

A dark, monochromatic photograph of a server room with rows of server racks and overhead lights.

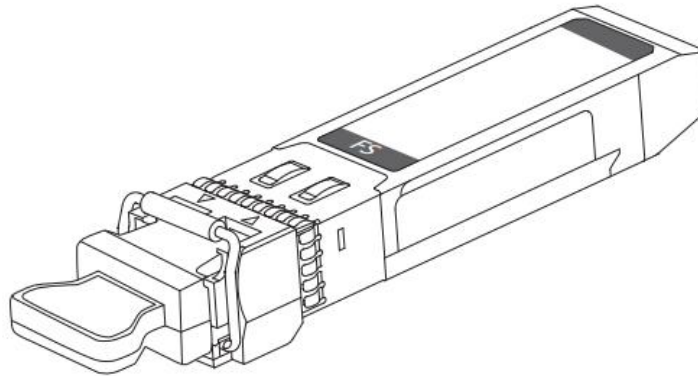
# 1G/2.5G SFP Cable and Transceiver Modules Data Sheet

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## Product overview

The FS® 1000BASE Quad Small Form-Factor Pluggable (SFP) portfolio offers customers a wide variety of high-density and low-power 1000BASE Ethernet connectivity options for data center, high-performance computing networks, enterprise core and distribution layers, and service provider applications. The SFP-1G modules are our latest generation of 1000BASE transceiver modules solution based on a SFP form factor. (SeeFigure1)



•SFP1G-SX-85

•SFP1G-LX-31

•SFP-GB-GE-T

•SFP1G-LX-31

Figure 1.

SFP 1000BASE Optical modules

## Features and benefits

- Hot-swappable input/output device that plugs into an Ethernet SFP port
- Interoperable with other IEEE-compliant 1000BASE interfaces where applicable
- Digital optical monitoring capability for strong diagnostic capabilities
- Certified and tested on Cisco, Arista, Juniper, Brocade SFP 1G ports for superior performance, quality, and reliability. For more details, refer to the [FS Assured Program for Transceivers](#)

Table 1 describes the SFP 1000BASE portfolio.

Table 1. SFP 1000BASE portfolio

Product	Description	Connector type
SFP-GB-GE-T	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	RJ-45
SFP-GB-GE-T-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	RJ-45
SFP-GB-GE-TL	1000BASE-TL SFP Transceiver, RJ-45, 100m over Copper Cable	RJ-45
SFP-GB-GE-TL-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	RJ-45
SFP-2.5G-T	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	RJ-45

Product	Description	Connector type
SFP-2.5G-T-I	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	RJ-45
SFP1G-SX-85	1.25GBASE SX SFP Transceiver, LC, 550m over MMF	Duplex LC
SFP1G-SX-31	1000BASE SX SFP Transceiver, LC, 2km over MMF	Duplex LC
SFP1G-LX-31	1000BASE LX/LH SFP Transceiver, LC, 10km over SMF	Duplex LC
SFP1G-LH-31	1.25GBASE LH SFP Transceiver, LC, 40km over SMF	Duplex LC
SFP1G-EX-55	1000BASE EX SFP Transceiver, LC, 40km over SMF	Duplex LC
SFP1G-ZX-55	1000BASE ZX SFP Transceiver, LC, 80km over SMF	Duplex LC
SFP1G-EZX-55	1000BASE EZX SFP Transceiver, LC, 120km over SMF	Duplex LC
SFP1G-ZXC-55	1000BASE ZXC SFP Transceiver, LC, 160km over SMF	Duplex LC
SFP12-BXMMF	622BASE BX SFP Transceiver, LC, 2km over MMF, 1310nm/1550nm	Simplex LC
SFP12-BX	622BASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	Simplex LC
SFP12-BX40	622BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	Simplex LC
SFP12-BX80	622BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	Simplex LC
SFP12-BX120	622BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	Simplex LC
SFP-GE-BX	1000BASE BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	Simplex LC
SFP-GE-2BX	1000BASE 2BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	Duplex LC
SFP-GE-BX40	1000BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	Simplex LC
SFP-GE-BX80	1000BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	Simplex LC
SFP-GE-BX120	1000BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	Simplex LC
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 15km over SMF, 1310nm/1550nm	Simplex LC
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	Simplex LC
SFP-2G-BX80	2.5GBASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	Simplex LC
CWDM-SFP1G-ZX	1000BASE CWDM SFP Transceiver, LC, 80km over SMF, 1270nm-1610nm	Duplex LC
CWDM-SFP1G-EZX	1000BASE CWDM SFP Transceiver, LC, 100km over SMF, 1270nm-1610nm	Duplex LC
CWxx-SFP1G-ZXC	1000BASE CWDM SFP Transceiver, LC, 160km over SMF, 1470nm-1610nm	Duplex LC

