

# SFCxxB16DRxD – SFP Dual Fibre CWDM

ITU CWDM / 16dB / Dual Rate

For your product safety, please read the following information carefully before any manipulation of the transceiver:



**ESD**

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



**LASER SAFETY**

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

## 1. Overview

SFCxxB16DRxD is a high-performance transceiver module for up to 1.25Gbps data links over a single mode fibre pair. The power budget<sup>1</sup> is 16dB end of life (EOL). The transmitter is a CWDM Distributed Feedback (DFB) laser, the receiver is a PIN photodiode.

This transceiver module is compliant with the Small Form-factor Pluggable (SFP) Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics® commercial agents for compatibility with different equipment platforms.

## 2. Features

- SFP Multi-Source Agreement compliant (INF-8074i)
- Hot pluggable SFP footprint
- Serial ID functionality supported according to SFF-8472
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- CWDM DFB transmitter (channels 27 to 45)
- PIN receiver
- Power budget >16dB
- Operating temperature range 0°C to 70°C or -20°C to 85°C
- Low power dissipation (<1W)
- Digital diagnostics monitoring (DDM)

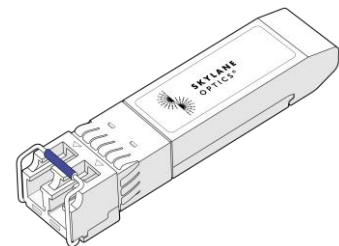


Figure 1. SFP Dual Fibre (non-binding illustration)

## 3. Applications

- Gigabit Ethernet
- 1x Fiber Channel
- Fast Ethernet

## 4. Optical Interface

P/N	Wavelength [nm]	Optical Output Power <sup>2</sup> [dBm]	Optical Receiver Sensitivity <sup>3</sup> [dBm]	Optical Receiver Overload <sup>4</sup> [dBm]	Power Budget <sup>2</sup> [dB]
SFCxxB16DRxD	ITU CWDM (27 to 45)	-5 to 0	≤ -21	-3	≥ 16

1. Only optical budget value is guaranteed, see section 0 for estimated transmission reach

2. EOL, over operating temperature range

3. Measured at 1.25Gbps, PRBS BER 2<sup>-1</sup>, ER=9dB, BER≤10<sup>-12</sup>

4. The optical input to the receiver should not exceed this value. Transmitters must never be directly connected to receivers (optical loop back) before ensuring that proper optical attenuation is used

5. Technical Parameters

5.1. Recommended Operating Conditions					
Parameter	Min	Typ	Max	Unit	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	SFCxxB16DR0D
	-20		85		SFCxxB16DR1D
Relative Humidity			95	%	Non condensing
Power Supply Voltage	3.15	3.3	3.45	V	
Power Supply Current			300	mA	

5.2. Transmitter Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Average Output Power	-5		0	dBm	5
Centre Wavelength Range	1264		1457.5	nm	
Wavelength	$\lambda_T - 6$	$\lambda_T$	$\lambda_T + 7.5$	nm	6
Spectral Width (-20dB)			1	nm	
Extinction Ratio	8.2			dB	

5. Output power coupled into a 9/125  $\mu$ m single mode fibre  
 6. ITU-T G.694.2 CWDM. For available wavelengths, see section 10

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Receiver Sensitivity			-21	dBm	7
Receiver Overload	-3			dBm	7
Receiver Operating Range	1260		1630	nm	

