SFP-10G SERIES
INDUSTRIAL 10GB ETHERNET SFP+ MODULES

Industrial Ethernet Solutions

AMG's industrial 10Gb SFP's provide transmission of 10Gb Ethernet data over Multimode or Singlemode optical fibre or copper (Cat6A or higher) cables depending on the model selected.

Fibre Multimode	Fibre Singlemode	10 Gb Copper	10G R Compliant	DDM Diagnostics	Temp -40~+85°C	NDAA/TAA Compliant

[SFP-10G Series]

OVERVIEW

The AMG SFP-10G series are industrial high speed 10Gb Ethernet SFP's offering support for multiple cable types including copper (Cat6A or higher) as well as Multimode or Singlemode optical fibre.

The units are compatible with most 10GBASE-R SFP+ ports on Ethernet switches and media converters[1] and feature industry standard LC connectors for fibre 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 fibre 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 10GBASE-R SFP+ Ports [1]

— Supports Ethernet speeds of up to 10Gbps

— Hot pluggable design allows for easy field replacement or upgrades

— Digital Diagnostic Monitoring (DDM) included on all optical models

— Distances up to 30m* (Copper), 300m (Multimode Fibre) or 80Km (Singlemode Fibre)

— SFF-8431, SFF-8432 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.

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Specifications.

Standards.

IEEE802.3ab	1000Base-T
IEEE802.3bz	2.5GBase-T / 5GBase-T
IEEE802.3an	10GBase-T
IEEE 802.3ae	10GBase-R
SFF-8472	Diagnostic Monitoring Interface
SFF-8431	SFP+ Transceiver
SFF-8432	Improved Pluggable Form-Factor
MSA	Multi-Source Agreement

Interface.

SFP+ Slot	10GBASE-R SFP+
Fibre Port	Multimode or Singlemode Single or Dual LC Connector
RJ45 Port	1000/2.5/5/10GBASE-T RJ45 with Auto MDI/MDI-X

Power.

Power Inputs	From SFP+ Port
Operating Voltage	$3.3V_{DC}$
Power Consumption	1W Max (All Fibre Models Excluding 80Km)
	1.8W Max (80Km Fibre Model)
	2W Max (Copper Models)

Packaging.

Single Unit Packaging

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

Ten Unit Packaging

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

Mechanical.

Housing	Aluminium
Dimensions:	(W x D x H)
Fiber Models	57 × 14 × 12 mm
	2.24 × 0.55 × 0.47 in
Copper Models	71 × 14 × 14 mm
	2.8 × 0.55 × 0.55 in
IP Rating	IP40
Installation	SFP+ Slot
Weight	0.02kg / 0.04lb

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	3.4 BTU/h (Fibre Models Excluding 80Km)
	6.1 BTU/h (80Km Fibre Model)
	6.8 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
Supply Chain	NDAA & TAA Compliant

Designed to meet NEMA TS2

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Part Numbers.

Multimode - Dual Fibre

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-MM-10G-SR03-85	SFP+ Multimode, 10Gb, 2 Fibres, 300m, LC Connectors, 850nm Tx/Rx, DDM	300m	850nm	1 ~ -6 dBm	<-11dBm

Singlemode - Dual Fibre

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-SM-10G-LR10-31	SFP+ Singlemode, 10Gb, 2 Fibres, 10Km, LC Connectors, 1310nm Tx/Rx, DDM	10Km	1310nm	1 ~ -6 dBm	<-12.6dBm
SFP-SM-10G-ER40-31	SFP+ Singlemode, 10Gb, 2 Fibres, 40Km, LC Connectors, 1310nm Tx/Rx, DDM	40Km	1310nm	5 ~ -2 dBm	<-15dBm
SFP-SM-10G-ZR80-55	SFP+ Singlemode, 10Gb, 2 Fibres, 80Km, LC Connectors, 1550nm Tx/Rx, DDM	80Km	1550nm	5 ~ -1 dBm	<-23dBm

Singlemode - Single Fibre

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-SM-10G-BX10-27	SFP+ Singlemode, 2.5Gb, 1 Fibre, 10Km, LC Connector, 1270nm Tx / 1330nm Rx, DDM (Mates With SFP-SM-10G-BX10-33)	10Km	1270nm	1 ~ -7 dBm	<-14dBm
SFP-SM-10G-BX10-33	SFP+ Singlemode, 10Gb, 1 Fibre, 10Km, LC Connector, 1330nm Tx / 1270nm Rx, DDM (Mates With SFP-SM-10G-BX10-27)	10Km	1330nm	1 ~ -7 dBm	<-14dBm
SFP-SM-10G-BX40-27	SFP+ Singlemode, 10Gb, 1 Fibre, 40Km, LC Connector, 1270nm Tx / 1330nm Rx, DDM (Mates With SFP-SM-10G-BX40-33)	40Km	1270nm	5 ~ 1 dBm	<-15dBm
SFP-SM-10G-BX40-33	SFP+ Singlemode, 10Gb, 1 Fibre, 40Km, LC Connector, 1330nm Tx / 1270nm Rx, DDM (Mates With SFP-SM-10G-BX40-27)	40Km	1330nm	5 ~ 1 dBm	<-15dBm

Copper - RJ45

Part Number	Description	Distance	Tx Wavelength	Tx Power (dBm)	Rx Sensitivity (dBm)
SFP-CU-10G	SFP+ Copper, 1000/2.5/5/10GBASE-TX RJ45 Port, 10GBASE-R SFP Interface, 30m*	30m*	N/A	N/A	N/A

* Note
Supports 10GBase-T up to 30m using CAT6A or higher cables
Supports 5GBase-T up to 70m using CAT5E or higher cables
Supports 2.5Base-T up to 100m using CAT5E or higher cables
Supports 1000Base-T up to 100m using CAT5E or higher cables

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.

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