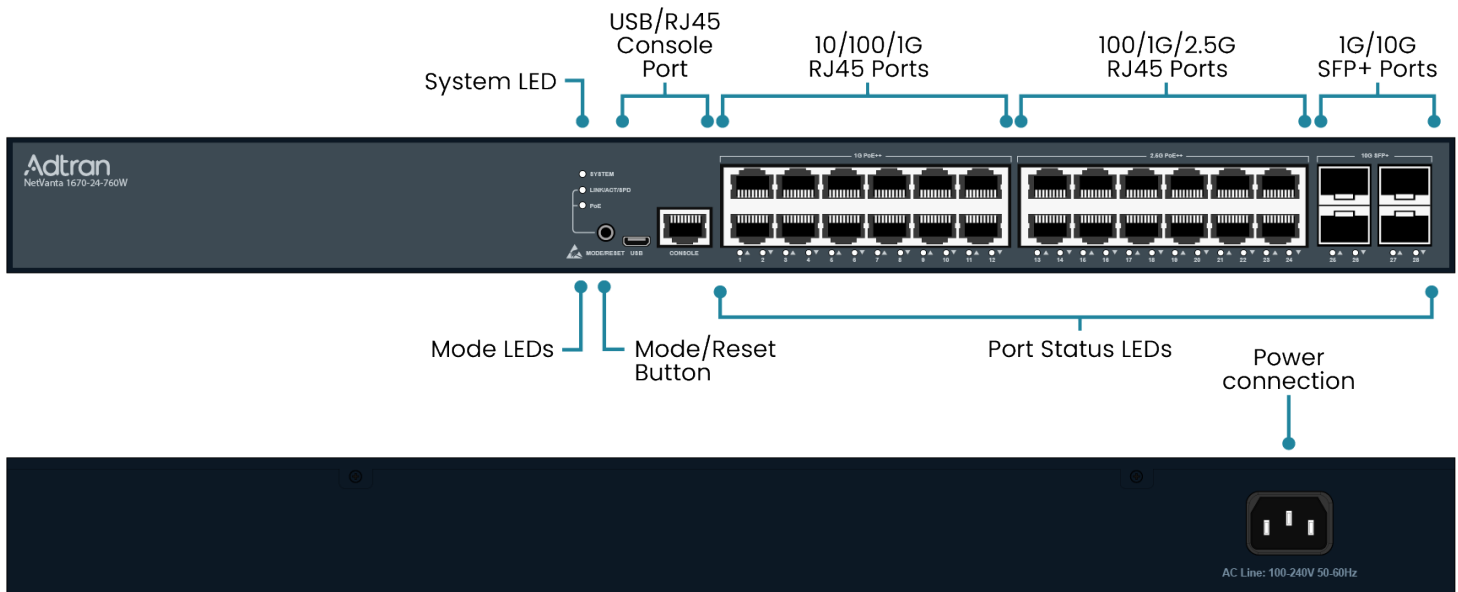


### Description

The NetVanta 1670-24-760W is a Layer 3 Lite PoE++ switch that includes 4 multi-rate SFP+ ports (1G/10G) and 24 multi-rate POE++ RJ45 ports (10/100/1G/2.5G). The switch provides Layer 2 and Layer 3 features that deliver high hardware performance and environmental flexibility for small-to-medium size businesses and enterprises.

Figure 1: NetVanta 1670-24-760W Front and Rear Panel Layout



### Features

- 1 USB/RJ45 console port
- 12 PoE++ RJ45 ports, 10/100/1G
- 12 PoE++ RJ45 ports, 100/1G/2.5G
- 4 SFP+ ports, 1G/10G



#### WARNING

A warning indicates a hazard that, if not avoided, could result in death, injury, or serious property damage.



#### CAUTION

A caution indicates a hazard that, if not avoided, could result in service interruption, damage to the equipment, or minor property damage.



#### NOTE

A note highlights additional, but important, information or features.