Product	Description	Connector type
CWxx-SFP1G-120-I	1000BASE CWDM SFP Transceiver, LC, 120km over SMF, 1470nm-1610nm	Duplex LC
DWDM-SFP1G-ZX	1000BASE DWDM SFP Transceiver, LC, 80km over SMF, C17-C61	Duplex LC
DWDM-SFP1G-EZX	1000BASE DWDM SFP Transceiver, LC, 100km over SMF, C17-C61	Duplex LC
DWxxx-SFP1G-120	1000BASE DWDM SFP Transceiver, LC, 120km over SMF, C17-C61	Duplex LC
DWCxx-SFP1G-ZXC	1000BASE DWDM SFP Transceiver, LC, 160km over SMF, C17-C61	Duplex LC
SFP-PCxx (0.5M, 1M, 2M, 3M, 5M, 7M)	1000BASE SFP Passive Copper Cable	-

## SFP-GB-GE-T

The SFP-GB-GE-T transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector. Each SFP transceiver module is individually tested to be used on a series of switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for enterprise networking for LAN applications and different other networking places using copper connections.

## SFP-GB-GE-T-I

The SFP-GB-GE-T-I transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector. Each SFP transceiver module is individually tested to be used on a series of switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 10/100/1000BASE-T SFP transceiver is ideal for enterprise networking for LAN applications and different other networking places using copper connections.

## SFP-GB-GE-TL

The SFP-GB-GE-TL transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector. Each SFP transceiver module is individually tested to be used on a series of Arista switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for enterprise networking for LAN applications and different other networking places using copper connections.

## SFP-GB-GE-TL-I

The SFP-GB-GE-TL-I transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector. Each SFP transceiver module is individually tested to be used on a series of Arista switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, this industrial optic transceiver provides 1G BASE Ethernet connectivity options for Gigabit Ethernet, Telecom and Data Centers, suitable for both outdoor and indoor deployments.

## **SFP-2.5G-T**

The SFP-2.5G-T transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector.

Each SFP transceiver module is individually tested to be used on a series of Generic switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption and high speed, the 2.5G SFP transceiver is ideal for enterprise networking for LAN applications and different other networking places using copper connections.

## **SFP-2.5G-T-I**

The SFP-2.5G-T-I transceiver supports up to 100m link lengths over a copper connection via a RJ-45 connector.

Each SFP transceiver module is individually tested to be used on switches.

Featuring low power consumption and high speed, the 2.5G SFP transceiver is ideal for enterprise networking for LAN applications and different other networking places using copper connections.

