

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 border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="6">Gigabit Ethernet SFP</th> </tr> <tr> <th colspan="2">SFP-SX</th> <th colspan="2">SFP-LSX</th> <th>SFP-LX</th> <th>SFP-LH</th> </tr> </thead> <tbody> <tr> <td colspan="2">Transceiver Type</td> <td colspan="2">Multi-Mode</td> <td colspan="2">Multi-Mode</td> <td>Single-mode</td> <td>Single-mode</td> </tr> <tr> <td colspan="2">Fiber Cable Type</td> <td>OM1</td> <td>OM2</td> <td>OM2</td> <td>OM1</td> <td>G.652</td> <td>G.652</td> </tr> <tr> <td colspan="2">Typical Distance</td> <td>300 m</td> <td>550 m</td> <td>1 km</td> <td>2 km</td> <td>10 km</td> <td>30 km</td> </tr> <tr> <td rowspan="3">Wavelength</td> <td>Typical (nm)</td> <td colspan="2">850</td> <td colspan="2">1310</td> <td>1310</td> <td>1310</td> </tr> <tr> <td>TX Range (nm)</td> <td colspan="2">830 to 860</td> <td colspan="2">1270 to 1355</td> <td>1280 to 1355</td> <td>1280 to 1355</td> </tr> <tr> <td>RX Range (nm)</td> <td colspan="2">770 to 860</td> <td colspan="2">1260 to 1610</td> <td>1260 to 1610</td> <td>1260 to 1610</td> </tr> <tr> <td rowspan="4">Optical Power</td> <td>TX Range (dBm)</td> <td colspan="2">-4 to -9.5</td> <td colspan="2">-1 to -9</td> <td>-3 to -9</td> <td>-3 to -8</td> </tr> <tr> <td>RX Range (dBm)</td> <td colspan="2">0 to -18</td> <td colspan="2">-1 to -19</td> <td>-3 to -21</td> <td>-3 to -23</td> </tr> <tr> <td>Link Budget (dB)</td> <td colspan="2">8.5</td> <td colspan="2">10</td> <td>12</td> <td>15</td> </tr> <tr> <td>Dispersion Penalty (dB)</td> <td>4.3</td> <td>3.6</td> <td>5</td> <td>5</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p>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.</p> <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="4">Gigabit Ethernet SFP</th> </tr> <tr> <th>SFP-LHX</th> <th>SFP-ZX</th> <th>SFP-EZX</th> <th>SFP-EZX-120</th> </tr> </thead> <tbody> <tr> <td colspan="2">Transceiver Type</td> <td>Single-mode</td> <td>Single-mode</td> <td>Single-mode</td> <td>Single-mode</td> </tr> <tr> <td colspan="2">Fiber Cable Type</td> <td>G.652</td> <td>G.652</td> <td>G.652</td> <td>G.652</td> </tr> <tr> <td colspan="2">Typical Distance</td> <td>40 km</td> <td>80 km</td> <td>110 km</td> <td>120 km</td> </tr> <tr> <td rowspan="3">Wavelength</td> <td>Typical (nm)</td> <td>1310</td> <td>1550</td> <td>1550</td> <td>1550</td> </tr> <tr> <td>TX Range (nm)</td> <td>1280 to 1340</td> <td>1530 to 1570</td> <td>1530 to 1570</td> <td>1530 to 1570</td> </tr> <tr> <td>RX Range (nm)</td> <td>1260 to 1610</td> <td>1260 to 1610</td> <td>1260 to 1610</td> <td>1100 to 1600</td> </tr> <tr> <td rowspan="4">Optical Power</td> <td>TX Range (dBm)</td> <td>+3 to -4</td> <td>+5 to 0</td> <td>+5 to 0</td> <td>+3 to -2</td> </tr> <tr> <td>RX Range (dBm)</td> <td>-1 to -24</td> <td>-1 to -24</td> <td>-9 to -30</td> <td>-8 to -33</td> </tr> <tr> <td>Link Budget (dB)</td> <td>20</td> <td>24</td> <td>30</td> <td>31</td> </tr> <tr> <td>Dispersion Penalty (dB)</td> <td>1</td> <td>1</td> <td>1</td> <td>2</td> </tr> </tbody> </table> <p>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.</p>									Gigabit Ethernet SFP						SFP-SX		SFP-LSX		SFP-LX	SFP-LH	Transceiver Type		Multi-Mode		Multi-Mode		Single-mode	Single-mode	Fiber Cable Type		OM1	OM2	OM2	OM1	G.652	G.652	Typical Distance		300 m	550 m	1 km	2 km	10 km	30 km	Wavelength	Typical (nm)	850		1310		1310	1310	TX Range (nm)	830 to 860		1270 to 1355		1280 to 1355	1280 to 1355	RX Range (nm)	770 to 860		1260 to 1610		1260 to 1610	1260 to 1610	Optical Power	TX Range (dBm)	-4 to -9.5		-1 to -9		-3 to -9	-3 to -8	RX Range (dBm)	0 to -18		-1 to -19		-3 to -21	-3 to -23	Link Budget (dB)	8.5		10		12	15	Dispersion Penalty (dB)	4.3	3.6	5	5	1	1			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	Dispersion Penalty (dB)	1	1	1	2
		Gigabit Ethernet SFP																																																																																																																																																															
		SFP-SX		SFP-LSX		SFP-LX	SFP-LH																																																																																																																																																										
Transceiver Type		Multi-Mode		Multi-Mode		Single-mode	Single-mode																																																																																																																																																										
Fiber Cable Type		OM1	OM2	OM2	OM1	G.652	G.652																																																																																																																																																										
Typical Distance		300 m	550 m	1 km	2 km	10 km	30 km																																																																																																																																																										
Wavelength	Typical (nm)	850		1310		1310	1310																																																																																																																																																										
	TX Range (nm)	830 to 860		1270 to 1355		1280 to 1355	1280 to 1355																																																																																																																																																										
	RX Range (nm)	770 to 860		1260 to 1610		1260 to 1610	1260 to 1610																																																																																																																																																										
Optical Power	TX Range (dBm)	-4 to -9.5		-1 to -9		-3 to -9	-3 to -8																																																																																																																																																										
	RX Range (dBm)	0 to -18		-1 to -19		-3 to -21	-3 to -23																																																																																																																																																										
	Link Budget (dB)	8.5		10		12	15																																																																																																																																																										
	Dispersion Penalty (dB)	4.3	3.6	5	5	1	1																																																																																																																																																										
		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																																																																																																																																																												
	Dispersion Penalty (dB)	1	1	1	2																																																																																																																																																												