# Installation


After you unpack the unit, inspect it for damage. If you notice any shipping damage, file a claim with the carrier and then contact Adtran. For more information, see [Warranty](#).

- Installation Guidelines ..... 2
- Shipment Contents ..... 2
- Step 1: Installing the Switch ..... 2
- Step 2: Connecting the Power ..... 3
- Step 3: Installing the SFP+ Modules ..... 3
- Step 4: Configuring the Switch ..... 4

## Installation Guidelines


- These procedures are intended for trained and qualified service personnel.
- See the national, state, and local electrical codes for the requirements for power, grounding, and wiring, and installation methods.
- All installation locations should be within 5 feet (1.5 m) of a wall outlet. The NetVanta 1670-24-760W includes a 6-foot (1.8 m) power cord.
- For additional installation considerations, including wall-mounted fiber trays and other installation housings, consult your Adtran representative.
- Use Adtran provided mounting screws and brackets only.
- Ensure that the NetVanta 1670-24-760W is not located in direct sunlight or next to any thermal obstructions.
- Ensure that the NetVanta 1670-24-760W does not come in contact with water or other liquids.

**WARNING**




Read all warnings, cautions, notes and installation instructions before installing or servicing this equipment.

**CAUTION**



- Use caution when installing optical modules and optical fiber cables so as not to damage the optical fiber cable. The optical fiber cable should not have a bend radius smaller than one inch.
- If using fiber optics, do not remove the dust covers until you are ready to attach the cables.

**CAUTION**



This product is intended for indoor use only. Ethernet cables, and attached equipment are intended for use within the same building with equipotential bonding, and not intended to be placed in separate buildings or structures. Failure to deploy as described could result in permanent damage from lightning or other electrical events and voids the warranty.

## Shipment Contents

- NetVanta 1670-24-760W switch
- AC power cord
- DB9 to RJ45 cable
- Micro-USB to USB cable
- Four adhesive rubber feet
- Mounting kit (two brackets and eight screws)
- Quick Start Guide

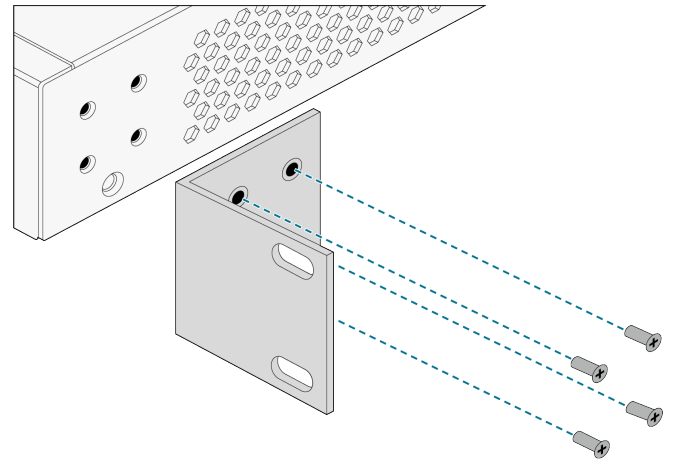
## Step 1: Installing the Switch

You can install the NetVanta 1670-24-760W either in a 19-inch rack or on a desktop or shelf.

### Mounting the Switch in a 19-inch Rack


1. Attach the mounting brackets to both sides of the switch.
2. Insert the provided screws and tighten them with a Phillips-head screwdriver to secure the brackets.

