

SFP-1G Series

1-port Gigabit Ethernet SFP modules



Features and Benefits

- Digital Diagnostic Monitor Function
- -40 to 85°C operating temperature range (T models)
- IEEE 802.3z compliant
- Differential LVPECL inputs and outputs
- TTL signal detect indicator
- Hot pluggable LC duplex connector
- Class 1 laser product, complies with EN 60825-1

Certifications



Introduction

The SFP-1G Series 1-port Gigabit Ethernet SFP modules are available as optional accessories for a wide range of Moxa Ethernet switches.

Specifications

Ethernet Interface

Ports	1																																																																																																							
Connectors	Duplex LC connector Simplex LC connector (WDM-type only)																																																																																																							
Optical Fiber	<table><tr><th colspan="2" rowspan="2"></th><th colspan="8">Gigabit Ethernet SFP</th></tr><tr><th colspan="4">SFP-SX</th><th colspan="4">SFP-LSX</th></tr><tr><th colspan="2">Transceiver Type</th><th colspan="4">Multi-Mode</th><th colspan="4">Multi-Mode</th></tr><tr><th colspan="2">Fiber Cable Type</th><th>OM1</th><th>OM2</th><th>OM3</th><th>OM4</th><th>OM1</th><th>OM2</th><th>OM3</th><th>OM4</th></tr><tr><th colspan="2">Typical Distance</th><td>300 m</td><td>550 m</td><td>1 km</td><td>1 km</td><td>500 m/ 2 km*</td><td>500 m/ 1 km*</td><td>500 m</td><td>500 m</td></tr><tr><th rowspan="3">Wave-length</th><th>Typical (nm)</th><td colspan="4">850</td><td colspan="4">1310</td></tr><tr><th>TX Range (nm)</th><td colspan="4">830 to 860</td><td colspan="4">1270 to 1355</td></tr><tr><th>RX Range (nm)</th><td colspan="4">770 to 860</td><td colspan="4">1260 to 1610</td></tr><tr><th rowspan="2">Optical Power</th><th>TX Range (dBm)</th><td colspan="4">-4 to -9.5</td><td colspan="4">-1 to -9</td></tr><tr><th>RX Range (dBm)</th><td colspan="4">0 to -18</td><td colspan="4">-1 to -19</td></tr></table>											Gigabit Ethernet SFP								SFP-SX				SFP-LSX				Transceiver Type		Multi-Mode				Multi-Mode				Fiber Cable Type		OM1	OM2	OM3	OM4	OM1	OM2	OM3	OM4	Typical Distance		300 m	550 m	1 km	1 km	500 m/ 2 km*	500 m/ 1 km*	500 m	500 m	Wave-length	Typical (nm)	850				1310				TX Range (nm)	830 to 860				1270 to 1355				RX Range (nm)	770 to 860				1260 to 1610				Optical Power	TX Range (dBm)	-4 to -9.5				-1 to -9				RX Range (dBm)	0 to -18				-1 to -19			
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		Gigabit Ethernet SFP					
		SFP-SX				SFP-LSX	
	Link Budget (dB)	8.5				10	
	Dispersion Penalty (dB)	4.3	3.6	4.5	4.5	5	

Note: When connecting the SFP-LHX, ZX, EZX, or EZX-120, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

*SFP-LSX OM1 and OM 2 can only reach the listed maximum distance when using fiber cables from specific vendors. When using other fiber cables, the reach is limited to 500 m. Refer to <https://www.moxa.com/en/support/product-support/product-faq> for a list of supported fiber cable vendors.

		Gigabit Ethernet SFP	
		SFP-LX	SFP-LH
Transceiver Type		Single-mode	Single-mode
Fiber Cable Type		G.652	G.652
Typical Distance		10 km	30 km
Wavelength	Typical (nm)	1310	1310
	TX Range (nm)	1280 to 1355	1280 to 1355
	RX Range (nm)	1260 to 1610	1260 to 1610
Optical Power	TX Range (dBm)	-3 to -9	-3 to -8
	RX Range (dBm)	-3 to -21	-3 to -23
	Link Budget (dB)	12	15
	Dispersion Penalty (dB)	1	1

Note: When connecting the SFP-LHX, ZX, EZX, or EZX-120, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

