ADTRAN

7310-8 LoRaWAN Gateway

8-channel Enterprise LoRaWAN Gateway

February 2021
617101318F1-13B

P/N: 17101318F1

Quick Start

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

AVERTISSMENT!
Lisez tous les avertissements et mises en garde avant l'installation de cet équipement ou la réalisation de toute opération de maintenance.

Overview

This quick start describes how to install, configure, and troubleshoot ADTRAN's 8-channel Enterprise LoRaWAN gateway, which provides Internet of Things (IoT) connectivity using the LoRaWAN technology over the 902 to 928 MHz frequencies. This robust gateway can be managed using the iOS-based ADTRAN IoT app over Bluetooth to provide connection to the LoRaWAN gateway.

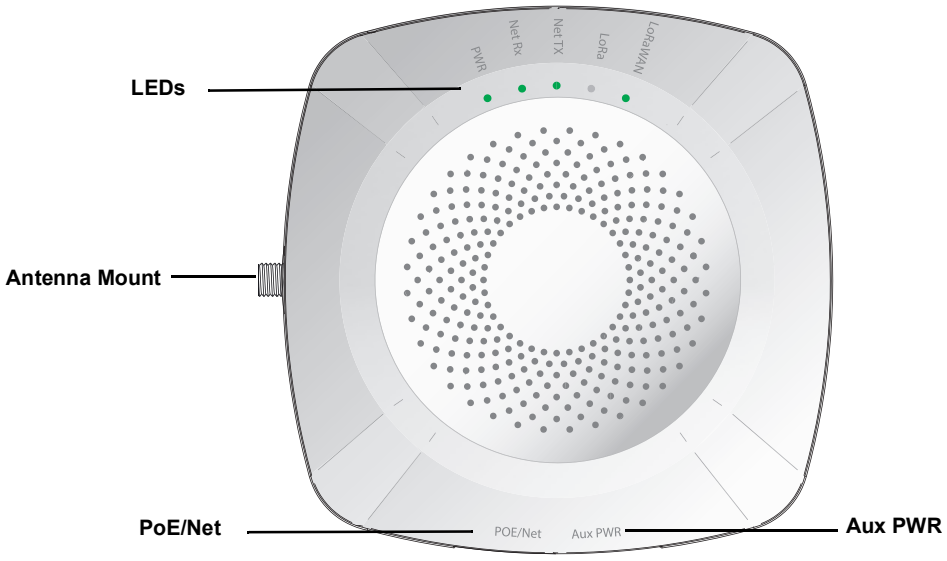

Figure 1. LoRaWAN Gateway

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 LoRaWAN Gateway

NOTE

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

Package Contents

- ADTRAN's 8-channel Enterprise LoRaWAN gateway
- One external antenna
- RJ-45 Ethernet cable
- Micro-USB cable and wall charger
- Mounting kit containing:
  - Wall/Ceiling mount hardware: mounting plate, two anchors and associated screws
  - Two T-rail mounting brackets (9/16 and 15/16) for recessed drop ceilings
- Quick Start

CAUTION!

The ADTRAN Enterprise LoRaWAN gateway 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.

Prior to Installation

Before installing the equipment, inspect the gateway. 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.

Installing the Antenna

To install the provided antenna onto the LoRaWAN gateway, attach the external antenna onto the antenna port on the left side of the gateway (as shown in Figure 1 on page 1).

Mounting the LoRaWAN Gateway to a Ceiling or Wall

The LoRaWAN gateway should be positioned for maximum coverage and range between other gateways and wireless client devices. Follow these instructions to mount the LoRaWAN gateway to an interior ceiling or wall using the enclosed ceiling/wall mounting kit:

1. Drive the short screws into the metal screw receptacles on the bottom of the LoRaWAN gateway until they are inserted into the keyed slots on the mounting bracket. If extra space is required, use the spacers and long screws provided with the T-rail mounting hardware kit to increase the space between the unit and the mounting bracket. Leave enough of the long screws exposed above the spacer to ensure they can be inserted into the keyed slots on the mounting bracket.
2. Using the plastic mounting bracket as a template, mark the location to insert the screw anchors.
3. Press the point of the screw anchors into the sheetrock at the marks and drive them into the wall using a Phillips-head screwdriver.

NOTE

When installing the LoRaWAN gateway into the wall, be sure that the wall anchors are oriented vertically so that the cables will be pointing downward in the final installation.

4. Insert the long screws through the recessed holes in the plastic mounting bracket and drive them into the metal anchors.
5. Mount the LoRaWAN gateway on the mounting bracket by inserting the screws on the back of the gateway into the keyed slots on the mounting bracket and rotating the unit counterclockwise 45 degrees to secure it on the bracket.

