QSFPTEK QT-QSFP28-LR4-Cisco

QSFPTEK 100G QSFP28 Transceiver Module User Manual

Model: QT-QSFP28-LR4-Cisco

1. Introduction

The QSFPTEK 100G QSFP28 Transceiver Module (Model: QT-QSFP28-LR4-Cisco) is a high-performance, hot-pluggable optical module designed for 100 Gigabit Ethernet applications. It provides a reliable solution for high-speed data transmission over single-mode fiber, compatible with Cisco QSFP-100G-LR4-S and other open switches. This module supports a 100Gb/s data rate and features an LC duplex connector for efficient network integration.

Key features include four LAN Wavelength Division Multiplexing (LWDM) lanes at 1295nm, 1300nm, 1305nm, and 1309nm, enabling data transmission up to 10 kilometers. Digital Diagnostic Monitoring (DDM) functionality is integrated to provide real-time monitoring of critical operational parameters.

An angled view of the QSFPTEK 100G QSFP28 transceiver module, featuring a metallic housing and a blue pull tab for easy insertion and removal. The label displays model QT-QSFP28-LR4 and serial number.

2. Setup

This QSFP28 transceiver module is designed for plug-and-play operation and is hot-pluggable, allowing for installation or removal without powering down the host equipment.

2.1 Installation Steps

1. **Verify Compatibility:** Ensure your network switch or host device has a compatible QSFP28 port. This module is specifically designed for Cisco QSFP-100G-LR4-S and other MSA-compliant open switches.
2. **Prepare the Module:** Carefully remove the transceiver module from its protective packaging. Ensure the optical ports are clean and free of dust.
3. **Insert the Module:** With the blue pull tab facing upwards, gently slide the QSFP28 module into the designated QSFP28 port on your network device until it clicks into place. Ensure it is fully seated.
4. **Connect Fiber Optic Cables:** Remove the dust caps from the LC duplex ports on the transceiver and from your fiber optic cables. Connect the appropriate single-mode LC duplex fiber optic cables to the module's ports. Ensure a secure connection.
5. **Verify Link Status:** Check the link status indicators on your network device to confirm that the module is properly recognized and a stable optical link has been established.

A series of images demonstrating the QSFPTEK transceiver module installed in various network switches, highlighting its wide compatibility and showing DDM parameters like laser bias, supply voltage, transmitted optical power, module temperature, and received optical power.

