Total Access 324RG
Indoor 2 POTS + 4GigE Home Gateway ONT

jobAid

Product P/N: 1287562G1

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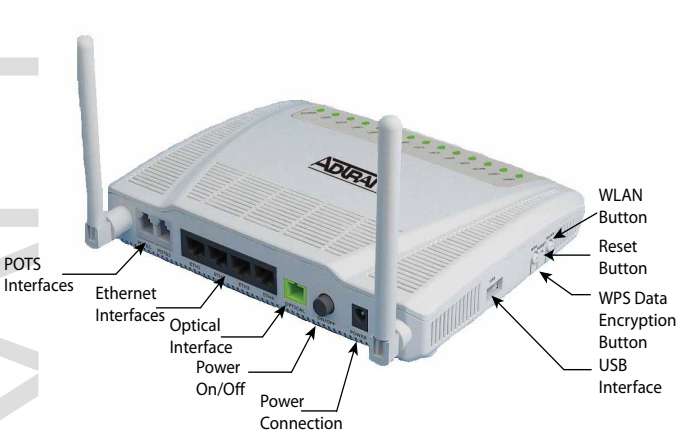
The following documents provide additional information for this product:
Total Access 5000 GPON OLT User Interface Guide
Total Access 5000 Fiber to the Premises Deployment Guide
Total Access 5000/5006 Engineering and Ordering Guide

Description

The Total Access 324RG Indoor 2 POTS + 4GigE (P/N 1287562G1) Home Gateway Optical Network Termination (ONT) provides Triple-Play services to a customer premises. The following is an illustration of the Home Gateway ONT.



Features

The Indoor 2 POTS + 4GigE has the following features:

- Two POTS Interfaces
- Four Ethernet fiber interfaces with 1.244 Gigabits per second Upstream and 2.488 Gigabits per second downstream
- One Optical Interface
- AC Power Adapter
- USB Interface

Voice Processing

POTS uses in-band signaling tones and currents to determine call status (for example, call request). Because POTS allows for the transfer of audio signals below 3.3 kHz, POTS systems are also used for modems that allow data transmission (referred to as dial up connections).

Ethernet Interface

The Home Gateway ONT supports data service through four 10/100/1000Base-T Ethernet interfaces via an RJ-45-style connector.

Power

The power feed is 12 VDC.

Installation

Before installing the Home Gateway ONT, inspect it for damage. If damage has occurred during shipping, file a claim with the carrier and then contact ADTRAN. For more information, refer to the warranty.

Installation Guidelines

The following are guidelines for this installation.

⚠ WARNING

Read all warnings and cautions before installing or servicing the Home Gateway ONT.

Resetting the ONT

A reset button is available if the Home Gateway ONT needs to be rebooted. To reset the Home Gateway ONT, insert a small pin into the RESET opening and hole the button down for 5 seconds or longer.

⚠ WARNING

All settings will return to Factory Defaults: Registration provisioning will be lost.

Resetting the WLAN

The Home Gateway ONT is equipped with a wireless local area network (WLAN) reset button. Refer to the illustration at the top of the first column for the button's location. This is the WiFi link to other Internet devices. To reset the WLAN, press the **WLAN** button once.

WPS Security

The Home Gateway ONT is equipped with a WiFi Protected Setup (WPS) security button. This button is used to secure a wireless home network. However, there are security issues with this type of connection and ADTRAN does not recommend using this feature.

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Installation Overview

To install the Home Gateway ONT, complete the following steps:

- Step 1: Install Home Gateway ONT
- Step 2: Connect POTS
- Step 3: Connect Ethernet
- Step 4: Connect Fiber
- Step 5: Connect Power
- Step 6: Connect USB

Required tools

Standard technician tools and those listed below are required for installing the Home Gateway ONT:

- 3/32 inch screw driver for connecting Home Gateway ONT power
- RJ-45/RJ-11 crimper
- A telephony/data communication test set
- PON power meter with wavelength filtering
- Fiberscope or videoscope
- Two #8 Pan Head screws (1 inch or greater in length)
- Assorted tie wraps for securing cabling and wiring

For fiber optic connections, the following are required:

- Fiber optical fusion splice tools
- ODC Fiber cleaning tool
- SC Fiber connector

Installation Steps

To install the Home Gateway ONT, refer to the illustration on the first page and complete the following steps.

Step 1: Install the Home Gateway ONT

There are two options when installing the Home Gateway ONT: Desk Top and Wall Mount. Both are described below.