**Figure 2: Rack Mounting Bracket Installation**



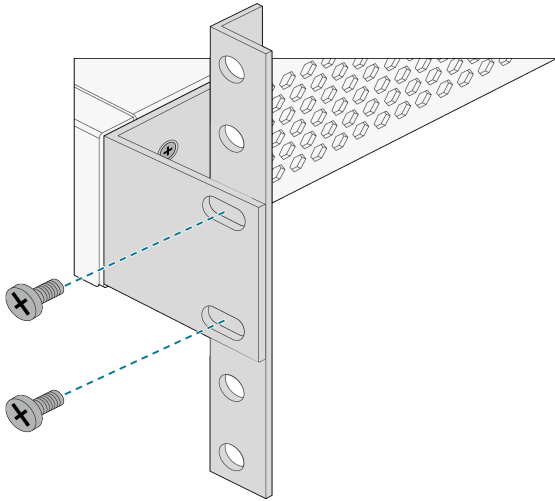
3. Position the switch in the stationary equipment rack. Allow 1-inch of clearance between units.
4. As a second person holds the switch in position, align the bracket oval holes with the mounting holes in the rack posts.
5. Insert two rack screws and tighten them with a Phillips-head screwdriver to secure the switch to the rack.

**NOTE**



Rack mounting brackets are a default accessory with the unit. You can order spare brackets (P/N: 1700519F1).

Figure 3: Attaching the Brackets to the Rack Post



### Placing the Switch on a Desktop or Shelf

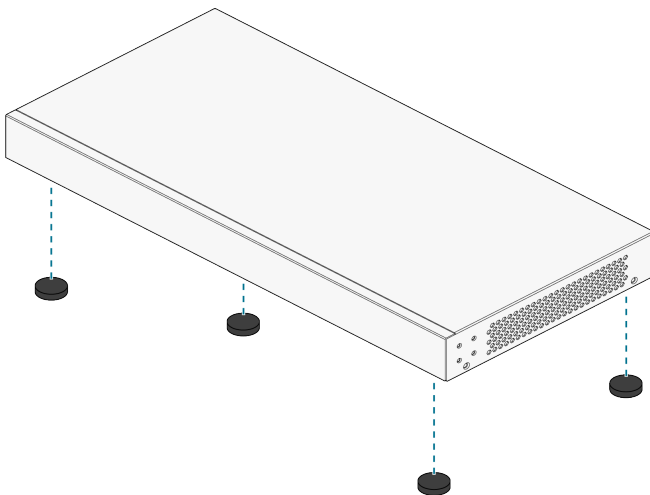


#### CAUTION

Place the equipment on a desk or shelf in a way that ensures adequate airflow for safe operation. Allow 1-inch clearance on the top and sides of the unit for sufficient air flow.

1. Verify that the desk or shelf is sturdy enough to support the switch.
2. Attach the four adhesive rubber feet to the bottom of the switch.
3. Place the switch on a desktop or shelf.

Figure 4: Attaching the Rubber Feet



### Step 2: Connecting the Power



#### WARNING

Refer to the national, state and local electrical codes for the requirements for power and grounding wiring methods.

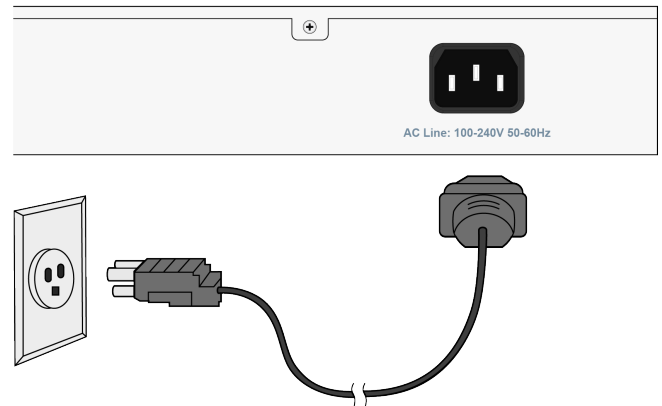


#### CAUTION

An external AC surge protection device should be installed at the AC input connection to the local AC-powered product. The surge protection device should provide L-N, L-G, and N-G protection. Adtran recommends that the device contains a visual GOOD indicator.

1. Connect the AC power cord to the AC power receptacle on the switch rear panel.
2. Connect the other end of the AC power cord to a properly grounded AC power outlet. Install the AC branch circuit socket-outlet near the equipment to ensure easy access.
3. Confirm that the power is connected properly. The **SYSTEM** LED should be **ON**. See [LEDs](#).

