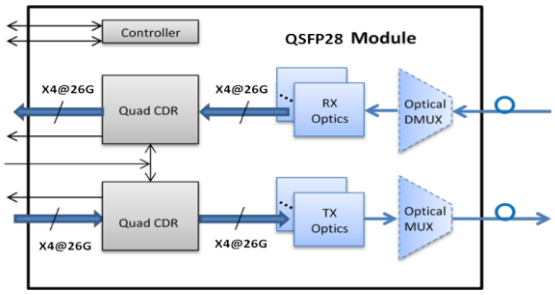
AT A GLANCE

E.C.I. NETWORKS's offers the full range of proven and tested 100G optical transceivers modules; CFP|CFP2|CFP4|QSFP28|CXP (CPAK not offered; Cisco proprietary optical module). They are a high performance, low power consumption, MSA compliant pluggables which have been specifically developed for flexible and cross-system deployments. They can be used in virtually any type of communication systems (e.g. routers, switches, converters, hubs, bridges, NICs, gateways, proxies, load balancers, etc.).

EN-QSFP28-CW4 is 100G QSFP28 CWDM4 optical transceiver that integrate the transmit and receive path onto one module. On the transmit side, four lanes of serial data streams are recovered, retimed, and passed on to four laser drivers, which control four lasers with 1271, 1291, 1311, and 1331 nm center wavelengths. The optical signals are then multiplexed into a single-mode fiber through an industry-standard LC connector. On the receive side, four lanes of optical data streams are optically demultiplexed by an integrated optical demultiplexer.

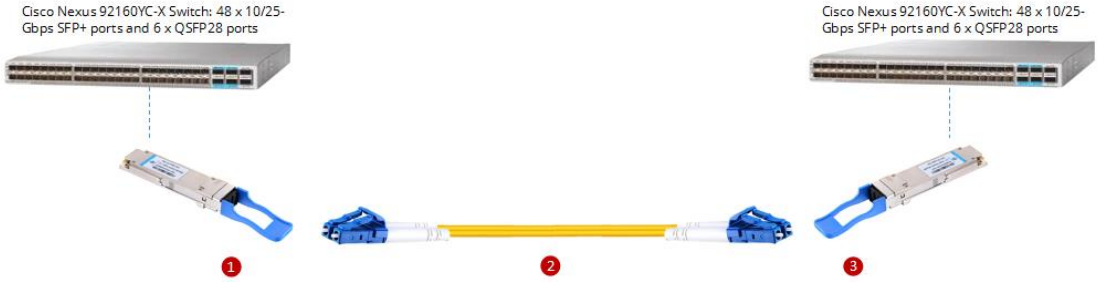
PRODUCT FEATURES

- Hot-pluggable QSFP28 MSA form factor
- Duplex LC receptacle optical interface
- Transmitter: Uncooled 4x25Gb/s DFB laser
- Receiver: 4x25Gb/s PIN receiver
- Single +3.3V power supply
- Low power dissipation (Max:3.5W)
- Built in digital diagnostic function
- Operating case temperature range:0℃ to 70



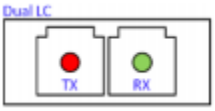
APPLICATIONS EXAMPLES

A cost optimized solution for SMF up to 2Km. Customers can use it for 100G to 100G connectivity.



EN-QSFP28-CW4 Connectivity

The 100G-CW4/LR4 modules use duplex LC fiber connectors – the same connectors that are used on existing 10G and 40G QSFPs that use duplex SMF (e.g. 40G-LR4 etc).



Ordering Information

Part Number	Description	Data Rate	Wavelength	Distance
EN-QSFP28-CW4-xx	QSFP28 CWDM4 100G, 2km Transceiver with LC Duplex connector	100G	1310nm	2KM

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; TBD

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	0	85	%
Supply Voltage	V_{CC}	-0.5	3.6	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
Power Dissipation	Pd	-		3.5	W
Data Rate, each Lane			26.5625		GBd
Data Rate Accuracy		-100		100	ppm
Pre-FEC Bit Error Ratio				$2.4x10^{-4}$	
Post-FEC Bit Error Ratio				$1x10^{-12}$	
Link Distance	D	0.5		2000	m

