

A dark, monochromatic photograph of a server room with rows of server racks and overhead lighting. A red circle is positioned to the left of the main title text.

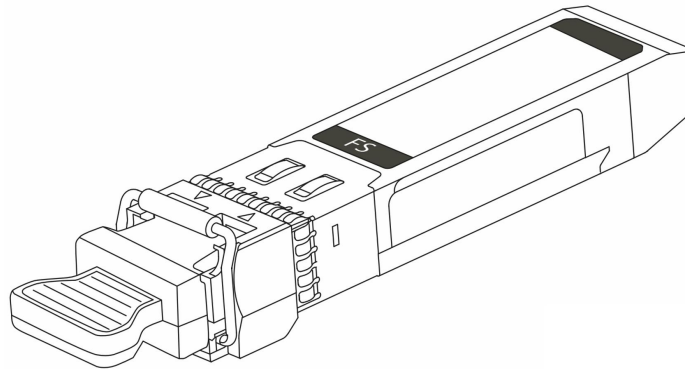
Fiber Channel Transceiver Modules Data Sheet

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Product overview

The FS®Fiber Channel Small Form-Factor Pluggable(SFP/SFP+/SFP28/SFP56/QSFP28) portfolio offers customers a wide variety of high-density and low-power 2G/4G/8G/16G/32G/64G/128G Fibre Channel connectivity options for data center, high-performance computing networks enterprise core and distribution layers and service provider applications. The 2G/4G/8G/16G/32G/64G/128G Fibre Channel modules are our latest generation of Fibre Channel transceiver modules solution based on SFP/SFP+/SFP 28/SFP56/QSFP28 form factor. (See Figure1).



- FC-SFP-8G23-BX10
- FC-SFP-8G-ER
- FC-SFP-8G-ER-31
- FC-SFP-10G-SW

Figure 1.
8G SFP+ Optical Fiber Channel modules

Features and benefits

- Hot-swappable input/output device that plugs into a 2G/4G/8G/16G/32G/64G/128G Gigabit Ethernet port
- Interoperable with other IEEE-compliant 2G/4G/8G/16G/32G/64G/128GBASE interfaces where applicable
- Certified and tested on Cisco, Arista, Juniper, Brocade SFP/SFP+/SFP28/SFP56/QSFP28 ports for superior performance, quality, and reliability. For more details, refer to the [FS Assured Program for Transceivers](#)
- Digital optical monitoring capability for strong diagnostic capabilities

Table 1 describes the Fiber Channel modules portfolio.

Table 1. Fiber Channel modules portfolio

Product	Description	Connector type
FC-QSFP-128G-SW4	128GBASE SW4 QSFP28 Transceiver, MTP/MPO-12, 100m over OM4 MMF	MTP/MPO-12
FC-SFP-32G-SW	32GBASE SR SFP28 Transceiver, Duplex LC, 100m over OM4 MMF	Duplex LC
FC-SFP-32G-LW	32GBASE LR SFP28 Transceiver, Duplex LC, 10km over SMF	Duplex LC