## **SFP1G-SX-85**

The SFP1G-SX-85 transceiver supports up to 550m link lengths over multi-mode fiber (MMF) using a wavelength of 850nm via a LC connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## **SFP1G-SX-31 (2km)**

The SFP1G-SX-31 transceiver supports up to 2km link lengths over LC duplex MMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## **SFP1G-LX-31 (10km)**

The SFP1G-LX-31 transceiver supports up to 10km link lengths over LC duplex SMF fiber or up to 550m link lengths over LC duplex MM Ffiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP1G-LH-31 (40km)**

The SFP1G-LH-31 transceiver supports up to 40km link lengths over LC duplex SMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP1G-EX-55 (40km)**

The SFP1G-EX-55 transceiver supports up to 40km link lengths over LC duplex SMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP1G-ZX-55 (80km)**

The SFP1G-ZX-55 transceiver supports up to 80km link lengths over LC duplex SMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP1G-EZX-55 (120km)**

The SFP1G-EZX-55 transceiver supports up to 120km link lengths over LC duplex SMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP1G-ZXC-55 (160km)**

The SFP1G-ZXC-55 transceiver supports up to 160km link lengths over LC duplex SMF fiber. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interfacecard (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

**SFP12-BXMMF (2km)**

The SFP12-BXMMF transceiver provides up to 2km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP12-BX (20km)**

The SFP12-BX transceiver provides up to 20km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP12-BX40**

The SFP12-BX40 transceiver provides up to 40km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP12-BX80**

The SFP12-BX80 transceiver provides up to 80km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP12-BX120**

The SFP12-BX120 transceiver provides up to 120km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-GE-BX**

The SFP-GE-BX transceiver provides up to 10km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-GE-2BX**

The SFP-GE-2BX transceiver provides up to 10km of 1000Base-BX throughput over single-mode fiber (SMF) via LC duplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-GE-BX40**

The SFP-GE-BX40 transceiver provides up to 40km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-GE-BX80**

The SFP-GE-BX80 transceiver provides up to 80km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-GE-BX120**

The SFP-GE-BX120 transceiver provides up to 120km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-2G-BX (15km)**

The SFP-2G-BX transceiver provides up to 15km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

**SFP-2G-BX (20km)**

The SFP-2G-BX transceiver provides up to 20km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

## **SFP-2G-BX80**

The SFP-2G-BX80 transceiver provides up to 80km of 1000Base-BX throughput over single-mode fiber (SMF) via LC simplex connectors. This bi-directional unit must be used with another transceiver or network equipment of complementary wavelengths. It provides 1000BASE Ethernet connectivity options for Fast Ethernet, Telecom and Data Centers.

## **CWDM-SFP1G-ZX**

The CWDM-SFP1G-ZX transceiver supports up to 80km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## **CWDM-SFP1G-EZX**

The CWDM-SFP1G-EZX transceiver supports up to 100km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of FS switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## **CWxx-SFP1G-ZXC**

The CWxx-SFP1G-ZXC transceiver supports up to 160km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of FS switches, routers, servers, network interface card (NICs) etc. Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## **CWxx-SFP1G-120-I**

The CWxx-SFP1G-120-I transceiver supports up to 120km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of FS switches, routers, servers, network interface card (NICs) etc. Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

### **DWDM-SFP1G-ZX**

The DWDM-SFP1G-ZX transceiver supports up to 80km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

### **DWDM-SFP1G-EZX**

The DWDM-SFP1G-EZX transceiver supports up to 100km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

### **DWxxx-SFP1G-120**

The DWxxx-SFP1G-120 transceiver supports up to 120km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## DWCxx-SFP1G-ZXC

The DWCxx-SFP1G-ZXC transceiver supports up to 160km link lengths over single-mode fiber (SMF) via an LC duplex connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 1G SFP transceiver is ideal for Internet Service Provider (ISP) Gigabit Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

## SFP-PCxx

FS SFP Copper Twinax (Figure2) direct-attach cables are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. FS offers passive Twinax cables in lengths of 0.5, 1, 2, 3, 5 and 7 meters or can be customized for longer meters.



**Figure 2.**

SFP-PCxx

## Product Specifications

Table 2 shows the key electrical characteristics for the 1000BASE SFP modules.

