

Overview

WARNING!

Read all warning, cautions, notes and installation instructions before installing or servicing this equipments.

This quick start describes how to install, configure, and troubleshoot the NetVanta 1561i-04 industrial L2+ managed GbE switch. This next generation industrial-grade Ethernet switch has two 10M/100M/1G RJ-45 and two 1G SFP ports that provide powerful L2 and basic L3 features as well as Carrier Ethernet OAM, CFM, ERPS, and EPS functionality. Figure 1 below shows the front panel layout of the switch.

- "Installing the NetVanta 1561i-04 Switch" on page 2
- "Supplying Power to the NetVanta 1561i-04 Switch" on page 4
- "Connecting the DI/DO Relay Wires to the Switch" on page 4
- "Installing SFP Modules" on page 5
- "Connecting to the Switch" on page 5
- "Understanding the Status LEDs" on page 7
- "Resetting the Switch" on page 8
- "Troubleshooting the Switch" on page 8
- "Product Specifications" on page 8

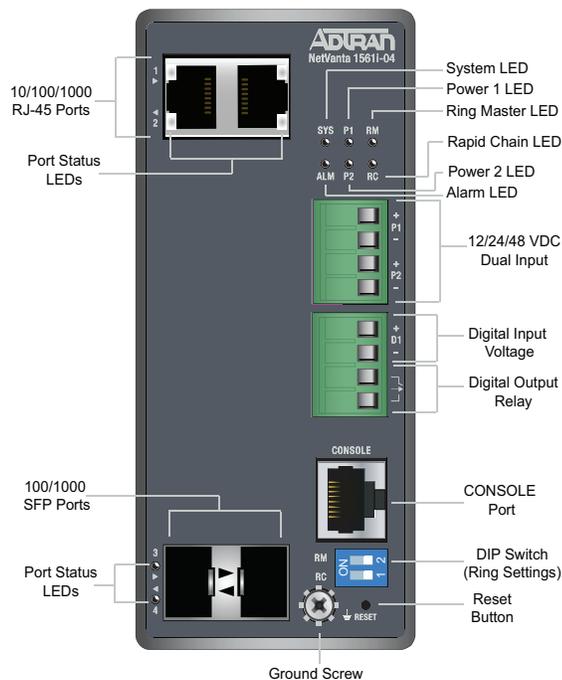


Figure 1. NetVanta 1561i-04 Front Panel Layout

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 NetVanta 1561i-04 Switch



NOTE

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

Package Contents

- NetVanta 1561i-04 switch
- DC-power and DI/DO terminal blocks (connected to unit)
- DB-9 to RJ-45 cable
- Mounting kit containing:
 - ◆ DIN rail mounting kit (bracket and three screws)
 - ◆ Wall mounting kit (2 brackets and eight screws)
- Quick Start guide

Installation Overview

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

1. Mount the switch
2. Connect DC power terminal block
3. Connect DI/DO terminal block
4. Install SFP modules

Prior to Installation

Before installing the equipment, inspect the switch. If damage has occurred during shipping, file a claim with the carrier, and then contact ADTRAN Customer Support. For more information, refer to the product warranty available online at https://adtran/wp_support_warranty.

Mounting the NetVanta 1561i-04 Switch on a DIN Rail

Follow these instructions to mount the NetVanta 1561i-04 switch to a DIN rail using the enclosed DIN rail mounting kit:

1. Attach the DIN rail mounting bracket to the back panel of the chassis as shown in [Figure 2](#). Insert the provided screws and tighten them with a screwdriver to secure the bracket.

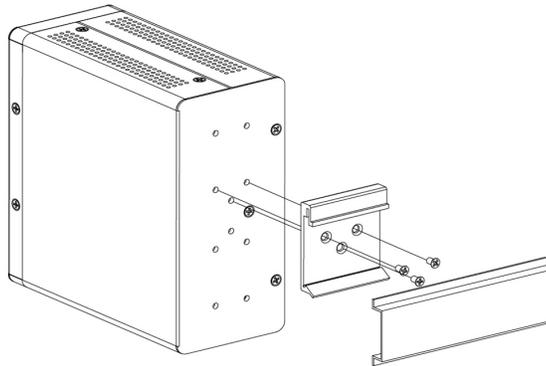


Figure 2. Attach the DIN Rail Bracket to the Switch's Rear Panel

2. Insert the upper lip of the DIN rail into the DIN rail mounting kit and press the switch towards the DIN rail until it snaps into place, as shown in [Figure 3](#).

