Product Specification

800G OSFP to 2x400G OSFP Passive
Breakout Direct Attach Copper Cable

P/N: 800G-OSFP-2O-CU

Features

- Supporting 800Gbps to 2x400Gbps
- Wire AWG:30AWG,28AWG
- Available length range 0.5m~2.5m
- Data rates per channel 106.25Gbps
- Operating data rate 850Gbps
- Power supply：+3.3V
- Max power dissipation <0.1W
- Commercial temperature range 0°C to 70°C

Compliance

- Compliant with OSFP MSA
- Compliant with CMIS 5.1
- IEEE 802.3db
- RoHS

Applications

- 800/400 Gigabit Ethernet
- High Performance Computing (HPC)
- Data Center & Networking Equipment

Description

The 800G-OSFP-2O-CU is a high-performance passive direct-attach copper cable designed for short-distance, high-density data center interconnects. It bridges 800G OSFP Finned Top ports with dual 400G OSFP Flat Top interfaces, enabling seamless aggregation of 800G throughput (8×112Gbps PAM4) while maintaining backward compatibility with existing 400G infrastructure. The cable features a compact OSFP form factor on one end and two Flat Top connectors on the other, ensuring space-efficient deployment in rack-to-rack or server-to-switch scenarios.

Constructed with twinaxial copper conductors and optimized shielding, the 800G-OSFP-2O-CU supports reliable signal integrity over lengths ranging from 0.5m to 3m. Its passive design eliminates power consumption and active components, delivering lower latency and operational costs compared to optical solutions. The cable adheres to IEEE 802.3ck and OSFP MSA standards.The Finned Top variant incorporates a built-in heatsink for enhanced thermal management, while the Flat Top version relies on host-side cooling for deployment in confined spaces. Ideal for AI/ML clusters, hyperscale data centers, and HPC environments, this DAC offers a cost-effective, plug-and-play upgrade path to 800G connectivity without compromising performance or reliability.

Product performance Specifications

1. Basic Product Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit
Storage Temperature	T_S	-40	-	+85	°C
Supply Voltage	V_{CC}	-0.5	3.3	4.0	V
Relative Humidity	RH	5	-	85	%
Operating Case Temperature	T_C	0	-	70	°C
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Power Dissipation	PD	-	-	0.1	W
Data Rate	DR	-	850	-	Gbps

2. High Speed Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Condition
Maximum insertion Loss at 26.56 GHz	SDD21	11		19.75	dB	
Differential to common-mode return loss	SCD11/22	$\mathrm{RLcd}(f) \geq \begin{Bmatrix} 22-10(f/26.56) & 0.05 \leq f < 26.56 \\ 15-3(f/26.56) & 26.56 \leq f \leq 40 \end{Bmatrix}$			dB	0.05 to 40GHz
Differential to common-mode conversion loss	SCD21-SDD21	$\mathrm{Conversion\_loss}(f) - \mathrm{IL}(f) \geq \begin{Bmatrix} 10 & 0.05 \leq f < 12.89 \\ 14-0.3108f & 12.89 \leq f \leq 40 \end{Bmatrix}$			dB	0.05 to 40GHz
ERL		Minimum cable assembly ERL (*) :≥8.25dB			dB	±0.1

