

# SO-SFP-10GE-LR40-CXX

SFP+, 10G Multirate, CWDM, DDM, 14dB, 40km, 1270nm-1610nm (18ch)

## OVERVIEW

The SO-SFP-10GE-LR40-Cxx is a versatile CWDM transceiver supporting a wide range of traffic formats. The distance performance exceeds the IEEE 802.3ae ER/EW-standard, providing a bridgeable distance of up to 40km for 10GbE-LAN (10GBASE-ER) and 10GbE-WAN (10GBASE-EW) services.

The transceiver is available in 18 CWDM wavelength versions, spanning from 1270nm to 1610nm in accordance with the G.694.2 standard. This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

## TECHNICAL DATA

<b>Technology</b>	CWDM SFP+
<b>Transmission media</b>	SM (2x LC)
<b>Typical reach</b>	40 km
<b>Nominal wavelength</b>	1270 nm - 1610 nm (18ch)
<b>Interface standards</b>	10GBASE-ER 10GBASE-EW
<b>Bit rate range</b>	0.6 - 11.3 Gbps
<b>Protocols</b>	Eth: 10GbE-LAN 10GbE-WAN GbE
	OTN: OTU2e OTU2 OTU1
	SDH/SONET: STM-64/OC-192 STM-16/OC-48 STM-4/OC-12
	FC: 10G FC 8G FC 4G FC 1G FC
	CPRI: Opt 1 (0.6144 Gbps) Opt 2 (1.2288 Gbps) Opt 3 (2.4576 Gbps) Opt 4 (3.0720 Gbps) Opt 5 (4.9152 Gbps) Opt 6 (6.1440 Gbps) Opt 7 (9.8304 Gbps) Opt 7A (8.11008 Gbps) Opt 8 (10.1376 Gbps)
	OBSAI: 1x (0.768 Gbps) 2x (1.536 Gbps) 4x (3.0720 Gbps) 8x (6.1440 Gbps)
<b>Power budget</b>	3.5 -14.0 dB
<b>Dispersion tolerance</b>	800 ps/nm <sup>1)</sup>
<b>Dispersion penalty</b>	2.0 dB <sup>1)</sup>
<b>Temperature range</b>	-5°C to +70°C
<b>Power consumption</b>	< 1.2W

<b>Transmitter data</b>	Output power:	Min: -1.0 dBm Max: +4.0 dBm
	Tx wavelength:	1470 - 1610 nm in 20nm steps (G.694.2)
<b>Receiver data</b>	Minimum input power:	-15.0 dBm <sup>1)</sup>
	Overload (max power):	+0.5 dBm
	Wavelength range:	1260 - 1620 nm
<b>DDM</b>		Yes
<b>MSA compliance</b>		SFF-8431 SFF-8472

<sup>1)</sup> @ 10.3Gbps

### Regulatory compliance

<b>EMC CE</b>	EN 55022:2010 EN 55024:2010
<b>UL/Safety</b>	UL 60950-1
<b>FCC</b>	47 CFR PART 15 OCT, 2013
<b>RoHS</b>	RoHS 6
<b>TUV</b>	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2

**Storage temp.** -40°C to +85°C

**Note! See "Definitions" below.**

Note: IEEE 802.3ae 10GBASE-LR/LW is defined only at 1310 nm. The standard is referred to from bridgeable distance perspective for the other wavelengths within the CWDM band.

Subject to change without notice.

For more information visit [smaroptics.com](http://smaroptics.com).

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## ORDERING INFORMATION

Part number	Description
SO-SFP-10GE-LR40-C27	SFP+, 10G Multirate, CWDM 1270nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C29	SFP+, 10G Multirate, CWDM 1290nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C31	SFP+, 10G Multirate, CWDM 1310nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C33	SFP+, 10G Multirate, CWDM 1330nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C35	SFP+, 10G Multirate, CWDM 1350nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C37	SFP+, 10G Multirate, CWDM 1370nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C39	SFP+, 10G Multirate, CWDM 1390nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C41	SFP+, 10G Multirate, CWDM 1410nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C43	SFP+, 10G Multirate, CWDM 1430nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C45	SFP+, 10G Multirate, CWDM 1450nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C47	SFP+, 10G Multirate, CWDM 1470nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C49	SFP+, 10G Multirate, CWDM 1490nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C51	SFP+, 10G Multirate, CWDM 1510nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C53	SFP+, 10G Multirate, CWDM 1530nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C55	SFP+, 10G Multirate, CWDM 1550nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C57	SFP+, 10G Multirate, CWDM 1570nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C59	SFP+, 10G Multirate, CWDM 1590nm, DDM, 14dB, 40km
SO-SFP-10GE-LR40-C61	SFP+, 10G Multirate, CWDM 1610nm, DDM, 14dB, 40km

## 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)
Power consumption:	Worst case power consumption.
Transmitter Output power:	Average output power. Provided in min and max values.
Receiver minimum input power:	Minimum average input power at specified BER, normally $1E^{-12}$ .
Receiver max input power:	Maximum average input power at specified BER, normally $1E^{-12}$ .
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.