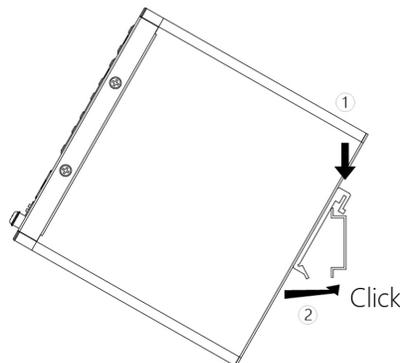


Figure 3. Attach Switch to DIN Rail

3. Ensure that the switch is level and attached securely to the DIN rail as shown in [Figure 4](#).

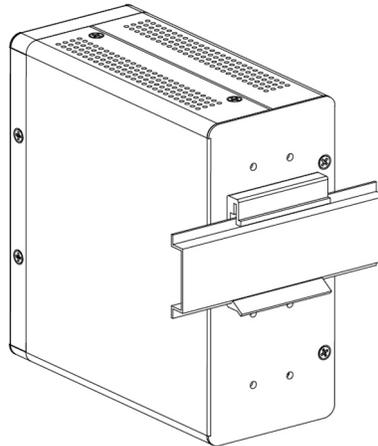


Figure 4. Switch Securely Attached to DIN Rail

Wall Mounting the NetVanta 1561i-04 Switch

Follow these instructions to mount the NetVanta 1561i-04 switch to a wall using the enclosed wall mounting kit:

1. Attach the wall-mounting brackets to the rear panel of the switch chassis and drive the provided screws into the metal screw receptacles on the back of the switch as shown in [Figure 5](#). Tighten the screws with a Phillips-head screwdriver to secure the brackets to the switch.

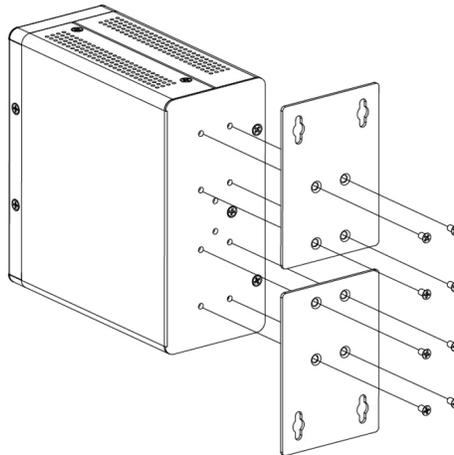


Figure 5. Attach Wall-mount Brackets to Switch

2. Using the mounting bracket as a template, mark the location on the wall to insert user-provided screw anchors. Screw anchors should be rated to support a minimum of 2.2 pounds (1 kg) for the intended wall mount surface. Wall mount bracket dimensions are shown in [Figure 6](#).

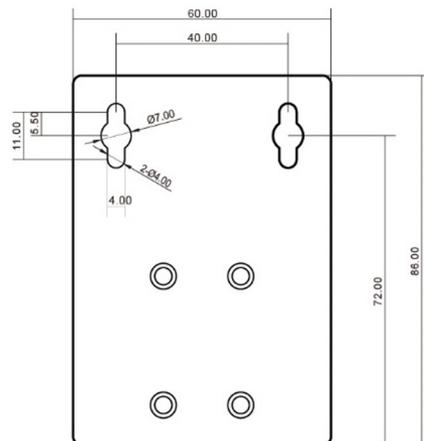


Figure 6. Wall Mount Bracket Dimensions

3. Follow the manufacturer's instructions to install the user-provided screw anchors. Install the screw anchors in the wall at the marks made in Step 2. Correctly installed screw anchors should have the edge of the anchor lip protrude approximately 1/16-inch (1.6mm) from the wall.
4. Mount the switch on the wall by inserting user-provided 1/4-inch (5.4mm to 6.8mm) diameter screws through the recessed holes in the mounting bracket and driving them into the user-provided screw anchors.
5. Ensure that the switch is attached securely to the wall.

Supplying Power to the NetVanta 1561i-04 Switch

The NetVanta 1561i-04 switch is powered using the provided DC power terminal block.



