



TECHNOLOGIE OPTIC.CA INC.

100 Gigabit QSFP28 Active Optical Cable

ACC765-11100S · 100G · 5 m · QSFP28-to-QSFP28 · 850 nm VCSEL · DDM · Optic.ca Q28-AO5M-NT-OC

The Optic.ca ACC765-11100S is a 100 Gigabit QSFP28 active optical cable (AOC) for short-reach, high-density 100G interconnect. It integrates a four-channel 850 nm VCSEL array and PIN photodetector array with internal signal conditioning, joined by a fixed 5 m multimode optical cable terminated in QSFP28 connectors at both ends. It carries four independent 25.78 Gb/s lanes (103.1 Gb/s aggregate) over a CAUI-4 / OIF CEI-28G-VSR host electrical interface, draws up to 2.5 W per terminal, and supports digital diagnostics. The embedded VCSEL sources are enclosed within the sealed assembly, making it a Class 1 laser product. Each assembly is individually serialized, factory-coded for host-platform compatibility, and validated prior to shipment, and is backed by the Optic.ca lifetime warranty.

Key Features

- Four independent full-duplex channels; 25.78125 Gb/s per lane (103.1 Gb/s aggregate)
- CAUI-4 host electrical interface per IEEE 802.3bm Annex 83E; OIF CEI-28G-VSR
- Embedded four-channel 850 nm VCSEL array and PIN photodetector array
- Fixed 5 m active optical cable; QSFP28 connectors at both ends
- Maximum power consumption 2.5 W per terminal; single 3.3 V supply
- Digital diagnostics via the QSFP28 SFF-8636 management interface
- Class 1 laser product; embedded, non-user-accessible optics
- Commercial operating case temperature range: 0 °C to +70 °C
- TAA compliant (Country of Origin: Taiwan); RoHS and REACH compliant; Class 1 laser per IEC/EN 60825-1:2014
- Certified compatible with NETGEAR® switching platforms

Target Applications

- 100 Gigabit Ethernet top-of-rack interconnect
- Switch-to-switch links and data-center fabrics
- EMI-sensitive runs where copper twinax is impractical
- InfiniBand EDR clusters

Ordering Information

Part Number	Description
ACC765-11100S	100G QSFP28 active optical cable, 5 m, 850 nm, QSFP28-to-QSFP28, SFF-8636 diagnostics; NETGEAR® Certified Compatible

Standards Compliance

The ACC765-11100S is designed and manufactured to comply with the applicable standards listed below. These statements indicate conformance to the referenced specifications; they do not constitute third-party certification, agency listing, registration, or regulatory approval unless explicitly stated otherwise.

Standard / Program	Detail
Interface & MSA	

Standard / Program	Detail
IEEE 802.3bm, Annex 83E	CAUI-4 4 × 25 Gb/s host electrical interface
OIF CEI-28G-VSR	Host electrical interface (per lane)
QSFP28 SFF-8665	QSFP28 form factor and interface
QSFP28 SFF-8679	QSFP28 hardware and electrical specification
SFF-8636	QSFP28 management interface and digital diagnostics
Safety	
IEC/EN 60825-1:2014	Class 1 laser product
21 CFR 1040.10 and 1040.11	Complies except for deviations pursuant to Laser Notice No. 56 (May 8, 2019)
IEC/EN 62368-1	Designed to conform — AV/ICT equipment safety
Electromagnetic Compatibility	
FCC 47 CFR Part 15, Subpart B	Designed to conform to Class A limits (USA)
ICES-003	Designed to conform to Class A limits (Canada)
CISPR 32 / EN 55032	Designed to conform — emissions limits
CISPR 35 / EN 55035	Designed to conform — immunity requirements
Environmental & Trade	
EU RoHS (2011/65/EU, incl. 2015/863)	Compliant
REACH (EC 1907/2006)	Compliant
Trade Agreements Act (TAA)	Compliant — Country of Origin: Taiwan

Note: EMC and product safety for a cable assembly are determined at the host-equipment level. The assembly is designed to conform to the listed limits and requirements when installed in compliant host equipment.

