

1000 BASE-X SFP

HIGHLIGHTS

Extreme Networks® pluggable optics provide physical layer connectivity for optical-port modular switch IO blades and optical-port stackable switches.

- Provides a range of form factor options for enterprise and service provider needs.
- Helps network managers meet their varied and evolving network demands.
- Hot-swappable, reliable, and cost-effective optics.



1000BASE-BX

1000BASE-LX

1000BASE-SX

Overview

Extreme Networks optics are thoroughly tested and are subject to an extensive qualification process before being considered certified to work in Extreme Networks IO modules and switches. Only proven, qualified vendors are chosen to assist in providing an end-to-end optical solution.

There is a number of 1000 BASE SFP Optics that are available depending on the customer application and distance capability required. Each optical interface operates and is managed like a fixed port but gives the customer flexibility to hot-swap or interchange to different optical module types (i.e., SR, LR, ZR).

Key Features

1000BASE-SX

- 1000BASE-SX SFP supports link length of up to 550m (depending on fiber type) on multimode fiber at 1Gbps. This optic works at 850nm wave-length and uses an LC connector.

1000BASE-LX

- 1000BASE-LX SFP supports link length of up to 10km on single mode fiber at 1Gbps. This optic works at 1310nm wavelength and uses an LC connector.

1000BASE-ZX

- 1000BASE-ZX SFP supports link length of up to 80km on single mode fiber at 1Gbps. This optic works at 1550nm wavelength and uses an LC connector.

1000BASE BX-D*

- 1000BASE BX-D SFP supports link length of up to 10km point to point on single mode fiber (1490nm TX/1310nm RX wavelength) at 1Gbps bidirectional. This optic uses an LC connector

**1000BASE-BX optics have two models and must be used in a pair. 1000BX is a technology that allows 1000BASE Ethernet connectivity via single fiber cable.*

Make Your Network Mobile

1000BASE BX-U*

- 1000BASE BX-U SFP supports link length of up to 10km point to point on single mode fiber (1310nm TX/1490nm RX wavelength) at 1Gbps bidirectional. This optic uses an LC connector.

100FX/1000LX**

- 100FX/1000LX Dual Speed SFP supports link length of up to 2km on multimode fiber (100 Mbps) and 10km on single mode fiber (1Gbps). This optic works at 1310nm wavelength and uses an LC connector.

1000BASE LX100

- LX100 SFP supports link length of up to 100km on single mode fiber at 1Gbps. This optic works at 1550nm wavelength and uses an LC connector.

100FX

- LX100 SFP supports link length of up to 2km on multimode fiber at 100 Mbps (x10). This optic works at 1310nm wavelength and uses an LC connector. For support on 1000BASE SFP Interfaces.

	SX	LX	ZX	BX-D	BX-U	FX100/ LX1000	LX100	FX100
Fiber Type	Multimode	Single-mode	Single-mode	Single-mode	Single-mode	Multimode/ Single-mode	Single-mode	Multimode
Connector Type	LC	LC	LC	LC	LC	LC	LC	LC
Average Output Power (min/max)	-9.5/-4 dBm	-9.5/-3 dBm	0/+5 dBm	-9/-3 dBm	-9/-3 dBm	-9.5/-3 dBm	0/+5 dBm	-20/-14 dBm
Receiver Sensitivity (max)	-17 dBm	-20 dBm	-24 dBm	-19.5 dBm	-19.5 dBm	-22 dBm	-30 dBm	-31.5 dBm
Receiver Overload (min)		-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-9 dBm	-9 dBm
Center Wavelength Range (min/max)	830/860 nm TX 770/860 nm RX	1270/1355 nm TX 1260/1570 nm RX	1530/1580 nm TX	1480/1500 nm TX 1260/1360 nm RX	1260/1360 nm TX 1480/1500 nm RX	1270/1355 nm TX 1260/1570 nm RX	1480/1580 nm TX 1260/1580 nm TX	1270/1355 nm TX 1260/1570 nm RX
Voltage Range	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V	3.13 to 3.47V
Operating Temperature	-40°C to 85° C	-40°C to 85° C	-40°C to 85° C	-40°C to 85° C	-40° C to 80° C	0° C to 85° C	0° C to 85° C	0° C to 85° C
Distance Range	up to 550km	up to 10km	up to 80km	up to 10km	up to 10km	2km/10km	100km	2km
Data Range	1Gbps	1Gbps	1Gbps	1Gbps	1Gbps	1Gbps	1Gbps	100 MbpsX10
Mean Time Between Failure (@+40° C)	4,000 (kHRs)	2,500 (kHRs)	1,500 (kHRs)	2,688 (kHRs)	2,694 (kHRs)	1,990 (kHRs)	14,279 (kHRs)	6,471 (kHRs)
Optical link budget	7.5 dB	8 dB	24 dB	10 dB	10 dB	11 dB	30 dB	10 dB