3. Product Optical and Electrical Characteristics

Test Type	Test Item	24AWG	26AWG	28AWG	30AWG
Electrical Characteristics	Differential impedance	100±5Ω at TDR	100±5Ω	100±5Ω	100±5Ω at TDR
	Mutual capacitance	14pF/ft nominal	14pF/ft nominal	14pF/ft nominal	14pF/ft nominal
	Time delay	1.31ns/ft nominal, (4.3ns/m) nominal	1.35ns/ft nominal	1.35ns/ft nominal	1.35ns/ft nominal, (4.3ns/m) nominal
	Time delay skew (within pairs)	80ps/10m maximum	120ps/8.5m maximum	120ps/7m maximum	50ps/5.5m maximum
	Time delay skew (between pairs)	350ps/10m maximum	500ps/8.5m maximum	500ps/7m maximum	350ps/5.5m maximum
	Attenuation	10dB/10m maximum at 1.25Ghz	10dB/8.5m maximum at 1.25Ghz	10dB/7m maximum at 1.25Ghz	8.4dB/5.5m maximum at 1.25Ghz
	Conductor DC Resistance	0.026Ω /ft maximum at 20°C	0.04Ω /ft maximum at 20°C	0.06Ω/ft maximum at 20°C	0.01Ω/ft maximum at 20°C
Physical Characteristics	Conductors (two pair)	24AWG Solid, Silver plated copper	26AWG Solid, Silver plated copper	28AWG Solid, Silver plated copper	30AWG Solid, Silver plated copper
	Insulation	Foam polyolefin	Foam polyolefin	Foam polyolefin	Foam polyolefin
	Pair drain wire	26AWG Solid, Silver plated copper	28AWG Solid, Silver plated copper	30AWG Solid, Silver plated copper	30AWG Solid, Silver plated copper
	Overall cable shield	Aluminum/polyester tape, 125% coverage, Tin plated copper braid, 38AWG, 85% coverage	Aluminum/polyester tape, 125% coverage, Tin plated copper braid, 38AWG, 85% coverage	Aluminum/polyest er tape, 125% coverage,Tin plated copper braid, 38AWG, 85% coverage	Aluminum/polyester tape, 125% coverage,Tin plated copper braid, 38AWG, 85% coverage
	Outer diameter	6.0mm	5.2mm	4.7mm	4.2mm