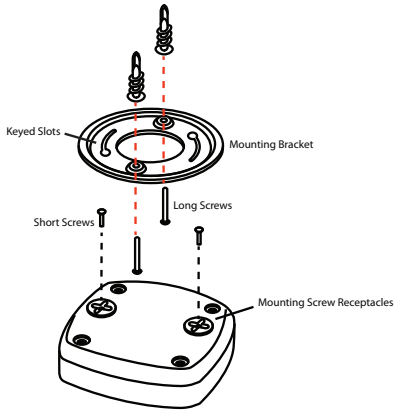

Figure 2. LoRaWAN Gateway Ceiling or Wall Mount

Mounting the LoRaWAN Gateway to a Dropped Ceiling

The LoRaWAN gateway ships with a T-rail mounting kit to mount the gateway on the ceiling tile separators of standard dropped ceilings. The mounting clips come in two sizes and can be mounted to either recessed (using the spacer) or flush dropped ceiling T-rails. LoRaWAN gateways should be positioned for maximum throughput and range between other gateways and wireless client devices. To mount the gateway to a dropped ceiling:

1. Attach the appropriate size ceiling clips to the bottom cover of the LoRaWAN gateway using the provided short screws as shown in Figure 3:

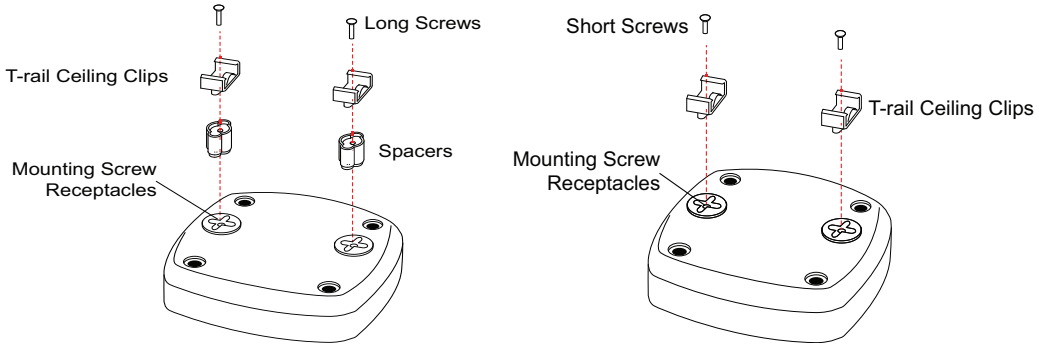

Figure 3. Attach the Ceiling Clips to the LoRaWAN Gateway

NOTE

If extra space is required to accommodate recessed dropped ceiling tiles, use the provided spacers and longer screws included in the T-rail ceiling mount kit.

2. Once the ceiling clips are attached to the LoRaWAN gateway, line up the T-rail clips with an appropriately sized rail and press the unit onto the rail until it snaps into place.

Supplying Power to the LoRaWAN Gateway

The LoRaWAN gateway does not have a power switch. It is powered on when connected to a network device that supplies PoE based on the IEEE 802.3at standard.

To power the LoRaWAN gateway, follow these steps:

1. Connect one end of the provided RJ-45 Ethernet cable to the **POE/NET** port on the LoRaWAN gateway.
2. Connect the other end to a PoE-powering network device.
3. Confirm that the power is connected properly. The **POWER** LED should be **ON** (see ""POWER Status LED").

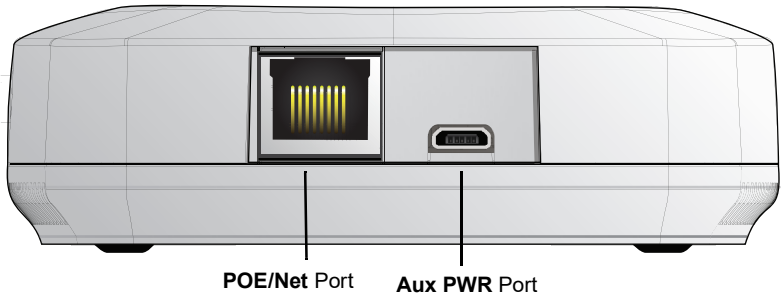

Figure 4. LoRaWAN Cable Connections

NOTE

If a PoE-powering device is not available, the micro universal serial bus (micro-USB) connection (labeled **Aux/PWR**) can be used for powering the LoRaWAN gateway instead (as shown in Figure 4).

Connecting to the LoRaWAN Gateway

Once the LoRaWAN gateway is installed and powered, you can connect to the gateway using the Bluetooth-connected ADTRAN IoT application.

