








SFP-1G SERIES INDUSTRIAL 1GB ETHERNET SFP MODULES



Industrial Ethernet Solutions

AMG's industrial 1Gb SFP's provide transmission of 1000Mb Ethernet data over Multimode or Singlemode optical fiber or copper (Cat5E or higher) cables depending on the model selected.



 Fiber Multimode	 Fiber Singlemode	 Gigabit Copper	 SFP 1000 FX Compliant	 DDM Diagnostics	 Temp -40~+85°C	 NDAA/TAA Compliant
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[SFP-1G Series]

/ OVERVIEW

The AMG SFP-1G series are industrial high speed 1000Mb Ethernet SFP's offering support for multiple cable types including copper (Cat5E or higher) as well as Multimode or Singlemode optical fiber.

The units are compatible with most 1000BASE-X SFP ports on Ethernet switches and media converters¹ and feature industry standard LC or SC connectors for fiber models and RJ45 connectors for copper models.

The SFP modules are a perfect solution for extending the capability of SFP enabled Ethernet devices to support links from remote locations which are beyond the normal 100m (328ft) distance limit of copper Ethernet standards.

Each optical fiber model supports full Digital Diagnostic Monitoring (DDM) to provide the user with valuable information on critical operating parameters such as device temperature, Tx and Rx optical power levels, speed, optical wavelength as well as device part code, serial number and manufacturer data.

/ FEATURES

- Compatible with most 1000BASE-X SFP Ports ¹
- Supports Ethernet speeds of up to 1000Mbps
- Hot pluggable design allows for easy field replacement or upgrades
- Digital Diagnostic Monitoring (DDM) included on all optical models
- Distances up to 100m (Copper), 2Km (Multimode Fiber²) or 120Km (Singlemode Fiber)
- INF-8074 and SFF-8472 compliant
- Low EMI metal housing with excellent ESD protection
- Programmed and tested in the UK
- Industry standard Small Form-Factor Pluggable (MSA compliant)
- AMG Lifetime Support Warranty

¹ Check the AMG website for a full list of compatible AMG switches and media converter models. If you are unsure please check with the AMG Technical Services team before ordering to ensure compatibility with your chosen SFP capable switch or media converter.

Specifications.

Standards.

IEEE802.3i	10Base-T
IEEE802.3u	100Base-TX
IEEE802.3ab	1000Base-T
IEEE802.3z	1000Base-X
SFF-8472	Diagnostic Monitoring Interface
INF-8074	SFP Transceiver
MSA	Multi-Source Agreement

Interface.

SFP Slot Fiber Port	1000BASE-X SFP Multimode or Singlemode Single LC or SC Connector or Dual LC Connector
RJ45 Port	10/100/1000BASE-T(X) RJ45* with Auto MDI/MDI-X

Power.

Power Inputs	From SFP Port
Operating Voltage	3.3V _{DC}
Power Consumption	0.825W Max (MM 850nm Model) 1W Max (Fiber Models) 1.2W Max^ (Copper Models)

Packaging.

Single Unit Packaging

Shipping Weight	0.04kg / 0.09lb
Dimensions:	(W x D x H) 58 x 106 x 25 mm 2.28 x 4.17 x 0.98 in

Ten Unit Packaging

Shipping Weight	0.26kg / 0.57lb
Dimensions:	(W x D x H) 192 x 152 x 20 mm 7.56 x 5.98 x 0.79 in

Mechanical.

Housing	Aluminium
Dimensions:	(W x D x H) 57 x 14 x 12 mm 2.24 x 0.55 x 0.47 in
Fiber Models	69 x 14 x 14 mm 2.71 x 0.55 x 0.55 in
Copper Models	IP40
IP Rating	SFP Slot
Installation	0.02kg / 0.04lb
Weight	

Environmental.

Operating Temp:	(Celsius / Fahrenheit)
SFP Case	-40 to +85°C / -40 to +185°F
Storage Temp.	-40 to +85°C / -40 to +185°F
Humidity	5% to 90% (non-condensing)
MTBF	>250,000 hours
MTBF Standard	Telcordia SR-332 GF 30°C
Heat Dissipation	2.8 BTU/h (MM 850nm Model) 3.4 BTU/h (Fiber Models) 4.1 BTU/h (Copper Models)
Cooling	Passive Cooling
Noise Level	0 dBA

Regulatory.

EMI	EN 55022 Class B CISPR 22 VCCI Class B FCC Part 15B Class B
EMS	MIL-STD-883 (Method 3015) EN 61000-4-2 (ESD) EN 61000-4-3 (RS)
Laser Safety	FDA 21CFR 1040.10 FDA 21CFR 1040.11 EN/IEC 60825-1 EN/IEC 60825-2
Environmental	Reach RoHS WEEE
Traffic	NEMA TS2
Supply Chain	NDAA & TAA Compliant

Part Numbers.

