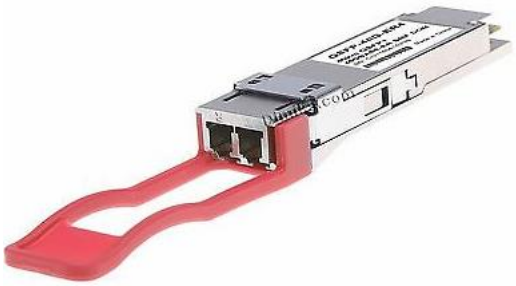
AT A GLANCE

ECINetworks' EN-QSFP40G-ER4-xx is designed to operate over single-mode fiber system using 4X10 CWDM channel in 1310 band and links up to 40km. The module converts 4 inputs channel of 10Gb/s electrical data to 4 CWDM optical signals, and multiplexes them into a single channel for 40Gb/s optical transmission. Reversely, on the receiver side, the module optically de-multiplexes a 40Gb/s input into 4 CWDM channels signals, and converts them to 4 channel output electrical data.

PRODUCT FEATURES

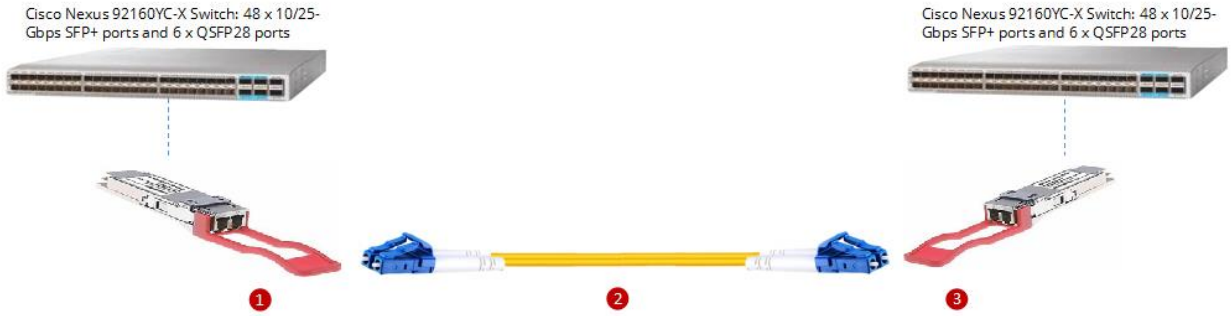
- Compliant with 40G Ethernet IEEE802.3ba and 40GBASE-ER4 Standard
- QSFP+ MSA compliant
- Compliant with QDR/DDR Infiniband data rates
- Up to 11.2Gb/s data rate per wavelength
- 4 CWDM lanes MUX/DEMUX design
- Up to 40km transmission on single mode fiber (SMF)
- Operating case temperature: 0 to 70 °C
- Maximum power consumption 3.5W
- LC duplex connector
- DDM/DOM Supported
- RoHS compliant



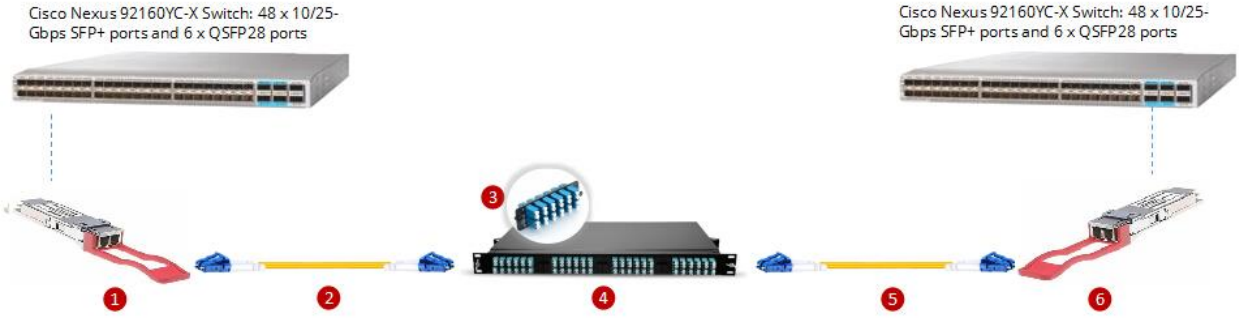
APPLICATIONS EXAMPLES

- High-speed 40G-ER4 core router interlinks and data center aggregation
- 40G visibility and aggregation solutions

Data Center Direct Connectivity



Data Center Interconnect Solutions



Ordering Information

Part Number	Description	Data Rate	Wavelength	Distance
EN-QSFP40G-ER4-xx	40Gb/s QSFP+ ER4, 40GBASE-ER4 and OTU3 QSFP+, CWDM4 40km LC Transceiver for SMF, **Commercial Temperature (0-+70 °C)**	40G	1271, 1291, 1311, 1331 nm	40KM

Product Selection

xx: Refers to vendor compatibility
I: I refers to Industrial Temperature where applicable
Per example:
EN-SFP10G-LR-EZ refers to Commercial Temperature, and compatible with Evertz, EN-SFP10GIDL-JREX refers to Industrial Temperature, and compatible with Juniper EX Series
** Please note pricing is same for most of the NEMs including Cisco, Juniper, F5, Fortinet, except HP, Evertz. There is an additional charge

Compatibility; Tested and Proven

- Proven Compatibility and Interoperability with; Cisco, Juniper, ALCATEL-LUCENT, ADVA, Brocade, CIENA, Huawei, PacketLight, Transmode, NEtInsight, ToyoTech, etc.
- Test and Visibility equipment such as; IXIA, GIGAMON, VSS, SPIRENT, JDSU, XENA, EXFO, etc.

