ADTRAN Pluggable Optics

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61442543F1-13A

SFP+

Combo PON D1 OLT

Quick Start

P/N: 1442543F1

DESCRIPTION

The Combo PON Optical Line Terminal (OLT) Small Form-factor Pluggable (SFP+) combines the 10 Gig XGS-PON OLT and GPON OLT optical transceiver into a single-mode fiber SFP+. The SFP+ plugs into an ADTRAN optical interface that is designed to accept the Combo PON pluggable optics. The SFP+ provides a single optical interface to a physical interface and provides a 9.953 Gbps XGS-PON and a 2.488 Gbps GPON interface to the supporting system when installed into an appropriate product.

Both the XGS-PON and GPON optical burst mode receivers incorporate APD/TIA optics for maximum sensitivity. The XGS-PON transmitter incorporates a 1577 nm EML laser assembly and the GPON transmitter incorporates a 1490 nm DFB laser assembly. It is FDA 21 CFR 1040.10 and 1040.11, and IEC 60825-1 Class I laser safety compliant and meets the EU RoHS Directive.

This SFP+ supports the following features:

- ODN Class D1 (N1/B+) Transceiver
- Data rate: 9.953 Gbps and 2.488 Gbps
- XGS-PON Optical Receive Wavelength: 1270 nm
- XGS-PON Optical Transmit Wavelength: 1577 nm
- GPON Optical Receive Wavelength: 1310 nm
- GPON Optical Transmit Wavelength: 1490 nm
- Hot Pluggable

Applications:

- XGS-PON and GPON Access networks
- Fiber to the Premises (FTTP)
- Fiber to the Building (FTTB)
- Fiber to the Curb (FTTC)

Due to compliance certification requirements, use only pluggable optics supplied by ADTRAN. ADTRAN cannot certify system integrity with other pluggable optics.

INSTALLATION

Before installing the equipment, inspect the SFP+. If damage has occurred during shipping, file a claim with the carrier, and then contact ADTRAN Customer Support. For more information, refer to the warranty.

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

Installation Steps

To install the SFP+ into an appropriate device, complete the following steps:

NOTE
Do not remove the protective dust covers from the SFP+ until the fiber optic cable is ready to be connected.

1. Insert the SFP+ into the SFP+ cage on the equipment or device.
2. Slide the SFP+ all the way into the SFP+ cage until there is an audible "click".

NOTE
- Orientation of the SFP+ will vary depending on the equipment.
- The latch on the SFP+ is for removal only. When removing the SFP+, rotate the latch away from the SFP+. It should easily slide out of the cage.

NOTICE
Do not remove the protective dust cover until the optical fiber connection is made. Ensure that you keep the protective dust cover on whenever the transceiver optical fiber connector is not inserted.

3. Continue the installation and turn-up of the device or equipment using the instructions in the Job Aid or Quick Start provided with the equipment or device or other system-level documentation available online at www.adtran.com.

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SPECIFICATIONS

General

- Module Type: SFP+
- Media Type: Fiber
  - ◆ Single-Mode
  - ◆ Single-Fiber
- Signal Data Rate:
  - ◆ 9.953 Gbps (XGS-PON)
  - ◆ 2.488/1.244 Gbps (GPON TX/RX)
- Not compatible with SFP+ MSA
- Applications: XGS-PON, GPON, FTTP, FTTB, FTTC
- Optical Connector: SC

Optical

- XGS-PON Transmitter
  - ◆ Laser Diode Type: EML
  - ◆ Transmit Wavelength: 1577 nm
  - ◆ Tx Power: +2.0 dBm to +5.0 dBm
  - ◆ Spectral Width: 1 nm
  - ◆ SMSR: 30.0 dBm
  - ◆ Extinction Ratio: 8.2 dB
- GPON Transmitter
  - ◆ Laser Diode Type: DFB
  - ◆ Transmit Wavelength: 1490 nm
  - ◆ Tx Power: +1.5 dBm to +5.0 dBm
  - ◆ Spectral Width: 1 nm
  - ◆ SMSR: 30.0 dBm
  - ◆ Extinction Ratio: 8.2 dB
- XGS-PON Receiver
  - ◆ Type: APD
  - ◆ Central Wavelength: 1270 nm
  - ◆ Receiver Sensitivity: –26.0 dBm
  - ◆ Receiver Overload: –5.0 dBm
- GPON Receiver
  - ◆ Type: APD
  - ◆ Central Wavelength: 1310 nm
  - ◆ Receiver Sensitivity: –28.0 dBm
  - ◆ Receiver Overload: –7.0 dBm

Environmental

- Protected Equipment Severe Environment (Outdoor)
  - ◆ System Ambient Operational Temperature Range: –40°C to +70°C
  - ◆ Storage Temperature Range: –40°C to +85°C
  - ◆ Relative humidity: 5% to 95%, non-condensing

SAFETY AND REGULATORY

ENGLISH

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

☀ **CAUTION!**
This product is a Class 1 Laser module that complies with FDA 21 CFR 1040.10 and 1040.11 and IEC 60825-1. This product is NRTL Listed and CB Certified to all applicable American and European safety standards.

⚠ **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.