Figure 5: Connecting the AC Power Cord



### Step 3: Installing the SFP+ Modules



#### CAUTION

Do not look into the ends of optical fibers. Exposure to invisible laser radiation can cause serious retinal damage or even blindness. Before you handle optical fibers, verify the optical source is disabled using an optical power meter.



#### CAUTION

- Use caution when installing optical modules and optical fiber cables so you do not damage the optical fiber cable. The optical fiber cable should not have a bend radius smaller than one inch or 25.4 millimeters.
- Do not remove the protective dust cover from the module until you are ready to connect the fiber optic cable.
- Due to compliance certification requirements, use only SFP+ optical modules and QSFP28 optical modules approved by Adtran. Adtran cannot certify system integrity with other optic modules and cables. See the Adtran Pluggable Optics Compatibility Matrix (online tool, see [www.adtran.com/pluggableoptics](http://www.adtran.com/pluggableoptics)).



#### NOTE

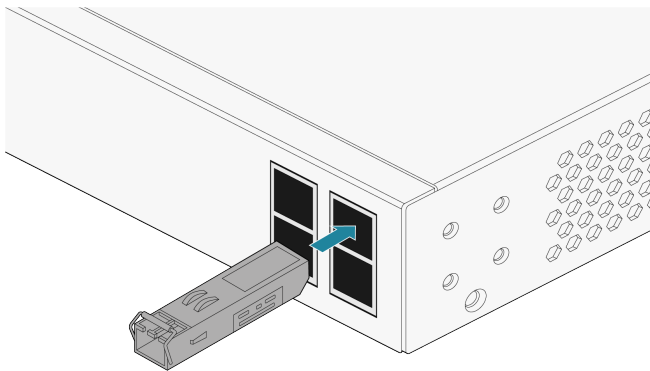
For this procedure, ensure that:

- The modules are installed correctly.
- The fiber-optic cable ends and module receptacles are properly inspected and cleaned.

You can install or remove an SFP+ module from an SFP+ port without powering off the switch. To install an SFP+ module into the NetVanta 1670-24-760W:

1. Verify that you are properly connected to an appropriate ESD ground connection using an anti-static wrist strap or heel strap.
2. Remove the module from its packaging and inspect the connectors for damage. If you find any damage, do not use this module. Contact Adtran Technical Support for assistance. Do not attempt to repair it yourself.
3. Ensure the latch on the module is closed.
4. Insert the module into the appropriate SFP+ port until you hear an audible click.
5. Press firmly to ensure that the module seats properly into the connector.
6. Select the correct fiber cable types.
7. Prepare each cable:
  - a. Remove the protective cap from one end of the fiber, and the dust plug from the module.
  - b. Inspect the fiber connector for damage. If you find any damage, replace the cable.
  - c. Clean the fiber end and module receptacle using a standard cleaning kit. Be careful not to contaminate the surfaces after cleaning.
8. Repeat this section as appropriate to connect the other end.
9. Route and secure the fiber cables appropriately to prevent damage.
10. As you complete each connection, check the status LEDs to verify the links are valid. See [LEDs](#) for more information.

**Figure 6: Installing an SFP+ Module into an SFP+ Port**



#### NOTE

- Use the module latch only when you remove the module from the NetVanta. Rotate the latch away from the port during removal. The transceiver should easily slide out of the cage.
- Only CDRH certified laser class I (1) optical transceivers must be used when connecting an optical transceiver to the SFP+ cage. Do not remove the protective dust cover from the SFP+ until the fiber optic cable is ready to be connected.

## Step 4: Configuring the Switch

After you install and power the switch, you can configure it by two methods: GUI or CLI.

### *Configuring the Initial Switch with a Web Browser*

When you power a switch for the first time, you can perform the initial switch configuration using a web browser.

