

Key Highlights:

- **Type:** 400GBASE-LR8 QSFP-DD
- **Compatibility:** Multi-Vendor MSA Compatible
- **Tx/Rx Wavelength:** 1273.54, 1277.89, 1282.26, 1286.66, 1295.56, 1300.05, 1304.58, 1309.14 nm
- **Laser:** EML
- **Modulation:** PAM4
- **Fiber Type:** Single-Mode Fiber (SMF)
- **Connectors:** Double LC
- **Optical Budget:** 6.3dB
- **Max. Distance:** 10km
- **Data Rate:** 425 Gbps
- **FEC Forward Error Correction:** Supported
- **DDM/DOM:** Supported
- **Power Consumption:** ≤ 14.5W
- **Temperature:** Standard 0° - 70°C



Optical Transceiver : 400G-QSFP-DD-10

Product Description:

400G-QSFP-DD-10 is a 400GBASE-LR8 Multi-Vendor MSA Compatible [QSFP-DD](#) (Quad Small Form-Factor Pluggable - Double Density) Transceiver designed for operation over Double Fiber Single-Mode Fiber (SMF) optical cable. On the transmission side QSFP-DD LR8 converts 8x 50G 400GAUI-8 PAM4 (Pulse-Amplitude Modulation) electrical input channels (each 53.125Gbps) into 8 Single Lambda 50G PAM4 LAN-WDM optical signals which are multiplexed for transmission over single fiber. Reversely the opposite is done on the receiving side, optical signal is received and demultiplexed and then QSFP-DD LR8 transceiver converts 8 Single Lambda 50G PAM4 LAN-WDM optical signals into 8x 50G 400GAUI-8 electrical inputs. QSFP-DD LR8 has a minimum guaranteed optical budget of 6.3 dB, which in most cases is enough to reach 10 km distance over OS2 single-mode fiber. However, distance is just an indicative parameter for comfort of identification that is calculated by taking into account minimal optical budget and average attenuation of optical cabling in industry. 400G LR8 uses top quality Octa channel EML driver and EML lasers together with an optical multiplexer (8 LAN WDM lines: 1273.54, 1277.89, 1282.26, 1286.66, 1295.56, 1300.05, 1304.58 and 1309.14 nm) transmitter and 400Gb/s PIN photodiode array receiver.



400GBASE-LR8 supports DDM/DOM optical diagnostics that provide real-time diagnostic information about the present operating conditions. QSFP-DD LR8 operates in Standard 0°-70°C temperature range and has a Double LC interface. 400GBASE LR8 QSFP-DD supports up to 425 Gbps data rate and is designed for 400G Ethernet application. 400G LR8 QSFP-DD Double Fiber optical transceiver is a multi-purpose module used in a number of different places of today's networking. Consequently, most popular use cases are in Internet Service Provider (ISP), Mobile Operator and Data Center Core Networks.

400GBASE-LR8 QSFP-DD transceiver is CE/RoHS certified and is compliant with product safety standards. QSFP-DD LR8 is fully compliant to QSFP-DD MSA, [CMIS 4.0](#), [IEEE 802.3bs](#) 400 Gbps specification. Consequently, compliance to above standards guarantees that module is compatible and works with majority of networking equipment, where is not implemented special algorithm for protection against third party modules. However – our technical team has accumulated deep expertise in custom-encoded firmware's for 400GBASE LR8 QSFP-DD transceivers in order to make it work in almost any brand equipment. We will be glad to know your requirements - [Contact us](#).

Product Specification:

General parameter	Value
Media Type:	Single-Mode Fiber (SMF)
Connectors:	Double LC
TX Wavelength:	8 LAN-WDM lanes (1273 nm, 1277 nm, 1282 nm, 1286 nm, 1295 nm, 1300 nm, 1304 nm, 1309 nm)
RX Wavelength:	8 LAN-WDM lanes (1273 nm, 1277 nm, 1282 nm, 1286 nm, 1295 nm, 1300 nm, 1304 nm, 1309 nm)
Minimum Optical Budget:	6.3dB
Maximum Distance:	10 km
Supported Data Rate:	Up to 425 Gbps
Data Rate, each Lane up to:	53.125 Gbps
Modulation:	PAM4
Supported Applications:	400G Ethernet (412.5 Gbps)
Digital Diagnostic Monitoring (DDM):	Supported
Optical Clock And Data Recovery (CDR):	Supported
Forward Error Correction (FEC):	Supported
Operating Temperature Range:	Standard 0°- 70°C
Storage Temperature Range:	- 40° to 85°C



General parameter	Value
Relative Humidity (Non-Condensation):	10 to 85%
Power Consumption:	≤ 14.5W
Power Supply Voltage Typical:	+ 3.3V
Power Supply Voltage Range:	-3.135 to 3.465V
Compliance:	IEEE 802.3 bs 400GBASE LR8, RoHS-6, CE, QSFP-DD MSA, CMIS V4.0, IEC60825-1 Laser Safety Compliant

Transmitter Parameters:	Value
Transmitter Type:	EML Laser
Tx Wavelength Bandwidth:	LWDM8 Lanes (L0 Tx center 1273.54nm, L1 Tx center 1277.89nm, L2 Tx center 1282.26nm, L3 Tx center 1286.66nm, L4 Tx center 1295.56nm, L5 Tx center, 1300.05nm, L6 Tx center 1304.58nm, L7 Tx center 1309.14nm)
Average Launch Power, Each Lane (Max):	5.3 dBm
Average Launch Power, Each Lane (Min):	-2.8 dBm
Side-mode Suppression Ratio (Min):	30 dB
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane:	3.1 dB
Extinction Ratio (Min):	3.5 dB
Transmitter reflectance (Max):	- 26 dB
Optical return loss tolerance:	3.1 dB
Average Launch Power OFF Transmitter (Max) Each Lane:	- 30 dBm