Compliance

All our products come with Built-in digital diagnostic functions DDM Compliant with SFF-8472 Rev12 and Compliant with the MSA SFF SPECIFIACTIONS.

ABSOLUTE MAXIMUM RATING

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	T_S	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	V_{CC}	-0.5	4.0	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T_C	0	25	70	°C
Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Data Rate PER Channel	-	-	10.3125	11.2	Gb/s

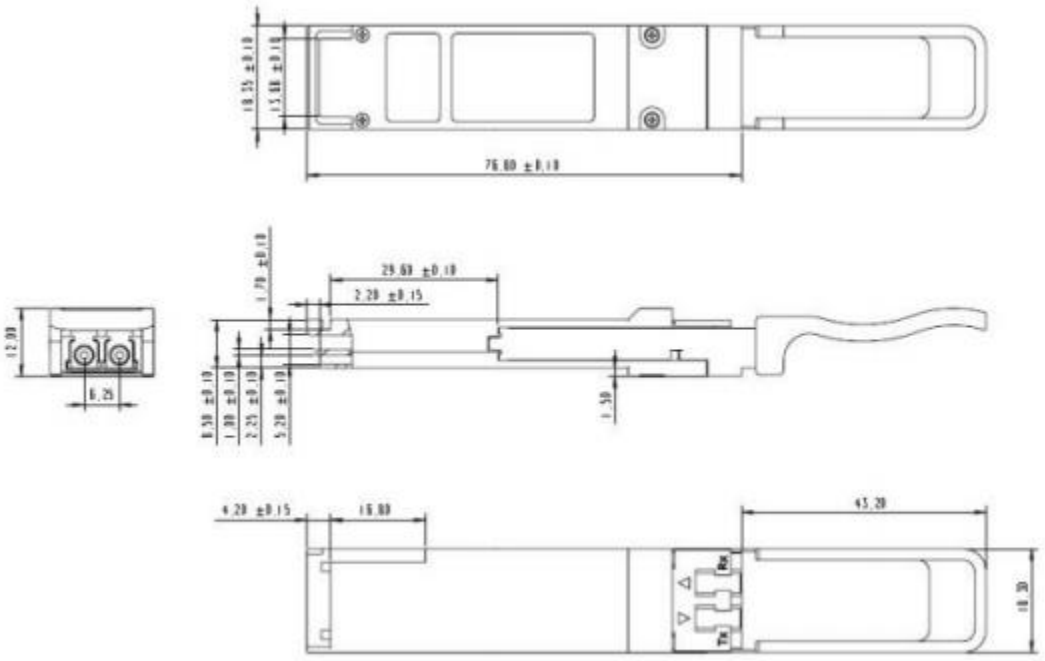
Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Lane Wavelength	L0	1264.5		1277.5	nm	
	L1	1284.5		1297.5	nm	
	L2	1304.5		1317.5	nm	
	L3	1324.5		1337.5	nm	
Transmitter						
SMSR	SMSR	30			dB	
Total Average Launch Power	P_T			**10.5**	dBm	
Average Launch Power, each Lane	P_{AVG}	**-2.7**		**4.5**	dBm	
OMA, each Lane	P_{OMA}	-0.3		5	dBm	1
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			4.7	dB	
TDP, each Lane	TDP			2.6	dB	
Extinction Ratio	ER	3.5			dB	
Optical Return Loss Tolerance	TOL			20	dB	
Transmitter Reflectance	R_T			-12	dB	
Average Launch Power OFF Transmitter, each Lane	Poff			-30	dBm	
Receiver						
Damage Threshold, each Lane	TH_d	3.0			dBm	2
Average Receive Power, each Lane		**-19**		**-4.5**	dBm	3
Receiver reflectance				**-26**	dB	
Receiver Sensitivity (OMA), each Lane	SEN			**-19**	dBm	3
LOS Assert	LOSA	-35			dBm	
LOS Deassert	LOSD			-19	dBm	

Notes:

1. Even if the TDP < 1 dB, the OMA min must exceed the minimum value specified here.
2. The receiver shall be able to tolerate, without damage, continuous exposure to a modulated optical input signal having this power level on one lane. The receiver does not have to operate correctly at this input power.
3. Measured with conformance test signal for BER = 10–12.

Mechanical specifications



Regulatory Compliance

Feature	Reference	Performance
Electrostatic discharge（ESD）	IEC/EN 61000-4-2	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN 55022 Class B (CISPR 22A)	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10, 1040.11 IEC/EN 60825-1, 2	Class 1 laser product
Component Recognition	IEC/EN 60950, UL	Compatible with standards
ROHS	2002/95/EC	Compatible with standards
EMC	EN61000-3	Compatible with standards

Notice:

ECI Networks reserves the right to make changes to or discontinue any optical link product or service identified in this publication, without notice, in order to improve design and/or performance. Applications that are described herein for any of the optical link products are for illustrative purposes only.

For further information

E.C.I.NETWORKS

Office: 1-800-967-1672

Fax : 1-855-201-7283

mailto:sales@ecin.ca

6500 TRANS-CANADIAN, SUITE 400

POINTE-CLAIRE, QC H9R 0A5

www.ecin.ca