

Quick Start

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+. It 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. The SFP+ 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. The SFP+ is designed to support up to 32 subscribers over distances of up to 20 km in the Optical Distribution Network (ODN). It is FDA 21 CFR1040.10 and IEC 60825-1 Class I laser safety compliant and meets 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
- Optical distance: 20 km maximum
- Hot Pluggable

Applications:

- XGS-PON and GPON Access networks
- Fiber to the Home (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.

Installation Steps

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

NOTE

Do not remove the protective end cap from the SFP+ until the fiber optic cable is ready to be connected.

1. Insert the SFP+ into the SFP+ cage on the module.
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 module.
- 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 end cap until the optical fiber connection is made. Ensure that you keep the protective end cap on whenever the transceiver optical fiber connector is not inserted.

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

SPECIFICATIONS

General

- Module Type: SFP+
- Media Type: Fiber
 - ◆ Single-Mode
 - ◆ BIDI
- Signal Data Rate:
 - ◆ 9.953 Gbps (XGS-PON)
 - ◆ 2.488 Gbps (GPON)
- Distance: 20 Km
- 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 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 dBm
 - ◆ Extinction Ratio: 8.2 dB
- XGS-PON Receiver
 - ◆ Type: APD
 - ◆ Central Wavelength: 1270 nm
 - ◆ Receiver Sensitivity: -26.5 dBm
 - ◆ Receiver Overload: -4.5 dBm
- GPON Receiver
 - ◆ Type: APD
 - ◆ Central Wavelength: 1310 nm
 - ◆ Receiver Sensitivity: -28.0 dBm
 - ◆ Receiver Overload: -7.0 dBm

Environmental

- Controlled Protected Environment (Indoor)
 - ◆ System Ambient Operational Temperature Range: -5°C to +55°C
 - ◆ Storage Temperature Range: -40°C to +85°C
 - ◆ Relative Humidity 5% to 93%, noncondensing

SAFETY AND REGULATORY

ENGLISH



WARNING!

Read all warnings and cautions 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. For continued compliance with the above standards, install only ADTRAN-approved Class 1 Laser Modules in ADTRAN products.



CAUTION!

- Electrostatic Discharge (ESD) can damage electronic modules. When handling modules, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.
- This product and the host system are designed and intended for installation as part of a Common Bonding Network (CBN). This product and the host system are not designed nor intended for installation as part of an isolated Bonding Network (IBN).
- 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.
- The host system protective earth (PE) terminal must be connected to an earth ground to ensure that the exposed metal (i.e., front panels, optical modules) on the product is properly grounded by way of the backplane connector.

i **NOTE**

- This product is designed to be deployed in GR-3108-CORE environmental Class 1.
- This product is NRTL Listed to the applicable UL Standards. The product is designed to meet the applicable requirements of Telcordia GR-63-CORE, GR-3108-CORE, and GR-1089-CORE.
- This product has been evaluated to applicable international safety standards. This product meets the requirements for CE marking under the EMC Directive and Low Voltage Directive. Standards used to demonstrate Compliance are EN 300 386 and EN 60950-1 or 62368-1.
- This product meets or exceeds all the applicable requirements of NEBS, Telcordia GR-63-CORE, GR-1089-CORE, and GR-3108-CORE. The product is intended for deployment in Central Office type facilities, EEEs, and environmentally controlled locations where the NEC applies (for example, Customer Premises).
- 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 the user's own expense.
- CAN ICES3(A)/NMB3(A)
- This product is designed to meet the following environmental classes:
 - ◆ ETSI EN 300 019-2-1 "Classification of environmental conditions; Storage," Class 1.2
 - ◆ ETSI EN 300 019-2-2 "Classification of environmental conditions, Transportation," Class 2.3
 - ◆ ETSI EN 300 019-2-3 "Classification of environmental conditions, Stationary use at weather protected locations," Class 3.1E
- This product is designed to function without degradation during exposure to all test severities per class 3.1E of ETSI EN 300 019-2-3.
- This product meets EU RoHS Directive. Refer to www.adtran.com for further information on RoHS/WEEE.

FRANÇAIS

! AVERTISSEMENT!

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.
- Ce système est conçu et prévu pour une installation intégrée à un réseau de masse maillé ou à un réseau de masse isolé.
- Ce produit est conçu et prévu uniquement pour être déployé dans une configuration de circuit de régulation et de mise à la terre DC-C (commun). Ce produit n'est pas prévu ou conçu pour être déployé dans une configuration de circuit de régulation et de mise à la terre DC-I (isolé).
- La borne de terre de châssis doit être connecté à une prise de terre pour assurer que le métal exposé (tels que les panneaux avant, des modules SFP / SFP+) sur le produit est correctement mis à la terre via le connecteur de fond de panier.

i **REMARQUE**

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

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.
- Dient dieses System zur Installation entweder in einer gemeinsamen
- Potentialausgleichsanlage (CBN) oder in einer isolierten Potentialausgleichsanlage (IBN).
- Dieses Produkt ausschließlich in einer DC-C (gemeinsamen) Anlage zum Potentialausgleich und Erdung installiert werden. Es ist hingegen nicht für DC-I (isolierte) Anlagen zum Potentialausgleich und Erdung bestimmt.
- Der Fahrgestellrahmen Erdanschluß muß zu einer Erde verbunden werden, um sicherzustellen, dass das freiliegende Metall (dh Frontplatten, SFP / SFP+-Module) auf dem Produkt richtig über den Backplane-Anschluss geerdet ist.



HINWEIS

Dieses Produkt erfüllt die EU RoHS Richtlinie. Bitte besuchen Sie www.adtran.com 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>)

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.

Trademarks: Brand names and product names included in this document are trademarks, registered trademarks, or trade names of their respective holders.

Copyright © 2019 ADTRAN, Inc. All Rights Reserved.



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

