

BROCADE 10 GBPS FIBRE CHANNEL LWL (10 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
- Extends connectivity over distance in mainframe environments

The Brocade One™ strategy helps simplify networking infrastructures through innovative technologies and solutions. The Brocade optics family supports this strategy by delivering thoroughly tested and standards-compliant optics that enable simple, non-stop connectivity across diverse storage resources.

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® 10 Gbps Fibre Channel Long Wavelength (LWL) 10 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.

The 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

The Brocade 10 Gbps Fibre Channel LWL 10 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.

KEY FEATURES

The Brocade 10 Gbps Fibre Channel LWL 10 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 10.5 Gbps. They comply with SFP mechanical (SFF-8432), optical, and electrical specifications (FC-P1-5) for LC duplex transceivers.

The Brocade 10 Gbps Fibre Channel LWL 10 km optical transceiver is a 1310 nm SFP that complies with 10.5 Gbps Fibre Channel specifications. Product highlights include:

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- 1310 nm DFB laser
- FC-P1-5 compliance for 10.5 Gbps 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
- 10 km link lengths at 10.5 Gbps on 9 μ m 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 Gbps, 8 Gbps, 10 Gbps, and 16 Gbps 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.

BROCADE GLOBAL SERVICES

Brocade Global Services delivers world-class professional services and technical support to enable the transition to virtualized data centers and cloud-optimized architectures. Brocade Professional Services offers assessment, design, and implementation services to help organizations optimize their SAN architectures in cloud-optimized data centers. Brocade Premier Support

and onsite residencies help organizations maximize availability of mission-critical data in SAN environments through personalized, preferential, and proactive technical support.

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 10 GBPS FIBRE CHANNEL LWL 10 KM SPECIFICATIONS

Systems	
Performance	Fibre Channel: 10.51875 Gbps line speed, full duplex; auto-sensing of 10.5 Gbps port speeds
Media	Hot-pluggable, industry-standard Small Form-Factor Pluggable (SFP), LC connector; Long Wavelength 10 km (LWL)
Operating parameters	Transmit (Tx): Wavelength: 1260 to 1355 nm Average power: -8.2 to 0.5 dBm RIN: -128 dB/Hz max Optical return loss: 12 dB max OMA: 302 μ W, -5.2 dBm Receive (Rx): Average power: -14.4 to 0.5 dBm Optical return loss: -12 dB min Unstressed sensitivity: 55 μ W, -12.6 dBm SRS OMA: 93 μ W, -10.3 dBm 3 dB cutoff maximum: 12.3 GHz
Mechanicals	
Size	Width: 13.60 mm (0.54 inches) Height: 12.27 mm (0.48 inches) Depth: 57.20 mm (2.25 inches)
Environmentals	
Storage temperature	-40°C to 100°C
Power	
Power dissipation	1.25 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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