3. Operating

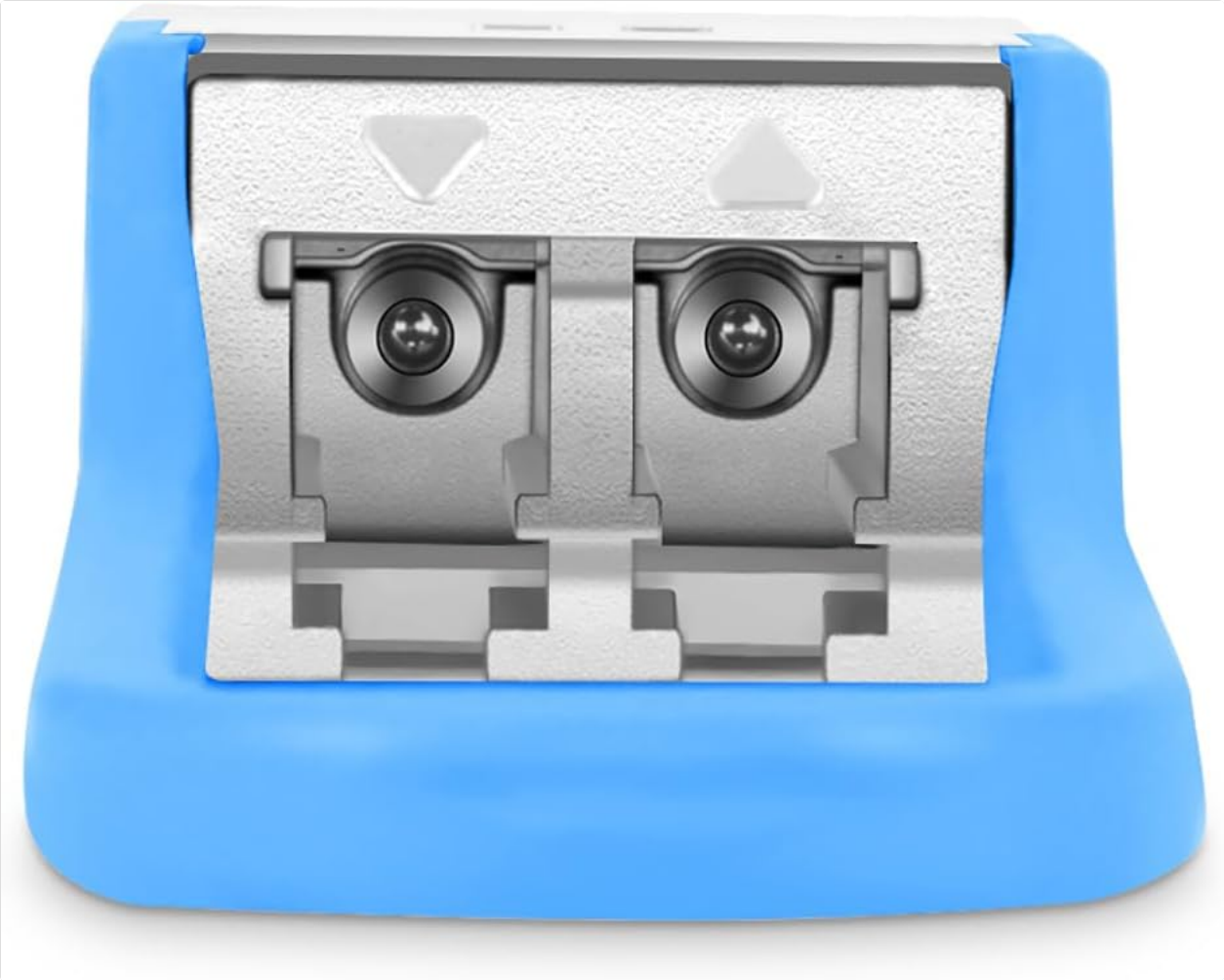
Once installed and connected, the QSFPTEK 100G QSFP28 Transceiver Module operates automatically to establish and maintain a 100 Gigabit Ethernet link. The module supports Digital Diagnostic Monitoring (DDM), which provides real-time access to device operating parameters.

3.1 Digital Diagnostic Monitoring (DDM)

DDM functionality allows network administrators to monitor critical information about the transceiver's performance and identify potential issues proactively. Accessible through the host device's management interface, DDM provides data on:

- **Laser Bias Current:** Indicates the current supplied to the laser.
- **Supply Voltage:** The voltage supplied to the module.
- **Transmitted Optical Power:** The power of the optical signal being sent by the module.
- **Module Temperature:** The internal operating temperature of the transceiver.
- **Received Optical Power:** The power of the optical signal received by the module.

Monitoring these parameters helps ensure optimal performance and aids in troubleshooting.



A close-up front view of the QSFPTEK 100G QSFP28 transceiver module, showing the two LC duplex fiber optic ports.

4. Maintenance

The QSFPTEK 100G QSFP28 Transceiver Module is designed for minimal maintenance. Adhering to the following guidelines will help ensure its longevity and optimal performance:

- **Keep Connectors Clean:** Always ensure that the optical connectors on both the transceiver and the fiber optic cables are clean. Dust and contaminants can significantly degrade optical performance. Use appropriate fiber optic cleaning tools if necessary.
- **Handle with Care:** Avoid physical shock or excessive force when handling the module. Do not bend or twist the fiber optic cables sharply.
- **Store Properly:** When not in use, store the module in its original protective packaging with dust caps installed to prevent damage and contamination.
- **Environmental Conditions:** Operate the module within the specified temperature range (0°C to +70°C) to prevent overheating or performance degradation.

