

SO-SFP-1000BASE-TX & -TX-I

SFP, 10/100/1000Base-T SERDES/SGMII Interface, 100m, RJ45

OVERVIEW

The SO-SFP-1000BASE-TX is a transceiver with a high-performance integrated duplex data link for bidirectional communication over copper cable. It is specifically designed for high speed communication links that require 1000 Megabit Ethernet (GbE) over LAN cable.

SO-SFP-1000BASE-T supports 10/100/1000BASE-T Operation in Host Systems with SGMII interface. SGMII is a connection bus for Ethernet MACs and PHYs defined by Cisco Systems.

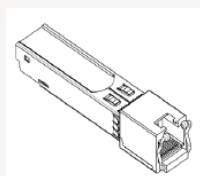
This transceiver provides a 2-wire serial interface as defined by the SFF-8472 specification. The transceiver module is compliant to RoHS-6/6.

The transceiver is available in two temperature range options, one being the Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F).

TECHNICAL DATA

Technology	Grey SFP
Transmission media	Electrical (1x RJ45)
Typical reach	100m ¹⁾
Interface standards	1000BASE-T IEEE 802.3 100BASE-T IEEE 802.3 10BASE-T IEEE 802.3
Protocols	Eth: 1000M Ethernet (GbE) 100M Ethernet (FE) 10M Ethernet
Temperature range	0°C to +70°C (-TX) -40°C to +85°C (-TX-I)
Power consumption	< 1W

¹⁾ Using CAT 5 cable or better



Misc. features	Autoneg
MSA compliance	SFP MSA

Regulatory compliance

EMC CE	EN 55022:2010 EN 55024:2010
UL/Safety	UL 60950-1
FCC	47 CFR PART 15 OCT, 2013
RoHS	RoHS 6
TUV	EN 60950-1:2006+A11+A1+A12+A2

Storage temp.	-40°C to +85°C
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10/100/1000 BASE-T operation requires an SGMII interface with no clocks in the host system, and the module will operate as 1000BASE-T when the host system uses SERDES interface. It depends on the module PHY configuration

ORDERING INFORMATION

Part number	Description
SO-SFP-1000BASE-TX	SFP, 10/100/1000Base-T SERDES/SGMII Interface, 100m, RJ45
SO-SFP-1000Base-TX-I	SFP, 10/100/1000Base-T SERDES/SGMII Interface, 100m, RJ45, I-temp

RECOMMENDED SW CONFIGURATION

SO-SFP-1000BASE-TX supports 10/100/1000Mbps full duplex SGMII interface default. But it also can operate with 1000Mbps of SERDES operation. Please refer the following steps to configure:

Step 1: Access the PHY at 0Xac via two-wire serial interface.

Step 2: Configure 0Xac as below table

Register address	Write Data	Description
0x16	0x0001	Select page 1
0x1B	0x9088	Enable SerDes mode
0x00	0x9140	Software reset to allow changes to take effect
0x16	0x0000	Select page 0

SO-SFP-1000BASE-TX operate at mode of "Auto-negotiation enable" by default. But it also can operate with "Auto-negotiation disable". Please refer the following steps to configure:

Step 1: Access the PHY at 0Xac via two-wire serial interface.

Step 2: Configure 0Xac as below table

Register address	Write Data	Description
0x16	0x0001h	Select page 1
0x00h	0x8140h	Disable Auto-negotiation
0x16h	0x0000h	Select page 0

DEFINITIONS

Technology:	Grey; Transceiver type for non-WDM applications. Electrical or optical. CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid. BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber. DAC: Direct Attach Cable. Electrical or optical cable with attached connectors.
Transmission Media:	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
Typical reach:	Nominal distance performance based on dispersion and power budget properties, i.e. w/o dispersion compensation and optical amplification.
Bit rate range:	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols:	Protocols within supported bit rate range.
Nominal wavelength:	Typical wavelength from transmitter.
Interface standards:	Referenced interface standards e.g. IEEE 802.3 standard for 10GbE services.
Power budget:	Min and max power budget between Transmitter and Receiver. Excluding any dispersion penalty.
Dispersion tolerance/penalty:	Maximum amount of tolerated dispersion and required reduction of power budget to maintain BER better than $1E^{-12}$. Defined at a specific bit rate.
Temperature range:	Max operating case temperature range. Standard temperature range: Typically 0°C to +70°C (32°F to +158°F) Extended temperature range (E-temp): Typically -20°C to +75°C (-4°F to +167°F) Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F) Worst case power consumption.
Power consumption:	Average output power. Provided in min and max values.
Transmitter Output power:	Minimum average input power at specified BER, normally $1E^{-12}$.
Receiver minimum input power:	Maximum average input power at specified BER, normally $1E^{-12}$.
Receiver max input power:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.
DDM:	