

QSFP28

QSFP28 100G ER4L 30KM ITEM P

P/N: 1445513F1

Quick Start

DESCRIPTION

QSFP28 ER4L transceivers are designed for use in 100 Gbps links over single mode fiber. The QSFP28 ER4L integrates four electric-absorption modulated lasers (EMLs) and multiplexes them into a single channel for 100 Gbps optical transmission. Each channel operates at 25 Gbps and the module can operate at 100 Gbps up to 30 km using G.652 SMF (without FEC). They are compliant with the QSFP MSA and IEEE 802.3ba 100GBASE-ER4L.

INSTALLATION

Inspect the QSFP28 ER4L for damage. If damage occurred during shipping, file a claim with the carrier, then contact ADTRAN. For more information, refer to the warranty.

Installation Steps

To install the QSFP28 ER4L into an appropriate module, complete the following steps:

1. Do not remove the protective dust cover from the QSFP until the fiber optic cable is ready to be connected. Insert the QSFP28 ER4L into the QSFP cage on the module. Ensure the manufacturer's label on the QSFP is facing upward for correct installation.
2. Slide the QSFP28 ER4L all the way into the receptacle until there is an audible "click."



CAUTION!

Due to compliance certification requirements, use only QSFP28s supplied by ADTRAN. ADTRAN cannot certify system integrity with other QSFP28s.



NOTICE

The latch on the QSFP28 is used to remove the QSFP28 from the cage on the circuit card. When removing the QSFP28, rotate the latch away from the QSFP28; the QSFP28 should easily slide out of the cage.

OPERATIONAL SPECIFICATIONS

General

- Module Type: QSFP28
- Fiber/Copper: SMF
- Lanes/Channels: 4 Transmit and 4 Receive
- Signal Data Rate: 25.78 Gbps per channel
- Optical Connector: LC
- Applications: 100G ER4L
- Distance: 30 km

Optical Transmitter

- Laser Diode Type: LAN WDM DML TOSA
- Tx Wavelengths:
 - ◆ Lane-1: 1294.53 - 1296.59 nm (Typical: 1295.56 nm)
 - ◆ Lane-2: 1299.02 - 1301.09 nm (Typical: 1300.05 nm)
 - ◆ Lane-3: 1303.54 - 1305.63 nm (Typical: 1304.58 nm)
 - ◆ Lane-4: 1308.09 - 1310.19 nm (Typical: 1309.14 nm)
- Tx Output Optical Power: -2.9 dBm to +4.5 dBm per lane
- Extinction Ratio: 7 dB
- Dispersion Penalty: 2.5 dB per lane

Optical Receiver

- Rx Type: APD ROSA
- Rx Wavelengths:
 - ◆ Lane-1: 1294.53 - 1296.59 nm (Typical: 1295.56 nm)
 - ◆ Lane-2: 1299.02 - 1301.09 nm (Typical: 1300.05 nm)
 - ◆ Lane-3: 1303.54 - 1305.63 nm (Typical: 1304.58 nm)
 - ◆ Lane-4: 1308.09 - 1310.19 nm (Typical: 1309.14 nm)
- Receiver Sensitivity: -16.9 dBm to -4.9 dBm per lane at 30km

Environmental

- Protected Equipment Severe Environment (Outdoor)
 - ◆ System Ambient Operational Temperature Range: -40°C to +70°C
 - ◆ Case Temperature Hardened Range: -40°C to +85°C
 - ◆ Storage Temperature Range: -40°C to +85°C
 - ◆ Relative Humidity: 0 to 95%, noncondensing

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. The 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 is intended for deployment in locations such as telecommunications facilities (such as Central Offices), outdoor electronic equipment cabinets, inside remote DSLAMs and DPUs. This product is to be installed and serviced by trained and qualified service personnel only.
- 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 is designed and intended only for deployment in a DC-C (common) bonding and grounding configuration. This product is not intended or designed for deployment in a DC-I (isolated) bonding and grounding system.
- If the host system has a protective earth (PE) terminal, the PE terminal of the host system must be connected to 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-3108-CORE, and GR-1089-CORE.
- This product has been evaluated to applicable international standards for CE marking
- 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 product meets EU RoHS Directive. Refer to 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. Le produit est NRTL et CB certifiée à toutes les normes de sûreté américaines et européennes.

ATTENTION!

- Les décharges électrostatiques (ESD) peuvent endommager les appareils électroniques. Lors de la manipulation des appareils, portez un bracelet antistatique, afin d'éviter d'endommager les composants électroniques. Mettez les appareils dans un emballage antistatique, lors de leur transport ou de leur entreposage. Lors de leur installation ou de leur entretien, les appareils doivent toujours être placés sur un tapis antistatique homologué, qui est mis à terre.
- Ce produit a été conçu pour être installé et entretenu exclusivement par un personnel de service qualifié.
- Ce produit et le système hôte sont conçus et destinés à être installés dans le cadre d'un réseau Bonding commun (CBN). Ce produit et le système hôte ne sont pas conçus, ni destinés à être installés dans le cadre d'un réseau de Bonding isolé (IBN).
- 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).
- 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 pour de plus amples renseignements sur RoHS/WEEE.

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. Das Produkt ist NRTL gelistet und CB Certified allen geltenden amerikanischen und europäischen Sicherheitsnormen.

VORSICHT!

- Elektrostatische Entladung (ESD) kann elektronische Geräte beschädigen. Tragen Sie bei der Handhabung von Geräten ein Antistatik-Armband mit Erdungskabel, um Schäden an elektronischen Komponenten zu vermeiden. Während des Transports oder bei der Lagerung müssen Geräte in antistatischem Verpackungsmaterial gelegt werden. Geräte bei der Installation oder Wartung immer auf einer zugelassenen antistatischen, elektrisch geerdeten Matte stellen.
- Dieses Produkt darf ausschließlich von qualifiziertem Bedienungspersonal installiert und bedient werden.
- Dieses Produkt und das Host-System entworfen und für die Installation als Teil einer gemeinsamen Bonding Network (CBN) vorgesehen. Dieses Produkt und das Host-System nicht noch für die Installation als Teil eines isolierten Bonding Network (IBN) bestimmt sind.
- 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.
- 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 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.

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