Product	Description	Connector type
FC-SFP-16G-SW	16GBASE SR SFP+ Transceiver, Duplex LC, 100m over OM4 MMF	Duplex LC
FC-SFP-16G-LW	16GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	Duplex LC
FC-SFP-16G-ER	16GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	Duplex LC
FC-CW-SFP16G40-xx	16GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	Duplex LC
FC-SFP-8G-SW	8GBASE SR SFP+ Transceiver, Duplex LC, 150m over OM4 MMF	Duplex LC
FC-SFP-8G-LW	8GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	Duplex LC
FC-SFP-8G-ER-31	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	Duplex LC
FC-SFP-8G-ER	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	Duplex LC
FC-SFP-8G-ZR	8GBASE ZR SFP+ Transceiver, Duplex LC, 80km over SMF	Duplex LC
FC-SFP-8G23-BX10	8GBASE BiDi SFP+ Transceiver, Duplex LC, 10km over SMF	Simplex LC
FC-CW-SFP8G40-xx	8GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	Duplex LC
FC-SFP-4G-SW	4GBASE SW SFP Transceiver, Simplex LC, 150m over OM4 MMF	Duplex LC
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 4km over SMF	Duplex LC
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 10km over SMF	Duplex LC
FC-SFP-2G-SW	2GBASE SR SFP Transceiver, Simplex LC, 300m over OM4 MMF	Duplex LC
FC-SFP-2G-LWL	2GBASE SR SFP Transceiver, Simplex LC, 2km over SMF	Duplex LC
FC-SFP-2G-LW	2GBASE IR SFP Transceiver, Simplex LC, 10km over SMF	Duplex LC
FC-SFP-2G-ER-31	2GBASE LR SFP Transceiver, Simplex LC, 40km over SMF	Duplex LC
FC-SFP-2G-ER	2GBASE LR SFP Transceiver, Simplex LC, 40km over SMF	Duplex LC
FC-SFP-2G-ZR	2GBASE LR SFP Transceiver, Simplex LC, 80km over SMF	Duplex LC
FC-SFP-64G-SW	64GBASE SW SFP56 Transceiver, Duplex LC, 100m over OM4 MMF	Duplex LC

FC-QSFP-128G-SW4

The QSFP28 transceiver supports up to 100m link lengths over multimode fiber (MMF) via MTP/MPO-12 connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 128G.

FC-SFP-32G-SW

The FC-SFP-32G-SWModule provides 32GBase-SR throughput up to 100m over multimode fiber (MMF) using a wavelength of 850nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 32G

FC-SFP-32G-LW

The FC-SFP-32G-LWModule provides 32GBase-LR throughput up to 10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 32G

FC-SFP-16G-SW

The FC-SFP-16G-SWModule provides 16GBase-SR throughput up to 100m over multimode fiber (MMF) using a wavelength of 850nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards.

Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 16G

FC-SFP-16G-LW

The FC-SFP-16G-LWModule provides 16GBase-LR throughput up to 10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards.

Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 16G

FC-SFP-16G-ER

The FC-SFP-16G-ERtransceiver provides 16GBase-ER throughput up to 40km over single mode fiber (SMF) using a wavelength of 1550nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 16G

FC-CW-SFP16G40-xx

The FC-CW-SFP16G40-xx transceiver supports up to 40km link lengths over single-mode fiber (SMF) via an LC duplex connector. This transceiver is compliant with SFF-8431 and SFF-8472 MSA standards. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 16G.

FC-DW-SFP16G40-xx

The FC-DW-SFP16G40-xx transceiver supports up to 40km link lengths over single-mode fiber (SMF) via an LC duplex connector. This transceiver is compliant with SFF-8431 and SFF-8472 MSA standards. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 16G.

FC-SFP-8G-SW

The FC-SFP-8G-SW Module provides 8GBase-SR throughput up to 150m over multimode fiber (MMF) using a wavelength of 850nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 8G

FC-SFP-8G-LW

The FC-SFP-8G-LW Module provides 8GBase-LR throughput up to 10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 8G

FC-SFP-8G-ER-31

The FC-SFP-8G-ER-31 transceiver provides 8GBase-ER throughput up to 40km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards.

Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 8G

FC-SFP-8G-ER

The FC-SFP-8G-ER transceiver provides 8GBase-ER throughput up to 40km over single mode fiber (SMF) using a wavelength of 1550nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 8G

FC-SFP-8G-ZR

The FC-SFP-8G-ZR transceiver provides 8GBase-ER throughput up to 80km over single mode fiber (SMF) using a wavelength of 1550nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 8G

FC-CW-SFP8G40-xx

The FC-CW-SFP8G40-xx transceiver supports up to 40km link lengths over single-mode fiber (SMF) via an LC duplex connector. This transceiver is compliant with SFF-8431 and SFF-8472 MSA standards. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application such up to 8G.

