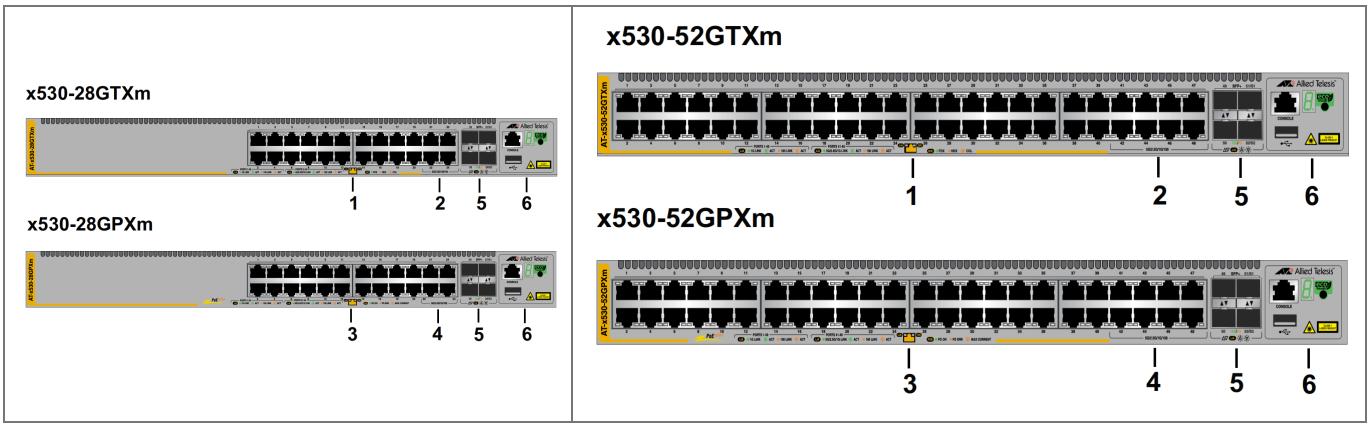
Contents

Introduction

This Quick Installation Guide contains a short version of the installation instructions for the x530 Series of Multi-Gigabit Layer 3 Ethernet Switches. For more instructions, refer to the x530 Series Installation Guide for Standalone Switches and x530 Series Installation Guide for Virtual Chassis Stacking on the Allied Telesis web site at www.alliedtelesis.com/us/en/services-support. This guide contains the following sections:

Front Panels

Here are the front panels of the switches in the x530 Series.



1	10/100/1000Mbps Ethernet copper ports
2	100M/1/2.5/5Gbps Ethernet copper ports
3	10/100/1000Mbps Ethernet copper ports with PoE+
4	100M/1/2.5/5Gbps Ethernet copper ports with PoE+
5	1/10Gbps SFP+ transceiver ports
6	Management panel

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

Switch	**10/100/1000Mbps Ports**	**10/100/1000Mbps Ports with PoE+**
x530-28GTXm	1 to 20	–
x530-28GPXm	–	1 to 20
x530-52GTXm	1 to 40	–
x530-52GPXm	–	1 to 40

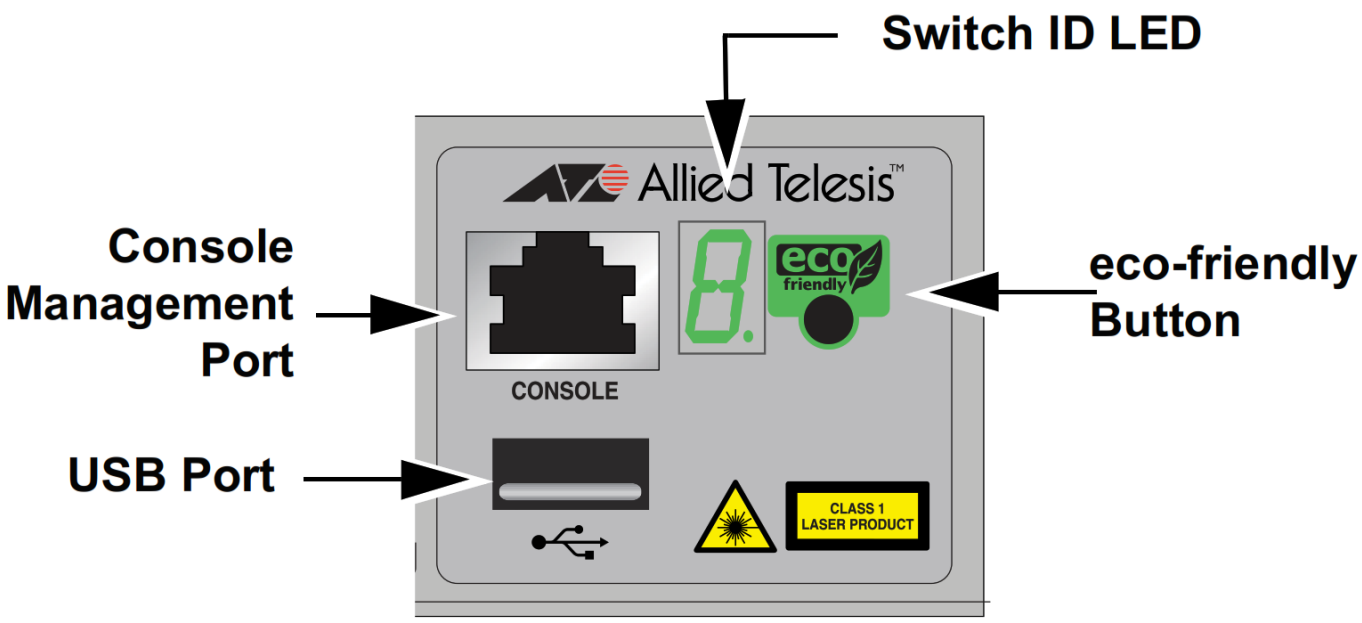
Here are the 100M/1/2.5/5Gbps Ethernet copper ports.

