

Q400G-ZR-DCO-120

QSFP-DD 400G C-Band Tunable Coherent DCO | 120 km

1. Product overview

The Q400G-ZR-DCO-120 is a QSFP-DD Type 2A coherent transceiver for 400GBASE-ZR metro/regional DWDM and data center interconnect applications. An integrated DSP and DP-16QAM coherent modulation support C-band tunability and links up to 120 km with EDFA. The module provides a duplex LC optical connection and selectable 1 x 400GbE or 4 x 100GbE client operation.

2. Key features

- C-band tunable coherent optics, 191.25-196.125 THz
- 60 GBaud DP-16QAM; 425 Gbps stated line rate
- Selectable 1 x 400GbE or 4 x 100GbE breakout
- Integrated DSP; digital diagnostics via I2C
- Hot-swappable QSFP-DD Type 2A; duplex LC
- Fine tuning +/-5 GHz in 0.1 GHz steps

3. Applications

400GBASE-ZR; metro and regional DWDM transport; data center interconnect (DCI); amplified coherent links with EDFA.



4. Technical data

Parameter	Specification
Form factor	QSFP-DD Type 2A, coherent
Line rate / modulation	425 Gbps / 60 GBaud DP-16QAM
Client configuration	1 x 400GbE or 4 x 100GbE, mode selectable
Electrical interfaces	4 x 100GAUI-2; 400GAUI-8; CEI-56G-PAM4-VSR
Optical connector	Duplex LC
Reach / link condition	Up to 120 km with EDFA; supports 3 dB channel insertion loss
Differential output load	100 O (unit as stated in source)

5. Recommended operating conditions

Parameter	Specification
Operating case temperature	-5°C to +75°C
Supply voltage	+3.3 V
Power consumption	≈17 W; low-power mode ≈3.5 W
Supply noise tolerance	≈66 mVpp, 10 Hz-10 MHz

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6. Optical characteristics

Parameter	Specification
TX frequency range	191.25-196.125 THz
Fine tuning	+/-5 GHz; 0.1 GHz steps
Spectral width	=35-66.7 GHz, depending on modulation
Laser linewidth	500 kHz
TX power range	-13 to -9 dBm, tunable
TX power step size	0.1 dB
TX power stability	+/-0.5 dB
Maximum OSNR	=42 dB / 12.5 GHz

Parameter	Specification
RX sensitivity	=-14 dBm (400G-E-ZR)
RX input range	-12 to +5 dBm, typical
RX transient tolerance	+/-4 dB
ROSNR	=23.7-26 dB / 12.5 GHz
Chromatic dispersion tolerance	+/-2.4 ns/nm
PMD tolerance	10 ps mean
PDL tolerance	=3.5 dB
SOP tracking	50 krad/s

7. Digital diagnostics and management

Digital Diagnostic Monitoring (DDM) via I2C; CMIS revision 5.0. The following monitoring ranges and accuracies are stated:

Parameter	Specification
Temperature	0-70°C; accuracy +/-3°C
Voltage	0-Vcc; accuracy +/-3%
TX bias current	0-100 mA; accuracy +/-10%
TX power	-2.9 to +4.0 dBm; accuracy +/-3 dB
RX power	-5.9 to +4.0 dBm; accuracy +/-3 dB

8. Safety and regulatory

Parameter	Specification
Electrical compliance	IEEE 802.3-2018; 400GAUI-8 / 100GAUI-2
Coherent compliance	OIF-400ZR-01.0; IEEE 802.3cw R2.0 (as stated)
Management	CMIS revision 5.0
Laser safety	Class 1M
Environmental compliance	RoHS 2015/863/EU

9. Ordering information

Parameter	Specification
GLOBALfiber product number	Q400G-ZR-DCO-120
Product description	QSFP-DD 400G C-band DWDM tunable coherent DCO; up to 120 km with EDFA; SMF; duplex LC
Available coding	Generic, Juniper

Specify host equipment model, software version and operating mode when ordering to confirm coding and platform support.