

# Quick Start

## DESCRIPTION

QSFP28 SR4 transceivers are designed for use in 100 Gbps (4 x 25 Gbps) optical links over multimode fiber. The QSFP28 SR4 integrates a four channel VCSEL array on the transmit and a four channel PIN photodiode array on the receive. Each channel can operate at 25.78 Gbps up to 100 m over OM4 Multi-mode fiber. They are compliant with the QSFP28 MSA, IEEE P802.3bm 100GBASE-SR4.

## INSTALLATION

To install the QSFP28 SR4 into an appropriate module, complete the following steps:

1. Inspect the QSFP28 SR4. If damaged, file a claim with the carrier and then contact ADTRAN Customer Support.
2. Do not remove the protective end cap from the QSFP until you are ready to connect the fiber optic cable.
3. Insert the QSFP28 SR4 into the QSFP cage on the module. Ensure the manufacturer's label on the QSFP is facing upward for correct installation.
4. Slide the QSFP28 SR4 all the way into the receptacle until there is an audible "click."



### CAUTION!

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



### NOTICE

The latch on the QSFP is used to remove the QSFP from the cage on the circuit card.

## OPERATIONAL SPECIFICATIONS

### General

- Module type: QSFP28
- Fiber/Copper: Fiber
  - ◆ Multi Mode
  - ◆ Single-fiber
  - ◆ Direction: BIDI
- Lanes/Channels: 4 Transmit and 4 Receive
- Signal Data Rate: 25.78 Gbps

- Optical Connector: MPO Connector
- Applications: 100 GBASE-SR4 Ethernet
- Distance: 0.1 km over OM4 Fiber
- Digital Diagnostic Monitoring: SFF8636 Compliant

### Optical

#### Transmitter

- Laser Diode Type: VCSEL Array (4 channels)
- Tx Central Wavelength: 850 nm
- Tx Power: -8.4 dBm to +2.4 dBm
- Tx Output Optical Power: -5.0 dBm to +2.4 dBm at each lane
- Tx Spectral Width: 0.65 nm Max (RMS)
- Extinction Ratio: 2 dB min
- Optical Rise time (tr): 40 ps (20% - 80%)
- Optical Fall time (tf): 40 ps (20% - 80%)

#### Receiver

- Rx Type: PIN Array
- Rx Central Wavelength: 850 nm
- Rx Power: +2.4 dBm to -7.2 dBm
- Receive Overload: +2.4 dBm at each lane
- Receive Sensitivity: -7.2 dBm at each lane

### Environmental

- Controlled Protected Environment (Inside)
  - ◆ Operational temperature range: -5°C to +50°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 product meets or exceeds all the applicable requirements of NEBS, Telcordia GR-63-CORE, and GR-1089-CORE. This product is intended for deployment in Central Office type facilities, EEEs, EECs, and locations where the NEC applies (for example, Customer Premises).
- 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.
- 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**

- 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 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 meets EU RoHS Directive. Refer to [www.adtran.com](http://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 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.
- 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 / XFP) sur le produit est correctement mis à la terre via le connecteur de fond de panier.
- 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).
- Ce produit est conforme à la directive. Reportez-vous à [www.adtran.com](http://www.adtran.com) pour de plus amples renseignements sur RoHS/WEEE.

## DEUTSCH



### WARNUNG!

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



### VORSICHT!

- Das Produkt 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 (ESD) können elektronische Baugruppen beschädigt werden. Beim Umgang mit Modulen, tragen Sie eine Antistatikarmband, um Schäden an elektronischen Bauteilen zu verhindern. Ort -Module in antistatische Verpackung, beim Transport oder Lagerung. Bei Arbeiten an Modulen immer legen Sie sie auf einer zugelassenen antistatische Unterlage, die elektrisch geerdet ist.
- Der Fahrgestellrahmen Erdanschluß muß zu einer Erde verbunden werden, um sicherzustellen, dass das freiliegende Metall (dh Frontplatten, SFP / XFP-Module) auf dem Produkt richtig über den Backplane-Anschluss geerdet ist.
- 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.
- 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://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](http://www.adtran.com/warranty).

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