Switch	**100M/ 1/2.5/5Gbps Ports**	**1 00M/ 1/2.5/5Gbps Ports with PoE+**
x530-28GTXm	21 to 24	
x530-28GPXm	–	21 to 24
x530-52GTXm	41 to 48	
x530-52GPXm	–	41 to 48

Here are the 1/10Gbps SFP+ ports.

Switch	Number of 1/10Gbps SFP+ Ports
x530-28GTXm	25 to 28
x530-28GPXm	25 to 28
x530-52GTXm	49 to 52
x530-52GPXm	49 to 52

The management panel is shown here.



PoE+ Power Budgets

The PoE+ power budgets of the x530-28GPXm and x530-52GPXm Switches are listed here. Power budgets are the maximum amounts of power that PoE+ switches can provide to powered devices on the Ethernet copper ports.

Switch	PoE+ Budget
x530-28GPXm	740W (370W per power supply)
x530-52GPXm	740W (370W per power supply)

The x530-28GPXm and x530-52GPXm Switches support IEEE 802.3at Classes 0 to 4 devices. (Maximum 30.0W at the switch ports.)
Note: The maximum number of powered devices that the switches can support simultaneously will depend on the power requirements of the devices.

VCStack™ Feature

The VCStack feature lets you manage up to eight switches as a single virtual unit. The switches synchronize their actions so that switching operations (such as spanning tree protocols, virtual LANs, and static port trunks) span across all the ports and switches. Two advantages of stacks are:

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

- You can add redundancy to your network topology by distributing functions across multiple switches. For instance, static port trunks on standalone switches have to consist of ports from the same switch. In contrast, static port trunks in a stack can have ports from different switches.

  Note: For instructions, refer to the x530 Series Installation Guide for Virtual Chassis Stacking.

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-safetystatements.

 **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

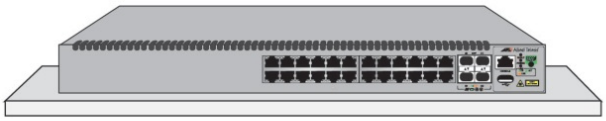
 **Warning:** Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth-ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.  E4

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

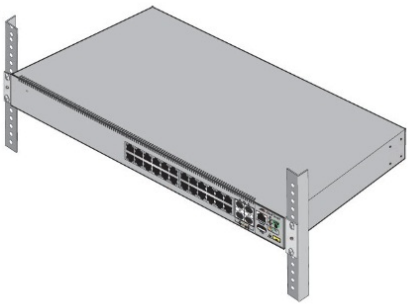
 **Warning:** To reduce the risk of electric shock, the PoE ports on this product must not connect to cabling that is routed outside the building where this device is located.  E40

Installation Options

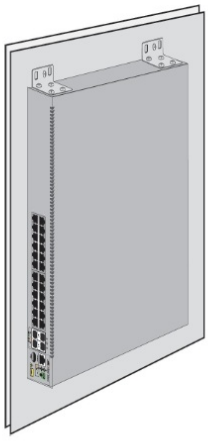
This figure illustrates the installation options.



Table



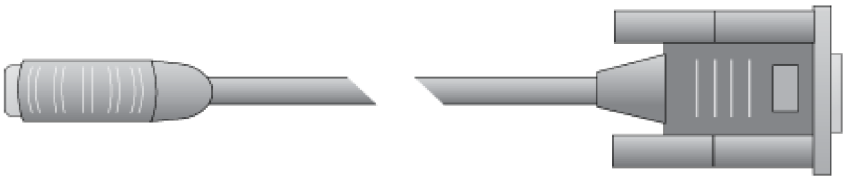
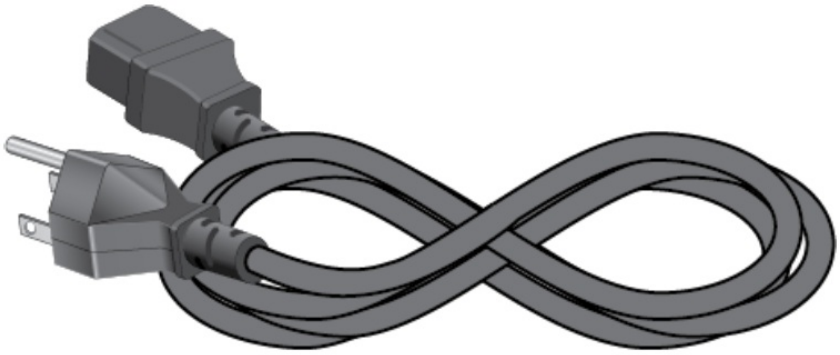
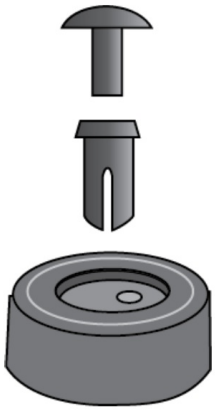
Standard 19-inch equipment rack

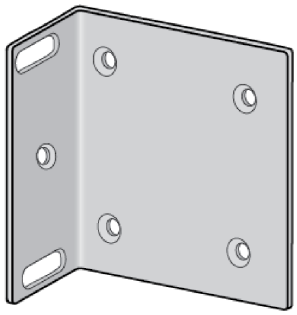
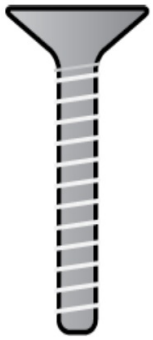


Wood or concrete wall

Unpacking the Switch

Here are the accessory items that come with the switches.