Initial Gateway Connection Using the ADTRAN IoT App

You can connect to the LoRaWAN gateway using the Bluetooth ADTRAN IoT app from a supported Apple® device. To connect using the ADTRAN IoT app, follow these steps:

1. Download the ADTRAN IoT app onto your Apple device. The ADTRAN IoT app is available for download from Apple's App Store.
2. Ensure that the Bluetooth feature of your Apple device is on.

3. Open the ADTRAN IoT app on your Apple device and select **SCAN** from the menu. The application will scan for any ADTRAN LoRaWAN gateways within the Bluetooth connection range, and provide you the option to connect to any discovered devices. Discovered devices will be displayed; the default name of any discovered device is set to the last 5 digits of the device's serial number (for example, **00007**, as shown in Figure 5).
4. To connect to a discovered device, select the device from the list and enter your PIN when prompted. The PIN will always be the last 5 digits of the of the gateway's serial number. After entering the PIN, select **Connect** (as shown in Figure 5). Once the connection is complete, the device information and configuration is accessible from the **Connected Device** menu.

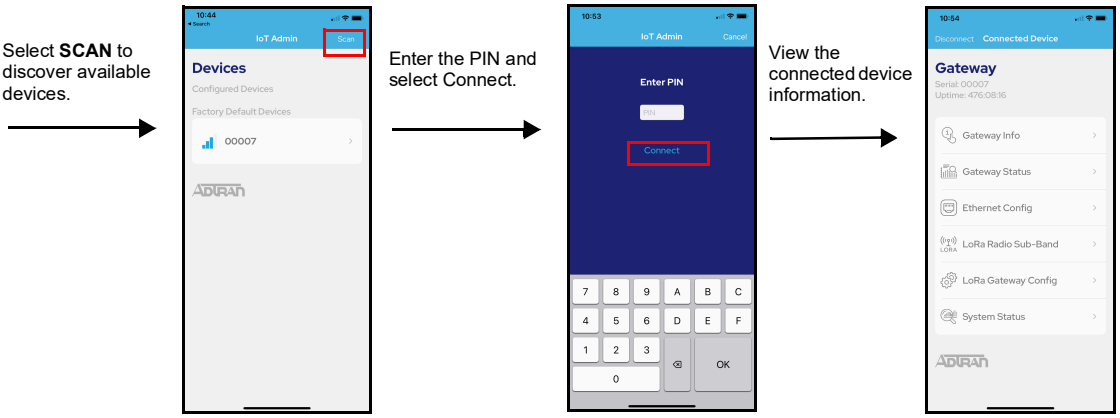

Figure 5. Bluetooth LoRaWAN Device Discovery

5. Once you have connected to the LoRaWAN gateway using the ADTRAN IoT app, you can access the configuration, device information, power settings, and device status information from the ADTRAN IoT app directly. Each menu shown in Figure 6 is available from the **Connected Device** menu (as shown in Figure 5 above).

