Quick Start

ADTRAN Pluggable Optics

QSFP28

100G CWDM4 2KM

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DESCRIPTION

The QSFP28 CWDM4 transceiver is used in 100 Gbps links over single mode fiber. The QSFP28 integrates four channel CWDM DFB lasers and multiplexes them into a single channel for 100 Gbps optical transmission.

The receiving side of the module de-multiplexes the 100 Gbps optical signal into four CWDM channels. Each channel operates at 25 Gbps and the module is able to operate at 100 Gbps up to 2 km using 9/125 µm Single Mode Fiber (SMF).

The QSFP28 is compliant with 100G and IEEE 802.3ba standards.

INSTALLATION

Before installation, inspect the QSFP28. If damage has occurred during shipping, file a claim with the carrier, and then contact ADTRAN Customer Support. For more information, refer to “Warranty”.

Installation Guidelines

The following are guidelines for this installation.

- The latch on the QSFP28 is for removal only. When removing the QSFP28, rotate the latch away from the QSFP28. The QSFP28 should slide easily out of the cage.

Installation Steps

To install the QSFP28, complete the following steps:

1. Insert the QSFP28 into the QSFP28 cage on the circuit board of the host module with the latch handle facing outward. Slide the QSFP28 all the way into the cage.
2. Exert adequate pressure to ensure the QSFP28 is completely seated in the QSFP28 cage.
3. Do not remove the protective dust cover until the optical fiber connection is made.
4. Continue the installation and turn-up of the host module.

SPECIFICATIONS

- **General**
  - Module type: QSFP28
  - Fiber/Copper: SMF
  - Lanes/Channels: 4 Transmit and 4 Receive
  - Signal data rate: Up to 25.78 Gbps per channel
  - Optical Connector: LC
  - Applications: 100G CWDM4
  - Distance: 2 km
- **Optical**

  Transmitter
  - Laser Diode Type: CWDM DML
  - 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: –6.5 dBm to +2.5 dBm per each Lane
  - Extinction Ratio: 3.5 dB
  - Dispersion Penalty: 3 dB per Lane

  Receiver
  - Rx Type: PIN Array
  - 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)
  - Receive Overload: 2.5 dBm per Lane
  - Receiver Sensitivity: –10 dBm per Lane
- **Environmental**
  - Controlled Protected Equipment Environment (Inside)
  - Operational temperature range: –5°C to +55°C
  - Storage temperature range: –40°C to +85°C
  - Relative humidity: 5 to 85%

SAFETY AND REGULATORY

ENGLISH

WARNING!

Read all warnings and cautions before installing or servicing this equipment.

CAUTION!

This product contains or uses a Class 1 Laser module that complies with FDA 21 CFR 1040.10, 1040.11 and IEC 60825-1. For continued compliance with the above standards, only approved Class 1 laser modules from an ADTRAN approved vendor list (located on the ADTRAN website) should be installed in this product. 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.
- This system is designed and intended for installation as part of a Common Bonding Network (CBN). This system 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. For installations where other cards or the host system have internal connections between battery return and frame ground, the system would be intended for deployment only in a DC-C configuration.
- The chassis frame ground terminal must be connected to an earth ground to ensure that the exposed metal (for example, front panels, QSFP28/XFP modules) on the product is properly grounded via the backplane connector.
- This product is intended for deployment in Central Office type facilities, EEEs, EECs, and locations where the NEC applies (i.e., Customer Premises).

NOTE

- 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 been evaluated to international safety standards EN 60950-1, AS/NZS 60950.1, and IEC 60950-1.
- 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 60950.
- 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 300 019-2-3.
- This product is designed to be deployed in GR-3108-CORE environmental class 1 environments.
- This product meets EU RoHS Directive. Refer to www.adtran.com 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 contient ou utilise un module Laser de classe 1 qui est conforme avec la FDA 21 CFR 1040.10, 1040.11 et IEC 60825-1. Pour le maintien de la conformité avec les normes ci-dessus, seulement approuvé classe 1 modules laser d'un ADTRAN approuvés liste des fournisseurs (situé sur le site ADTRAN) doit être installé dans ce produit. ADTRAN ne peut certifier l'intégrité du système avec d'autres modules laser.

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. Ce système n'est pas conçu ni prévu pour une installation intégrée à un réseau de masse isolé (IBN).
- Ce produit ne dispose pas d'une connexion c.c. interne entre le courant de retour de la batterie et la masse du châssis. Ce produit peut être installé en configuration c.c.-I (isolé) ou c.c.-C (commun). Pour les installations où d'autres cartes ou le système hôte ont des connexions internes entre le retour de la batterie et la masse du châssis, le système ne peut être déployé que dans une configuration c.c.-C.
- 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 QSFP28 / XFP) sur le produit est correctement mis à la terre via le connecteur de fond de panier.

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 das Gerät installieren oder Servicehandlungen vornehmen.

VORSICHT!

DasProdukt enthält oder verwendet Klasse 1 Laser-Module, die 60825-1 mit FDA 21 CFR 1040.10, 1040.11 und IEC erfüllen. Damit die obigen Richtlinien auch in Zukunft eingehalten werden können, dürfen ausschließlich Klasse 1 Lasermodule von einem von ADTRAN zugelassenen Anbieter in dem Produkt installiert werden (siehe Website von ADTRAN). ADTRAN garantiert nicht für die Systemintegrität bei anderen Lasermodulen.

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.
- Das System ist entwickelt und vorgesehen für die Installation als Teil einer gemeinsamen Potentialausgleichsanlage. Das System ist nicht zur Installation als Teil einer isolierten Potentialausgleichsanlage vorgesehen.
- Dieses Produkt hat keinen internen Gleichstromanschluss zwischen Batterierücknahme und Gehäusemasse. Dieses Produkt kann in einer DC-I (isoliert) oder DC-C (emeinsam) Konfiguration installiert werden. Bei Installationen, bei denen andere Karten oder das Host -System interne Verbindungen zwischen derBatterierückleitung und der Gehäusemasse haben, würde das System nur für den Einsatz in einer DC-C-Konfiguration eingesetzt werden.
- Der Fahrgestellrahmen Erdanschluß muß zu einer Erde verbunden werden, um sicherzustellen, dass das freiliegende Metall (dh Frontplatten, QSFP28 / XFP-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)

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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