 1417	One 2m (6.6 ft) local management ca ble with RJ-45 (8P8C) and DB-9 (D-sub 9-pin) connectors.
	Two AC power cords
	Four bumper feet with rivets

	Two power cord retaining clips
	Wall/equipment rack brackets: 2 brackets – x530-28GTXm and x530-28GPXm 4 brackets – x530-52GTXm and x530-52GPXm
	Bracket screws: 3x6mm 8 screws – x530-28GTXm and x530-28GPXm 16 screws – x530-52GTXm and x530-52GPXm
	Wood and concrete wall screws: 4×32.3mm 2 screws – x530-28GTXm and x530-28GPXm 4 screws – x530-52GTXm and x530-52GPXm
	Wall anchors – 6x4x29.6mm: 2 anchors – x530-28GTXm and x530-28GPXm 4 anchors – x530-52GTXm and x530-52GPXm

Choosing a Site for the Switch
Review these site recommendations and requirements.

- Before installing the switch in an equipment rack, check that the rack is safely secured so that it will not tip over. Devices in a rack should be installed starting at the bottom 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 without adequate airflow. The switch might overheat and shut down.

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

Ventilation Direction in the Switches
The direction of ventilation in the switches is from front to back.
Installing the Switch
Installing the Switch on a Desk or Table
To install the switch on a desk or table, perform the following procedure:

1. Place the switch upside down on a table.
2. Inset a rivet housing into a bumper foot.
3. Place the bumper foot on one of the corner holes in the bottom panel of the switch.
4. Insert the rivet to secure the bumper foot to the base.

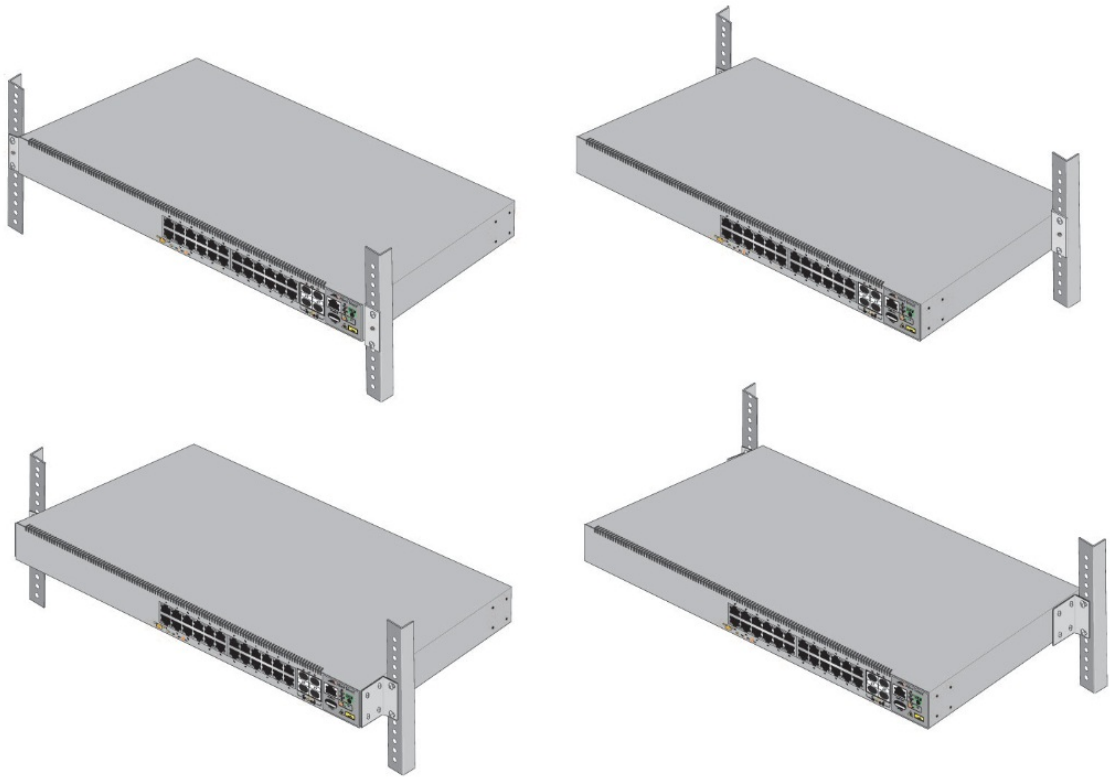
5. Repeat steps 2 to 4 to install the remaining bumper feet.
6. Turn the switch over.
7. Go to “Ports” on page 14.

Installing the Switch in an Equipment Rack
The following items are required to install the switch in an equipment rack:

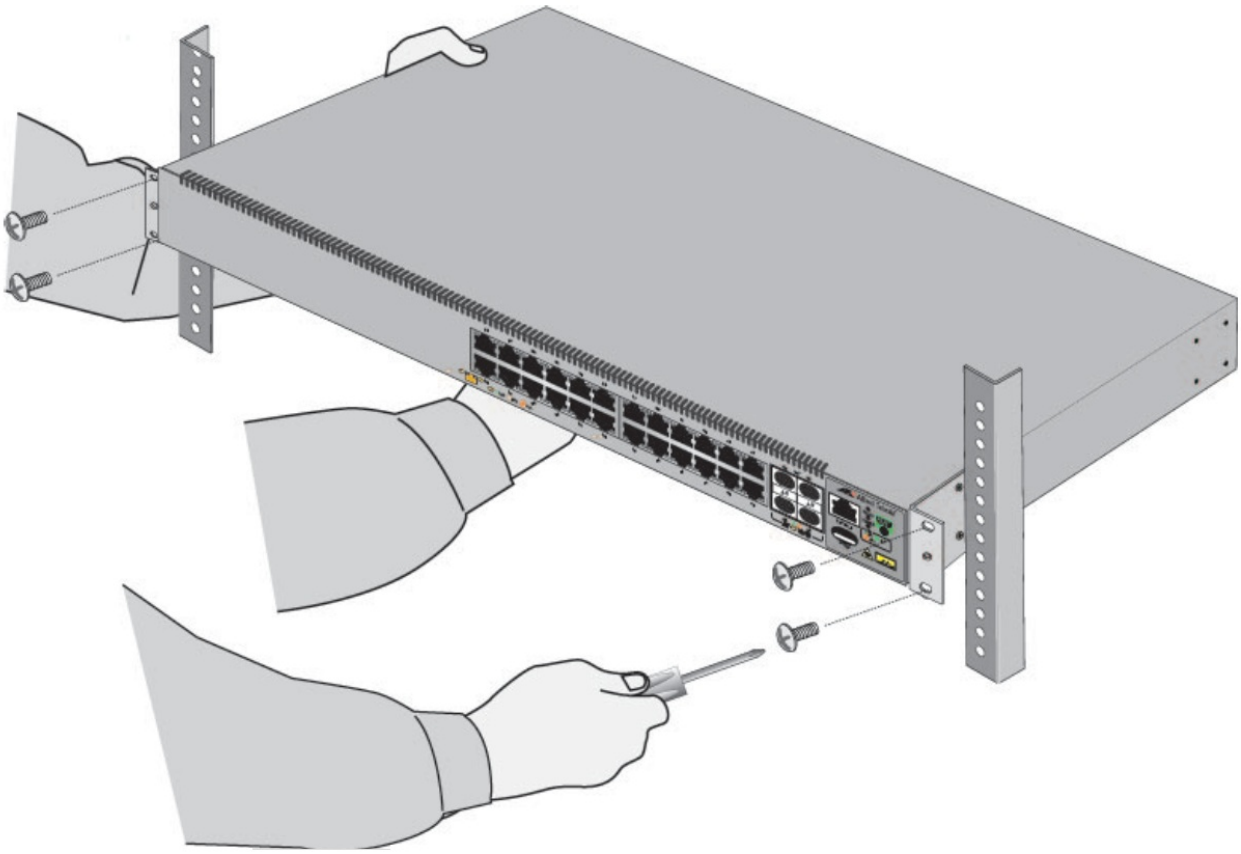
- Two equipment rack brackets (included with the switch)
- Eight M3x6mm bracket screws (included with the switch)
- Cross-head screwdriver (not provided)
- Four standard equipment rack screws (not provided)

To install the switch, perform the following procedure:

1. Place the switch on a table.
2. If the bumper feet are attached to the bottom of the switch, remove them using a flat-head screwdriver.
3. Attach two brackets to the sides of the switch with eight bracket screws included with the unit. The following figures illustrate the four possible positions of the brackets on the switch for a standard 19-inch equipment rack.



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



5. Go to “Ports” on page 14.

Installing the Switch on a Wall

You can install the switch on a wall with the front panel facing up, left, or right. Do not install the switch with the front panel facing down. Here are the required tools and materials for installing the switch on a wall:

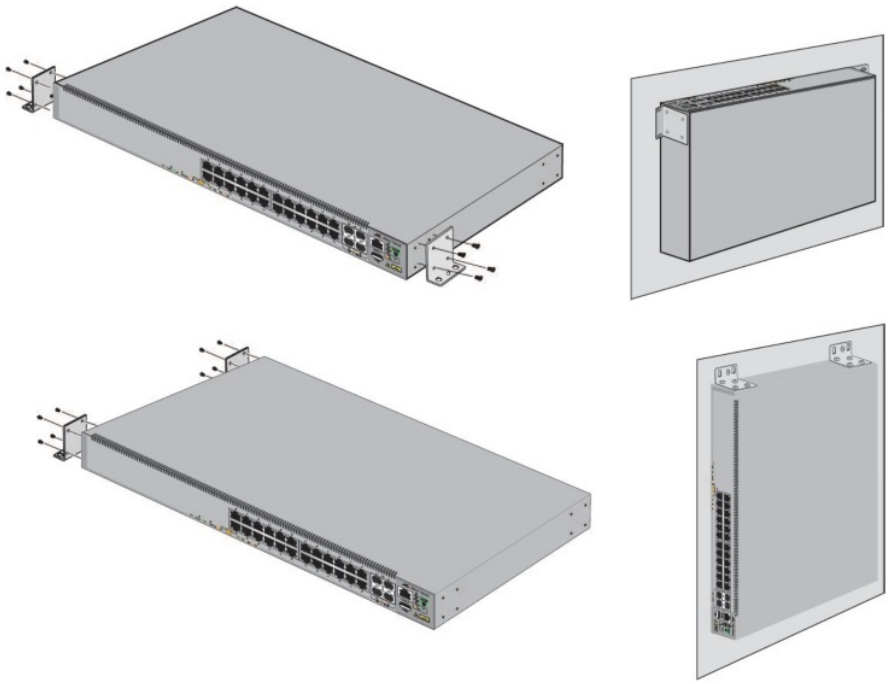
- x530-28GTXm and x530-28GPXm Switches: two wall/equipment rack brackets and eight bracket screws (included with the switches)
- x530-28GPXm and x530-52GPXm Switches: four wall/equipment rack brackets and sixteen bracket screws (included with the switches)
- Two or four wood or concrete wall screws (included with the switch)
- Two or four wall anchors (included with the switch)
- 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-inch carbide drill bit for a concrete wall (not provided)