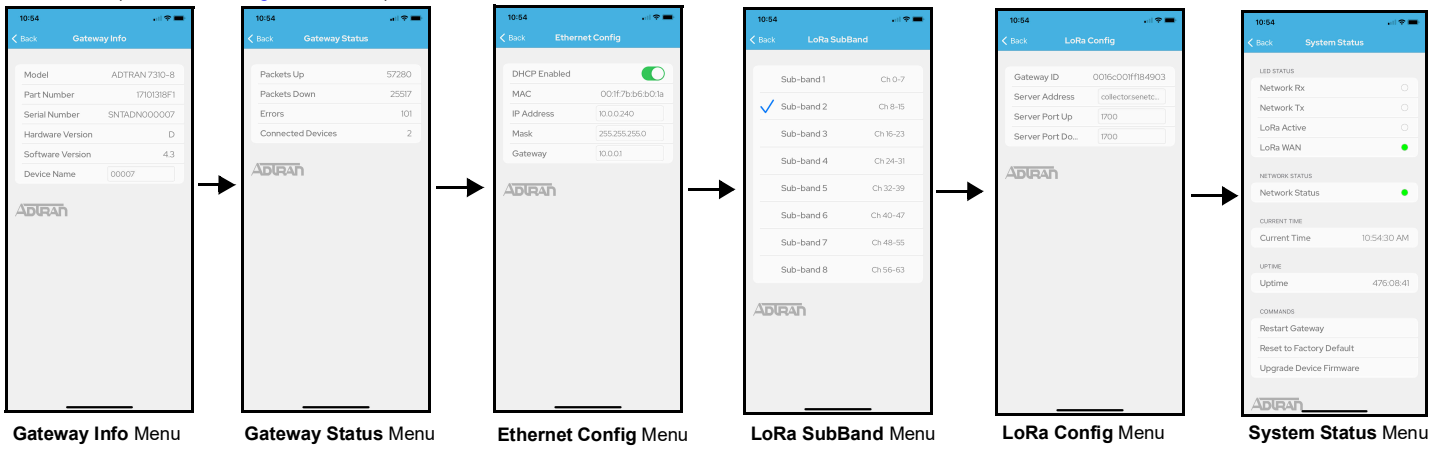

Figure 6. ADTRAN IoT App Menus

6. The first step in configuring the LoRaWAN gateway is to rename the device so that the last 5 digits of the serial number (the default name of the device and the device PIN) are not distributed. Be sure to note your device PIN before changing the default name of the device, as the PIN will not change but will no longer be displayed in the device name. To change the name of the device, select the **Gateway Info** tab from the **Connected Device** menu. In the **Gateway Info** menu, enter a new device name in the **Device Name** field, and select **Save** (as show in Figure 7).

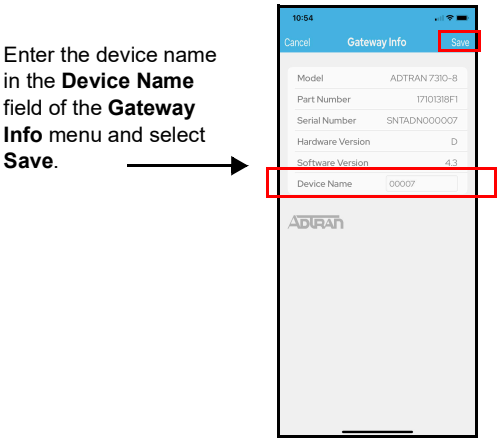

Figure 7. Change the Device Name in the ADTRAN IoT App

7. After a successful save, disconnect from the device. The old device name will still be displayed in the available devices list; to update the device name in the device list, log back in to the same device using the procedure outlined in **Step 4** on page 4, and then disconnect again. The new device name will be displayed in the **Connected Device** menu (note that it can sometimes take a few moments for the ADTRAN IoT app to reflect the name change).
8. If any additional device configuration is required, make the necessary changes within the ADTRAN IoT app and select **Save** at the top right corner of the device screen where applicable. If the **Save** option does not appear, the changes are automatically pushed to the LoRaWAN gateway.

NOTE

The **LoRa SubBand** and **LoRa Config** menus are not applicable when the LoRaWAN gateway is connected to some IoT network providers, and no changes can be made or applied on these menu screens. Check with your IoT network provider to verify if these menus are applicable to your device, as some settings may be set specifically by your network provider and cannot be changed.

Understanding the Status LEDs

The LEDs on the LoRaWAN gateway's front panel provide you with the ability to monitor the device status. The following section describes the five types of LEDs available on the LoRaWAN gateway device.

POWER Status LED

The POWER Status LED indicates if the device is powered up correctly.

LED	Color	State	Description
POWER	Green	Off	The device is not receiving power.
		On	The device is powered ON correctly.

NET TX/RX Status LEDs

The NET TX and NET RX Status LEDs indicate the transmitted and received encapsulated LoRaWAN packets on the port.

LED	Color	State	Description
NET TX **NET RX**	Green	Off	Indicates no traffic is being passed on the port.
		Flashing	Indicates transmitted (TX) or received (RX) encapsulated LoRaWAN packets are being passed on the port.

LoRa Status LED

The LoRa Status LED indicates the status of the LoRa radio.

LED	Color	State	Description
LoRa	Green	Off	The LoRa radio is inactive.
		Flashing	The LoRa radio is passing traffic.

LoRaWAN Status LED

The (LoRaWAN Network Server) LNS Status LED indicates the status of the connection between the LoRa gateway and the LNS.

LED	Color	State	Description
LoRaWAN	Green	Off	The LoRaWAN gateway is not connected to the LNS.
		On	The LoRaWAN gateway is connected to the LNS.
		Flashing	The LoRaWAN gateway is attempting to connect to the LNS, but cannot complete the connection.

Restarting, Restoring Defaults, and Upgrading the LoRaWAN Gateway

You can restart the LoRaWAN gateway, restore the device to the factory defaults, or upgrade the LoRaWAN gateway firmware using the appropriate command as listed in the **Commands** section of the **System Status** menu. To perform one of these actions, navigate to the **System Status** menu in the ADTRAN IoT app and follow these steps:

1. To restart the LoRaWAN gateway, select the **Restart Gateway** option from the **Commands** list in the **System Status** menu (as shown in Figure 8 on page 6). Once selected, the LoRaWAN gateway will restart.
2. To restore the LoRaWAN gateway to the factory default settings, select the **Reset to Factory Default** option from the **Commands** list in the **System Status** menu (as shown in Figure 8 on page 6). Once selected, the LoRaWAN gateway will reboot with the factory default settings applied.