Recommended Host Board Power Supply Circuit

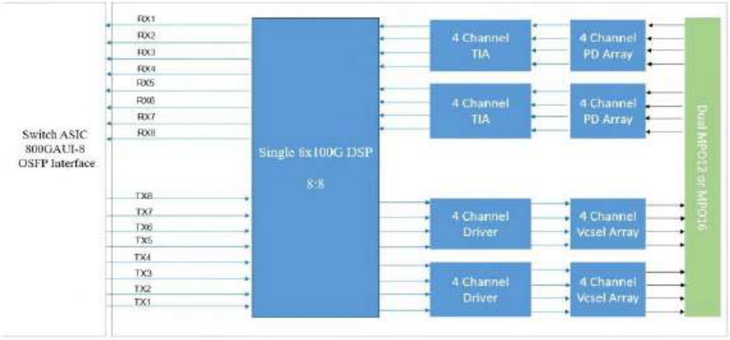


Figure 1: Module Block Diagram

Recommended Interface Circuit

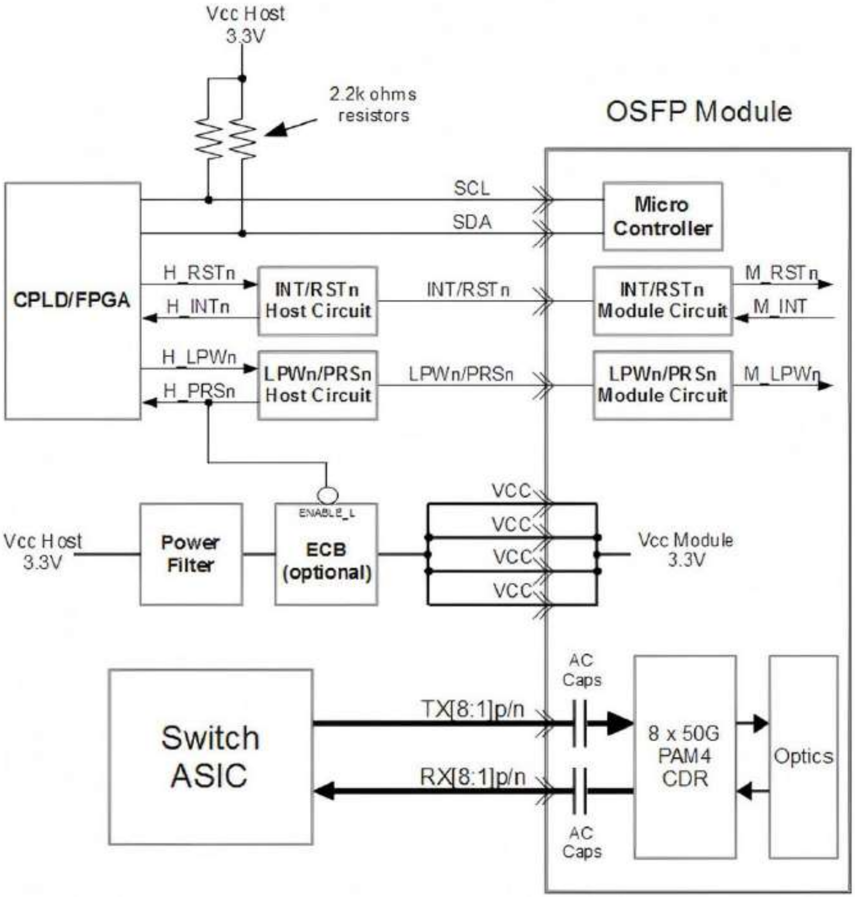


Figure 2: Recommended Interface Circuit

Pin-out Definition

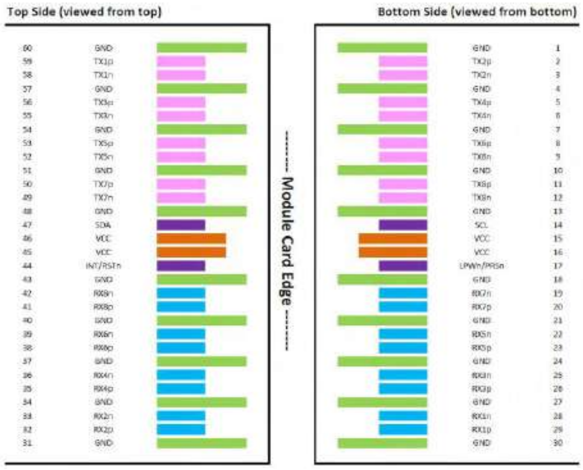


Figure 3: Pin view

Pin Function Definitions

Pin	Logic	Symbol	Description	Note
1		GND	Ground	
2	CML-I	TX2p	Transmitter Data Non-Inverted	
3	CML-I	TX2n	Transmitter Data Inverted	
4		GND	Ground	
5	CML-I	TX4p	Transmitter Data Non-Inverted	
6	CML-I	TX4n	Transmitter Data Inverted	
7		GND	Ground	
8	CML-I	TX6p	Transmitter Data Non-Inverted	
9	CML-I	TX6n	Transmitter Data Inverted	
10		GND	Ground	
11	CML-I	TX8p	Transmitter Data Non-Inverted	
12	CML-I	TX8n	Transmitter Data Inverted	
13		GND	Ground	
14	LVCMOS-I/O	SCL	2-wire Serial interface clock	1
15		VCC	+3.3V Power	
16		VCC	+3.3V Power	
17	Multi-Level	LPWn/PRSn	Low-Power Mode / Module Present	2
18		GND	Ground	
19	CML-O	RX7n	Receiver Data Inverted	
20	CML-O	RX7p	Receiver Data Non-Inverted	