FC-SFP-8G23-BX10

The FC-SFP-8G23-BX10 are designed for CPRI / eCPRI and Data Center applications. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It is compliant with IEEE 802.3cc, SFP MSA, SFP28 MSA, SFF-8402, SFF-8472, SFF-8432, SFF-8431, and CEI-28G-VSR standards. The built-in digital diagnostics monitoring (DDM) allows access to real-time operating parameters.

FC-SFP-4G-SW

The FC-SFP-4G-SW Module provides 4GBase-SW throughput up to 150m over multimode fiber (MMF) using a wavelength of 850nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 4G

FC-SFP-4G-LWL

The SFP4G-LW-85 Module provides 4GBase-LW throughput up to 4km/10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 4G

FC-SFP-2G-SW

The FC-SFP-2G-SW Module provides 2GBase-SR throughput up to 300m over multimode fiber (MMF) using a wavelength of 850nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards.

Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-2G-LWL

This FC-SFP-2G-LWL Module provides 2GBase-SR throughput up to 10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-2G-LW

This FC-SFP-2G-LW Module provides 2GBase-IR throughput up to 10km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-2G-ER-31

This FC-SFP-2G-ER-31 Module provides 2GBase-LR throughput up to 40km over single mode fiber (SMF) using a wavelength of 1310nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-2G-ER

This FC-SFP-2G-ER Module provides 2GBase-LR throughput up to 40km over single mode fiber (SMF) using a wavelength of 1550nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-2G-ZR

This FC-SFP-2G-ZR Module provides 2GBase-LR throughput up to 80km over single mode fiber (SMF) using a wavelength of 1550nm via an LC duplex connector. This transceiver is compliant with SFF-8636 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communications application up to 2G

FC-SFP-64G-SW

SFP56 transceiver supports up to 100m link lengths over multimode fiber (MMF) via LC duplex connector. This transceiver is compliant with SFF-8472, SFF-8431, SFF-8432 and FC-PI-8 standards. Digital diagnostics functions are available via a 2-wire common management interface, as specified in SFF-8472, to allow access to real-time operating parameters. With these features, this easy to install, hot swappable transceiver is suitable for fiber communication applications up to 64G

Product Specifications

Table 2 shows the key electrical characteristics for the Fiber Channel modules.

Table 2. Electrical specifications

Product	Description	Nominal data rate (Gbps)	Link meter
FC-QSFP-128G-SW4	128GBASE SW4 QSFP28 Transceiver, MTP/MPO-12, 100m over OM4 MMF	112.2Gbps	100m
FC-SFP-32G-SW	32GBASE SR SFP28 Transceiver, Duplex LC, 100m over OM4 MMF	28.05Gbps	100m
FC-SFP-32G-LW	32GBASE LR SFP28 Transceiver, Duplex LC, 10km over SMF	28.05Gbps	10km
FC-SFP-16G-SW	16GBASE SR SFP+ Transceiver, Duplex LC, 100m over OM4 MMF	14.025Gbps	100m
FC-SFP-16G-LW	16GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	14.025Gbps	10km
FC-SFP-16G-ER	16GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	14.025Gbps	40km
FC-CW-SFP16G40-xx	16GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	14.025Gbps	40km
FC-DW-SFP16G40-xx	16GBASE DWDM SFP+ Transceiver, Duplex LC, 40km over SMF	14.025Gbps	40km
FC-SFP-8G-SW	8GBASE SR SFP+ Transceiver, Duplex LC, 150m over OM4 MMF	8.5Gbps	150m
FC-SFP-8G-LW	8GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	8.5Gbps	10km
FC-SFP-8G-ER-31	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	8.5Gbps	40km
FC-SFP-8G-ER	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	8.5Gbps	40km
FC-SFP-8G-ZR	8GBASE ZR SFP+ Transceiver, Duplex LC, 80km over SMF	8.5Gbps	80km
FC-SFP-8G23-BX10	8GBASE BiDi SFP+ Transceiver, Duplex LC, 10km over SMF	11.3Gbps	10km
FC-CW-SFP8G40-xx	8GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	11.3Gbps	40km