NOTE

You will need to know your PIN before resetting the LoRaWAN gateway to the factory default settings. The PIN will always be the last 5 digits of the device's serial number, which may not be visible if you have changed your device name from the default. Refer to "Connecting to the LoRaWAN Gateway" on page 3 for more information about the device PIN.

3. To upgrade the LoRaWAN gateway firmware, select the **Upgrade Device Firmware** option from the **Commands** list in the **System Status** menu (as shown in Figure 8). Once selected, the LoRaWAN gateway will prompt you to confirm that you want to upgrade the firmware. If the firmware upgrade is confirmed (by selecting **Upgrade** when prompted), the firmware upgrade process will automatically begin. Once the upgrade process has begun, you can close the ADTRAN IoT app session while the firmware upgrade process continues. The firmware upgrade process will take several minutes to take effect, and the gateway may reboot several times during the upgrade process.

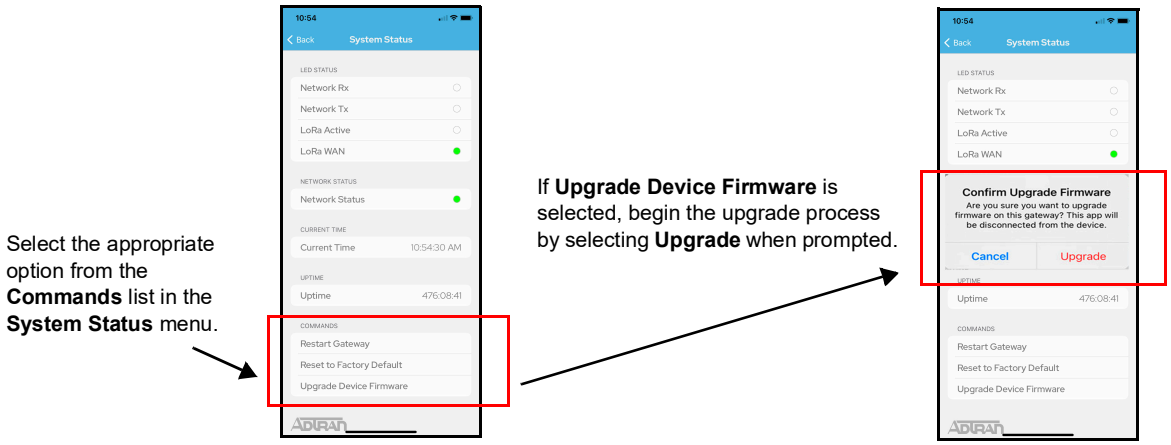

Figure 8. Restarting, Restoring Defaults, and Upgrading the LoRaWAN Gateway

Product Specifications

LoRaWAN Interface

- ISM Band: NA915 (902MHz - 928MHz)
- Tx Power: 27dBm Max
- Rx Sensitivity: 127dBm at SF7 BW 125kHz

Electrical

- Power Supply: 48 VDC, 0.1 A (PoE) or 5 VDC, 1.0 A (micro-USB)

Environment

- Operating Temperature: 32°F to 104°F (0°C to 40°C)
- Storage Temperature: -40°F to 158°F (-40°C to 70°C)
- Relative Humidity: up to 95 percent, non-condensing

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 business deployment. 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

- Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.
- This product is NRTL Listed to the applicable UL/CSA Standards.
- IEEE 802.3at PoE+

FCC Statements

- 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.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 25 cm between the radiator and your body.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

Industry Canada Statements

- This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
  - 1. This device may not cause interference.
  - 2. This device must accept any interference, including interference that may cause undesired operation of the device.
- L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
  - 1. L'appareil ne doit pas produire de brouillage;
  - 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- This device has been certified for use in Canada under Industry Canada (IC) Radio Standards Specification (RSS) RSS-210 and RSS-Gen. This Class A digital apparatus complies with Canadian ICES-003.
- This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
  - 1. This device may not cause interference, and
  - 2. This device must accept any interference, including interference that may cause undesired operation of the device
- This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 28cm between the radiator & your body.
- CAN ICES-3(A)/NMB-3(A)

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

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY
HANDLING PRECAUTIONS REQUIRED

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From outside the U.S. +1 256.963.8716

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