**Table 2. Electrical specifications**

Product	Description	Nominal data rate (Gbs)	Link meter
SFP-GB-GE-T	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	1000Mbps	100m
SFP-GB-GE-T-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	1000Mbps	100m
SFP-GB-GE-TL	1000BASE-TL SFP Transceiver, RJ-45, 100m over Copper Cable	1000Mbps	100m
SFP-GB-GE-TL-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	1000Mbps	100m
SFP-2.5G-T	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	2.5Gbps	100m
SFP-2.5G-T-I	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	2.5Gbps	100m
SFP1G-SX-85	1.25GBASE SX SFP Transceiver, LC, 550m over MMF	1.25Gbps	550m
SFP1G-SX-31	1000BASE SX SFP Transceiver, LC, 2km over MMF	1000Mbps	2km
SFP1G-LX-31	1.25GBASE LX/LH SFP Transceiver, LC, 10km over SMF	1.25Gbps	10km
SFP1G-LH-31	1000BASE LH SFP Transceiver, LC, 40km over SMF	1000Mbps	40km
SFP1G-EX-55	1000BASE EX SFP Transceiver, LC, 40km over SMF	1000Mbps	40km
SFP1G-ZX-55	1000BASE ZX SFP Transceiver, LC, 80km over SMF	1000Mbps	80km
SFP1G-EZX-55	1000BASE EZX SFP Transceiver, LC, 120km over SMF	1000Mbps	120km
SFP1G-ZXC-55	1000BASE ZXC SFP Transceiver, LC, 160km over SMF	1000Mbps	160km
SFP12-BXMMF	622BASE BX SFP Transceiver, LC, 2km over MMF, 1310nm/1550nm	622Mbps	2km
SFP12-BX	622BASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	622Mbps	20km
SFP12-BX40	622BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	622Mbps	40km
SFP12-BX80	622BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	622Mbps	80km

Product	Description	Nominal data rate (Gbs)	Link meter
SFP12-BX120	622BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	622Mbps	120km
SFP-GE-BX	1000BASE BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	1000Mbps	10km
SFP-GE-2BX	1000BASE 2BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	1000Mbps	10km
SFP-GE-BX40	1000BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	1000Mbps	40km
SFP-GE-BX80	1000BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	1000Mbps	80km
SFP-GE-BX120	1000BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	1000Mbps	120km
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 15km over SMF, 1310nm/1550nm	2.5Gbps	15km
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	2.5Gbps	20km
SFP-2G-BX80	2.5GBASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	2.5Gbps	80km
CWDM-SFP1G-ZX	1000BASE CWDM SFP Transceiver, LC, 80km over SMF, 1270nm-1610nm	1000Mbps	80km
CWDM-SFP1G-EZX	1000BASE CWDM SFP Transceiver, LC, 100km over SMF, 1270nm-1610nm	1000Mbps	100km
CWxx-SFP1G-ZXC	1000BASE CWDM SFP Transceiver, LC, 160km over SMF, 1470nm-1610nm	1000Mbps	160km
CWxx-SFP1G-120-I	1000BASE CWDM SFP Transceiver, LC, 120km over SMF, 1470nm-1610nm	1000Mbps	120km
DWDM-SFP1G-ZX	1000BASE DWDM SFP Transceiver, LC, 80km over SMF, C 17-C61	1000Mbps	80km
DWDM-SFP1G-EZX	1000BASE DWDM SFP Transceiver, LC, 100km over SMF, C 17-C61	1000Mbps	100km
DWxxx-SFP1G-120	1000BASE DWDM SFP Transceiver, LC, 120km over SMF, C 17-C61	1000Mbps	120km
DWCxx-SFP1G-ZXC	1000BASE DWDM SFP Transceiver, LC, 160km over SMF, C 17-C61	1000Mbps	160km
SFP-PCxx (0.5M, 1M, 2M, 3M, 5M, 7M)	1000BASE SFP Passive Copper Cable	1000Mbps	0.5, 1, 2, 3, 5, 7

Table 3 shows the key optical characteristics for the 1000BASE SFP modules.