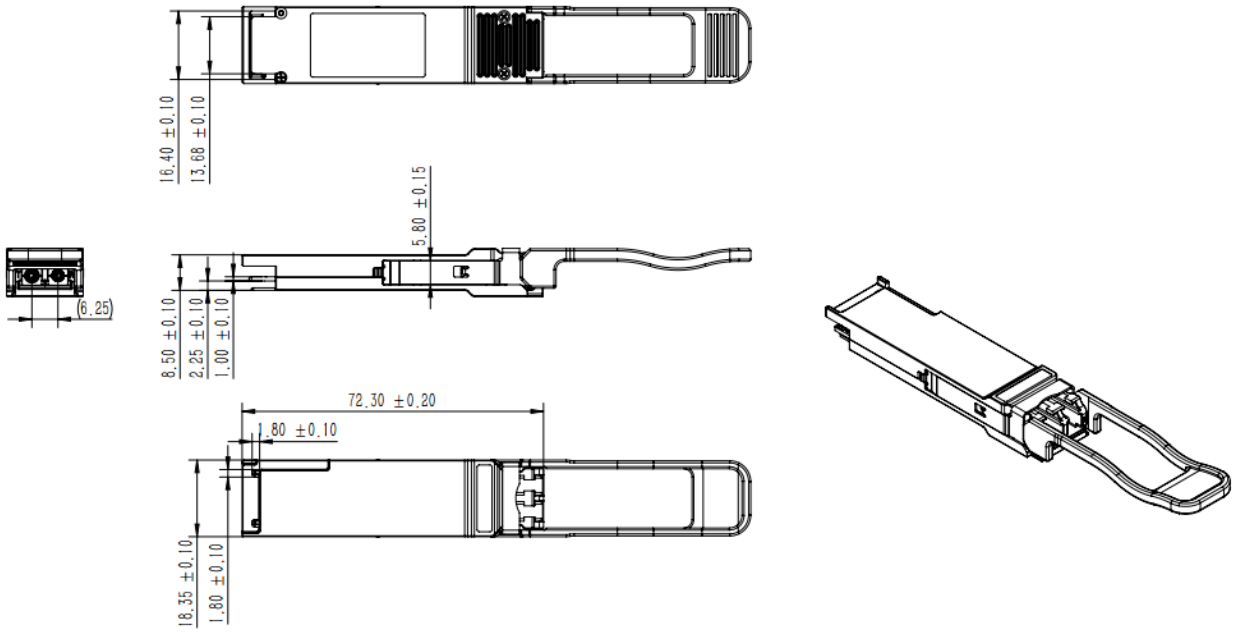
Optical Characteristics

EN-QSFP28-CW4

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Transmitter						
Four Lane Wavelength Range	λ1	nm	1264.5	1271	1277.5	
	λ2		1284.5	1291	1297.5	
	λ3		1304.5	1311	1317.5	
	λ4		1324.5	1331	1337.5	
Total launch power	P_{out}	dBm	-	-	8.5	
Average launch power, each lane	P_{avg}	dBm	-6.5	-	2.5	1
Optical modulation amplitude, each lane (OMA)	OMA	dBm	-4	-	2.5	
Extinction ratio	ER	dB	3.5	-	-	
Side-mode suppression ratio	SMSR	dB	30	-	-	
TPD, per lane	TPD	dB			3	
Average launch power of OFF transmitter, per lane	P_{OFF}	dBm	-	-	-30	
Relative Intensity Noise	RIN	dB/Hz			-130	
Optical return loss tolerance	ORLT	dB	-	-	20	
Transmitter reflectance	TR	dB	-	-	-12	
Transmitter eye mask {X1, X2, X3, Y1, Y2, Y3}	M_t		{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}			2
Receiver						
Four Lane Wavelength Range	λ1	nm	1264.5	1271	1277.5	
	λ2		1284.5	1291	1297.5	
	λ3		1304.5	1311	1317.5	
	λ4		1324.5	1331	1337.5	
Overload Input Optical Power for Each Lane	P_{max}	dBm	3.5	-	-	
Average Receive Power for Each Lane	P_{in}	dBm	-11.5	-	2.5	3
Receiver Sensitivity(OMA)per lane at $5x10^{-5}$BER	P_{sens1}	dBm	-	-	-10	3
Return Loss	RL	dB	-26	-	-	

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Los De-Assert	P_d	dBm	-	-	-12	
Los Assert	P_a	dBm	-20	-	-	
Loss Hysteresis	P_d-P_a	dBm	0.5		6	

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

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