

## NetVanta 1760-12F

Multi-Gigabit Fiber Aggregation Switch

### Quick Start

P/N: 17101763F1

### Overview



#### WARNING!

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

This quick start describes how to install, configure, and troubleshoot the NetVanta 1760-12F, a Multi-Gigabit fiber aggregation switch that includes 12 multi-rate SFP+ ports (1G/2.5G/5G/10G) and 2 multi-rate SFP28 ports (1G/2.5G/5G/10G/25G). Figures 1 and 2 show the Front and Rear Panel layouts of the switch.

- "Installing the Switch" on page 2
- "Supplying Power to the Switch" on page 3
- "Connecting to the Switch" on page 5
- "Understanding the Status LEDs" on page 7
- "Resetting the Switch" on page 7
- "Troubleshooting the Switch" on page 8
- "Product Specifications" on page 8

Figure 1. Front Panel Layout

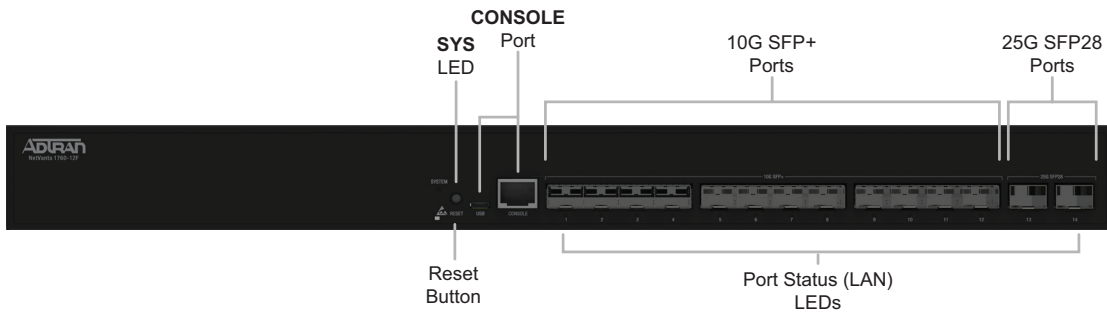
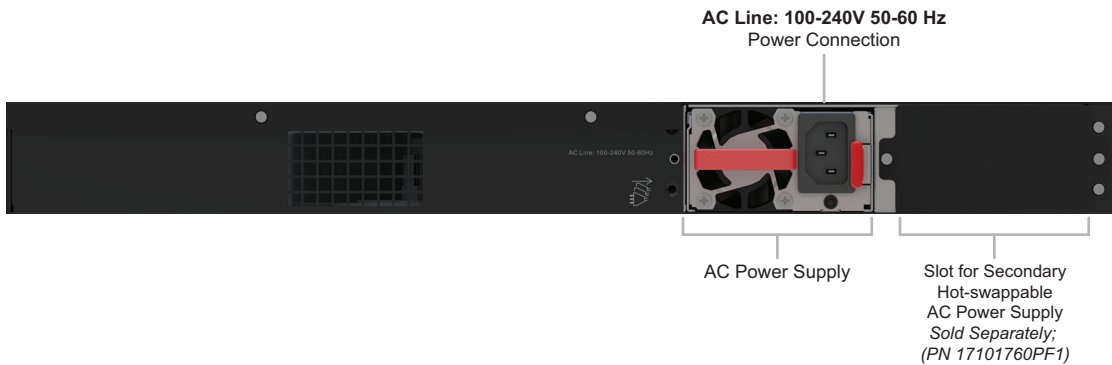


Figure 2. Rear Panel Layout



#### WARNING!

WARNING indicates a hazard which, if not avoided, could result in death, injury or serious property damage.



#### CAUTION!

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



#### NOTE

NOTES inform the user of additional, but important, information or features.

## Installing the Switch



### NOTE

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

### Package Contents

- NetVanta 1760-12F switch
- AC power cord
- DB-9 to RJ-45 cable
- Micro-USB to USB cable
- Four adhesive rubber feet
- Rack Mounting kit (two brackets and eight screws)
- Quick Start.



### CAUTION!

The NetVanta 1760-12F is intended for indoor use only. Ethernet, PoE 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.



### WARNING!

This equipment is not suitable for use in locations where children are likely to be present.