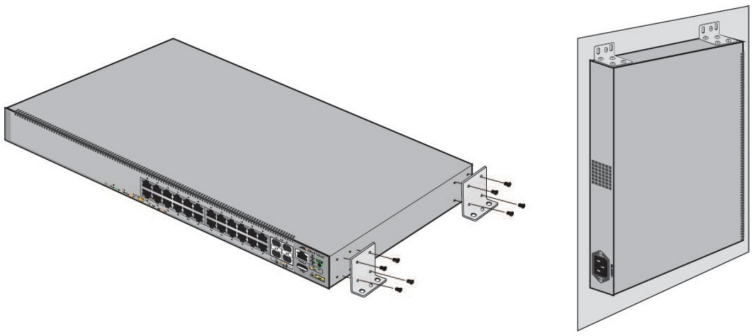
Warning: The device should be installed on the wall by a qualified building contractor. Serious injury to yourself or others or damage to the equipment may result if it is not properly fastened to the wall. E105

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

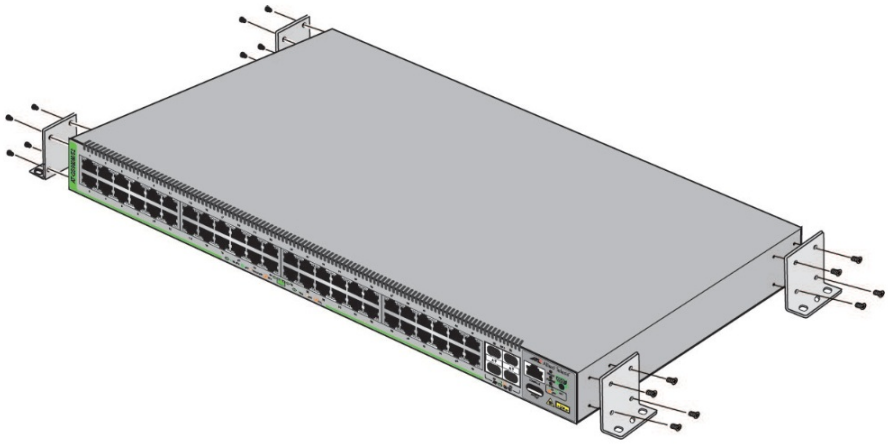
To install the switch on a wall, perform the following procedure:

1. Place the switch on a table.
2. If the bumper feet are attached to the bottom of the switch, remove them using a flat-head screwdriver.
3. For the x530-28GTXm and x530-28GPXm Switches, attach two brackets with eight screws, as shown here.



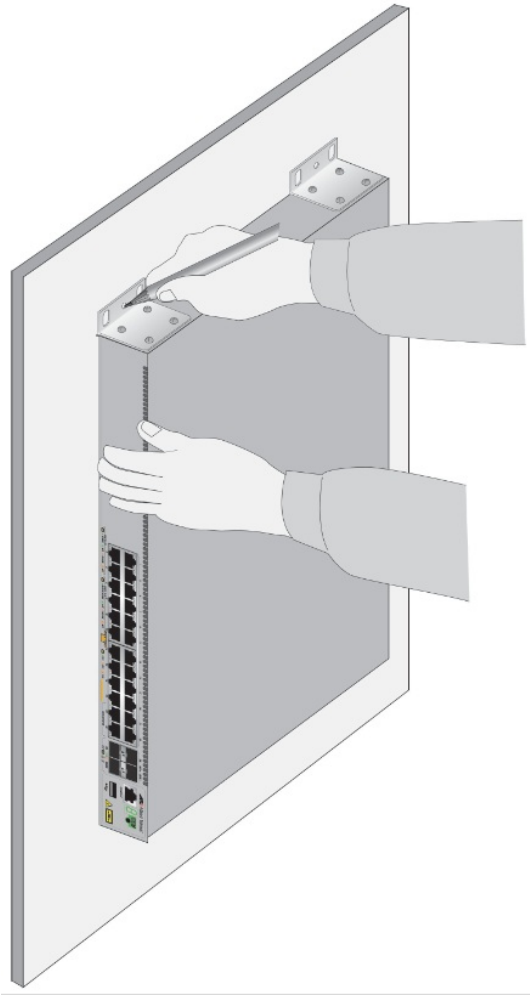


4. For the x530-52GTXm and x530-52GPXm Switches, attach four brackets with sixteen screws, as shown here.



Note: If the wall material requires pre-drilled holes, perform steps 4 to 9. Otherwise, go to step 10.

5. 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 screw holes in the brackets.



6. Place the switch on a table.
7. 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.

8. If the wall material requires pre-drilling the screw holes, use an appropriate drill to drill the holes. The dimensions of the supplied screws and anchors are in “Unpacking the Switch” on page 7.
9. If the wall material requires anchors, insert the anchors into the screw holes.
10. Have another person hold the switch at the selected wall location while you secure it to the wall with appropriate screws.
11. 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 Category 3 unshielded cabling.
- 1000Mbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.
- 1/2.5/5Gbps ports: Standard TIA/EIA 568-A-compliant Category 5 or TIA/EIA 568-B-compliant Enhanced Category 5 (Cat 5e) unshielded cabling.

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 or higher speeds.
- The ports support half- and full-duplex at 10Mbps and 100Mbps.
- The ports support only full-duplex at 1000Mbps and higher speeds.
- Do not attach cables to ports of static or LACP port trunks until after you configure the trunks on the switch. Otherwise, the ports will form network loops that can adversely affect network performance.
- PoE+ is enabled by default on the ports on the x530-28GPXm and x530-52GPXm Switches.