Technical Specifications

STANDARD

- Operational Shock: 30 m/s² (3g), 11ms

SAFETY COMPLIANCE

- Compatible with SFP MSA
- Operational Random Vibration: 5-500 Hz @ 1.5 Grms

PHYSICAL SPECIFICATIONS

- Dimensions (HxWxD): 0.48x0.54x2.70 in 1.22x1.38x6.86 cm)
- Weight: 0.06 lb (25.1 g) unpackaged, 0.30 lb (135 g) packaged
- Shipping box dimensions (HxWxD): 2.1x6.8x7.7 in (5.4x17.2x19.6 cm)

ENVIRONMENTAL CONDITIONS

- Temperature: -40° C to 70° C
- Relative Humidity: 10% to 95%
- Shock: 180 m/s² (18g), 6ms
- Random Vibration: 5 - 20 Hz @ 1.0 ASD w/-3dB/oct. from 20 - 200 Hz
- Drop: 42" (105cm)
- EN 300 019-2-3 v2.1.2 (2003-04), Stationary Use, Class 3.1e
- EN 300 019-2-2 v2.1.2 (1999-09), Public Transportation, Class 2.3

NORTH AMERICAN SAFETY OF ITE

- UL60950:2000 3rd edition of later, Recognized Component
- CAN/CSA-C22.2 No. 60950-00:2000 3rd Ed or later Recognized Component

EUROPEAN SAFETY OF ITE

- EN60950-1:2001+ all available country deviations
- 2006/95/EC Low Voltage Directive (LVD)
- EN 300 019-2-1 v2.1.2 (2000-09), Storage, Class 1.2

LASER SAFETY ENVIRONMENTAL, TRANSPORTATION, STORAGE AND OPERATIONAL

- Operating Temperature: -40° C to 40° C
- Operating Humidity: 5% to 95% non-condensing
- RoHS 6 compliant
- China RoHS compliant
- WEEE Compliant
- EN60825-1:1994, A1:1996, A2:2001

- 21 CFR Subpart J, Class 1 Laser
- CDRH Letter of Approval

***Requires MCP and 6dB Attenuator for 100FX-MMF operation.*

EMC COMPLIANCE

North America EMC for ITE

- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)

European EMC Standards

- EN 55022:1998 or later, Class A
- EN 55024:1998 or later, Class A
- ETSI EN 300 386: v1.3.1 2001-09 or later (EMC Telecommunications)
- 2004/108/EC EMC Directive

International EMC Certifications

- CISPR 22: 2006 Class A (International)
- CISPR 22: 1997 or later, Class A (International Emissions)
- CISPR 24: 1998 or later, Class A (International Immunity)
- IEC/EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 15kV Air, Criteria A
- IEC/EN 61000-4-3 Radiated Immunity 10V/m, Criteria A
- IEC/EN 61000-4-4 Transient Burst, 1kV, Criteria A
- IEC/EN 61000-4-5 Surge, 1kV L-L, 2kV L-G, Level 4, Criteria A
- IEC/EN 61000-4-6 Conducted Immunity, 0.15-80MHz, 10V/m unmod. RMS, Criteria A
- IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria A

Note: All 1 gigabit SFP modules meet the above standards when installed in Extreme Networks equipment.