Desk Top Installation

The Home Gateway ONT can sit on a desktop or be wall mounted. With a desk mount, ensure the Home Gateway ONT is not located in direct sunlight and is not located next to any thermal obstructions.

Wall Mount Installation

To wall mount the Home Gateway ONT, perform the following steps:

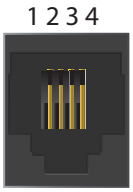
1. Decide on a location for the Home Gateway ONT. Included with the Home Gateway ONT is a 12 V Power Adaptor with a 4-foot power cord. The installation location should be within 4 feet of a wall outlet.
2. Remove the Mounting Bracket from the bottom of the Home Gateway ONT.
3. Use the keyhole slots on the back of the Mounting Bracket as a template and attach it to drywall using the appropriate anchors.
4. Reattach the Home Gateway ONT to the Mounting Bracket.

Step 2: Connect POTS

To connect POTS, refer to the illustration on the first page and perform the following steps:

1. Remove the POTS cable supplied with the Home Gateway ONT and connect one end to the Home Gateway ONT and the other end to a standard telephone base.
2. If a POTS cable is not available, select a standard telephone twisted pair cable of appropriate length and trim the insulation back approximately 1/2 inch on each end.
3. Refer to the illustration below and connect the twisted-pair Tip (green) and Ring (Red) to the RJ-11 connectors using an RJ-11 crimper.

POTS Pin-Outs



4. Connect one end of the POTS cable to the Home Gateway ONT and the other end to a standard telephone connection.

Step 3: Connect Ethernet

The Home Gateway ONT supports four Gigabit (10/100/1000Base-T) connections. To install Ethernet to the Home Gateway ONT, refer to the illustration on the first page and complete the following steps:

1. Remove the Ethernet cable supplied with the Home Gateway ONT and attach one end to the **LAN1** connection on the rear of the Home Gateway ONT and the other end to the incoming Ethernet device.
2. If an Ethernet cable is not available, obtain a CAT5 or 6 cable of appropriate length and trim the insulation back approximately 1/2 inch on both ends.
3. Connect the wires per to an RJ-45 connector using the table below.

Ethernet RJ-45 Pin-out

Pin	Name	Description	Color Code
1	TRD0+	Transmit/Receive Positive	White/Orange
2	TRD0-	Transmit/Receive Negative	Orange
3	TRD1+	Transmit/Receive Positive	White/Green
4	TRD2+	Transmit/Receive Positive	Blue
5	TRD2-	Transmit/Receive Negative	White/Blue
6	TRD1-	Transmit/Receive Negative	Green
7	TRD3+	Transmit/Receive Positive	White/Brown
8	TRD3-	Transmit/Receive Negative	Brown

4. Crimp the connector using an RJ-45 Crimper.
5. Connect one end to the appropriate **LAN1** connection on the rear of the Home Gateway ONT and the other end to the incoming Ethernet device.
6. Repeat these steps as necessary for each additional Ethernet connection required.

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Step 4: Connect Fiber

⚠ CAUTION

LASER RADIATION
1310 nm to 1600 nm
Do not view directly with optical instruments.
This product contains a Class 1M Laser module that complies with 21 CFR 1040.10 and 1040.11 and IEC 60825-1 and -2.

Fiber is installed using an SC connecter attached to the **OPTICAL** Interface on the rear of the Home Gateway ONT. Refer to the illustration on the first page and complete the following steps to connect fiber:

1. Remove the protective cover from the **OPTICAL** Interface.

NOTE

The protective cover should always be inserted in the optical interface when the Fiber connection is not in use. This will help protect the optical components.

2. Clean the ends of the SC connector and the surface of the **OPTICAL** Interface using appropriate fiber cleaning methods.
3. Connect the incoming fiber cable to the SC connection.
4. Route the fiber cable so that it is protected from accidental harm.

Step 5: Connect Power

To connect power to the Home Gateway ONT, refer to the illustration on the first page and complete the following steps:

1. Plug the supplied 12V AC/DC Power Converter into the **PWR** connection on the rear of the Home Gateway ONT.
2. Connect the power plug to a standard 120V AC outlet.
3. Verify the power is on by checking the **PWR** LED on the Home Gateway ONT. The LED should be green indicating local power is on and voltage is good.

ON/OFF Button

An On/Off button is located on the far-right side of the rear of the Home Gateway ONT. User functionality is limited to this button.

NOTE

If a Battery Backup (BBU) is being used and is disconnected, the Home Gateway ONT is not protected from power outages, and will send a “Battery Missing” alarm to the OLT.