		Gigabit Ethernet SFP			
		SFP-LHX	SFP-ZX	SFP-EZX	SFP-EZX-120
Transceiver Type		Single-mode	Single-mode	Single-mode	Single-mode
Fiber Cable Type		G.652	G.652	G.652	G.652
Typical Distance		40 km	80 km	110 km	120 km
Wavelength	Typical (nm)	1310	1550	1550	1550
	TX Range (nm)	1280 to 1340	1530 to 1570	1530 to 1570	1530 to 1570
	RX Range (nm)	1260 to 1610	1260 to 1610	1260 to 1610	1100 to 1600
Optical Power	TX Range (dBm)	+3 to -4	+5 to 0	+5 to 0	+3 to -2
	RX Range (dBm)	-1 to -24	-1 to -24	-9 to -30	-8 to -33
	Link Budget (dB)	20	24	30	31

		Gigabit Ethernet SFP			
		SFP-LHX	SFP-ZX	SFP-EZX	SFP-EZX-120
	Dispersion Penalty (dB)	1	1	1	2

Note: When connecting the SFP-LHX, ZX, EZX, or EZX-120, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

		WDM Gigabit Ethernet SFP			
		SFP-10A	SFP-10B	SFP-20A	SFP-20B
Transceiver Type		Single-mode		Single-mode	
Fiber Cable Type		G.652		G.652	
Typical Distance		10 km		20 km	
Wavelength	Typical (nm)	TX 1310, RX 1550	TX 1550, RX 1310	TX 1310, RX 1550	TX 1550, RX 1310
	TX Range (nm)	1270 to 1355	1530 to 1570	1270 to 1355	1530 to 1570
	RX Range (nm)	1480 to 1580	1260 to 1360	1480 to 1580	1260 to 1360
Optical Power	TX Range (dBm)	-3 to -9		-2 to -8	
	RX Range (dBm)	-3 to -21		-2 to -23	
	Link Budget (dB)	12		15	
	Dispersion Penalty (dB)	2		3	

Note: WDM-type SFP modules must be used in pairs (e.g., SFP-1G10ALC and SFP-1G10BLC).

Note: When connecting the SFP-40A and 40B, we recommend using an attenuator to prevent damage caused by excessive optical power.

		WDM Gigabit Ethernet SFP	
		SFP-40A	SFP-40B
Transceiver Type		Single-mode	
Fiber Cable Type		G.652	
Typical Distance		40 km	
Wavelength	Typical (nm)	TX 1310, RX 1550	TX 1550, RX 1310
	TX Range (nm)	1290 to 1330	1530 to 1570
	RX Range (nm)	1480 to 1580	1260 to 1360
Optical Power	TX Range (dBm)	+2 to -3	
	RX Range (dBm)	-1 to -23	
	Link Budget (dB)	20	
	Dispersion Penalty (dB)	1	

Note: WDM-type SFP modules must be used in pairs (e.g., SFP-1G10ALC and SFP-1G10BLC).

Note: When connecting the SFP-40A and 40B, we recommend using an attenuator to prevent damage caused by excessive optical power.

Typical Distance: To reach the typical distance of specified fiber transceiver, please refer to formula: Link budget(dB) > dispersion penalty(dB) + total link loss(dB)

Power Parameters

Power Consumption	Max. 1 W
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Environmental Limits

Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

Safety	UL 62368-1 IEC 62368-1 IEC 60825-1
EMC	EN 55032/35
EMI	FCC 15B Test Report ICES-003: 2020 Issue 7
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV(AC), 0.5 kV(DC); Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV / 2 kV(AC), 0.5 kV(DC); Signal: 1 kV IEC 61000-4-6 CS: 0.15 MHz to 10 MHz: 3 V, 10 MHz to 30 MHz: 3 to 1 V, 30 MHz to 80 MHz: 1V IEC 61000-4-8 PFMF: 1 A/m at 50 Hz IEC61000-4-11 Voltage Dips and Interruption
Maritime	DNV