To begin with the initial configuration stage, reconfigure your PC IP address and subnet mask to make sure the PC can communicate with the switch. After changing your PC IP address (for example, 10.10.10.250), access the web interface of the switch using the switch's default IP address.



#### NOTE

The factory default IP address of the switch is **10.10.10.1** and the subnet mask is **255.255.255.0**. If the switch is connected to a Dynamic Host Control Protocol (DHCP) server, the server assigns the switch an IP address and the default **10.10.10.1** IP address is not configured. The DHCP server also assigns your PC the correct IP address to allow a connection on the same subnet as the switch.



#### NOTE

You can skip steps 1 and 2, by pressing **WinKey+R** and typing the **ncpa.cpl** command to get to step 3.



#### NOTE

Be sure to record all your PC current IP settings to be able to restore them later.

1. Power up the PC that you will use for the initial configuration. Make sure the PC has the Ethernet RJ45 connector that you will connect to the switch using a standard Ethernet LAN cable. If the switch is connected to a DHCP server, skip to step 3.
2. Reconfigure the PC IP address and subnet mask, so it can communicate with the switch. These steps show how to change the IP address for a PC running Windows® 7/8.x/10/11:
  - a. From the Start Menu, type **network and sharing** into the search box.
  - b. Select **Network and Sharing Center**.
  - c. Select **Change adapter settings**.
  - d. Right-click your local adapter and select **Properties**.

- e. In the Local Connection Area Properties menu, highlight Internet Protocol Version 4 (TCP/IPv4) and click **Properties**.
  - f. Select **Use the following IP address** and enter in the IP address for the PC (for example, any IP address not in use, and in between 10.10.10.2 and 10.10.10.254), subnet mask (for example, 255.255.255.0).
  - g. Click **OK** to change the PC IP address.
3. Connect the PC to any port on the switch using a standard Ethernet cable, and check the port LED on the switch to make sure the link status of the PC is OK.
  4. Run your web browser on the PC. Enter either the DHCP-assigned or factory default IP address to access the switch web interface. If your PC is configured correctly, you will see the login page of the switch requesting your username and password. In some browsers, the information needed may be requested in a new window.  
If you do not see the login page:
    - a. Refresh the web page.
    - b. Check if there is an IP conflict issue.
    - c. Clean browser cookies and temporary Internet files.
    - d. Check your PC settings again and repeat step 2.
  5. Enter the factory default username in the login page. Select **Login** to log in to the switch with the default user name (**admin**) and password (**password**).

### Configuring the Initial Switch with CLI

You can access the CLI using any one of the two console ports (USB and RJ45) available on the switch. To establish the connection to the console port, you need:

- PC with VT100 terminal emulation software
- Micro USB to USB cable or a DB9 to RJ45 Serial Cable (the cables are provided along with the unit)



#### NOTE

There are many terminal emulation applications available on the web. PuTTY, SecureCRT, and HyperTerminal are a few examples.

1. Connect a Micro USB cable to the micro USB CONSOLE port or connect a DB9 to RJ45 serial cable to the RJ45 CONSOLE port.
  - If you use a Micro USB cable, connect the other end of the USB cable to a USB port on the PC. If you use an RJ45 serial cable, connect the other end to the serial terminal on the PC.
  - If you use the Micro USB cable to connect the switch, check if the USB drivers are automatically installed in the PC. If not, you need to manually install them.
2. Open a VT100 terminal session using these settings: 115200 baud; 8 data bits; no parity bits; 1 stop bit; and no flow control.
3. Press Enter to activate the CLI.
4. Login with the default user name (**admin**) and password (**password**).

## MODE Button

By pressing **MODE**, you can perform these tasks:

- Change Port Status LED Mode — To read the port status Link/Act/Speed or PoE modes.
- Reset the Switch — To reboot and restore the switch to the previous configuration settings saved.
- Restore the Switch to Factory Defaults — To restore the original factory default settings to the switch.

**Table 1** details the LED behaviors when you press and hold **MODE**. When you see the desired LED behaviors, release the button.

