

**DATASHEET 5.0**

# 32-IR-DXXS-BR1

**SFP28, 32/16/8G FC, Secure Optics DWDM 100GHz grid, 192.00 - 196.00THz (41ch), 10km, 7dB, LC, D200-D600**

## OVERVIEW

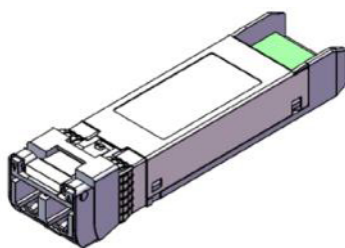
The 32G-IR-DxxS-BR is a versatile DWDM transceiver in SFP28 form-factor supporting a wide range of Fiber Channel (FC) services (8G to 32G). The transceiver is provided in versions covering all C-band channels in the 100GHz DWDM grid as specified in the ITU-T G.694.1 standard. The transceiver is approved by Brocade and supports the authentication protocol required for the Gen7 system platforms.

The transceiver has an inbuilt 3-mode CDR (Clock Data Recovery) function; - High data rate mode for 32G FC - Low data rate mode for 16G FC - Bypass mode for 8 GFC

The optical performance provides a bridgeable distance of up to 10km (without dispersion compensation) for 32G 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. The transceiver module is compliant to RoHS-6/6.



## TECHNICAL DATA

PARAMETER	VALUE
Technology	DWDM 100GHz SFP28
Transmission media	SM (2x LC)
Typical reach	10km
Nominal wavelengths	192.00 - 196.00 THz
Bit rate range	28.05 Gbps 14.025 Gbps 8.500 Gbps
Protocol support	32G FC 16G FC 8G FC
Power budget	0 – 7.0 dB
Dispersion tolerance	-170 ps/nm <sup>1)</sup>
Power consumption	< 2.0W
Temperature range	0°C to +70°C
Storage temperature	-40°C to +85°C
<b>Transmitter data:</b>	
Output power	Min: -3.0 dBm <sup>2)</sup> Max: +2.0 dBm <sup>2)</sup>
Transmit wavelengths	192.00 - 196.00 THz 100GHz (ITU-T G.694.1)
<b>Receiver data:</b>	
Minimum input power	-10.0 dBm <sup>1) 2)</sup>
Overload (max power)	+2.0 dBm <sup>1) 2)</sup>
Wavelength range	1480 – 1580 nm
DDM	Yes
MSA compliance	SFF28+ MSA SFF-8402

<sup>1)</sup> @ 28.05 Gbps (32G FC) and BER < 10<sup>-6</sup> using PRBS 2<sup>31</sup>-1

<sup>2)</sup> Average power

## ORDERING INFORMATION

Part Number	Frequency THz	Wavelength nm
32G-IR-D20S--BR	192.00	1561.42
32G-IR-D21S--BR	192.10	1560.61
32G-IR-D22S--BR	192.20	1559.79
32G-IR-D23S--BR	192.30	1558.98
32G-IR-D24S--BR	192.40	1558.17
32G-IR-D25S--BR	192.50	1557.36
32G-IR-D26S--BR	192.60	1556.55
32G-IR-D27S--BR	192.70	1555.75
32G-IR-D28S--BR	192.80	1554.94
32G-IR-D29S--BR	192.90	1554.13
32G-IR-D30S--BR	193.00	1553.33
32G-IR-D31S--BR	193.10	1552.52
32G-IR-D32S--BR	193.20	1551.72
32G-IR-D33S--BR	193.30	1550.92
32G-IR-D34S--BR	193.40	1550.12
32G-IR-D35S--BR	193.50	1549.32
32G-IR-D36S--BR	193.60	1548.51
32G-IR-D37S--BR	193.70	1547.72
32G-IR-D38S--BR	193.80	1546.92
32G-IR-D39S--BR	193.90	1546.12
32G-IR-D40S--BR	194.00	1545.32
32G-IR-D41S--BR	194.10	1544.35
32G-IR-D42S--BR	194.20	1543.73
32G-IR-D43S--BR	194.30	1542.94
32G-IR-D44S--BR	194.40	1542.14
32G-IR-D45S--BR	194.50	1541.35
32G-IR-D46S--BR	194.60	1540.56
32G-IR-D47S--BR	194.70	1539.77
32G-IR-D48S--BR	194.80	1538.98
32G-IR-D49S--BR	194.90	1538.19
32G-IR-D50S--BR	195.00	1537.40
32G-IR-D51S--BR	195.10	1536.61
32G-IR-D52S--BR	195.20	1535.82
32G-IR-D53S--BR	195.30	1535.04
32G-IR-D54S--BR	195.40	1534.25
32G-IR-D55S--BR	195.50	1533.47
32G-IR-D56S--BR	195.60	1532.68
32G-IR-D57S--BR	195.70	1531.90
32G-IR-D58S--BR	195.80	1531.12
32G-IR-D59S--BR	195.90	1530.33
32G-IR-D60S--BR	196.00	1529.55

## RATE SELECT OPERATION

The 32G-IR-DxxS-BR supports high data rates 25.78G/28.05G with CDR engaged and Low data rate 14.025G with CDR half-rate engaged, 8.5G with CDR bypassed

<b>RS0</b>	<b>RS1</b>	<b>Rx data rate</b>	<b>Tx data rate</b>
High/1	High/1	28.05Gbps	28.05Gbps
Low/0	Low/0	14.025/8.5Gbps	14.025/8.5Gbps

## LOOPBACK CONFIGURATION

E-wrap Loopback: User can configure e-wrap loopback by writing 0x01 to byte 111 of A2H. The default value of byte 111 of A2H is 0x00. Please note that the changed value will not be saved at power-off.

O-wrap Loopback: User can configure e-wrap loopback by writing 0x04 to byte 111 of A2H. The default value of byte 111 of A2H is 0x00. Please note that the changed value will not be saved at power-off.

## 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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