TECHNOLOGIE OPTIC.CA INC.

100 Gigabit QSFP28 to 4×25G SFP28 Active Optical Breakout Cable

ACC4V763-11100S · 100G→4×25 · 3m · QSFP28-to-4×SFP28 · 850 nm VCSEL · DDM · Optic.ca Q4X25-AO3M-NT-OC

The Optic.ca ACC4V763-11100S is a 100 Gigabit QSFP28-to-4×25G SFP28 active optical breakout cable (AOC). A single QSFP28 host interface fans out to four independent SFP28 ends, each carrying a 25.78 Gb/s active optical lane, joined by a fixed 3 m multimode optical cable. The QSFP28 end presents a CAUI-4 host electrical interface per IEEE 802.3bm Annex 83E and each SFP28 end uses an OIF CEI-28G-VSR interface. It draws up to 2.5 W at the QSFP28 terminal and up to 1.0 W at each SFP28 terminal. The embedded 850 nm 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

- QSFP28 host interface with four independent SFP28 active optical breakout ends
- Four 25.78125 Gb/s lanes for 100G breakout applications (103.1 Gb/s aggregate)
- CAUI-4 host electrical interface per IEEE 802.3bm Annex 83E; OIF CEI-28G-VSR per SFP28 lane
- Embedded 850 nm VCSEL arrays and PIN photodetectors
- Fixed 3 m active optical cable
- Maximum power consumption 2.5 W (QSFP28) and 1.0 W per SFP28 terminal; single 3.3 V supply
- 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

- 100G-to-4×25G top-of-rack breakout
- Switch-to-server fan-out aggregation
- EMI-sensitive runs where copper twinax is impractical
- High-density data-center and InfiniBand EDR fabrics

Ordering Information

Part Number	Description
ACC4V763-11100S	100G QSFP28 to 4×25G SFP28 active optical breakout cable, 3 m, 850 nm, QSFP28-to-4×SFP28; NETGEAR® Certified Compatible

Standards Compliance

The ACC4V763-11100S 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	
IEEE 802.3bm, Annex 83E	CAUI-4 4 × 25 Gb/s host electrical interface (QSFP28)
OIF CEI-28G-VSR	25G host electrical interface (each SFP28 lane)
QSFP28 SFF-8665	QSFP28 host form factor and interface
QSFP28 SFF-8679	QSFP28 hardware and electrical specification
SFP28 SFF-8402	SFP28 breakout form factor and interface
SFP28 SFF-8432	SFP28 mechanical and connector 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
Configuration	QSFP28 host → 4 × SFP28 breakout
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 (QSFP28); 1.0 W per SFP28 terminal (max)
Operating case temperature	0 °C to +70 °C
Storage temperature	−40 °C to +85 °C
Cable length	3 m (fixed)
Connectors	QSFP28 (host) to 4 × SFP28 (breakout)
Management interface	2-wire serial (I²C); SFF-8636

High-Speed Electrical Characteristics

Per lane, at the host electrical interface (TP1 transmitter input, TP4 receiver output); applies to both the QSFP28 and SFP28 terminals.

Parameter	Symbol	Min.	Max.	Units
Differential voltage, pk-pk	TP1 / TP4	—	900	mV
Common-mode voltage	Vcm	−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 breakout cable (multimode fiber, embedded optics)
Optical source	850 nm VCSEL arrays (embedded, non-user-accessible)
Cable length	3 m (fixed)
Connectors	QSFP28 (host) to 4 × SFP28 (breakout)
Laser class	Class 1 per IEC/EN 60825-1:2014

Pin Assignment — QSFP28 Host End

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

PIN	Symbol	Description
18	Rx1n	Receiver inverted data output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver inverted data output
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

Pin Assignment — SFP28 Breakout End

PIN	Symbol	Description
1	VeeT	Transmitter ground
2	TX_Fault	Module transmitter fault
3	TX_Disable	Transmitter disable; turns off transmitter laser output
4	SDA	2-wire serial interface data line
5	SCL	2-wire serial interface clock
6	MOD_ABS	Module definition; grounded within the module
7	RS0	Receiver rate select
8	RX_LOS	Receiver loss-of-signal; logic 0 = normal operation
9	RS1	Transmitter rate select
10	VeeR	Receiver ground
11	VeeR	Receiver ground
12	RD−	Receiver inverted data output
13	RD+	Receiver non-inverted data output
14	VeeR	Receiver ground
15	VccR	Receiver 3.3 V supply

PIN	Symbol	Description
16	VccT	Transmitter 3.3 V supply
17	VeeT	Transmitter ground
18	TD+	Transmitter non-inverted data input
19	TD−	Transmitter inverted data input
20	VeeT	Transmitter ground

Laser Safety

The ACC4V763-11100S 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.