Step 6: Connect USB

The Home Gateway ONT is equipped with a USB port. Refer to the illustration on the first page for the location of this connection.

LED Status

The LEDs are located beneath the plastic housing and are only visible after power has been applied. The following table provides the LED status during normal operations.

Label	Status		Indication
PWR	○	Off	ONT power is Off
	●	Green	ONT power On
LINK	○	Off	ONT is not active (not Ranged)
	●	Green	ONT is active (Ranged)
	✷	Green Flashing	ONT is activating (Ranging in progress)
AUTH	○	Off	ONU* is NOT authorized
	●	Green	ONU is authorized
	✷	Green Flashing	ONU is registering
LAN1 -4	○	Off	Link is down
	●	Green	LAN Port is up
	✷	Green Flashing	LAN Port is actively transmitting and receiving
TEL1 - 2	○	Off	ONT is not registered
	●	Green	ONT is registered and on hook
	✷	Green Flashing	Off hook or call in progress
INTERNET	○	Off	WAN not configured
	●	Green	Internet is connected
	✷	Green Flashing	Internet is connecting
WPS	○	Off	WPS is disabled
	●	Green	WPS status is “Successful”
	✷	Yellow Flashing	WPS status is “in Progress”
	✷	Red Flashing	WPS is experiencing errors
WLAN	○	Off	Error/WLAN is not connected
	●	Green	WLAN is connected
	✷	Green Flashing	WLAN receiving/transmitting data
USB	○	Off	No power or USP not connected
	●	Green	USP connected
	✷	Green Flashing	USP receiving/transmitting data

*ONU. An Optical Network Unit (ONU) is a device that transforms incoming optical signals into electronic signals at a customer’s premises.

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Troubleshooting

The following table can be used for troubleshooting purposes:

Problem	Possible Solution
The Power LED is Off	Verify that the power adapter is plugged into a live AC outlet.
	Check that he **ON/OFF** button is pressed in.
	Check the power cable for shorts or breaks.
	Disconnect the power input connector at the ONT and use a voltmeter to verify that the proper voltage level is present on the 12 V pin (power and power return) from the power adapter.
The LINK LED is Off	Check that the optical fiber is connected correctly. Check the optical connector for dirt or damage.
LINK LED is ON, but INTERNET LED is Off	The signal sent by the service provider is not being received. Contact the service provider for assistance.
The LAN LED is Off	Check that the Ethernet cable is connected correctly. Check that the network adaptor works normally. Refer to the documentation that accompanied the network adapter as needed.

Specifications

Refer to the following for a list of all specifications for the Indoor Home Gateway ONT.

- Electrical
  - Voltage: 12 Volts typical
  - Minimum Voltage: 10 Volts
  - Maximum Voltage: 13.9 Volts
  - Power Consumption: Typical 13.9 watts
- Physical
  - 10.0 inches wide (19.5 centimeters)
  - 5.9 inches deep ((18.8 centimeters)
  - 1.5 inches high (3.3 centimeters no bracket, 5.1 with bracket)
  - Weight: 2 pounds (0.9 kilograms)
- Environmental
  - Operational Temperature: 32°F to +113°F (0°C to +50°C)
  - Storage Temperature: –40°F to 185°F (–20°C to +50°C)
  - Relative Humidity: 90%, noncondensing
- Optical
  - TX min power: 0.5 dBm
  - TX max power: 5.0 dBm
  - RSSI max sensitivity: -27 dBm
  - RX overload: -8 dBm
  - TX wavelength: 1310 nm typical
  - RX wavelength: 1490 nm typical

Maintenance

The Indoor 2 POTS + 4GigE does not require routine hardware maintenance for normal operation. ADTRAN does not recommend that repairs be attempted in the field. Repair services may be obtained by returning the defective unit to ADTRAN. Refer to the warranty for further information. Field support for software is provided through upgrade facilities.

Safety and Regulatory Compliance

Refer to the Total Access 324RG Indoor 2 POTS + 4GigE *Safety and Regulatory Compliance Notice* (61287562G1-17) for detailed safety and regulatory information.

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Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peutfonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

MPE Reminding
To satisfy FCC / IC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

Les antennes installées doivent être situées de facon à ce que la population ne puisse y être exposée à une distance de moin de 20 cm. Installer les antennes de facon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l' antenne. La FCC des éltats-unis stipule que cet appareil doit être en tout temps éloigné d'au moins 20 cm des personnes pendant son functionnement.

Region Selection
Limited by local law regulations, version for North America does not have region selection option.

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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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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