**Table 1: Mode Button Tasks**

Task	Press for...	System LED Behavior	Port Status LED Behavior
Change LED Mode	0 to 2 seconds	Solid green	LED status changes according to the mode selected.
Reset the Switch	2 to 7 seconds	Flashing green	All LEDs are OFF.
Restore to Factory Defaults	7 to 12 seconds	Flashing green	All LEDs are ON.

## Power Over Ethernet (PoE++)

The switch provides PoE++ on the 24 RJ45 Ethernet ports. PoE++ provides the ability to detect attached powered devices (PDs), and deliver power to the PD using Ethernet cabling.

The switch is fully compliant with the IEEE 802.3bt PoE++ standard. By default, the PoE switch discovers and provides power to IEEE-compliant PDs, it also supports legacy PDs. The total PoE budget for the switch is 760 W. Each port can provide a maximum of 90 W (Class-8) in compliance to the IEEE 802.3bt PoE++ standard.

All 24 ports cannot have 90 W PD devices as this exceeds the PoE budget of the switch. A combination of several 90 W PDs and low power PDs can be used as long as the sum of load is less than 760 W.

## LEDs

When the NetVanta 1670-24-760W first powers up, it performs self-tests. Once the power up self-tests are complete, the LEDs display the status of the device. The LEDs on the front panel provide you with switch status checking and monitoring. This tables describes the three types of LEDs.

LED	Status	Indication
SYSTEM	Green	Power is on, self-test passed, normal operation.
	Red	An abnormal state, such as exceeding operating temperature range, was detected in the switch.
	Off	Power is off
LINK/ACT/SPD	Green	Port status LEDs display link status, network activity, and the speed of each port.
PoE	Green	RJ45 port status LEDs display the PoE powering status of each port.

This table describes the current status of each port in either Link/Act/Speed or PoE mode. By pressing **MODE** for less than 2 seconds, you can change LED modes from LINK/ACT/SPD mode to PoE mode, to check the port status in each mode.

LED Type	LED	Status	Indication
LINK/ACT/SPD	RJ45 Ports 1 to 12	Green	The port is enabled and established a link to a connected device. The connection speed is 1000 Mbps.
		Green flashing	The port is transmitting and receiving packets. The connection speed is 1000 Mbps.
		Amber	The port is enabled and established a link to a connected device. The connection speed is 10/100 Mbps.
		Amber flashing	The port is transmitting and receiving packets. The connection speed is 10/100 Mbps.
		Off	The port has no active network cable connected or did not establish a link to a connected device. Otherwise, the port might be disabled through the switch user interface.
	RJ45 Ports 13 to 24	Green	The port is enabled and established a link to a

LED Type	LED	Status	Indication
			connected device. The connection speed is 2500 Mbps.
		Green flashing	The port is transmitting and receiving packets. The connection speed is 2500 Mbps.
		Amber	The port is enabled and established a link to a connected device. The connection speed is 100/1000 Mbps.
		Amber flashing	The port is transmitting and receiving packets. The connection speed is 100/1000 Mbps.
		Off	The port has no active network cable connected or did not establish a link to a connected device. Otherwise, the port might be disabled through the switch user interface.
SFP+ Ports		Green	The port is enabled and established a link to a connected device. The connection speed is 10 Gbps.
		Green flashing	The port is transmitting and receiving packets. The connection speed is 10 Gbps.
		Amber	The port is enabled and established a link to a connected device. The connection speed is 1 Gbps.
		Amber flashing	The port is transmitting and receiving packets. The connection speed is 1 Gbps.
		Off	The port has no active network cable connected or did not establish a link to a connected device. Otherwise, the port might be disabled through the switch user interface.
PoE	RJ45 Ports	Green	The port is enabled and supplying power to a connected device.
		Amber	An abnormal state, such as an overload status, has

LED Type	LED	Status	Indication
			been detected in the switch.
		Off	The port has no active network cable connected or is not connected to a PoE powered device. Otherwise, the port might be disabled through the switch user interface.