21		GND	Ground	
22	CML-O	RX5n	Receiver Data Inverted	
23	CML-O	RX5p	Receiver Data Non-Inverted	
24		GND	Ground	
25	CML-O	RX3n	Receiver Data Inverted	
26	CML-O	RX3p	Receiver Data Non-Inverted	
27		GND	Ground	
28	CML-O	RX1n	Receiver Data Inverted	
29	CML-O	RX1p	Receiver Data Non-Inverted	
30		GND	Ground	
31		GND	Ground	
32	CML-O	RX2p	Receiver Data Non-Inverted	
33	CML-O	RX2n	Receiver Data Inverted	
34		GND	Ground	
35	CML-O	RX4p	Receiver Data Non-Inverted	
36	CML-O	RX4n	Receiver Data Inverted	
37		GND	Ground	
38	CML-O	RX6p	Receiver Data Non-Inverted	
39	CML-O	RX6n	Receiver Data Inverted	
40		GND	Ground	
41	CML-O	RX8p	Receiver Data Non-Inverted	
42	CML-O	RX8n	Receiver Data Inverted	
43		GND	Ground	
44	Multi-Level	INT/RSTn	Module Interrupt / Module Reset	2
45		VCC	+3.3V Power	
46		VCC	+3.3V Power	
47	LVCMOS-I/O	SDA	2-wire Serial interface data	1
48		GND	Ground	
49	CML-I	TX7n	Transmitter Data Inverted	
50	CML-I	TX7p	Transmitter Data Non-Inverted	
51		GND	Ground	
52	CML-I	TX5n	Transmitter Data Inverted	
53	CML-I	TX5p	Transmitter Data Non-Inverted	
54		GND	Ground	
55	CML-I	TX3n	Transmitter Data Inverted	
56	CML-I	TX3p	Transmitter Data Non-Inverted	
57		GND	Ground	
58	CML-I	TX1n	Transmitter Data Inverted	

59	CML-I	TX1p	Transmitter Data Non-Inverted	
60		GND	Ground	

Note1: Open-Drain with pull up resistor on Host.

Note2: See pin description for required circuit.