NOTE

The NetVanta 1561i-04 switch has dual power inputs. If only one power input is required, install the DC terminal block into one of the specific power inputs (labeled **P1** or **P2**). If dual power is being used, repeat the steps outlined below to install the second input.

To install the DC power terminal block, follow these steps:



WARNING!

De-energize or disconnect the device's power source before connecting or disconnecting wires to the switch. The NetVanta 1561i-04 switch supports 12V, 24V, and 48V of DC power. Check that the voltage of your power source does not exceed the voltage supported by the switch.

1. Insert the negative DC wire into the P1/P2 - terminal of the provided terminal block, and the positive DC wire into the P1/P2 + terminal of the provided terminal block (refer to "[NetVanta 1561i-04 Front Panel Layout](#)" on page 1 to determine the proper terminals to use for this connector).
2. Use a small flat-blade screwdriver to tighten the wire clamp screws on the front of the terminal block connector to keep the DC wires from pulling loose.
3. Insert the terminal block connector into the terminal block receptor on the front of the switch chassis as shown in [Figure 7](#).
4. Confirm that the power leads are connected properly and then apply power to the switch by energizing or connecting the power source. If the leads are properly connected, and the system is powered correctly, then the **SYSTEM LED** should be **ON** (see "[Power Status LEDs](#)").

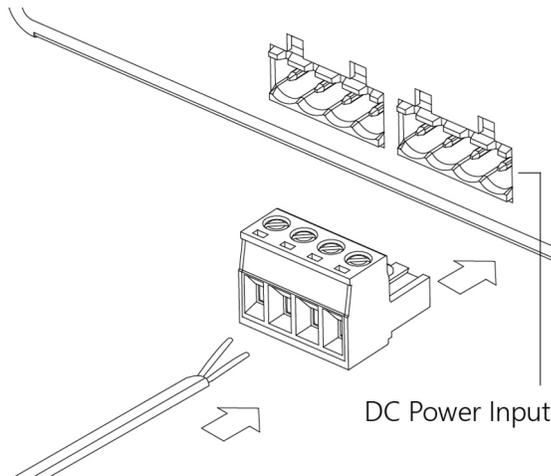


Figure 7. Connecting the DC Power Terminal Block

Connecting the DI/DO Relay Wires to the Switch

The NetVanta 1561i-04 switch provides digital input and digital output signals using relay wires connected to the provided terminal block. To install the DI/DO terminal block, follow these steps:

1. Insert the negative relay wire (ground) into the negative terminal of the provided terminal block, and the positive relay wire into the positive terminal of the provided terminal block. Use a small flat-blade screwdriver to tighten the wire clamp screws on the front of the terminal block connector to keep the relay wires from pulling loose.
2. Insert the DI/DO terminal block connector prongs into the terminal block receptor on the front of the switch chassis as shown in [Figure 8](#).

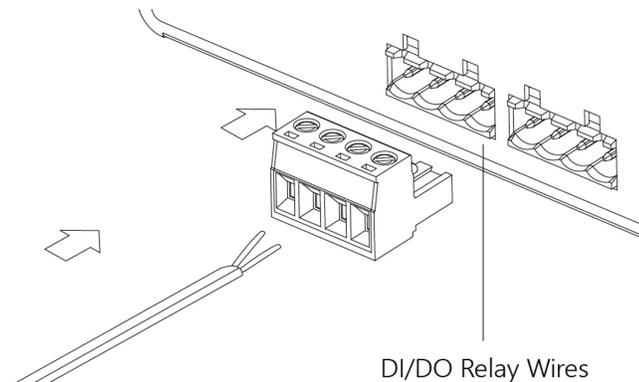


Figure 8. Connecting the DI/DO Terminal Block



NOTE

The digital output (relay) connection is rated for 24VDC/1A. The digital input (voltage) connection uses the specification of **level 0** (low) power to indicate a range from 0V to 6V, and **level 1** (high) power to indicate a range from 10V to 24V. It is not recommended to apply power ranges between 6V and 10V to the digital input connection as the low or high power states may not be applied correctly to power levels within that range.



NOTE

The two wires attached to the digital output contact form an open fault circuit by default. When a user-configured event (such as a digital input status change) is triggered, the fault circuit becomes closed and can trigger a status change of an external device (if one is connected). The default state of the DO relay can be configured via software to be either opened or closed, and when a user-configured event is triggered, the DO relay connection will change state based on its configuration. If the DO is configured to be in an open state by default, the circuit will become closed when an event is triggered. Conversely, if the relay is configured to be in a closed state by default, the connection will be opened if an event is triggered.