		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

Environmental Limits

Operating Temperature Standard Models: 0 to 60°C (32 to 176°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	CE, FCC, TÜV (EN 60825), UL 60950-1
Maritime	DNV-GL

Warranty

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

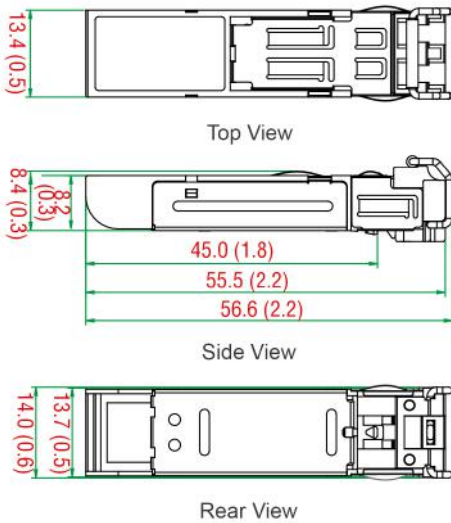
Package Contents

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

Dimensions

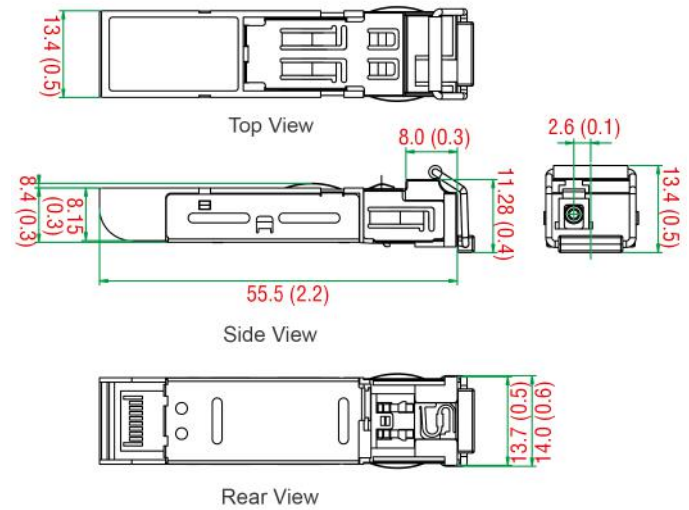
SFP-1G Series

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	0 to 60°C
SFP-1GSXLC-T	Multi-mode	300 m/550 m	-40 to 85°C
SFP-1GLSXLC	Multi-mode	1 km/2 km	0 to 60°C
SFP-1GLSXLC-T	Multi-mode	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

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

© Moxa Inc. All rights reserved. Updated Nov 12, 2018.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.