Monitoring Specification

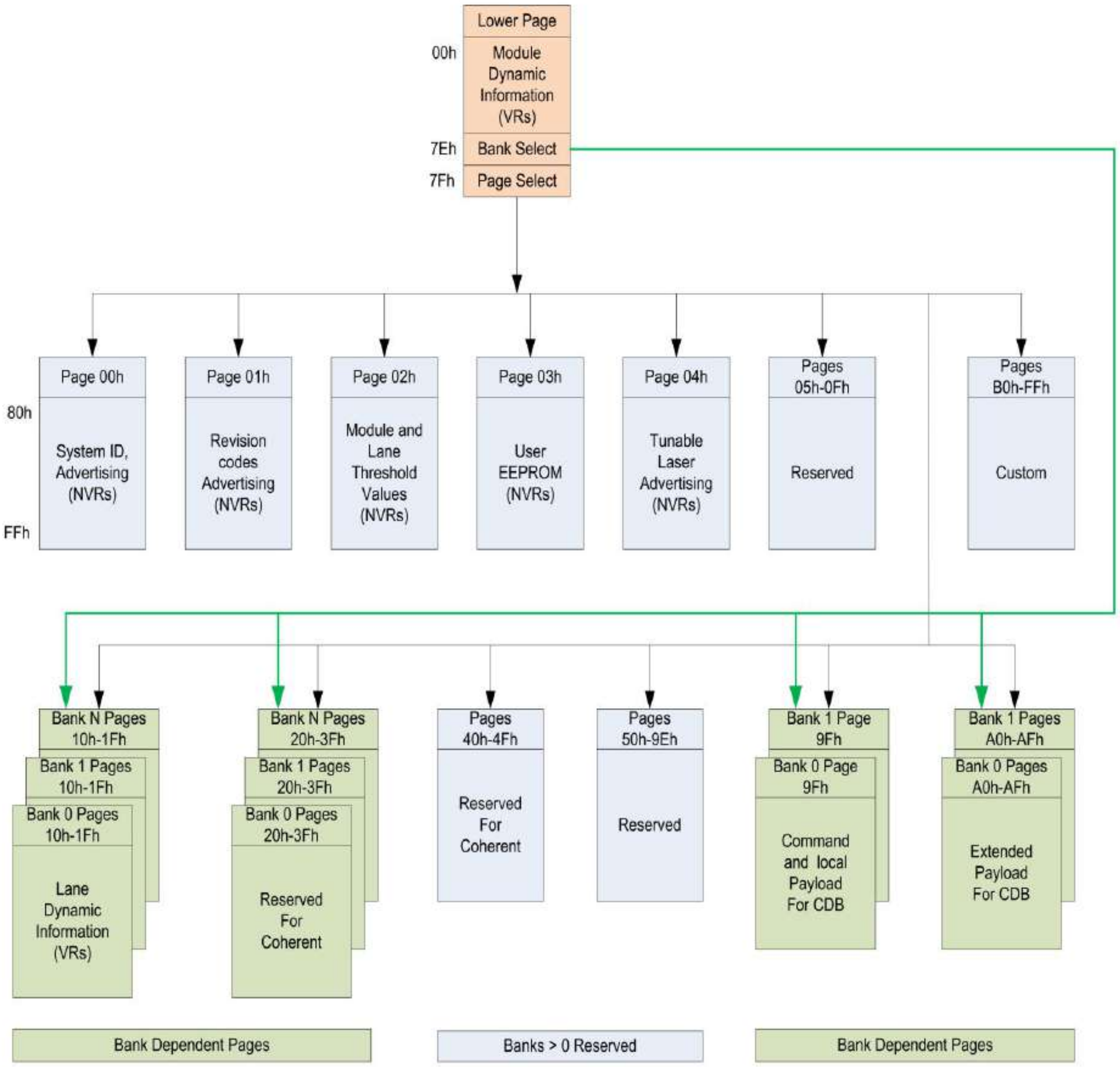


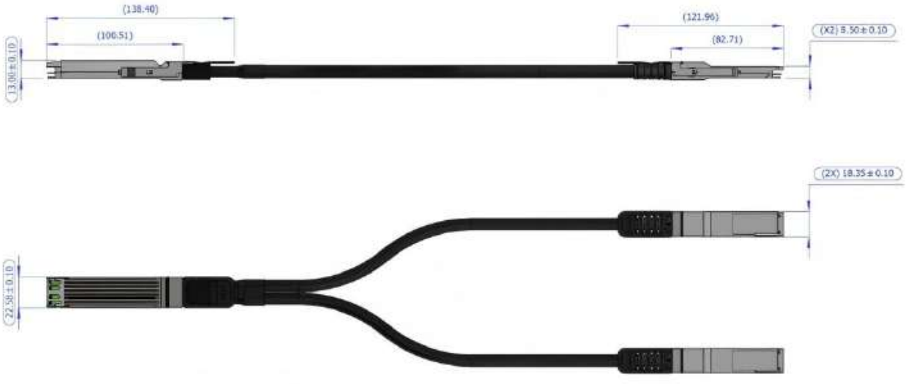
Figure 4: Memory map

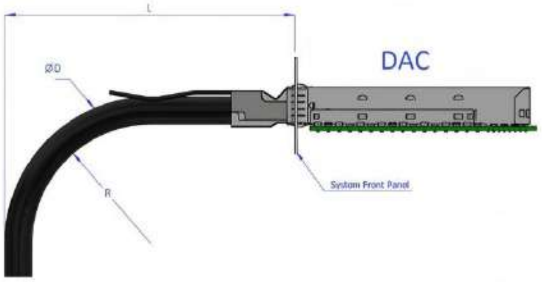
Memory map Table

Byte	Unit	Name	Description
Lower Page 00h			
0	1	Identifier	Identifier - Type of Serial Module - See SFF-8024.
1	1	Revision Compliance	Identifier – CMIS revision; the upper nibble is the whole number part and the lower nibble is the decimal part. Example: 01h indicates version 0.1, 21h indicates version 2.1.
2-3	2	ID and Status Area	Flat mem indication, CLEI present indicator, Maximum TWI speed, Current state of Module, Current state of the Interrupt signal.
4-7	4	Lane Flag Summary	Flag summary of all lane flags on pages 10h-1Fh.
8-13	6	Module-Level Flags	All flags that are not lane or data path specific.
14-25	12	Module-Level Monitors	Monitors that are not lane or data path specific.
26-30	5	Module Global Controls	Controls applicable to the module as a whole
31-36	6	Module-Level Flag Masks	Masking bits for the Module-Level flags
37-38	2	CDB Status Area	Status of most recent CDB command
39-40	2	Module Firmware Version	Module Firmware Version.
41-63	23	Reserved Area	Reserved for future standardization
64-82	19	Custom Area	Vendor or module type specific use
83-84	2	Inactive Firmware Version	Version Number of Inactive Firmware. Values of 00h indicates module supports only a single image.
85-117	33	Application Advertising	Combinations of host and media interfaces that are supported by module data path(s)
118-125	8	Password Entry and Change	Password Entry and Change
126	1	Bank Select Byte	Bank address of currently visible Page
127	1	Page Select Byte	Page address of currently visible Page
Upper Page 00h			
128	1	Identifier	Identifier - Type of Serial Module - See SFF-8024.
129-144	16	Vendor name	Vendor name (ASCII)