Installing SFP Modules

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

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

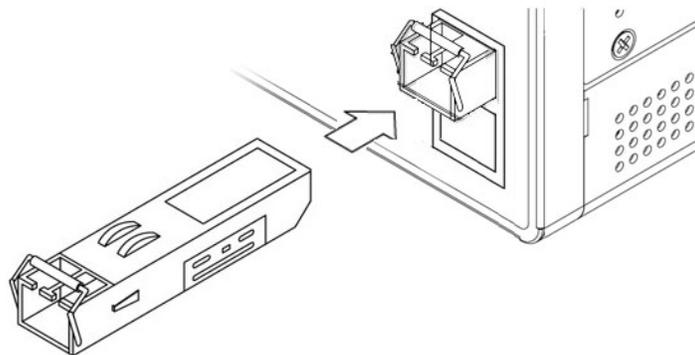


Figure 9. Installing an SFP Module into an SFP Port

3. To use the SFP module with another device, connect an appropriate cable into the SFP module port and attach the other end of the cable to the other device, ensuring that the TX fiber connects to the RX connection of the other device, and that the RX fiber connects to the TX connection of the other device.



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. Refer to the [ADTRAN Pluggable Optics Compatibility Matrix](#) (available online at <https://supportcommunity.adtran.com>).



NOTE

This product 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. If it is necessary to connect the ports to remote outdoor equipment or between structures then add an appropriate protection device per the following:

- ADTRAN's Ethernet Port Protection Device (EPPD) (P/N 1700502G1) must be connected between the unit and the outside plant cable.
- Use of any Ethernet protector other than ADTRAN's for this purpose will void the user's warranty.

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. 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 10/100/1000 RJ-45 Ethernet 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.
 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, or the switch may use a self-signed key/certification which requires the browser to warn of possible security issues. To continue connecting to the switch, accept the security risk and proceed with the connection.

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 the RJ-45 CONSOLE port available on the switch. To establish the connection to the console port, the following are needed:

- PC with VT100 terminal emulation software
- DB-9 to RJ-45 Serial Cable (the cable is provided along with the unit)



NOTE

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

Complete the following steps:

1. Connect a DB-9 to RJ-45 serial cable to the RJ-45 CONSOLE port.
2. Connect the other end of the RJ-45 serial cable to the serial terminal on the PC.
3. 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.
4. Login with the default user name (**admin**) and password (**password**).

Understanding the Status LEDs

The LEDs on the NetVanta 1561i-04 switch's front panel provide you with the ability to monitor the device status. The following section describes the types of LEDs available on the switch device.

Power Status LEDs

The power status LEDs (Power1 and Power2) indicate if the device is powered up correctly.

LED	Color	State	Description
P1	Green	Off	The device is not receiving power from Power1.
		On	The device is powered ON correctly.
P2	Green	Off	The device is not receiving power from Power2.
		On	The device is powered ON correctly.

System Status LED

The system status LED indicates whether the system is ready for use.

LED	Color	State	Description
SYS	Green	Off	The device is not ready for use.
		On	The device is ready for use.

Alarm Status LED

The alarm status LED indicates whether the system is functioning normally.

LED	Color	State	Description
ALM	Red	Off	The system is functioning normally.
		On	The system is not functioning normally or an issue has been detected with the device temperature, voltage, or DC power.

Ring Master (RM) and Rapid Chain (RC) Status LEDs

The RM and RC status LEDs indicate whether the Rapid Ring feature, configured using the DIP switch, is ready for use.

LED	Color	State	Description
RM	Green	On	Ring Master has been detected in the device.
		Off	Ring Master is disabled.
	Amber	On	Ring Member has been detected in the device.
RC	Green	On	Rapid Chain has been detected in the device (active path).
		On	Rapid Chain has been detected in the device (backup path).
	Amber	Blinking	There is no correspondent Rapid Chain device found.
		Off	Rapid Chain is disabled.

Port Status LEDs

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

LED	Color	State	Description
RJ-45 Ports (1 & 2)	Green	On	The port is enabled and a link to the connected device has been established with a speed of 1000 Mbps.
		Blinking	The port is transmitting/receiving packets with a connection speed of 1000 Mbps.
	Amber	On	The port is enabled and a link to the connected device has been established with a speed of 10/100 Mbps.
		Blinking	The port is transmitting/receiving packets with a connection speed of 10/100 Mbps.
		Off	The cable is not connected to an active port or device, or the port is disabled.