### Installation Overview

To install the switch, you will need to do the following:

1. Mount the switch
2. Connect AC Power
3. Install SFP+/SFP28 Modules

### Installation Steps

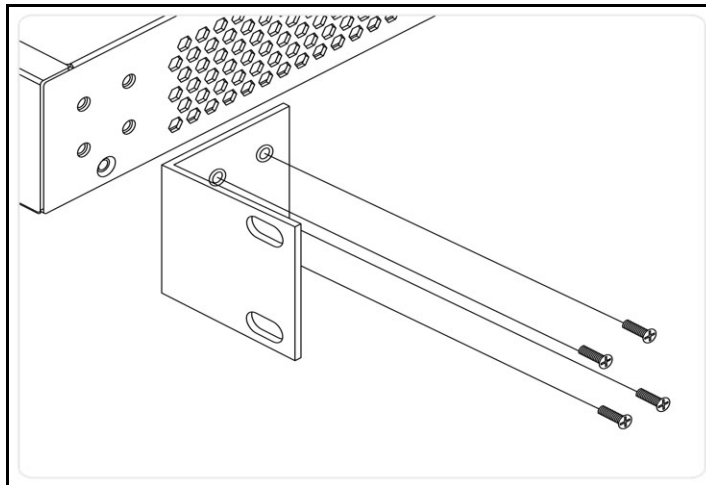
To install the NetVanta 1760-12F switch, complete the steps outlined in the following sections.

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

To mount the switch into a 19-inch rack, complete the following steps.

1. Attach the mounting brackets to both sides of the chassis. Insert the provided screws and tighten them with a screwdriver to secure the brackets.

Figure 3. Attaching Brackets to the Switch



2. Position the chassis in the stationary equipment rack. Allow 1-inch of clearance between units.

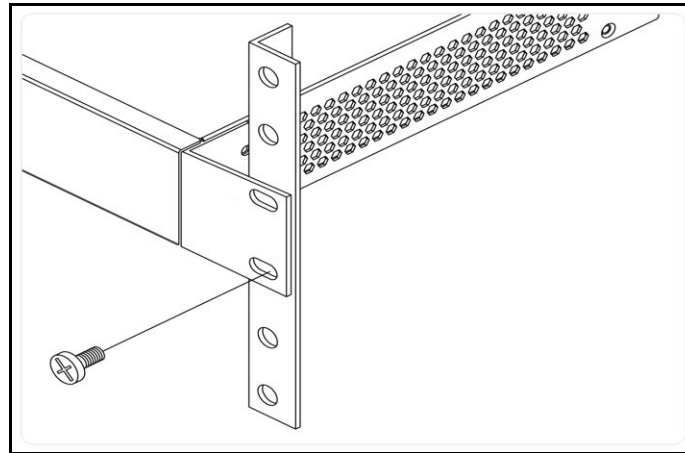
3. Have an assistant hold the unit in position, with the oval holes in the brackets aligned with the mounting holes in the rack posts, as you insert two rack screws and tighten them with the appropriate screw driver.



**NOTE**

*Rack mount brackets are a default accessory with the unit; spare brackets can be ordered through ADTRAN, part number: 1700519F1.*

**Figure 4. Attaching Brackets to the Rack Post**

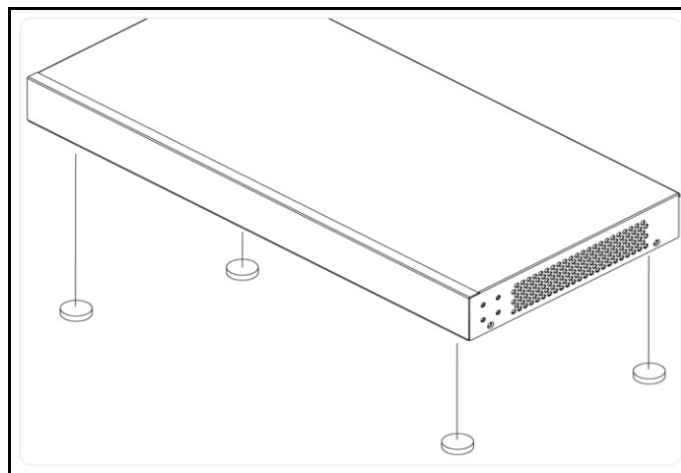


**Mounting the Switch on a Desk or Shelf**

To mount the switch on a desk or shelf, complete the following steps.

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.