Warranty

- Ltd. 1-year
- For warranty details, visit <http://www.extremenetworks.com/go/warranty>

Ordering Information

PART NUMBER	NAME	DESCRIPTION
10051H	1000BASE-SX SFP	1000BASE-SX, SFP, Hi, MMF (850nm wavelength) up to 550m, 1.25Gbps, LC connector
10052H	1000BASE-LX SFP	1000BASE-LX, SFP, Hi, SMF (1310nm wavelength) up to 10km, 1.25Gbps, LC connector
10053H	1000BASE-ZX SFP	1000BASE-ZX, SFP, Hi, SMF (1550nm wavelength) up to 80km, 1.25Gbps, LC connector
10056H	1000BASE-BX-D SFP	1000BASE-BX-D, SFP, Hi, SMF (1490nm TX/1310nm RX wavelength) up to 10km, 1.25Gbps, LC connector
10057H	1000BASE-BX-U SFP	1000BASE-BX-U, SFP, Hi, SMF (1310nm TX/1490nm wavelength) up to 10km, 1.25Gbps, LC connector
10060	100FX/LX1000 SFP	SFP, Dual-Speed 100FX/1000BASE-LX, SFP (1310nm wavelength) up to 2km MMF (100FX, 125Mbps)/10km SMF(1000BASE-LX, 1.25Gbps), LC connector. Requires MCP and 6dB Attenuator for 100FX-MMF operation.
10063	100FX SFP	100BASE FX, SFP, MMF (1310nm wavelength) up to 2km, 125MbpsX10, LC connector
10064	1000BASE-LX100 SFP	1000BASE-LX100, SFP, SMF (1550nm wavelength) up to 100km, 1.25Gbps, LC connector

Service Ordering Information:

SERVICE PART NUMBER	SERVICE NAME	SERVICE SUFFIX	PRODUCT PART NUMBER	US LIST PRICE	EMEA LIST PRICE	APAC LIST PRICE	SAM LIST PRICE
97000-10053H	EW Software and TAC-10053H	-10053H	10053H	\$195	\$225	\$215	\$215
97001-10053H	EW Extended Warranty-10053H	-10053H	10053H	\$230	\$265	\$255	\$255
97004-10053H	EW NBD AHR-10053H	-10053H	10053H	\$310	\$355	\$340	\$340
97005-10053H	EW 48hr AHR-10053H	-10053H	10053H	\$275	\$315	\$305	
97007-10053H	EW 4hr AHR-10053H	-10053H	10053H	\$435	\$500	\$480	
97008-10053H	EW 4hr On-Site-10053H	-10053H	10053H	\$545	\$625		
97011-10053H	EW NBD Onsite-10053H	-10053H	10053H	\$370	\$425		
95504-10053H	PW NBD AHR-10053H	-10053H	10053H	\$310	\$355	\$340	
95505-10053H	PW 48hr AHR-10053H	-10053H	10053H	\$275	\$315	\$305	
95507-10053H	PW 4hr AHR-10053H	-10053H	10053H	\$435	\$500	\$480	
95508-10053H	PW 4hr On-Site-10053H	-10053H	10053H	\$545	\$625		
95511-10053H	PW NBD Onsite-10053H	-10053H	10053H	\$370	\$425		
95600-10053H	PWP Software and TAC-10053H	-10053H	10053H	\$195	\$225	\$215	\$215
95601-10053H	PWP Extended Warranty-10053H	-10053H	10053H	\$230	\$265	\$255	\$255
95604-10053H	PWP NBD AHR-10053H	-10053H	10053H	\$310	\$355	\$340	
95605-10053H	PWP 48hr AHR-10053H	-10053H	10053H	\$275	\$315	\$305	
95800-10053H	PWL Software and TAC-10053H	-10053H	10053H	\$195	\$225		\$215
95804-10053H	PWL NBD AHR-10053H	-10053H	10053H	\$310	\$355	\$340	
95807-10053H	PWL 4hr AHR-10053H	-10053H	10053H	\$435	\$500		
97000-10056H	EW Software and TAC-10056H	-10056H	10056H	\$65	\$75	\$70	\$70
97001-10056H	EW Extended Warranty-10056H	-10056H	10056H	\$80	\$90	\$90	\$90
97004-10056H	EW NBD AHR-10056H	-10056H	10056H	\$105	\$120	\$115	\$115