- This product's outer case is "electrically isolated" from other circuits, as a result, this product can be used in systems that are installed either in a DC-I (isolated) or DC-C (common) configuration. For Systems where other installed modules or the host system itself have internal connections between battery return and frame ground, the system can only be deployed in a DC-C configuration.

- If the host system has a protective earth (PE) terminal, the PE terminal of the host system must be connected to protective earth (PE) to ensure that the exposed metal (i.e., front panels, optical modules) on the product is properly grounded.

ℹ️ NOTE

- This product is designed to be deployed in GR-3108-CORE environmental Class 1, 2, or 3.

- This product is NRTL Listed to the applicable UL/CSA Standards. The product is designed to meet the applicable requirements of Telcordia GR-63-CORE, GR-1089-CORE, and GR-3108-CORE. This product has also been evaluated to applicable international standards.

- This product is intended for deployment in locations such as telecommunications facilities (e.g., Central Offices), outdoor electronic equipment cabinets and at locations where the NEC applies (such as customer premises). 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.

- 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 product is designed to meet the following environmental classes:
  - ETSI EN 300 019-1-1 "Classification of environmental conditions; Storage," Class 1.2
  - ETSI EN 300 019-1-2 "Classification of environmental conditions, Transportation," Class 2.3
  - ETSI EN 300 019-1-3 "Classification of environmental conditions, Stationary use at weather protected locations," Class 3.3

- This product is designed to function without degradation during exposure to all test severities per class 3.3 of ETSI EN 300 019-1-3.

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

- This product meets EU RoHS Directive. Refer to www.adtran.com/environmental for further information on RoHS/WEEE.

FRANÇAIS

⚠️ AVERTISSMENT!

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

☀️ ATTENTION!

Ce produit est un module laser de classe 1 qui est conforme à la FDA 21 CFR 1040.10 et 1040.11 et IEC 60825-1. Ce produit est NRTL et Certifié CB à toutes les normes de sécurité applicables américains et européens. Pour maintenir la conformité avec les normes ci-dessus, installer des modules laser de classe 1 ne ADTRAN approuvés dans les produits d'ADTRAN.

⚠️ ATTENTION!

- L'ESD (décharge électrostatique) peut endommager les modules électroniques. Lors de la manipulation des modules, portez un bracelet de décharge antistatique pour éviter d'endommager les composants électroniques. Placez les modules dans un emballage antistatique lors du transport ou du stockage. Lorsque vous travaillez sur les modules, placez-les toujours sur un tapis antistatique certifié muni d'un branchement de mise à la terre.

- Si le système hôte est doté d'une borne de mise à la terre de protection (PE), la borne PE du système hôte doit être connectée à la mise à terre de protection (PE), afin d'assurer que les parties métaliques à découvert (panneaux frontaux, modules optiques) du produit soient correctement mis à terre.

ℹ️ REMARQUE

Ce produit est conforme à la directive européenne RoHS. Reportez-vous à www.adtran.com/environmental pour de plus amples renseignements sur RoHS.

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DEUTSCH

⚠️ **WARNUNG!**

Lesen Sie sich alle Warn- und Sicherheitshinweise durch, bevor Sie dieses Gerät installieren oder warten.

☀️ **VORSICHT!**

Dieses Produkt ist ein Klasse 1 Laser -Modul, das mit der FDA 21 CFR 1040.10 und 1040.11 und IEC 60825-1 entspricht. Dieses Produkt wurde NRTL gelistet und CB Certified allen geltenden amerikanischen und europäischen Sicherheitsstandards. Für die ständige Einhaltung der oben genannten Normen, installieren Sie nur ADTRAN zugelassene Klasse 1 Lasermodule in ADTRAN Produkte.

⚠️ **VORSICHT!**

- Elektrostatische Entladung können elektronische Module beschädigen. Tragen Sie beim Umgang mit Modulen ein Erdungsarmband, um Schäden an den elektronischen Komponenten zu vermeiden. Transportieren oder lagern Sie Module in antistatischem Verpackungsmaterial. Bei der Arbeit an den Modulen, achten Sie darauf, diese stets auf antistatische, elektrisch geerdete Matten zu legen.

- Falls das Host-System über einen Schutzleiteranschluss (PE) verfügt, muss der PE-Anschluss des Host-Systems mit dem Schutzleiteranschluss (PE) verbunden werden, um sicherzustellen, dass das freiliegende Metall (d. h. Frontblenden, Optikmodule) am Produkt ordnungsgemäß geerdet ist.

ℹ️ **HINWEIS**

Dieses Produkt erfüllt die EU RoHS Richtlinie. Bitte besuchen Sie www.adtran.com/environmental für ausführlichere Informationen zu RoHS/WEEE.

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

Go to: https://supportforums.adtran.com/welcome

Registration is required.

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

The following online documents and resources provide additional information for this product:

ADTRAN Pluggable Optics Compatibility Matrix (online tool, go to: http://www.adtran.com/pluggableoptics)

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

ADTRAN CUSTOMER CARE:
From within the U.S.   1.888.423.8726
From outside the U.S. +1 256.963.8716
PRICING AND AVAILABILITY 1.800.827.0807

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