Product	Description	Nominal data rate (Gbps)	Link meter
FC-SFP-4G-SW	4GBASE SW SFP Transceiver, Simplex LC, 150m over OM4 MMF	4.25Gbps	150m
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 4km over SMF	4.25Gbps	4km
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 10km over SMF	4.25Gbps	10km
FC-SFP-2G-SW	2GBASE SR SFP Transceiver, Simplex LC, 300m over OM4 MMF	2.67Gbps	300m
FC-SFP-2G-LWL	2GBASE SR SFP Transceiver, Simplex LC, 2km over SMF	2.67Gbps	2km
FC-SFP-2G-LW	2GBASE IR SFP Transceiver, Simplex LC, 10km over SMF	2.67Gbps	10km
FC-SFP-2G-ER-31	2GBASE IR SFP Transceiver, Simplex LC, 40km over SMF	2.67Gbps	40km
FC-SFP-2G-ER	2GBASE LR SFP Transceiver, Simplex LC, 40km over SMF	2.67Gbps	40km
FC-SFP-2G-ZR	2GBASE LR SFP Transceiver, Simplex LC, 80km over SMF	2.67Gbps	80km
FC-SFP-64G-SW	64GBASE SW SFP56 Transceiver, Duplex LC, 100m over OM4 MMF	64Gbps	100m

Table 3 shows the key optical characteristics for the Fiber Channel modules.

Table 3. Optical specifications

Product	Description	Transmit Power (dBm) per lane		Receive Power (dBm) per lane		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
FC-QSFP-128G-SW4	128GBASE SW4 QSFP28 Transceiver, MTP/MPO-12, 100m over OM4 MMF	-8.5	2.4	-10.3	2.4	850
FC-SFP-32G-SW	32GBASE SR SFP28 Transceiver, Duplex LC, 100m over OM4 MMF	-8	3	-14	0	850
FC-SFP-32G-LW	32GBASE LR SFP28 Transceiver, Duplex LC, 10km over SMF	-7	2	-14	2	1310
FC-SFP-16G-SW	16GBASE SR SFP+ Transceiver, Duplex LC, 100m over OM4 MMF	-7.8	-1.3	-10.5	0	850
FC-SFP-16G-LW	16GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	-5	2	-18	2	1310
FC-SFP-16G-ER	16GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	-1	3	-19	2	1550
FC-CW-SFP16G40-xx	16GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	0	5	-19	2	1470 to 1610
FC-DW-SFP16G40-xx	16GBASE DWDM SFP+ Transceiver, Duplex LC, 40km over SMF	0	5	-19	2	1528.77 to 1563.86
FC-SFP-8G-SW	8GBASE SR SFP+ Transceiver, Duplex LC, 150m over OM4 MMF	-7.3	-1	-11.1	0.5	850
FC-SFP-8G-LW	8GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF	-8.2	0.5	-14.4	0.5	1310
FC-SFP-8G-ER-31	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	0	5	-15	1	1310
FC-SFP-8G-ER	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF	-1	4	-16	-1	1550
FC-SFP-8G-ZR	8GBASE ZR SFP+ Transceiver, Duplex LC, 80km over SMF	0	5	-23	-7	1550