**Table 3. Optical specifications**

Product	Description	Transmit Power (dBm)		Receive Power (dBm)		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
SFP-GB-GE-T	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	-	-	-	-	-
SFP-GB-GE-T-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	-	-	-	-	-
SFP-GB-GE-TL	1000BASE-TL SFP Transceiver, RJ-45, 100m over Copper Cable	-	-	-	-	-
SFP-GB-GE-TL-I	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	-	-	-	-	-
SFP-2.5G-T	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable	-	-	-	-	-
SFP-2.5G-T-I	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp	-	-	-	-	-
SFP1G-SX-85	1.25GBASE SX SFP Transceiver, LC, 550m over MMF	-9.5	-3	-17	-3	850
SFP1G-SX-31	1000BASE SX SFP Transceiver, LC, 2km over MMF	-9	-3	-19	-3	1310
SFP1G-LX-31	1.25GBASE LX/LH SFP Transceiver, LC, 10km over SMF	-9.5	-3	-23	-3	1310
SFP1G-LH-31	1000BASE LH SFP Transceiver, LC, 40km over SMF	-5	0	-24	-3	1310
SFP1G-EX-55	1000BASE EX SFP Transceiver, LC, 40km over SMF	-5	0	-24	-3	1550
SFP1G-ZX-55	1000BASE ZX SFP Transceiver, LC, 80km over SMF	0	5	-24	-3	1550
SFP1G-EZX-55	1000BASE EZX SFP Transceiver, LC, 120km over SMF	0	5	-32	-10	1550
SFP1G-ZXC-55	1000BASE ZXC SFP Transceiver, LC, 160km over SMF	1	6	-33	-10	1550

Product	Description	Transmit Power (dBm) per lane		Receive Power (dBm) per lane		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
SFP12-BXMMF	622BASE BX SFP Transceiver, LC, 2km over MMF, 1310nm/1550nm	-9	-3	-21	-3	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)
SFP12-BX	622BASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	-9	-3	-23	-3	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)
SFP12-BX40	622BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	-2(MOEL-K40F35) -5(MOEL-K40B53)	3(MOEL-K40F35) 0(MOEL-K40B53)	-23	-3	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)
SFP12-BX80	622BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	-2	3	-24	-3	1490/1550 (Tx/Rx) 1550/1490 (Rx/Tx)
SFP12-BX120	622BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	-1	4	-31	-8	1490/1550 (Tx/Rx) 1550/1490 (Rx/Tx)
SFP-GE-BX	1000BASE BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	-9	-3	-23	-3	1310/1490 (Tx/Rx) 1490/1310 (Rx/Tx)
SFP-GE-2BX	1000BASE 2BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm	-9	-3	-23	-3	1310/1490 (Tx/Rx) 1490/1310 (Rx/Tx)
SFP-GE-BX40	1000BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm	-2(MOEL-K40F35) -5(MOEL-K40B53)	3(MOEL-K40F35) 0(MOEL-K40B53)	-23	-3	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)
SFP-GE-BX80	1000BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	-2	3	-24	-3	1490/1550 (Tx/Rx) 1550/1490 (Rx/Tx)
SFP-GE-BX120	1000BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm	-1	4	-31	-8	1490/1550 (Tx/Rx) 1550/1490 (Rx/Tx)
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 15km over SMF, 1310nm/1550nm	-5	0	-18	0	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)
SFP-2G-BX	2.5GBASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm	-9	-3	-23	-3	1310/1550 (Tx/Rx) 1550/1310 (Rx/Tx)

