

# Combo PON D2 SFP+

For OLT

P/N: 1442543F2

## Quick Start

### DESCRIPTION

The Combo PON D2 Small Form-factor Pluggable (SFP+) combines the 10 G XGS-PON OLT and GPON OLT optical transceiver into a single-mode fiber SFP+. The SFP+ provides a single optical interface to a physical interface and provides an XGS-PON and a GPON interface to the supporting system when installed into an appropriate module or system.

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 extended ranges within the optical distribution network of up to 37 km. It is FDA 21 CFR1040.10 and IEC 60825-1 Class I laser safety compliant and meets the EU RoHS Directive.

This SFP+ supports the following features:

- ODN Class D2 (N2/C+) Transceiver
- Data rates:
  - ◆ XGS-PON 10 G down/10 G up
  - ◆ GPON 2.5 G down/1.25 G up
- 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:

- GPON, XGS-PON, and Combined GPON/XGS-PON Access Networks
- Fiber to the Premises (FTTP)
- Fiber to the Building (FTTB)
- Fiber to the Curb (FTTC)
- Fiber to the Distribution Point (FTTDP)

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 dust cover 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.
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](http://www.adtran.com).

## SPECIFICATIONS

### General

- Module Type: SFP+
- Media Type: Fiber
  - ◆ Single-Mode
  - ◆ SC Connector
- Signal Data Rate:
  - ◆ 9.953 Gbps (XGS-PON)
  - ◆ 2.488 Gbps (GPON)
- Distance: up to 37 km
- Not compatible with SFP+ MSA
- Applications: XGS-PON, GPON, FTTP, FTTB, FTTC, FTTDP

### Optical

- XGS-PON Transmitter
  - ◆ Laser Diode Type: EML
  - ◆ Transmit Wavelength: 1577 nm
  - ◆ Tx Power: +4.0 dBm to +7.0 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: +3.0 dBm to +7.0 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: -28.0 dBm
  - ◆ Receiver Overload: -7.0 dBm
- GPON Receiver
  - ◆ Type: APD
  - ◆ Central Wavelength: 1310 nm
  - ◆ Receiver Sensitivity: -30.0 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, 1040.11 and IEC 60825-1.

#### **CAUTION!**

- Electrostatic Discharge (ESD) can damage electronic devices. When handling devices, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place devices in antistatic packing material when transporting or storing. When working on devices, 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 either a Common Bonding Network (CBN) or 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.
- 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.

**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 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 and meets the requirements for CE marking.
- This product is intended for deployment in locations such as Central Offices and outside plant cabinets. This product is to be installed and serviced by trained and qualified Service personnel only.
- 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 will void the warranty.
- 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.
- This product meets EU RoHS Directive. Refer to [www.adtran.com](http://www.adtran.com) for further information on RoHS/WEEE.

**FRANÇAIS****AVERTISSEMENT!**

Lisez toutes les mentions de danger et de prudence et les remarques, ainsi que la notice d'installation, avant d'effectuer l'installation ou l'entretien de cet équipement.

**ATTENTION!**

Ce produit est un laser de classe 1 conforme à la norme FDA 21 CFR 1040.10 et 1040.11 et IEC 60825-1.

**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 produit et système hôte sont conçus et destinés à être installés dans le cadre soit d'un réseau commun Bonding (CBN) ou isolé Réseau Bonding (IBN).
- 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 métalliques à découvert (panneaux frontaux, modules optiques) du produit soient correctement mis à terre.

**REMARQUE**

Ce produit est conforme à la directive européenne RoHS. Reportez-vous à [www.adtran.com](http://www.adtran.com) pour de plus amples renseignements sur RoHS.

## DEUTSCH

### **WARNUNG!**

Lesen Sie alle Warnungen, Gefahrenhinweise, Anmerkungen und Installationsanweisungen bevor Sie dieses Gerät installieren oder warten.

### **VORSICHT!**

Dieses Produkt ist ein Klasse 1 Laser, die mit FDA 21 CFR 1040.10 und 1040.11 und IEC 60825-1 entspricht.

### **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.
- Dieses Produkt und Host-System sind so konzipiert und für die Installation als Teil entweder eine gemeinsame Bonding Network (CBN) oder isoliert Bonding Network (IBN) vorgesehen.
- 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.

### **HINWEIS**

Dieses Produkt erfüllt die EU RoHS Richtlinie. Bitte besuchen Sie [www.adtran.com](http://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://adtran.com/support>

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](http://www.adtran.com/warranty).

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