Installing SFP+ Transceivers
Here are general installation guidelines:

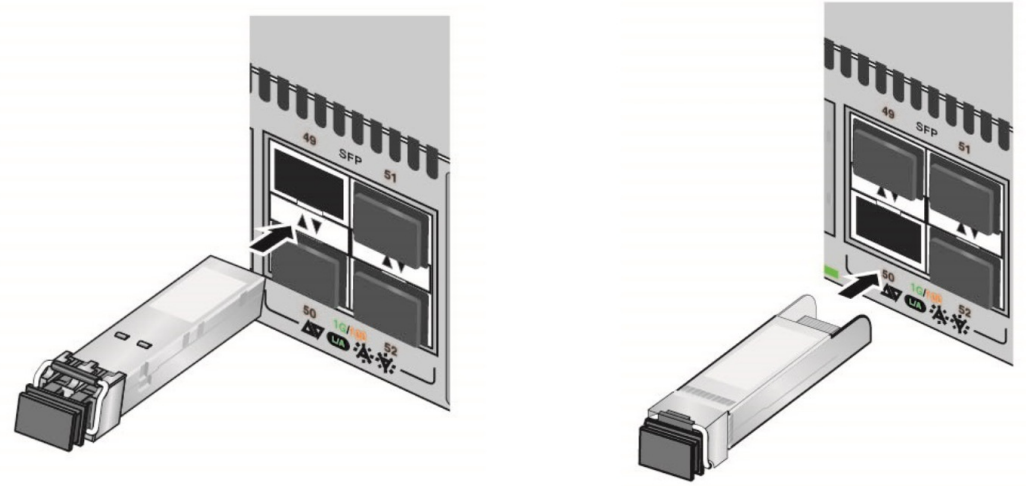
- You can install SFP+ transceivers while the switch is powered on.
- For a list of supported transceivers, refer to the product’s data sheet on the Allied Telesis web site at **www.alliedtelesis.com**.
- The operational specifications and fiber optic cable requirements are included with the transceivers.
- 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. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the devices. E86

Note: Do not cable the SFP+ S1 and S2 ports yet. To use the ports as regular Ethernet SFP+ ports, you have to disable the VCStack feature. For instructions, refer to "Disabling the VCStack Feature" on page 22 or the x530 Series Installation Guide for Standalone Switches. To use the ports as stacking ports for VCStack, refer to the x530 Series Installation Guide for Virtual Chassis Stacking.

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.

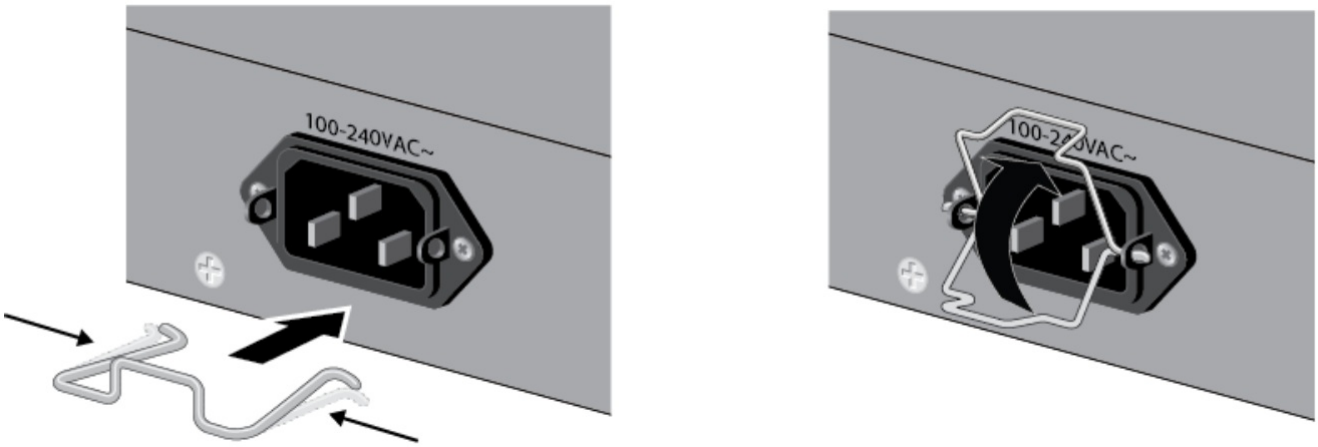


2. Slide the transceiver into the port until it clicks into place. To attach the fiber optic cable to the transceiver, continue with the next step. Otherwise, repeat steps 1 and 2 to install the remaining transceivers in the switch.
3. Remove the dust cover from the transceiver.
4. Connect the fiber 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 16.