NETGEAR® Certified Compatible — validated for interoperability with NETGEAR switching platforms. NETGEAR® is a registered trademark of NETGEAR, Inc. This Technologie Optic.ca Inc. product is certified compatible under NETGEAR's certification program; it is not a NETGEAR-branded product.

General Specifications

Parameter	Value
Number of lanes	4 (Tx and Rx)
Channel data rate	25.78125 Gb/s per lane (103.1 Gb/s aggregate)
Supply voltage (Vcc)	3.135 V / 3.3 V / 3.465 V (min / nom / max)
Power consumption	2.5 W per terminal (max)
Operating case temperature	0 °C to +70 °C
Storage temperature	−40 °C to +85 °C
Cable length	5 m (fixed)
Connectors	QSFP28 at both ends
Management interface	2-wire serial (I ² C); SFF-8636

High-Speed Electrical Characteristics

Per lane, at the QSFP28 host electrical interface (TP1 transmitter input, TP4 receiver output).

Parameter	Symbol	Min.	Max.	Units
Differential voltage, pk-pk	TP1 / TP4	—	900	mV

Parameter	Symbol	Min.	Max.	Units
Common-mode voltage	V _{cm}	−350	2850	mV
Common-mode noise, RMS (Rx)	—	—	17.5	mV
Transition time, 20–80% (Rx)	—	9.5	—	ps
Vertical eye closure (Rx)	VEC	—	5.5	dB
Eye width at 10 ^{−15} (Rx)	EW15	0.57	—	UI
Eye height at 10 ^{−15} (Rx)	EH15	228	—	mV

Differential return loss conforms to the OIF CEI-28G-VSR limits. Forward error correction (FEC) is provided by the host system.

Cable Construction

Parameter	Value
Cable type	Active optical cable (multimode fiber, embedded optics)
Optical source	Four-channel 850 nm VCSEL array (embedded, non-user-accessible)
Cable length	5 m (fixed)
Connectors	QSFP28 at both ends
Laser class	Class 1 per IEC/EN 60825-1:2014

Pin Assignment — QSFP28 Connector

PIN	Symbol	Description
1	GND	Ground
2	Tx2n	Transmitter inverted data input
3	Tx2p	Transmitter non-inverted data input
4	GND	Ground
5	Tx4n	Transmitter inverted data input
6	Tx4p	Transmitter non-inverted data input
7	GND	Ground
8	ModSelL	Module select
9	ResetL	Module reset
10	VccRx	+3.3 V receiver power supply
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver non-inverted data output
15	Rx3n	Receiver inverted data output
16	GND	Ground
17	Rx1p	Receiver non-inverted data output
18	Rx1n	Receiver inverted data output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver inverted data output

PIN	Symbol	Description
22	Rx2p	Receiver non-inverted data output
23	GND	Ground
24	Rx4n	Receiver inverted data output
25	Rx4p	Receiver non-inverted data output
26	GND	Ground
27	ModPrsL	Module present
28	IntL	Interrupt
29	VccTx	+3.3 V transmitter power supply
30	Vcc1	+3.3 V power supply
31	LPMODE	Low power mode
32	GND	Ground
33	Tx3p	Transmitter non-inverted data input
34	Tx3n	Transmitter inverted data input
35	GND	Ground
36	Tx1p	Transmitter non-inverted data input
37	Tx1n	Transmitter inverted data input
38	GND	Ground

Laser Safety

The ACC765-11100S is a Class 1 laser product per IEC/EN 60825-1:2014 and complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 56 (May 8, 2019). The 850 nm VCSEL sources are permanently enclosed within the sealed cable assembly and are not user-accessible; under normal operation and reasonably foreseeable single-fault conditions, no hazardous optical radiation is emitted. Do not open the connector housings or view internal optical emissions with magnifying instruments. Observe standard ESD precautions when handling the assembly.

Handling

- Hold the connector by its sides when inserting it into the switch port.
- Do not handle the assembly by the cable.
- Do not over-bend the cable behind the connector.
- Do not twist or kink the cable.
- Do not flex the cable up and down behind the connector.
- Observe standard ESD precautions; the assembly contains active components.

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