5. Troubleshooting

If you encounter issues with your QSFPTEK 100G QSFP28 Transceiver Module, consider the following troubleshooting steps:

5.1 Common Issues and Solutions

- **No Link or Link Flapping:**

- **Check Module Seating:** Ensure the QSFP28 module is fully inserted and latched into the host port.
- **Inspect Fiber Cables:** Verify that the LC duplex fiber optic cables are correctly connected and not damaged.
- **Clean Connectors:** Contaminated fiber connectors are a common cause of link issues. Clean both the module's ports and the fiber cable connectors.
- **Verify Compatibility:** Confirm that the module is compatible with your host device and the connected fiber type (single-mode).

- **Low Signal Strength or High Bit Error Rate (BER):**
  - **Check DDM Parameters:** Use DDM to monitor Transmitted and Received Optical Power. Compare values against the module's specifications.
  - **Fiber Cable Length:** Ensure the fiber cable length does not exceed the module's maximum supported distance (10km for LR4).
  - **Fiber Quality:** Inspect fiber optic cables for bends, kinks, or damage that could cause signal loss.
  - **Connector Cleanliness:** Re-clean all optical connectors.
- **Module Not Recognized by Host:**
  - **Re-seat Module:** Remove and re-insert the module firmly.
  - **Check Host Port:** Ensure the QSFP28 port on the host device is enabled and functioning correctly.
  - **Firmware:** Ensure the host device's firmware is up-to-date and supports 100G QSFP28 modules.

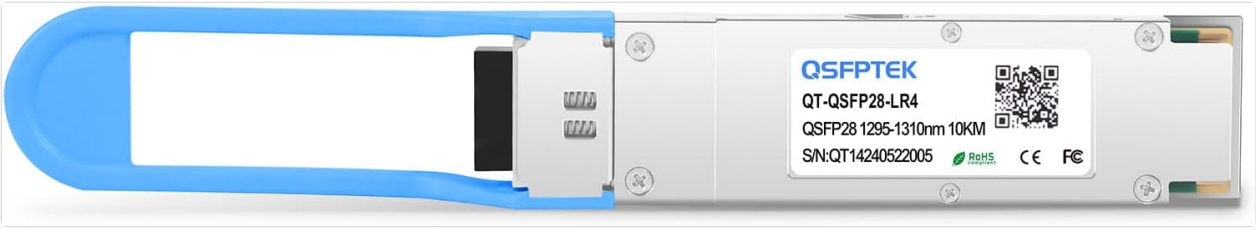
If issues persist after performing these steps, please contact QSFPTEK technical support for further assistance.

6. Specifications

The following table outlines the key technical specifications for the QSFPTEK 100G QSFP28 Transceiver Module (QT-QSFP28-LR4-Cisco):

Feature	Specification
Model Number	QT-QSFP28-LR4-Cisco
Data Rate	100 Gb/s
Form Factor	QSFP28
Connector Type	LC Duplex
Fiber Type	Single-Mode Fiber (SMF)
Wavelengths (LWDM)	1295nm, 1300nm, 1305nm, 1309nm
Max Distance	10 km
Operating Temperature	0°C to +70°C
Tx Power (dBm)	-4.3 to +4.5
Rx Sensitivity (dBm)	< -10.6
DDM Support	Yes

Feature	Specification
Product Dimensions	3.94 x 1.77 x 0.71 inches
Item Weight	3.2 ounces
Manufacturer	QSFPTEK



A top-down view of the QSFPTEK 100G QSFP28 transceiver module, clearly showing the product label with model number QT-QSFP28-LR4, QSFP28 1295-1310nm 10KM, and serial number QT14240522005.

