

Adtran Pluggable Optics

40 G ER4 QSFP+

40 km

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61445505F4C-13A

P/N: 1445505F4C

Quick Start

Description

The 40 G ER4 QSFP+ is a optical transceiver module designed for use up to 40 km over single mode fiber (SMF). The QSFP+ converts four channels and multiplexes them into a single channel that allows for 40 Gbps optical transmission. On the receiver side, the module de-multiplexes the 40 Gbps optical signal into four channels. Each channel operates up to a max data rate of 10.7 Gbps. The QSFP+ is compliant with the QSFP+ MSA and IEEE 802.3ba 40G BASE SR4.

Installation

To install the QSFP+ into an appropriate module, complete the following steps:

1. Inspect the QSFP+. If damaged, file a claim with the carrier and then contact Adtran Customer Service.
2. Do not remove the protective end cap from the QSFP+ until the fiber optic cable is ready to be connected.
3. Insert the QSFP+ into the cage on the module. Ensure the manufacturer's label on the QSFP+ is facing upward for correct installation.
4. Slide the QSFP+ all the way into the receptacle until there is an audible "click."



CAUTION!

Due to compliance certification requirements, use only QSFP+s supplied by Adtran. Adtran cannot certify system integrity with other QSFP+s.

The loop on the QSFP+ is used to remove the QSFP+ from the circuit card.

Operational Specifications

General

- Module Type: QSFP+
- Fiber/Copper: SMF
- Lanes/Channels: Four Transmit and Four Receive
- Signal Data Rate: Up to 10.7 Gbps data rate per channel
- Optical Connector: LC Duplex
- Applications: 40GBASE-ER4 Ethernet Links, Infiniband QDR and DDR interconnects, Client-side 40 G Telecom connections
- Distance: Up to 40 km
- Digital Diagnostic Monitoring: SFF8472 Compliant
- Power: 3.5 W max

Optical

- Transmitter
 - ◆ Laser Diode Type: DFB
 - ◆ Tx Wavelengths:
 - Lane -1: 1264.5 to 1277.5 nm (Typical: 1271 nm)
 - Lane -2: 1284.5 to 1297.5 nm (Typical: 1291 nm)
 - Lane -3: 1304.5 to 1317.5 nm (Typical: 1311 nm)
 - Lane -4: 1324.5 to 1337.5 nm (Typical: 1331 nm)
 - ◆ Tx Output Optical Power: -3.7 dBm to +4.5 dBm per lane
 - ◆ SMSR: 30 dBm
 - ◆ Extinction Ratio: 5.5 dB
 - ◆ Dispersion Penalty: 2.6 dB per lane



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.

- Receiver
 - ◆ Rx Type: APD/TIA
 - ◆ Rx Wavelengths:
 - Lane –1: 1264.5 to 1277.5 nm (Typical: 1271 nm)
 - Lane –2: 1284.5 to 1297.5 nm (Typical: 1291 nm)
 - Lane –3: 1304.5 to 1317.5 nm (Typical: 1311 nm)
 - Lane –4: 1324.5 to 1337.5 nm (Typical: 1331 nm)
 - ◆ Rx Output Optical Power: –18.6 dBm to –4.5 dBm per lane
 - ◆ Receiver Overload: –4.5 dBm
 - ◆ Receiver Sensitivity: –19 dBm

Environmental

- Controlled Protected Environment (Indoor) (CTEMP)
- System Ambient Operational temperature range: –5°C to +50°C
- Storage temperature range: –40°C to +85°C
- Relative humidity: 5 to 95%, non-condensing

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. Adtran cannot certify system integrity with other laser modules.



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.
- The SFP meets or exceeds all the applicable requirements of NEBS, Telcordia GR-63-CORE, and GR-1089-CORE. The product is intended for deployment in Central Office type facilities, EEEs, EECs, and locations where the NEC applies (for example, Customer Premises).
- Per GR-1089-CORE the Adtran system that the SFP is being deployed in is designed and intended for installation as part of a Common Bonding Network (CBN). The Adtran system that

the SFP is being deployed in is not designed nor intended for installation as part of an Isolated Bonding Network (IBN).

- This product does not have an internal DC connection between battery return and frame ground. This product can be installed in a DC-I (isolated) or DC-C (common) configuration.
- The chassis frame ground terminal must be connected to an earth ground to ensure that the exposed metal (i.e., front panels, SFP/XFP modules) on the product is properly grounded by way of the backplane connector.



NOTE

- The Gigabit Ethernet port(s) are optical and therefore are not classified as any type of port as defined in Appendix B of GR-1089-CORE.
- 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 and GR-1089-CORE.
- This product has also been evaluated to international safety standards EN 62368-1, AS/NZS 62368.1, and IEC 62368-1. 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 62368.
- 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 300 019-2-1 "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 3.3 of ETSI EN 300 019-1-3.
- 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.

Deutsch



WARNUNG!

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

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>

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.

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