Product	Description	Transmit Power (dBm) per lane		Receive Power (dBm) per lane		Transmit and Receive Wavelength (nm)
		Minimum	Maximum	Minimum	Maximum	
SFP-2G-BX80	2.5GBASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm	-2	3	-24	-3	1490/1550 (Tx/Rx) 1550/1490 (Rx/Tx)
CWDM-SFP1G-ZX	1000BASE CWDM SFP Transceiver, LC, 80km over SMF, 1270nm-1610nm	0	4	-24	-8	1270 to 1610
CWDM-SFP1G-EZX	1000BASE CWDM SFP Transceiver, LC, 100km over SMF, 1270nm-1610nm	0	4	-32	-8	1270 to 1610
CWxx-SFP1G-ZXC	1000BASE CWDM SFP Transceiver, LC, 160km over SMF, 1470nm-1610nm	1	6	-33	-10	1470 to 1610
CWxx-SFP1G-120-I	1000BASE CWDM SFP Transceiver, LC, 120km over SMF, 1470nm-1610nm	0	5	-31	0	1470 to 1610
DWDM-SFP1G-ZX	1000BASE DWDM SFP Transceiver, LC, 80km over SMF, C17-C61	0	5	-24	-3	1563.86 to 1528.77
DWDM-SFP1G-EZX	1000BASE DWDM SFP Transceiver, LC, 100km over SMF, C17-C61	0	5	-32	-8	1563.86 to 1528.77
DWxxx-SFP1G-120	1000BASE DWDM SFP Transceiver, LC, 120km over SMF, C17-C61	0	5	-30	-10	1563.86 to 1528.77
DWCxx-SFP1G-ZXC	1000BASE DWDM SFP Transceiver, LC, 160km over SMF, C17-C61	1	6	-33	-10	1563.86 to 1528.77

Table 4 shows the mechanical characteristics for the 1000BASE SFP modules.

**Table 4. Mechanical specifications**

Parameter	Product	Weight
Module dimension with pull tab	(HxWxD) 8.5x13.4x56.5mm	
Module weight (Max)	Optical modules	
	SFP-PC005	50.5g
	SFP-PC01	64.8g
	SFP-PC02	88g
	SFP-PC03	113.6g
	SFP-PC05	242.4g
	SFP-PC07	317.6g

## Warranty

- Standard warranty: 5 years
- For more information for FS Returns & Refund spolicy, visit [Products Warranty](#) or [Returns & Refunds](#)

## Ordering information

Table 5 provides the ordering information for SFP 1000BASE modules and related cables.

**Table 5. Ordering information**

Part number	Description
<b>SFP Optics Modules</b>	
<a href="#">SFP-GB-GE-T</a>	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable
<a href="#">SFP-GB-GE-T-I</a>	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp
<a href="#">SFP-GB-GE-TL</a>	1000BASE-TL SFP Transceiver, RJ-45, 100m over Copper Cable
<a href="#">SFP-GB-GE-TL-I</a>	1000BASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp
<a href="#">SFP-2.5G-T</a>	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable
<a href="#">SFP-2.5G-T-I</a>	2.5GBASE-T SFP Transceiver, RJ-45, 100m over Copper Cable, I-Temp
<a href="#">SFP1G-SX-85</a>	1.25GBASE SX SFP Transceiver, LC, 550m over MMF
<a href="#">SFP1G-SX-31</a>	1000BASE SX SFP Transceiver, LC, 2km over MMF
<a href="#">SFP1G-LX-31</a>	1.25GBASE LX/LH SFP Transceiver, LC, 10km over SMF
<a href="#">SFP1G-LH-31</a>	1000BASE LH SFP Transceiver, LC, 40km over SMF
<a href="#">SFP1G-EX-55</a>	1000BASE EX SFP Transceiver, LC, 40km over SMF
<a href="#">SFP1G-ZX-55</a>	1000BASE ZX SFP Transceiver, LC, 80km over SMF
<a href="#">SFP1G-EZX-55</a>	1000BASE EZX SFP Transceiver, LC, 120km over SMF
<a href="#">SFP1G-ZXC-55</a>	1000BASE ZXC SFP Transceiver, LC, 160km over SMF
<a href="#">SFP12-BXMMF</a>	622BASE BX SFP Transceiver, LC, 2km over MMF, 1310nm/1550nm
<a href="#">SFP12-BXMMF</a>	622BASE BX SFP Transceiver, LC, 2km over MMF, 1550nm/1310nm
<a href="#">SFP12-BX</a>	622BASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm
<a href="#">SFP12-BX</a>	622BASE BX SFP Transceiver, LC, 20km over SMF, 1550nm/1310nm