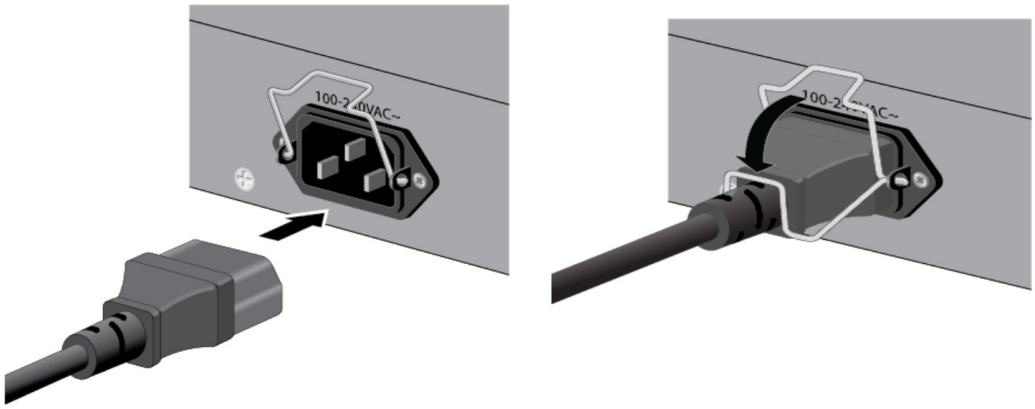
Powering On the Switch

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

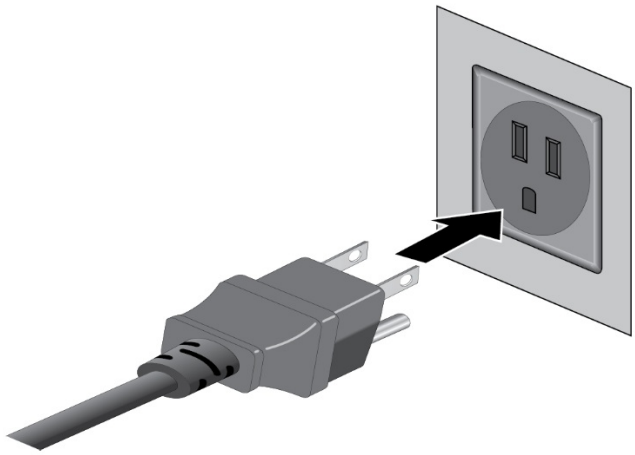
1. Install the power cord retaining clip on the AC power connector on the rear panel of the switch, and raise the clip.



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 an appropriate AC power source.

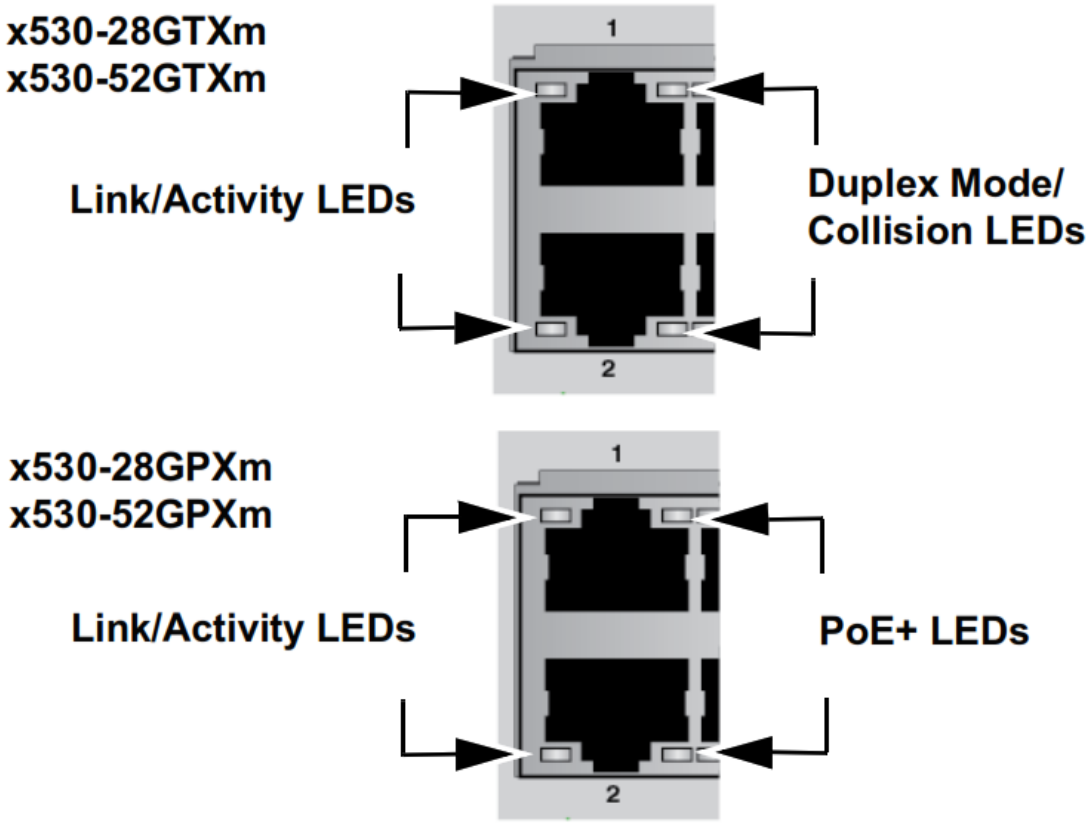


4. Wait two minutes for the switch to initialize its management software.
5. Go to “LEDs” next or “Starting a Local Management Session” on page 21.