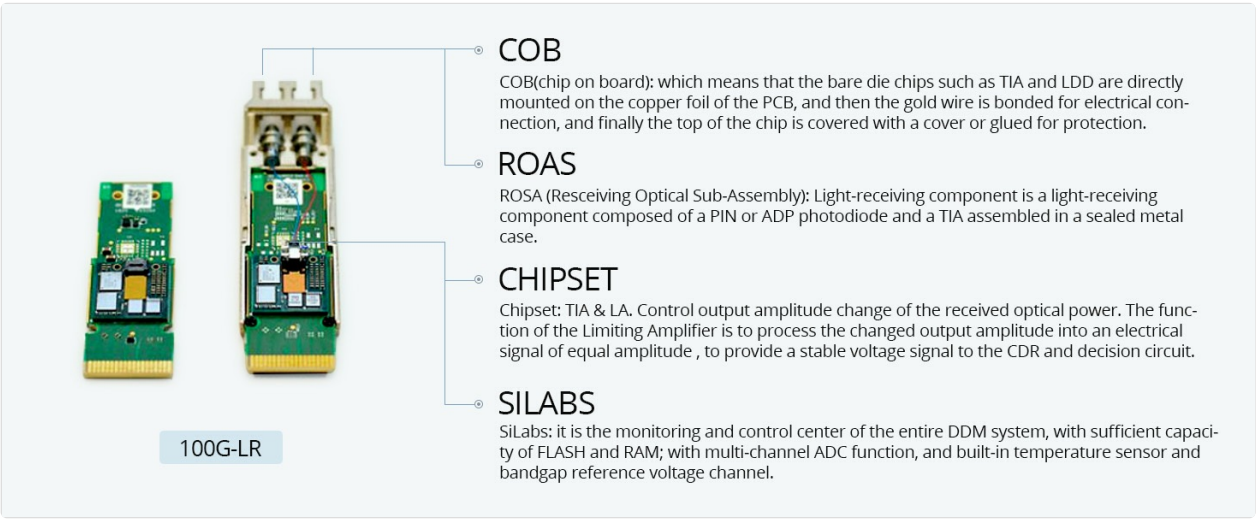


Diagram illustrating the internal components of a 100G-LR transceiver, including Chip-on-Board (COB), Receiving Optical Sub-Assembly (ROSA), Chipset (TIA & LA), and System Interface Module (SIM) for DDM.

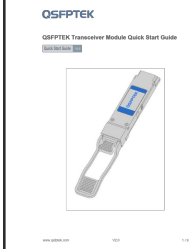
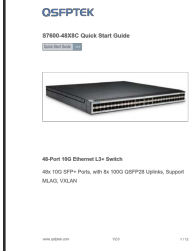
7. Warranty and Support

QSFPTEK stands behind the quality of its products. This 100G QSFP28 Transceiver Module comes with the following:

- **30-Day Free Return:** For your peace of mind.
- **3-Year Warranty:** Covering manufacturing defects and ensuring long-term reliability.
- **Lifetime Technology Support:** Access to expert assistance for any technical queries or issues you may encounter throughout the product's lifespan.

For technical support or warranty claims, please refer to the contact information provided on the official QSFPTEK website or your purchase documentation.

Related Documents

	[QSFPTEK S7300-48X2Q4C 48-Port 10G Ethernet L3+ Switch Quick Start Guide] A quick start guide for the QSFPTEK S7300-48X2Q4C, a 48-port 10G Ethernet L3+ Switch with 48x 10G SFP+, 2x 40G QSFP+, and 4x 100G QSFP28 uplink ports. Includes hardware overview, installation requirements, connection guides, and troubleshooting.
	[QSFPTEK Transceiver Module Quick Start Guide - Installation and Safety] Comprehensive quick start guide for QSFPTEK transceiver modules, covering installation, safety precautions, ESD protection, product overview, and warranty information.
	[QSFPTEK S7600-48X8C Quick Start Guide] A quick start guide for the QSFPTEK S7600-48X8C L3+ aggregation switch, detailing its features, hardware overview, installation requirements, connection procedures, configuration steps, troubleshooting, and warranty information.
	[QSFPTEK S7600-24X2C Quick Start Guide] A quick start guide for the QSFPTEK S7600-24X2C L3+ aggregation switch, detailing its features, hardware overview, installation, configuration, and troubleshooting.