Part number	Description
<b>SFP Optics Modules</b>	
<a href="#">SFP12-BX40</a>	622BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm
<a href="#">SFP12-BX40</a>	622BASE BX40 SFP Transceiver, LC, 40km over SMF, 1550nm/1310nm
<a href="#">SFP12-BX80</a>	622BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm
<a href="#">SFP12-BX80</a>	622BASE BX80 SFP Transceiver, LC, 80km over SMF, 1550nm/1490nm
<a href="#">SFP12-BX120</a>	622BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm
<a href="#">SFP12-BX120</a>	622BASE BX120 SFP Transceiver, LC, 120km over SMF, 1550nm/1490nm
<a href="#">SFP-GE-BX</a>	1000BASE BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm
<a href="#">SFP-GE-BX</a>	1000BASE BX SFP Transceiver, LC, 10km over SMF, 1490nm/1310nm
<a href="#">SFP-GE-2BX</a>	1000BASE 2BX SFP Transceiver, LC, 10km over SMF, 1310nm/1490nm
<a href="#">SFP-GE-2BX</a>	1000BASE 2BX SFP Transceiver, LC, 10km over SMF, 1490nm/1310nm
<a href="#">SFP-GE-BX40</a>	1000BASE BX40 SFP Transceiver, LC, 40km over SMF, 1310nm/1550nm
<a href="#">SFP-GE-BX40</a>	1000BASE BX40 SFP Transceiver, LC, 40km over SMF, 1550nm/1310nm
<a href="#">SFP-GE-BX80</a>	1000BASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm
<a href="#">SFP-GE-BX80</a>	1000BASE BX80 SFP Transceiver, LC, 80km over SMF, 1550nm/1490nm
<a href="#">SFP-GE-BX120</a>	1000BASE BX120 SFP Transceiver, LC, 120km over SMF, 1490nm/1550nm
<a href="#">SFP-GE-BX120</a>	1000BASE BX120 SFP Transceiver, LC, 120km over SMF, 1550nm/1490nm
<a href="#">SFP-2G-BX</a>	2.5GBASE BX SFP Transceiver, LC, 15km over SMF, 1310nm/1550nm
<a href="#">SFP-2G-BX</a>	2.5GBASE BX SFP Transceiver, LC, 15km over SMF, 1550nm/1310nm
<a href="#">SFP-2G-BX</a>	2.5GBASE BX SFP Transceiver, LC, 20km over SMF, 1310nm/1550nm
<a href="#">SFP-2G-BX</a>	2.5GBASE BX SFP Transceiver, LC, 20km over SMF, 1550nm/1310nm
<a href="#">SFP-2G-BX80</a>	2.5GBASE BX80 SFP Transceiver, LC, 80km over SMF, 1490nm/1550nm
<a href="#">SFP-2G-BX80</a>	2.5GBASE BX80 SFP Transceiver, LC, 80km over SMF, 1550nm/1490nm