145-147	2	Vendor OUI	Vendor IEEE company ID
148-163	16	Vendor PN	Part number provided by vendor (ASCII)
164-165	8	Vendor rev	Revision level for part number provided by vendor (ASCII)
166-181	10	Vendor SN	Vendor Serial Number (ASCII)
182-183	2	Date code year	ASCII code, two low order digits of year (00=2000)
184-185	2	Date code month	ASCII code digits of month (01=Jan through 12=Dec)
186-187	2	Date code day of month	ASCII code day of month (01-31)
188-189	2	Lot code	ASCII code, custom lot code, may be blank
190-199	10	CLEI code	Common Language Equipment Identification code

200-201	2	Module power characteristics	Module power characteristics
202	1	Cable assembly length	Cable assembly length
203	1	Media Connector Type	Media Connector Type
204	1	5 GHz attenuation	Passive copper cable attenuation at 5 GHz in 1 dB increments
205	1	7 GHz attenuation	Passive copper cable attenuation at 7 GHz in 1 dB increments
206	1	12.9 GHz attenuation	Passive copper cable attenuation at 12.9 GHz in 1 dB increments
207	1	25.8 GHz attenuation	Passive copper cable attenuation at 25.8 GHz in 1 dB increments
208-209	2	Reserved	Reserved
210-211	2	Cable Assembly Lane Information	Cable Assembly Lane Information
212	1	Media Interface Technology	Media Interface Technology
213-220	8	Reserved	Reserved
221	1	Custom	Custom
222	1	Checksum	Includes bytes 128-221
223-255	33	Custom Info NV	Custom Info NV

Mechanical Dimension





Note：

- Unit: mm
- Tolerance: φ0.1mm if not shown
- Latch color: black
- When L<2m, the tolerance is ±25mm, when L≥2m, the tolerance is ±50mm

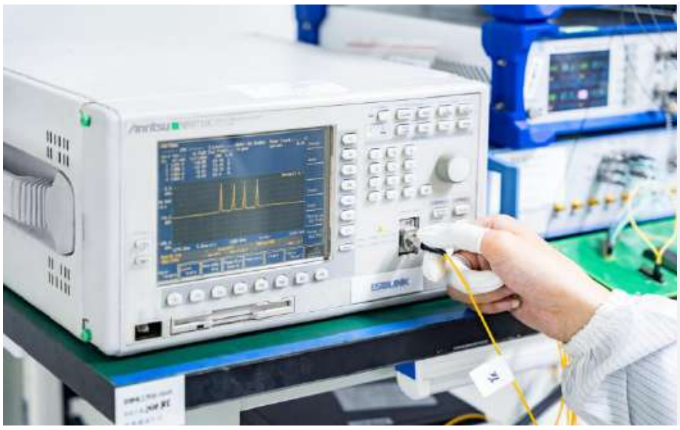
Waring：

- The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles.It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.
- Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.
- Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Test Center