LEDs

Ethernet Copper Port LEDs

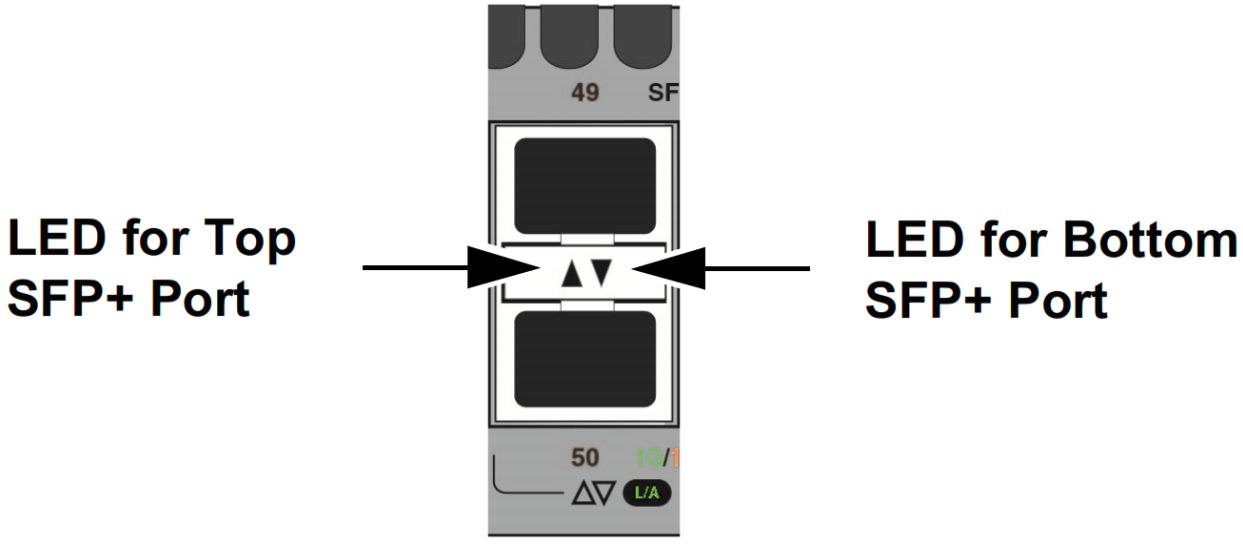
The Ethernet copper port LEDs on the switches are described here.



Link/Activity LED (Left LED)	
Solid Green	The port has established a link to another network device, as follows: – For 10M/100M/1Gbps ports, the link is 1Gbps. – For 100M/1/2.5/5Gbps ports, the link is 1Gbps, 2.5Gbps, or 5Gbps.
Flashing Green	The port is transmitting or receiving packets.
Solid Amber	The port has established a link to another network device, as follows: – For 10M/100M/1Gbps ports, the link is 10Mbps or 100Mbps. – For 100M/1/2.5/5Gbps ports, the link is 100Mbps.
Flashing Amber	The port is transmitting or receiving packets.

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/Collision LEDs (Right LED) – x530-28GTXm and x530-52GTXm Switches (non-PoE model)	
Solid Green	The port is operating in full-duplex mode.
Solid Amber	The port is operating in half-duplex mode.
Flashing Amber	The port is encountering collisions in half-duplex mode.
PoE+ LEDs (Right LED) – x530-28GPXm ad x530-52GPXm Switches	
Solid Green	The port is delivering power to a powered device.
Solid Amber	The switch has 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 becaus e it is already providing its maximum power to other devices.
Off	This LED state can result from the following conditions: – The port is not connected to a po wered 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 10Gbps link to a network device.
Flashing green	The port is transmitting or receiving packets at 10Gbps.
Solid amber	The port has established a 1Gbps link to a network device.
Flashing amber	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. – A non-supported module is installed. – The LEDs are turned off. To turn on the LEDs, use the eco-friendly button.

Starting a Local Management Session

This procedure explains how to start local management sessions on the switch. You perform local management sessions by connecting your computer to the Console port on the front panel. The switch does not need an IP address for local management sessions. Local management sessions require a management cable. If your workstation has a DB-9 connector, you can use the cable that comes with the switch. It is two meters long, with an RJ-45 connector that connects to the Console port and a DB-9 connector that connects to your computer. See “Unpacking the Switch” on page 7.
If your computer does not have a DB-9 connector, such as a laptop computer, Allied Telesis offers the VT-Kit3 management cable for local management sessions. It has a USB-A male connector that connects to a USB port on your computer. The VT-Kit3 management cable and its software are sold separately.
To start a local management session with the management cable that comes with the switch, perform the following procedure:

1. Connect the RJ-45 end of the management card included with the switch 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: 9600 bps (The baud rates of the Console port are 9600, 19200, 38400, 57600, and 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 prompt is displayed: awplus> For more information, refer to the Software Reference for x530 Series Switches, AlliedWare Plus Operating System from **www.alliedtelesis.com/us/en/services-support**.

Disabling the VCStack Feature

The SFP+ S1 and S2 ports can function either as regular Ethernet SFP+ ports or as stacking ports for the VCStack feature. At their default settings, the SFP+ S1 and S2 ports are VCStack stacking ports. To use them as regular Ethernet SFP+ ports, you have to disable the VCStack feature. For instructions, perform the following procedure:

1. Start a local management session. Refer to “Starting a Local Management Session” on page 21.
2. Enter the commands in bold: awplus> enable awplus# to configure terminal
   Enter configuration commands, one per line. End with CNTL/Z. a plus(config)# no stack 1 enable
3. At the confirmation prompt, type Y for yes to disable VCStack,
4. Enter the commands in bold: a plus(config)# exit awplus# write Building configuration … {OK} awplus# reboot
5. Wait two minutes for the switch to start the management software
   The switch in now in standalone mode. The SFP+ S1 and S2 ports are now regular Ethernet ports.
6. You can now cable the SFP+ S1 and S2 transceiver ports.

Troubleshooting

Problem: All port and system LEDs are off, and the fans have 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 an 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 x530-28GPXm or x530-52GPXm 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 18. 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. The PoE+ budgets are listed in “PoE+ Power Budgets” on page 5.
- 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 datasheet.

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Documents / Resources

	Allied Telesis x530 Multi-Gigabit Layer 3 Ethernet Switches [pdf] Installation Guide x530 Multi-Gigabit Layer 3 Ethernet Switches, Multi-Gigabit Layer 3 Ethernet Switches, Layer 3 Ethernet Switches, Ethernet Switches, x530-28GTXm, x530-28GPXm, x530-52GTXm, x530-52 GPXm

References

- Welcome to Allied Telesis | Allied Telesis
- Safety Statements | Allied Telesis
- Service & Support | Allied Telesis