## Troubleshooting the Switch

Symptoms	Possible Causes	Suggested Solutions
<b>System LED is OFF</b>	The switch is not receiving power.	<ol style="list-style-type: none"> <li>1. Verify that the correct power cord is connected firmly to the switch and the AC power outlet.</li> <li>2. Cycle the power on the switch by unplugging and plugging the power cord back into the switch.</li> <li>3. If the LED is still off, plug the power cord into a different AC outlet.</li> </ol>
<b>System LED is RED</b>	An abnormal state has been detected by the switch.	Check the system log within the switch from the web UI to understand the abnormal state (for example, exceeding operating temperature range) and take corresponding actions to resolve.
<b>Port Status LED is OFF when the LINK/ACT/SPD LED is LIT</b>	The port is not connected or the connection is not functioning.	<ol style="list-style-type: none"> <li>1. Verify that the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device.</li> <li>2. Make sure the connected device is up and running correctly.</li> <li>3. If the symptom continues, use a different cable or port to identify if the cable or port is the issue.</li> <li>4. Check if the port is disabled in the configuration settings using the web UI.</li> </ol>

Symptoms	Possible Causes	Suggested Solutions
<b>Port Status LED is OFF when the PoE LED is LIT</b>	The port is not supplying power.	<ol style="list-style-type: none"> <li>1. Verify that the cable connector plug is firmly inserted and locked into the port at both the switch and the connected device.</li> <li>2. Make sure the correct Ethernet cables were used.</li> <li>3. If the symptom continues, use a different cable or different port to identify if the cable or port is the issue.</li> <li>4. Check if the port is disabled in the configuration settings using the web UI.</li> </ol>

## Specifications

### Electrical

- Power supply: 100 to 240 VAC, 50 to 60 Hz, 12A
- Output power: 54 VDC, 1.75A max. per port (POE++)

### Environmental

- Operational temperature range: 0°C to +50°C (32°F to 122 °F)
- Storage temperature range: -20°C to +70°C (-4°F to 158 °F)
- Relative humidity: up to 95%, non-condensing

## Maintenance

The NetVanta 1670-24-760W does not require routine hardware maintenance for normal operation. Adtran does not recommend that you attempt repairs in the field. Repair services can be obtained by returning the defective unit to Adtran. See [Warranty](#) for further information. Field support for software is provided through upgrade facilities.

## Documentation

You can view Adtran documentation on the Adtran Support Community website after you register: <https://supportcommunity.adtran.com>.

These documents provide more information for this product:

- *NetVanta 1670-24-760W Safety and Regulatory Notice*
- *Configuring the CLI in ASE*
- *Configuring QoS in ASE*
- *Configuring Layer 2 Services in ASE*
- *Configuring PoE in ASE*
- *Configuring DHCP in ASE*
- *Configuring MRP and MVRP in ASE*
- *ASE Command Reference Guide*



## Training

Adtran offers training courses for our products, including customized training and courses taught at our facilities or at customer sites. For inquiries, go to: <https://adtran.com/training>.

## Warranty

Adtran will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. For more information, go to <https://www.adtran.com/warranty>.

## Safety and Regulatory

Refer to the Safety and Regulatory Compliance Notice for this product (617101674PF2-17) for detailed safety and regulatory information.

Consultez l'avis sur la sécurité et la conformité à la réglementation pour ce produit (617101674PF2-17) pour obtenir des renseignements détaillés sur la sécurité et la réglementation.

Ausführliche Sicherheits- und regulatorische Informationen sind in der Konformitätserklärung zur Sicherheit und Einhaltung von Normen zu diesem Produkt (617101674PF2-17) aufgeführt



### CAUTION!

SUBJECT TO ELECTROSTATIC DAMAGE  
OR DECREASE IN RELIABILITY  
HANDLING PRECAUTIONS REQUIRED

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