Receiver Parameters:	Value
Receiver Type:	PIN Photodiode Array
Rx Wavelength Bandwidth:	LWDM8 Lanes (L0 Rx center 1273.54nm, L1 Rx center 1277.89nm, L2 Rx center 1282.26nm, L3 Rx center 1286.66nm, L4 Rx center 1295.56nm, L5 Rx center, 1300.05nm, L6 Rx center 1304.58nm, L7 Rx center 1309.14nm)
Average Receive Power Each Lane (Min):	-9.1 dBm
Average Receive Power Each Lane (Max):	5.3 dBm
Damage Threshold Each Lane:	6.3 dBm
Difference in receiver power between any two lanes (OMA):	4.5 dB
Receiver Sensitivity (OMA) Each Lane:	5.7 dB
Receiver Reflectance (Max):	-25 dB
LOS Assert (Min):	- 25.1 dBm
LOS De-assert (Max):	- 11.1 dBm
LOS Hysteresis (Min):	0.5 dB



Compatibility:

EDGE Optical transceivers can be provided with custom-encoded firmware, in order to provide compatibility with more than 100 vendor brands in data and telecom communications industry:

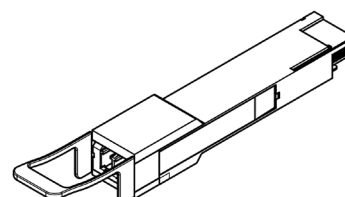
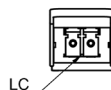
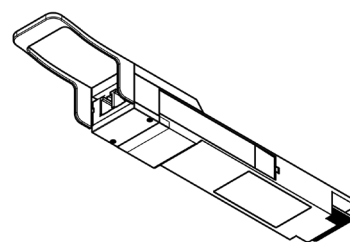
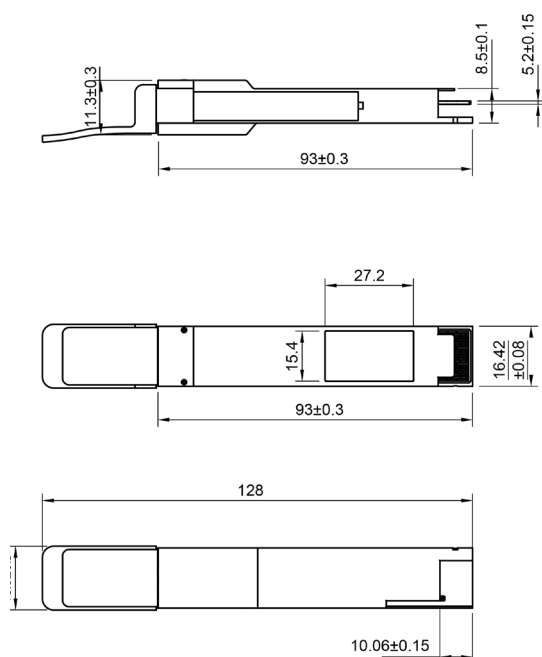
MS - General MSA
AD - ADVA
AE - Advantech
AL - Alcatel (Nokia)
AT - Allied Telesis
AR - Arista
AS - Arris
AV - Avaya
BC - Barracuda
BR - Broadcom
QL - Cavium (Qlogic)
CR - Ceragon
CP - Checkpoint
CH - Chelsio
CN - Ciena
CI - Cisco
LI - Cisco (Linksys)
CE - Comnet
CO - Coriant
DH - Dahua
DC - DCN
DL - Dell & Force10
DK - D-Link

DZ - DZS(Dasan-Zhone)
EI - ECI
EC - EdgeCore
EW - EdgeWare
EL - Eltex
EM - EMC2
EN - Enterasys
ER - Ericsson
EF - EXFO
EX - Extreme Networks
F5 - F5 Networks
FI - Finisar
FO - Fortinet
FU - Fujitsu
H3 - H3C
HI - Hirschmann
HU - Huawei
IB - IBM
IF - Infinera
IN - Intel
IX - Ixia
JU - Juniper Networks
KM - KeyMile

KY - KyLand
LN - Lenovo
ML - Mellanox
ME - Meraki (Cisco)
MT - MikroTik
MO - Moxa
MR - MRV
NC - NEC
NG - Netgear
NK - Nokia
NT - Nortel
NS - NSN
OR - Oracle
PA - Palo Alto Network
PL - Planet
QC - QCT(Quanta)
QN - QNAP
RD - RAD
RW - RadWare
RC - Raisecom
RK - Ruckus
RU - Ruijie Networks
SG - Samsung

SV - Sandvine
SC - Silicom
SF - SolarFlare
SW - Sonicwall
SM - Supermicro
SY - Synology
TC - Telco Systems
TP - TP-LINK
TN - Trendnet
UN - Ubiquiti Networks
VX - VeEx
WG - WatchGuard
WS - Waystream
WT - Westermo
ZT - ZTE
ZX - Zyxel
HP - HP
AG - Avago
OC - Oclaro
EU - Emulex
TM - Transmode
AU - HP Aruba
XX - Other

Mechanical Dimensions:



Warranty:

EDGE Optic's provides a limited **warranty for sixty (60) months** from Purchaser's receipt of the Equipment represented in this data sheet against defective design or workmanship. Warranty does not cover damage caused by improper deployment, misuse and accidents.