1. Performance Testing

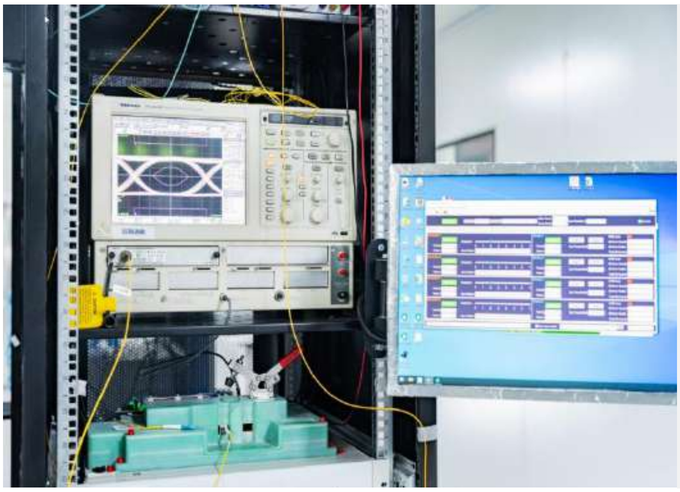
Every fiber optic transceiver is thoroughly tested by the LSOLINK Assurance Program, which is equipped with the world's most advanced analytical equipment to ensure that our transceivers meet the industry's international public protocol standards while still functioning flawlessly in your facility.



Optical Spectrum Inspection

Using the industry's leading optical spectrum analyser to check in real time that the parameters of the optical transceiver's laser comply with industry standards.

- **Peak:** Peak wavelength and peak level
- **2nd Peak:** Side-mode wavelength and level
- **Mean Wl:** Center wavelength
- **Total Power:** Total power of spectrum
- **SMSR:** Side-Mode Suppression Ratio



Optical Signal Quality Inspection

Using highly efficient sampling oscilloscopes and BERT testers, equipped with an automated test platform to accurately test the signal quality of the transceiver, test records are kept for up to 5 years to ensure the traceability of each transceiver.

- **Eye Mask Margin(NRZ)**
- **TDECQ(PAM4):**transmitter dispersion eye closure
- **OMA:** Optical modulation amplitude
- **BER:** Bit error rate
- **ER:** Extinction Ratio

Flow Pressure Test

Using multi-protocol network traffic analyser with various brands of switches to test the transceiver's ability to transmit at full speed.

- **Bandwidth:** Actual transceiver bandwidth on the port
- **Packet Loss**
- **Packet Errors:**CRC Errors/PCS Errors/Symbol Errors
- **LinkDown Counts**
- **latency**

Aboveis part of our test bed network equipment. For more information, Please click download for optical transceiver performance test report.

2. Quality Control

We adopt advanced quality management solutions. Each transceiver is self-inspected, including:20x microscope inspection, 200x microscope inspection, and QC process inspection.

visual inspection

Microscopic inspection: 20X

Microscopic inspection: 200X

Reliability Verification

Optical endface inspection

OQC Inspection

Order Information

Part Number	Length(m)	Wire Gauge(AWG)	Connector Type	Cable Type	Cable Jacket
800G-OSFP-2O-CU0.5	0.5	30	OSFP to 2xOSFP	Passive Copper	PVC
800G-OSFP-2O-CU1	1	28	OSFP to 2xOSFP	Passive Copper	PVC
800G-OSFP-2O-CU1.5	1.5	28	OSFP to 2xOSFP	Passive Copper	PVC
800G-OSFP-2O-CU2	2	28	OSFP to 2xOSFP	Passive Copper	PVC
800G-OSFP-2O-CU2.5	2.5	28	OSFP to 2xOSFP	Passive Copper	PVC

Further Information

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Disclaimer

1. We are committed to continuous product improvement and feature upgrades, and the contents contained in this manual are subject to change without notice.

2. Nothing herein should be construed as constituting an additional warranty.

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