Multimode - Dual Fiber

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-MM-1G-SX05-85	SFP Multimode, 1Gb, 2 Fibers, 500m ² , LC Connectors, 850nm Tx/Rx, DDM	300m OM2 500m OM3	850nm	-3 ~ -9 dBm	<-18dBm
SFP-MM-1G-SX2-31	SFP Multimode, 1Gb, 2 Fibers, 2Km ² , LC Connectors, 1310nm Tx/Rx, DDM	1Km OM2 2Km OM3	1310nm	-3 ~ -9 dBm	<-20dBm

Multimode - Single Fiber

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-MM-1G-BX05-31 ³	SFP Multimode, 1Gb, 1 Fiber, 500m ² , LC Connector, 1310nm Tx / 1550nm Rx, DDM (Mates With SFP-MM-1G-BX05-55)	300m OM2 500m OM3	1310nm	-3 ~ -9 dBm	<-21dBm
SFP-MM-1G-BX05-55 ³	SFP Multimode, 1Gb, 1 Fiber, 500m ² , LC Connector, 1550nm Tx / 1310nm Rx, DDM (Mates With SFP-MM-1G-BX05-31)	300m OM2 500m OM3	1550nm	-3 ~ -9 dBm	<-21dBm

Singlemode - Dual Fiber

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-SM-1G-LX20-31	SFP Singlemode, 1Gb, 2 Fibers, 20Km, LC Connectors, 1310nm Tx/Rx, DDM	20Km	1310nm	-3 ~ -9 dBm	<-22dBm
SFP-SM-1G-EX40-31	SFP Singlemode, 1Gb, 2 Fibers, 40Km, LC Connectors, 1310nm Tx/Rx, DDM	40Km	1310nm	0 ~ -5 dBm	<-24dBm
SFP-SM-1G-ZX80-55	SFP Singlemode, 1Gb, 2 Fibers, 80Km, LC Connectors, 1550nm Tx/Rx, DDM	80Km	1550nm	3 ~ -2 dBm	<-26dBm

Copper - RJ45

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-CU-1G	SFP Copper, 10/100/1000BASE-T(X) RJ45 Port*, 1000BASE-X SFP Interface, 100m	100m	N/A	N/A	N/A

Part code tables continued on next page.

* Note - 10/100/1000Base-T(X) operation requires the host system to have an SGMII interface. With a SERDES interface that does not support SGMII, the module will operate at fixed 1000Base-T only.

^ Note - The power consumption and surge current of the copper module is higher than the specified values in the SFP MSA.

² Multimode fiber distance may be limited by the optical cable bandwidth. High bandwidth 50/125µ OM3 or higher fiber is recommended to achieve the maximum distance. For further information and support please contact the AMG Systems Technical Services team.

³ All single fiber SFP modules come with an LC connector as standard. SC type connectors are available by adding -SC at the end of the part code. For example SFP-SM-1G-BX20-31-SC.

Note - Light source aging is already considered in the Tx Power and Rx Sensitivity values mentioned above and below. A separate consideration is not required in the optical link budget calculation.

Part Numbers Continued.

Singlemode - Single Fiber

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-SM-1G-BX20-31³	SFP Singlemode, 1Gb, 1 Fiber, 20Km, LC Connector, 1310nm Tx / 1550nm Rx, DDM (Mates With SFP-SM-1G-BX20-55)	20Km	1310nm	-3 ~ -9 dBm	<-22dBm
SFP-SM-1G-BX20-55³	SFP Singlemode, 1Gb, 1 Fiber, 20Km, LC Connector, 1550nm Tx / 1310nm Rx, DDM (Mates With SFP-SM-1G-BX20-31)	20Km	1550nm	-3 ~ -9 dBm	<-22dBm
SFP-SM-1G-BX40-31³	SFP Singlemode, 1Gb, 1 Fiber, 40Km, LC Connector, 1310nm Tx / 1550nm Rx, DDM (Mates With SFP-SM-1G-BX40-55)	40Km	1310nm	0 ~ -5 dBm	<-24dBm
SFP-SM-1G-BX40-55³	SFP Singlemode, 1Gb, 1 Fiber, 40Km, LC Connector, 1550nm Tx / 1310nm Rx, DDM (Mates With SFP-SM-1G-BX40-31)	40Km	1550nm	0 ~ -5 dBm	<-24dBm
SFP-SM-1G-BX80-31³	SFP Singlemode, 1Gb, 1 Fiber, 80Km, LC Connector, 1310nm Tx / 1550nm Rx, DDM (Mates With SFP-SM-1G-BX80-55)	80Km	1310nm	5 ~ 1 dBm	<-29dBm
SFP-SM-1G-BX80-55³	SFP Singlemode, 1Gb, 1 Fiber, 80Km, LC Connector, 1550nm Tx / 1310nm Rx, DDM (Mates With SFP-SM-1G-BX80-31)	80Km	1550nm	5 ~ 1 dBm	<-29dBm
SFP-SM-1G-BX120-49³	SFP Singlemode, 1Gb, 1 Fiber, 120Km, LC Connector, 1490nm Tx / 1550nm Rx, DDM (Mates With SFP-SM-1G-BX120-55)	120Km	1490nm	5 ~ 0 dBm	<-32dBm
SFP-SM-1G-BX120-55³	SFP Singlemode, 1Gb, 1 Fiber, 120Km, LC Connector, 1550nm Tx / 1490nm Rx, DDM (Mates With SFP-SM-1G-BX120-49)	120Km	1550nm	5 ~ 0 dBm	<-32dBm

³ All single fiber SFP modules come with an LC connector as standard. SC type connectors are available by adding -SC at the end of the part code. For example SFP-SM-1G-BX20-31-SC.

In a continuing effort to improve and advance technology, product specifications are subject to change without notice. Please visit www.amgsystems.com for the latest product specifications.