**Figure 5. Attaching the Rubber Feet**



**CAUTION!**

*Desk or shelf mounting of the equipment should be such that the amount of air flow required for safe operation of the equipment is not compromised. Allow 1-inch clearance on the top and sides of the unit for sufficient air flow.*

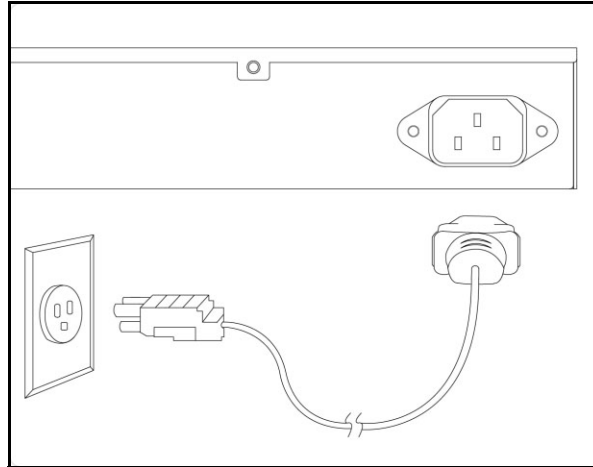
**Supplying Power to the Switch**

To connect the AC power cord to the switch, complete the following steps.

1. Connect the AC power cord to the AC power receptacle on the rear panel of the switch.
2. Connect the other end of the AC power cord to a properly grounded AC power outlet. The AC branch circuit socket-outlet must be installed near the equipment and must be easily accessible.

3. Confirm that the power is connected properly. The **SYSTEM LED** should be **ON** (see "[SYSTEM Status LED](#)").

**Figure 6. Connecting the AC Power Cord**



### CAUTION!

*This product may be powered by multiple sources. Disconnect all sources of power prior to servicing.*



### NOTE

*For mission critical applications where downtime needs to be minimized, the NetVanta 1760-12F supports a hot-swappable redundant AC power supply to protect against a single power supply failure. The redundant power supply is not included in the base shipment of the NetVanta 1760-12F, but it can be ordered directly from ADTRAN (P/N 17101760PF1).*



### NOTE

*The installation of this product must comply with the national, state and local electrical code requirements, as applicable. The AC branch circuit overcurrent protection must be a fuse or circuit breaker rated 125 VAC, 20 Amps maximum or 250 VAC, 16 Amps maximum.*



### CAUTION!

*It is recommended that an external AC Surge Protection Device 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. It is also recommended that the device contains a visual 'GOOD' indicator.*



### CAUTION!

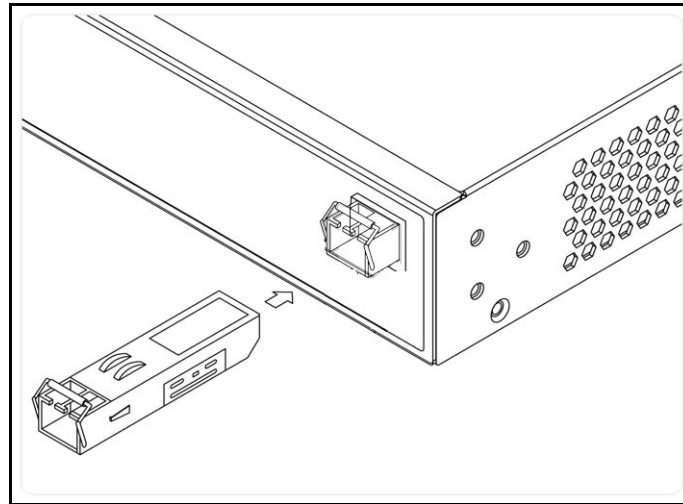
*The power supply cords must be connected to socket-outlets that are provided with proper earth ground connections.*

## Install SFP+/SFP28 Modules

You can install or remove an SFP+ or SFP28 module from an SFP+/SFP28 port without having to power off the switch. To install an SFP+/SFP28 module, complete the following steps.

1. Insert the module into the appropriate SFP+/SFP28 port.
2. Press firmly to ensure that the module seats properly into the connector.

Figure 7. Installing an SFP+ Module into an SFP+ Port



### NOTE

*This product is intended for use with a Class 1 Laser module that complies with FDA 21 CFR 1040.10, 1040.11 and IEC 60825-1. For continued compliance with the above standards, only approved Class 1 Laser modules from an ADTRAN approved vendor list (located on the ADTRAN website) should be installed in this product. ADTRAN cannot certify system integrity with other laser modules. The CDRH Laser Class emitted by the Fiber Optic Laser Module Component is Class I or 1 when installed in the end-product with the fiber-optic cable removed.*

## Connecting to the Switch

After the switch is installed and powered, it can be configured by two methods:

- Web based Graphical User Interface (GUI)
- Command Line Interface (CLI)

### Initial Switch Configuration Using a Web Browser

After powering up the 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's IP address and subnet mask to make sure the PC can communicate with the switch. After changing PC's IP address (for example, 10.10.10.250), then access the web interface of the switch using the switch's default IP address as shown below.



