

**DATASHEET 5.0**

# DS-16G-ER

**SFP+, 16/8/4 Gbps FC/FICON, 1550nm, SM, DDM, 13dB, 40km**

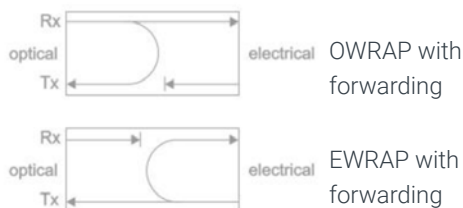
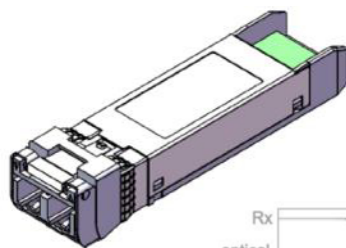
## OVERVIEW

The DS-16G-ER is a versatile 1550nm transceiver in SFP+ form-factor supporting a wide range of Fiber Channel (FC) services (4G to 16G). For diagnostic purposes, the transceiver supports optical (OWRAP) and electrical (EWRAP) loop-back functionality, with or without forwarding. The transceiver is layer-1 tested and approved by Cisco.

The optical performance provides a bridgeable distance of up to 40km (without dispersion compensation) for 16G FC.

This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

The transceiver module is compliant to RoHS-6/6.



## TECHNICAL DATA

PARAMETER	VALUE
Technology	Grey SFP+
Transmission media	SM (2x LC)
Typical reach	40km
Nominal wavelengths	1550 nm
Bit rate range	4.25 – 14.025 Gbps
Protocol support	FC: 16G FC 8G FC 4G FC
Power budget	2 – 13 dB <sup>1)</sup> 2 – 14 dB <sup>2)3)</sup>
Dispersion tolerance	-170 ps/nm <sup>1)</sup>
Power consumption	< 2.2W
Temperature range	0°C to +70°C
Storage temperature	-40°C to +85°C
<b>Transmitter data:</b>	
Output power (avg):	Min: 0 dBm <sup>1)</sup> Max: +4 dBm <sup>1)</sup>
Tx wavelengths	1540 – 1560 nm
<b>Receiver data:</b>	
Minimum input power	-13.0 dBm <sup>1)4)</sup> -14.0 dBm <sup>2)4)</sup> -14.0 dBm <sup>3)4)</sup>
Max input power	+2.0 dBm
Wavelength range	1480 – 1580 nm
DDM	Yes
MSA compliance	SFF28+ MSA

<sup>1)</sup> @ 14.025 Gbps (16G FC)

<sup>2)</sup> @ 8.5 Gbps (8G FC)

<sup>3)</sup> @ 8.25 Gbps (4G FC)

<sup>4)</sup> @ BER < 1E-12 using PRBS 2<sup>31</sup>-1

## ORDERING INFORMATION

Part Number	Description
DS-16G-ER	SFP+, 16/8/4 Gbps FC/FICON, 1550nm, SM, DDM, 13dB, 40km

## GENERAL DEFINITIONS

<b>Technology</b>	CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid.
<b>Transmission Media</b>	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
<b>Typical reach</b>	Nominal distance performance based on dispersion and power budget properties, i.e. w/o dispersion compensation and optical amplification.
<b>Bit rate range:</b>	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
<b>Protocols:</b>	Protocols within supported bit rate range.
<b>Nominal wavelength</b>	Typical wavelength from transmitter.
<b>Interface standards</b>	Referenced interface standards e.g. IEEE 802.3 standard for 10GbE services.
<b>Power budget</b>	Min and max power budget between Transmitter and Receiver. Excluding any dispersion penalty.
<b>Dispersion tolerance/penalty</b>	Maximum amount of tolerated dispersion and required reduction of power budget to maintain BER better than $1E^{-12}$ . Defined at a specific bit rate.
<b>Temperature range</b>	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)
<b>Power consumption</b>	Worst case power consumption.
<b>Transmitter Output power</b>	Average output power. Provided in min and max values.
<b>Receiver minimum input power</b>	Minimum average input power at specified BER, normally $1E^{-12}$ .
<b>Receiver max input power</b>	Maximum average input power giving a BER, normally $1E^{-12}$ .
<b>DDM</b>	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.

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