LED	Color	State	Description
SFP Ports (3 & 4)	Green	On	The port is enabled and a link to the connected device has been established with a speed of 1000 Mbps.
		Blinking	The port is transmitting/receiving packets with a connection speed of 1000 Mbps.
	Amber	On	The port is enabled and a link to the connected device has been established with a speed of 100 Mbps.
		Blinking	The port is transmitting/receiving packets with a connection speed of 100 Mbps.
		Off	The port has no active network cable connected, a link to a connected device has not been established, or the port is disabled.

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	RESET Button Hold Time	SYS LED Behavior	Port Status LED Behavior
Reset the switch to previous configuration	2 to 7 seconds	Blinking Green	All LED lights are OFF
Restore to Factory Default	7 to 12 seconds	Blinking Green	All LED lights stay ON

Troubleshooting the Switch

The following table provides basic troubleshooting steps for the NetVanta 1561i-04 switch when LED behavior indicates a problem.

LED Behavior	Possible Cause	Basic Troubleshooting Steps
The SYS LED is OFF	The switch is not receiving power.	<ol style="list-style-type: none"> 1. Verify that the correct power cord is connected firmly to the switch and to the DC outlet socket. 2. Unplug the power cord from the switch and then plug it back in to cycle the switch's power. 3. If, after attempting Steps 1 and 2 the SYS LED is still OFF, plug the power cord into a different DC outlet socket to ensure the correct DC power source is being supplied to the switch.
The Port UP status LED is OFF	The port is not connected, or the connection is not working.	<ol style="list-style-type: none"> 1. Verify that the cable connector plug is firmly inserted and locked into the port on both the switch and the connected device. 2. Verify that the connected device is up and running correctly. 3. If, after attempting Steps 1 and 2 the issue persists, try a different cable or a different port to determine whether the issue relates to the cable or a specific port. 4. Use the Web GUI to verify that the port is not disabled by configuration.

Product Specifications

Electrical

- Power Supply: 12 VDC to 48 VDC, 0.77 A to 0.24 A

Environment

- Operating Temperature: -40°F to 167°F (-40°C to 75°C)
- Storage Temperature: -40°F to 185°F (-40°C to 85°C)
- Relative Humidity: 5 to 95 percent, non-condensing
- Altitude: Less than 10000 feet (3000 meters)

Product Dimensions

- Dimensions (W x H x D): 2.4-inch x 5.3-inch x 5.1-inch (62mm x 135mm x 130mm)
- Weight: Less than 2.2 lbs. (Less than 1 Kg)
- Mounting type: DIN rail/wall mount



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.



CAUTION!

This product is intended for industrial locations. This equipment is intended to be installed and used only by instructed or skilled persons. This product is to be installed only in restricted access locations. Care should be taken to protect cables from damage or vandalism.

**CAUTION!**

If sufficient ventilation is not provided, the unit could overheat. Do not mount the unit on a heated surface or close to a heat source.

**CAUTION!**

Do not locate the product in direct sunlight or next to any thermal obstructions or source of moisture.

**NOTE**

Changes or modifications not expressly approved by ADTRAN will void the warranty.

Compliance

- NRTL Listed to the applicable UL/CSA Standards.
- 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.
- 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.

**WARNING!**

Surfaces may be hot to the touch.

**CAUTION!**

Connect the DC power inputs to a reliably grounded DC power source that is electrically isolated from the AC source. This product is intended to be supplied by a UL60950-1 or UL62368-1 listed power supply rated 12-48 VDC, minimum 1.0 A, and suitably rated for the ambient conditions (up to 167°F or 75°C). A readily accessible disconnect device that is suitably approved and rated, must be incorporated in the field wiring. Ensure that the power is removed from each power feed before installing or servicing this equipment.

**NOTE**

This equipment contains no parts that can be serviced by the user.

Documentation for ADTRAN Network Solutions products is available for viewing and download directly from the ADTRAN Support Community website.

Go to: <https://supportcommunity.adtran.com>

ADTRAN offers training courses on our products, including customized training and courses taught at our facilities or at customer sites.

For inquiries, go to: <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.

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