### 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.*

To initially configure the switch, complete the following steps.

1. Power up the PC that you will use for the initial configuration. Make sure the PC has the Ethernet RJ-45 connector to be connected to the switch via standard Ethernet LAN cable. The Ethernet cable will be required to connect the PC to a copper SFP installed on the switch for Web configuration. If the switch is connected to a DHCP server, skip to Step 3.
2. Reconfigure the PC's IP address and subnet mask as below, so that it can communicate with the switch. For example, the method to change the PC's IP address for a PC running Windows® 7/8.x/10 is as follows:
  - a. Type **network and sharing** into the **Search** box in the **Start** menu.
  - b. Select **Network and Sharing Center**.

- c. Select **Change adapter settings** on the left of PC screen.



## NOTE

*Users can also skip Steps 1-2, by pressing **WinKey+R** and typing the **ncpa.cpl** command to get to Step 4 directly.*

- Right-click on your local adapter and select **Properties**.
- In the **Local Area Connection Properties** menu, highlight **Internet Protocol Version 4 (TCP/IPv4)**. Then, select the **Properties** button.



## NOTE

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

- Select the radio button **Use the following IP address** and enter in the IP address for the PC (e.g., any IP address not in use, and in between 10.10.10.2 and 10.10.10.254), subnet mask (e.g., 255.255.255.0).
  - Select **OK** to change the PC's IP address.
3. Power up the switch to be initially configured, and wait until it has finished its start-up processes.
  4. Connect the PC to any port on the switch with an installed copper SFP, and check the port LED on the switch to make sure the link status of the PC is OK.
  5. Run your web browser on the PC; enter either the DHCP-assigned or factory default IP address to access the switch's 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, perform the following steps:

- a. Refresh the web page.
  - b. Check to see 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.
6. Enter the factory default username in the login page. Select **Login** to log into the switch. .



## NOTE

*The factory default username of the switch is **admin**. The factory default password is **password**.*

## Initial Switch Configuration Using CLI

The CLI can be accessed using any one of the two console ports (USB & RJ-45) available on the switch. To establish the connection to the console port, the following are needed:

- PC with VT100 terminal emulation software
- Micro-USB to USB cable or a DB-9 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.*

Complete the following steps:

1. Connect a micro-USB cable to the micro-USB CONSOLE port or connect a DB-9 to RJ-45 serial cable to the RJ-45 CONSOLE port.
2. If using a micro-USB cable, connect the other end of the USB cable to a USB port on the PC. If using an RJ-45 serial cable, connect the other end to the serial terminal on the PC.
3. If using the micro-USB cable to connect the switch, check if the USB drivers are automatically installed in the PC. If not install manually.
4. Open a VT100 terminal session using the following settings: 115200 baud; 8 data bits; no parity bits; 1 stop bit; and no flow control. Press **<Enter>** to activate the CLI.
5. Login with the default user name (**admin**) and password (**password**).

## Understanding the Status LEDs

The LEDs on the front panel provide you with switch status checking and monitoring. The following section describes the three types of LEDs.

### SYSTEM Status LED

The SYSTEM Status LED indicates if the switch is powered up correctly or if a system alarm has been triggered for troubleshooting.

LED	Color	State	Description
SYSTEM		Off	The switch is not receiving power.
	Green	On	The switch is powered ON correctly.
	Red	On	An abnormal state, such as exceeding operating temperature range, has been detected in the switch.

### Port Status LEDs

The Port Status LEDs indicate the current status of each port.

LED	Color	State	Description
SFP+ Ports	Green	On	The port is enabled and established a link to connected device, and the connection speed is 10 Gbps.
		Flashing	The port is transmitting/receiving packets, and the connection speed is 10 Gbps.
	Amber	On	The port is enabled and established a link to connected device, and the connection speed is 1Gbps/2.5Gbps/5Gbps.
		Flashing	The port is transmitting/receiving packets, and the connection speed is 1Gbps/2.5Gbps/5Gbps.
		Off	The port has no active network cable connected or has not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.

LED	Color	State	Description
SFP28 Ports	Green	On	The port is enabled and established a link to connected device, and the connection speed is 25 Gbps.
		Flashing	The port is transmitting/receiving packets, and the connection speed is 25 Gbps.
	Amber	On	The port is enabled and established a link to connected device, and the connection speed is 1G/2.5G/5G/10G.
		Flashing	The port is transmitting/receiving packets, and the connection speed is 1G/2.5G/5G/10G.
		Off	The port has no active network cable connected or has not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.