Part number	Description
<b>SFP Optics Modules</b>	
<a href="#">CWDM-SFP1G-ZX</a>	1000BASE CWDM SFP Transceiver, LC, 80km over SMF, 1270nm-1610nm
<a href="#">CWDM-SFP1G-EZX</a>	1000BASE CWDM SFP Transceiver, LC, 100km over SMF, 1270nm-1610nm
<a href="#">CWxx-SFP1G-ZXC</a>	1000BASE CWDM SFP Transceiver, LC, 160km over SMF, 1470nm-1610nm
<a href="#">CWxx-SFP1G-120-I</a>	1000BASE CWDM SFP Transceiver, LC, 120km over SMF, 1470nm-1610nm
<a href="#">DWDM-SFP1G-ZX</a>	1000BASE DWDM SFP Transceiver, LC, 80km over SMF, C17-C61
<a href="#">DWDM-SFP1G-EZX</a>	1000BASE DWDM SFP Transceiver, LC, 100km over SMF, C17-C61
<a href="#">DWxxx-SFP1G-120</a>	1000BASE DWDM SFP Transceiver, LC, 120km over SMF, C17-C61
<a href="#">DWCxx-SFP1G-ZXC</a>	1000BASE DWDM SFP Transceiver, LC, 160km over SMF, C17-C61
<b>SFP+ Copper Cables</b>	
<a href="#">SFP-PC005</a>	1000BASE SFP Passive Copper Cable, 0.5-meter
<a href="#">SFP-PC01</a>	1000BASE SFP Passive Copper Cable, 1-meter
<a href="#">SFP-PC02</a>	1000BASE SFP Passive Copper Cable, 2-meter
<a href="#">SFP-PC03</a>	1000BASE SFP Passive Copper Cable, 3-meter
<a href="#">SFP-PC05</a>	1000BASE SFP Passive Copper Cable, 5-meter
<a href="#">SFP-PC07</a>	1000BASE SFP Passive Copper Cable, 7-meter

## Regulatory and standards compliance

### Standards

- IEEE 802.3z
- IEEE 802.3ah
- 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-1435-CORE: Generic Requirements for Multifiber Optical Connectors
- IEC 60603-7: 2000: Generic Requirements for RJ-45 connectors

### Safety

- Laser Class I 21CFR1040 LN #50 7/2001
- Laser Class I IEC 60825-1

**Table 6. Laser class for the SFP 1000BASE optical modules**

Product	Laser class
SFP1G-SX-85	1
SFP1G-SX-31	1
SFP1G-LX-31	1
SFP1G-LH-31	1
SFP1G-EX-55	1
SFP1G-ZX-55	1
SFP1G-EZX-55	1
SFP1G-ZXC-55	1
SFP12-BXMMF	1
SFP12-BX	1
SFP12-BX40	1
SFP12-BX80	1

Product	Laser class
SFP12-BX120	1
SFP-GE-BX	1
SFP-GE-2BX	1
SFP-GE-BX40	1
SFP-GE-BX80	1
SFP-GE-BX120	1
SFP-2G-BX	1
SFP-2G-BX80	1
CWDM-SFP1G-ZX	1
CWDM-SFP1G-EZX	1
CWxx-SFP1G-ZXC	1
CWxx-SFP1G-120-I	1
DWDM-SFP1G-ZX	1
DWDM-SFP1G-EZX	1
DWxxx-SFP1G-120	1
DWCxx-SFP1G-ZXC	1

## Additional information

For more information about 1000BASE SFP optics and copper modules, contacty our account manager or visit <https://www.fs.com/c/optics-and-transceivers-9>

## Document history

New or revised topic	Described in	Date
1G/2.5GBASE SFP Modules Data Sheet	Add SFP-GB-GE-T-I module	14/3/2023
1G/2.5GBASE SFP Modules Data Sheet	Add CWxx-SFP1G-120-I module	13/3/2023
1G/2.5GBASE SFP Modules Data Sheet	Add CWxx-SFP1G-ZXC module	23/3/2023
1G/2.5GBASE SFP Modules Data Sheet	Add SFP-2.5G-T-I module	13/2/2023
1G/2.5GBASE SFP Modules Data Sheet	Add DWxxx-SFP1G-120 module	1/2/2023
1G/2.5GBASE SFP Modules Data Sheet	Add document	31/12/2022



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