Warranty

Warranty Period	5 years
Details	See www.moxa.com/warranty

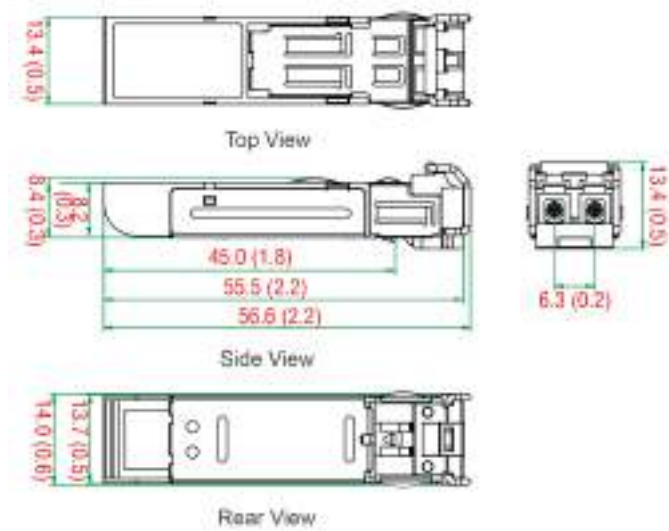
Package Contents

Device	1 x SFP-1G Series module
Documentation	1 x warranty card

Dimensions

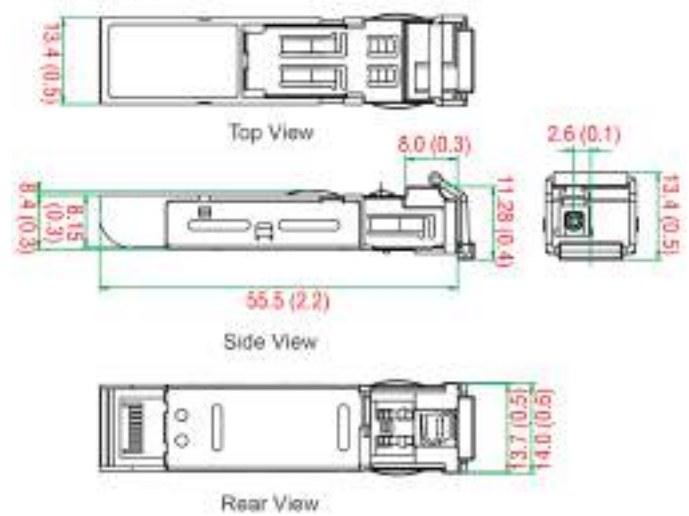
SFP-1G Series

Unit: mm (inch)



SFP-1G Series (WDM Type)

Unit: mm (inch)



Ordering Information

Model Name	Transceiver Type	Typical Distance	Operating Temp.
SFP-1GSXLC	Multi-mode	300 m / 550 m / 1 km	0 to 60°C
SFP-1GSXLC-T	Multi-mode	300 m / 550 m / 1 km	-40 to 85°C
SFP-1GLSXLC	Multi-mode	500 m / 1 km / 2 km	0 to 60°C
SFP-1GLSXLC-T	Multi-mode	500 m / 1 km / 2 km	-40 to 85°C
SFP-1G10ALC	Single-mode	10 km	0 to 60°C
SFP-1G10ALC-T	Single-mode	10 km	-40 to 85°C
SFP-1G10BLC	Single-mode	10 km	0 to 60°C
SFP-1G10BLC-T	Single-mode	10 km	-40 to 85°C
SFP-1GLXLC	Single-mode	10 km	0 to 60°C
SFP-1GLXLC-T	Single-mode	10 km	-40 to 85°C
SFP-1G20ALC	Single-mode	20 km	0 to 60°C
SFP-1G20ALC-T	Single-mode	20 km	-40 to 85°C
SFP-1G20BLC	Single-mode	20 km	0 to 60°C
SFP-1G20BLC-T	Single-mode	20 km	-40 to 85°C
SFP-1GLHLC	Single-mode	30 km	0 to 60°C
SFP-1GLHLC-T	Single-mode	30 km	-40 to 85°C
SFP-1G40ALC	Single-mode	40 km	0 to 60°C
SFP-1G40ALC-T	Single-mode	40 km	-40 to 85°C
SFP-1G40BLC	Single-mode	40 km	0 to 60°C
SFP-1G40BLC-T	Single-mode	40 km	-40 to 85°C
SFP-1GLHXLC	Single-mode	40 km	0 to 60°C
SFP-1GLHXLC-T	Single-mode	40 km	-40 to 85°C
SFP-1GZXLC	Single-mode	80 km	0 to 60°C

Model Name	Transceiver Type	Typical Distance	Operating Temp.
SFP-1GZXLC-T	Single-mode	80 km	-40 to 85°C
SFP-1GEZXLC	Single-mode	110 km	0 to 60°C
SFP-1GEZXLC-120	Single-mode	120 km	0 to 60°C

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