## Resetting the Switch

The RESET button can be used to reset the switch to a previous configuration, or to reset the switch to the factory defaults. To reset the switch, push and hold the RESET button for the length of time indicated in the table below. Once the switch has been reset successfully, the LEDs display the characteristics described below.

Reset Task	Press for...	System LED Behavior	Port Status LED Behavior
Reset the Switch to Previous Configuration	2 ~ 10 seconds	Flashing Green	All LEDs are OFF.
Restore to Factory Defaults	Longer than 10 seconds	Flashing Green	All LEDs are ON.

## Troubleshooting the Switch

The following table provides information to easily troubleshoot problems by taking actions based on the suggested solutions.

Symptoms	Possible Causes	Suggested Solutions
System LED is OFF	The switch is not receiving power.	<ol style="list-style-type: none"> <li>1. Check if correct power cord is connected firmly to the switch and to the AC outlet socket.</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, try plugging the power cord into different AC outlet.</li> </ol>
System LED is RED	An abnormal state has been detected by the switch.	Check the system log within the switch from web user interface to understand the abnormal state (e.g., exceeding operating temperature range) and take corresponding actions to resolve.
Port Status LED is OFF	The port is not connected or the connection is not functioning.	<ol style="list-style-type: none"> <li>1. Check if 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 still exists, try using a different cable or different port, in order to identify if it is related to the cable or specific port.</li> <li>4. Check if the port is disabled in the configuration settings via web user interface.</li> </ol>

## Product Specifications

### Physical Specifications

- Chassis: 1U Metal Enclosure
- Mount: Desktop and Rack
- Dimensions: 1.73 in. x 17.40 in. x 11.81 in. (4.4 cm x 44.2 cm x 30.0 cm) (H x W x D)
- Weight: 10.12 lbs. (4.6 Kg)

### Compliance

- This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
  - 1. This device may not cause harmful interference.
  - 2. This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.



### NOTE

*This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 the 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.*  
CAN ICES-003 (A)/NMB-003(A)

- This product is NRTL Listed to the applicable UL/CSA Standards. This product has also been evaluated to applicable international standards for CE marking and RCM marking.
- This product meets IEEE 802.3 Ethernet Isolation standards.
- This product meets EU RoHS Directive. Refer to [www.adtran.com/environmental](http://www.adtran.com/environmental) for further information on RoHS/WEEE.
- This product complies with UL/CUL 62368-1 2nd Ed Standard for Safety.
- This product complies with 2011/65/EU Restriction of Hazardous Substance Directive.
- This product complies with the EU Code of Conduct on Energy Consumption of Broadband Equipment.
- This product complies with ETSI EN 300 386 standards.
- This product complies with IEC 62368-1:2014 2nd Ed standards.
- This product complies with EN 62368-1:2014 2nd Ed standards.
- This product complies with AS/NZS 62368.1:2018 standards.
- Changes or modifications not expressly approved by ADTRAN will void the warranty.
- This equipment contains no parts that can be serviced by the user.



## Environment

- Operating Temperature: 32°F to 122°F (0°C to 50°C)
- Storage Temperature: -4°F to 158°F (-20°C to 70°C)
- Relative Humidity: Up to 95 percent, non-condensing



### CAUTION!

*This product is intended for business deployment in restricted access locations. Care should be taken to protect cables from damage or vandalism.*

## Electrical

- Power Supply: 100 to 240 VAC, 50-60 Hz, 4.0 A
- Max Power: 100V input, 35 W



### CAUTION!

*Electrostatic Discharge (ESD) can damage electronic devices. When handling devices, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place in antistatic packing material when transporting or storing. When installing or maintaining, always place devices on an approved antistatic mat that is electrically grounded.*

- Lightning Requirements:
  - ◆ AC Port to a minimum of 2kV
  - ◆ Ethernet Port (Longitudinal lightning test) 1500V 100A, 1.2/50-8/20 surge (per Telcordia GR-1089-CORE issue 6, Type 4 interface)
  - ◆ Ethernet Port (Metallic lightning test) 800V 100A, 1.2/50-8/20 surge (per Telcordia GR-1089-CORE issue 6, Type 4 interface)

The following configuration guides provide additional information for this ADTRAN product (available online at <https://supportcommunity.adtran.com>).

[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](#)

For ADTRAN training inquiries, visit: <http://adtran.com/training>

Access additional safety information and product documentation using the QR code or website.



<https://supportcommunity.adtran.com>

**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. Warranty information can be found online at [www.adtran.com/warranty](http://www.adtran.com/warranty).

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