Product	Description	Transmit Power (dBm) per lane		Receive Power (dBm) per lane		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
FC-SFP-8G23-BX10	8GBASE BiDi SFP+ Transceiver, Duplex LC, 10km over SMF	-8.2	0.5	-14.4	0.5	1270 (Tx) 1330 (Rx)
FC-CW-SFP8G40-xx	8GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF	-1	4	-6	-8	1470 to 1610
FC-SFP-4G-SW	4GBASE SW SFP Transceiver, Simplex LC, 150m over OM4 MMF	-2	4	-13	2	850
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 4km over SMF	-9	-3	-14	2.5	1310
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 10km over SMF	-8.4	-1	-18	2	1310
FC-SFP-2G-SW	2GBASE SR SFP Transceiver, Simplex LC, 300m over OM4 MMF	-10	-3	-17	-3	850
FC-SFP-2G-LWL	2GBASE SR SFP Transceiver, Simplex LC, 2km over SMF	-7	2.5	-19	-3	1310
FC-SFP-2G-LW	2GBASE IR SFP Transceiver, Simplex LC, 10km over SMF	-5	0	-18	0	1310
FC-SFP-2G-ER-31	2GBASE IR SFP Transceiver, Simplex LC, 40km over SMF	-1	3	-30	0	1310
FC-SFP-2G-ER	2GBASE LR SFP Transceiver, Simplex LC, 40km over SMF	-2	3	-18	0	1550
FC-SFP-2G-ZR	2GBASE LR SFP Transceiver, Simplex LC, 80km over SMF	-2	3	-28	-7	1550
FC-SFP-64G-SW	64GBASE SW SFP56 Transceiver, Duplex LC, 100m over OM4 MMF	-4.5	3		4	850

Table 4 shows the mechanical characteristics for the Fiber Channel modules.

Table 4. Mechanical specifications

Parameter	Product	Weight
Module dimension with pull tab	(H x W x D) 8.5 x 18.35 x 123.41 mm	
Module weight (Max)	72 g	
Module operation temperature	0 to 70° C	
Storage temperature	-40 to 85° C	

Warranty

- Standard warranty: 5 years
- For more information for FS Returns & Refunds policy, visit <https://www.fs.com/policies/warranty.html> or https://www.fs.com/policies/day_return_policy.html

Ordering information

Table 5 provides the ordering information for Fiber Channel modules.

Table 5. Ordering information

Part number	Description
SFP28 optics modules	
FC-QSFP-128G-SW4	128GBASE SW4 QSFP28 Transceiver, MTP/MPO-12, 100m over OM4 MMF
FC-SFP-32G-SW	32GBASE SR SFP28 Transceiver, Duplex LC, 100m over OM4 MMF
FC-SFP-32G-LW	32GBASE LR SFP28 Transceiver, Duplex LC, 10km over SMF
FC-SFP-16G-SW	16GBASE SR SFP+ Transceiver, Duplex LC, 100m over OM4 MMF
FC-SFP-16G-LW	16GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF
FC-SFP-16G-ER	16GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF
FC-CW-SFP16G40-xx	16GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF
FC-DW-SFP16G40-xx	16GBASE DWDM SFP+ Transceiver, Duplex LC, 40km over SMF
FC-SFP-8G-SW	8GBASE SR SFP+ Transceiver, Duplex LC, 150m over OM4 MMF
FC-SFP-8G-LW	8GBASE LR SFP+ Transceiver, Duplex LC, 10km over SMF
FC-SFP-8G-ER-31	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF
FC-SFP-8G-ER	8GBASE ER SFP+ Transceiver, Duplex LC, 40km over SMF
FC-SFP-8G-ZR	8GBASE ZR SFP+ Transceiver, Duplex LC, 80km over SMF
FC-SFP-8G23-BX10	8GBASE BiDi SFP+ Transceiver, Duplex LC, 10km over SMF
FC-CW-SFP8G40-xx	8GBASE CWDM SFP+ Transceiver, Duplex LC, 40km over SMF
FC-SFP-4G-SW	4GBASE SW SFP Transceiver, Simplex LC, 150m over OM4 MMF
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 4km over SMF
FC-SFP-4G-LWL	4GBASE LW SFP Transceiver, Simplex LC, 10km over SMF
FC-SFP-2G-SW	2GBASE SR SFP Transceiver, Simplex LC, 300m over OM4 MMF
FC-SFP-2G-LWL	2GBASE SR SFP Transceiver, Simplex LC, 2km over SMF
FC-SFP-2G-LW	2GBASE IR SFP Transceiver, Simplex LC, 10km over SMF

