BROCADE 4 GBIT/SEC LWL (4 KM) OPTICAL TRANSCEIVER

STORAGE AREA NETWORK

Optimized, Certified Optical Transceivers for Extending Data Center Fabrics

HIGHLIGHTS

- Provides high system reliability through rigorous qualification and certification processes
- Leverages unique design parameters to provide the highest performance with industry-leading Brocade switch, director, and backbone platforms to support business continuity and disaster recovery
- Helps eliminate issues related to SFP incompatibility, reducing downtime and support costs
- Helps eliminate issues resulting from unexpected design changes, providing ongoing end-to-end compatibility
- Optimizes connectivity with Brocade platforms to enable maximum cable distance

Today's enterprise data centers are undergoing an infrastructure transformation, requiring higher speeds, greater scalability, and higher levels of performance and reliability to better meet the demands of business. As speed and performance needs increase, optical transceivers—once considered a generic component of Fibre Channel switching technologies—have become an integral part of overall system design. However, optical transceiver design margins and parameters vary widely, and can be the difference between an optimized, highly reliable fabric and incompatibility issues that drive up support costs.

The Brocade® 4 Gbit/sec Long Wavelength (LWL) 4 km optical transceiver, part of the Brocade family of Small Form-Factor Pluggable (SFP) optical transceivers, is optimized to fully leverage Brocade backbone, director, and switch products. Brocade LWL SFPs extend native Fibre Channel connectivity over distance, enabling high-performance disaster recovery and business continuity solutions.

Brocade LWL SFPs are the standard choice for use in mainframe environments, connecting to IBM System z channels and FICON® devices over distance for business continuity and disaster recovery. Together with Brocade switching products, they provide state-of-the-art performance, helping IT organizations achieve new levels of infrastructure consolidation while expanding the capabilities of their applications and services.

END-TO-END COMPATIBILITY AND RELIABILITY

Brocade 4 Gbit/sec LWL 4 km optical transceivers support highly reliable operations in data center fabrics and are optimized for Brocade switching platforms. They undergo rigorous qualification and certification testing that results in an end-to-end solution that is easier to maintain—helping improve the availability of data center fabrics supporting mission-critical applications.

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KEY FEATURES

Brocade 4 Gbit/sec LWL 4 km SFPs are hot-swappable, low-voltage (3.3 V) digital diagnostic optical transceivers that support high-speed serial links over single-mode optical fiber at signaling rates up to 4.25 Gbit/sec. They comply with SFP mechanical (SFF-8432), optical, and electrical specifications (FC-PI-4) for LC duplex transceivers.

The Brocade 4 Gbit/sec LWL 4 km optical transceiver is a 1310 nm SFP that complies with 4.25/2.125/1.0625 Gbit/sec Fibre Channel specifications. Product highlights include:

- 1310 nm FP laser
- FC-PI-4 compliance for 4.25/2.125/1.0625 Gbit/sec operation
- Diagnostic features per SFF-8472 "Diagnostic Monitoring Interface for Optical Transceivers," providing real-time monitoring of:
  - Transmitted optical power
  - Received optical power
  - Laser bias current
  - Temperature
  - Supply voltage
- Industry-standard LC duplex connector
- 4 km link lengths at 4.25 Gbit/sec on 9 µm single-mode fiber
- IEC 60825-1 Class 1/CDRH Class 1 laser eye safe
- Compliance with Restriction on Hazardous Substances (RoHS) directive

FAMILY OF OPTICAL TRANSCEIVERS

Brocade offers a comprehensive family of 4 Gbit/sec and 8 Gbit/sec SFPs to provide highly compatible, high-performance connectivity to Brocade backbone, director, and switch products.

For additional ordering information, contact a Brocade representative or visit www.brocade.com/howtobuy.

MAXIMIZING INVESTMENTS

To help optimize technology investments, Brocade and its partners offer complete solutions that include education, support, and services. For more information, contact a Brocade sales partner or visit www.brocade.com.

BROCADE 4 GBIT/SEC LWL 4 KM SPECIFICATIONS

Systems	
Performance	Fibre Channel: 1.0625, 2.125, and 4.250 Gbit/sec line speed, full duplex; auto-sensing of 1, 2, and 4 Gbit/sec port speeds
Media	Hot-pluggable, industry-standard Small Form-Factor Pluggable (SFP), LC connector; Long Wavelength (LWL)
Operating parameters	Transmit (Tx): Wavelength: 1280 to 1345 nm Average power: -9.5 to -3 dBm RIN: -120 dB/Hz max Optical return loss: -12 dB minimum OMA at 4.25 Gbit/sec: 300 µW, -5.7 dBm Receive (Rx): Wavelength: 1260 to 1600 nm Average power: -3 dBm Optical return loss: -12 dB Sensitivity: 29 µW, -15.4 dBm 3 dB cutoff maximum: 5 GHz
Mechanicals	
Size	Width: 14.80 mm (0.58 inches) Height: 12.40 mm (0.49 inches) Depth: 56.70 mm (2.23 inches)

Environmentals	
Storage temperature	-40°C to 85°C
Power	
Power dissipation	1.0 W

Regulatory and Standards Compliance

- North America: UL/CSA 60950, CDRH Class 1
- European Union: EN 60590, EN 60825 Class 1

Caution:

- *Do not look through the optical ports, as it is a potential eye hazard.*
- *SFP is an ESD sensitivity class-2 device. It should be handled accordingly.*

For information related to SFF Committee documentation, visit www.sffcommittee.org.

For information about supported SAN standards, visit www.brocade.com/sanstandards.

For information about switch and device interoperability, visit www.brocade.com/interoperability.

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