97005-10056H	EW 48hr AHR-10056H	-10056H	10056H	\$90	\$105	\$100	
97007-10056H	EW 4hr AHR-10056H	-10056H	10056H	\$145	\$165	\$160	
97008-10056H	EW 4hr On-Site-10056H	-10056H	10056H	\$185	\$215		
97011-10056H	EW NBD Onsite-10056H	-10056H	10056H	\$125	\$145		
95504-10056H	PW NBD AHR-10056H	-10056H	10056H	\$105	\$120	\$115	
95505-10056H	PW 48hr AHR-10056H	-10056H	10056H	\$90	\$105	\$100	
95507-10056H	PW 4hr AHR-10056H	-10056H	10056H	\$145	\$165	\$160	
95508-10056H	PW 4hr On-Site-10056H	-10056H	10056H	\$185	\$215		
95511-10056H	PW NBD Onsite-10056H	-10056H	10056H	\$125	\$145		
95600-10056H	PWP Software and TAC-10056H	-10056H	10056H	\$65	\$75	\$70	\$70
95601-10056H	PWP Extended Warranty-10056H	-10056H	10056H	\$80	\$90	\$90	\$90
95604-10056H	PWP NBD AHR-10056H	-10056H	10056H	\$105	\$120	\$115	
95605-10056H	PWP 48hr AHR-10056H	-10056H	10056H	\$90	\$105	\$100	
95800-10056H	PWL Software and TAC-10056H	-10056H	10056H	\$65	\$75		\$70
95804-10056H	PWL NBD AHR-10056H	-10056H	10056H	\$105	\$120		\$115
95807-10056H	PWL 4hr AHR-10056H	-10056H	10056H	\$145	\$165		
97000-10057H	EW Software and TAC-10057H	-10057H	10057H	\$65	\$75	\$70	\$70
97001-10057H	EW Extended Warranty-10057H	-10057H	10057H	\$80	\$90	\$90	\$90
97004-10057H	EW NBD AHR-10057H	-10057H	10057H	\$105	\$120	\$115	\$115
97005-10057H	EW 48hr AHR-10057H	-10057H	10057H	\$90	\$105	\$100	
97007-10057H	EW 4hr AHR-10057H	-10057H	10057H	\$145	\$165	\$160	
97008-10057H	EW 4hr On-Site-10057H	-10057H	10057H	\$185	\$215		
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95505-10057H	PW 48hr AHR-10057H	-10057H	10057H	\$90	\$105	\$100	
95507-10057H	PW 4hr AHR-10057H	-10057H	10057H	\$145	\$165	\$160	
95508-10057H	PW 4hr On-Site-10057H	-10057H	10057H	\$185	\$215		
95511-10057H	PW NBD Onsite-10057H	-10057H	10057H	\$125	\$145		
95600-10057H	PWP Software and TAC-10057H	-10057H	10057H	\$65	\$75	\$70	\$70
95601-10057H	PWP Extended Warranty-10057H	-10057H	10057H	\$80	\$90	\$90	\$90

95604-10057H	PWP NBD AHR-10057H	-10057H	10057H	\$105	\$120	\$115	
95605-10057H	PWP 48hr AHR-10057H	-10057H	10057H	\$90	\$105	\$100	
95800-10057H	PWL Software and TAC-10057H	-10057H	10057H	\$65	\$75		\$70
95804-10057H	PWL NBD AHR-10057H	-10057H	10057H	\$105	\$120		\$115
95807-10057H	PWL 4hr AHR-10057H	-10057H	10057H	\$145	\$165		



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