Part number	Description
QSFP28 optics modules	
FC-SFP-2G-ER-31	2GBASE IR SFP Transceiver, Simplex LC, 40km over SMF
FC-SFP-2G-ER	2GBASE LR SFP Transceiver, Simplex LC, 40km over SMF
FC-SFP-2G-ZR	2GBASE LR SFP Transceiver, Simplex LC, 80km over SMF
SFP56 optics modules	
FC-SFP-64G-SW	64GBASE SW SFP56 Transceiver, Duplex LC, 100m over OM4 MMF

| Regulatory and standards compliance

Standards

- FC-PI 13.0 Compliance for 1.0625/2.125 Gbit/sec Operation
- FC-PI-2 Compliance for 1.0625/2.125/4.25 Gbit/sec Operation
- FC-PI-4 compliance for 8.5/4.25/2.125 Gbit/sec operation
- FC-PI-5 Compliance for 14.025/8.5/4.25Gb/s Operation
- FC-PI-6 Compliance for 28.05/14.025/8.5Gb/s Operation
- FC-PI-6P Compliance for 112.2/56.1/34Gb/s Operation
- SFF-8472: Common Management Interface
- 802.3™-2012 IEEE Standard for Ethernet
- GR-20-CORE: Generic Requirements for Optical Fiber and Optical Fiber Cable
- GR-326-CORE: Generic Requirements for Single-Mode Optical Connectors and Jumper Assemblies
- GR-468-CORE: Generic Requirements for Optoelectronic Devices Used in Telecommunications Equipment
- GR-1435-CORE: Generic Requirements for Multifiber Optical Connectors
- RoHS 6

Safety

- Modules are compliant with Laser Class 1 as defined in IEC 60825-1, IEC 60825-2 and Comply with 21 CFR 1040.10 and 1040.11

Table 6. Laser class for the Fiber Channel optical modules

Product	Laser class
FC-QSFP-128G-SW4	1
FC-SFP-32G-SW	1
FC-SFP-32G-LW	1
FC-SFP-16G-SW	1
FC-SFP-16G-LW	1
FC-SFP-16G-ER	1
FC-CW-SFP16G40-xx	1
FC-DW-SFP16G40-xx	1
FC-SFP-8G-SW	1
FC-SFP-8G-LW	1
FC-SFP-8G-ER-31	1
FC-SFP-8G-ER	1
FC-SFP-8G-ZR	1
FC-SFP-8G23-BX10	1
FC-CW-SFP8G40-xx	1
FC-SFP-4G-SW	1
FC-SFP-4G-LWL	1
FC-SFP-4G-LWL	1
FC-SFP-2G-SW	1
FC-SFP-2G-LWL	1
FC-SFP-2G-LW	1
FC-SFP-2G-ER-31	1
FC-SFP-2G-ER	1
FC-SFP-2G-ZR	1

Product	Laser class
FC-SFP-64G-SW	1

Additional information

For more information about Fiber Channel optics modules, contact your account manager or visit <https://www.fs.com/c/fiber-optic-transceivers-9>

Document history

New or revised topic	Described in	Date
Fiber Channel Transceiver Modules Data Sheet	Updated all	10/14/2022
Fiber Channel Transceiver Modules Data Sheet	Add FC-QSFP-128G-SW4module	11/10/2022
Fiber Channel Transceiver Modules Data Sheet	Add FC-CW-SFP16G40-xxmodule	12/31/2022
Fiber Channel Transceiver Modules Data Sheet	Add FC-DW-SFP16G40-xxmodule	2/15/2023
Fiber Channel Transceiver Modules Data Sheet	Add FC-SFP-64G-SW module	3/22/2023

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