7. Measured at 1.25Gbps, PRBS 2<sup>7</sup>-1, ER-9dB, BER<sub>s</sub>10<sup>-12</sup>

6. Transceiver Electrical Pad Layout

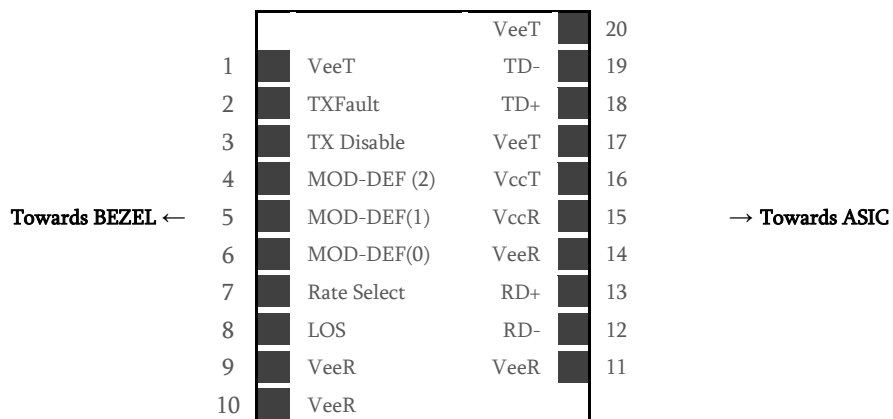


Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

Pin Number	Name	Function
1	VeeT	Transmitter Ground
2	TX Fault	Transmitter Fault Indication
3	TX_Disable	Transmitter Disable
4	MOD-DEF2	2-Wire Serial Interface Data
5	MOD-DEF1	2-Wire Serial Interface Clock
6	MOD-DEF0	Grounded in Module
7	Rate Select	Not Connected
8	LOS	Loss of Signal
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Inverted Received Data Out
13	RD+	Received Data Out
14	VeeR	Receiver Ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter Ground
18	TD+	Transmit Data In
19	TD-	Inverted Transmit Data In
20	VeeT	Transmitter Ground

8. EEPROM

SFP MSA [INF-8472]

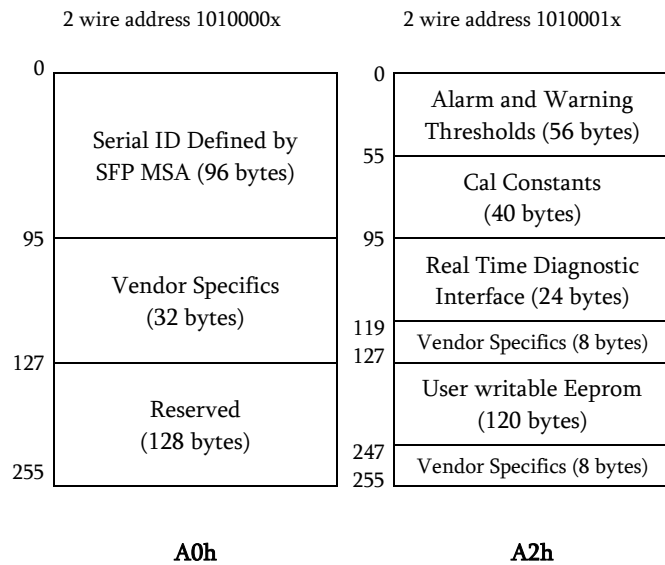


Figure 3. EEPROM of an SFP

## 9. Transmission Reach

The actual transmission reach is depending on the CWDM channel used, due to the wavelength dependent attenuation in the fibre path. The table below shows the *estimated* transmission reach for CWDM channels 27 to 45.

**NB:** Distances are purely indicative and only valid for G.652 fibre. Only the optical power budget is guaranteed. Additional optical insertion loss from CWDM filters, splices, optical connectors etc. is not included.

CWDM Channel	Nominal Wavelength [nm]	Estimated Reach [km]
27	1270	40
29	1290	40
31	1310	45
33	1330	45
35	1350	45
37	1370	40
39	1390	30
41	1410	40
43	1430	50
45	1450	55

## 10. Ordering Information

Part Number	Description
SFC27B16DR0D	SFP dual fibre CWDM, <b>Tx 1270nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC29B16DR0D	SFP dual fibre CWDM, <b>Tx 1290nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC31B16DR0D	SFP dual fibre CWDM, <b>Tx 1310nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC33B16DR0D	SFP dual fibre CWDM, <b>Tx 1330nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC35B16DR0D	SFP dual fibre CWDM, <b>Tx 1350nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC37B16DR0D	SFP dual fibre CWDM, <b>Tx 1370nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC39B16DR0D	SFP dual fibre CWDM, <b>Tx 1390nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC41B16DR0D	SFP dual fibre CWDM, <b>Tx 1410nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC43B16DR0D	SFP dual fibre CWDM, <b>Tx 1430nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC45B16DR0D	SFP dual fibre CWDM, <b>Tx 1450nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC27B16DR1D	SFP dual fibre CWDM, <b>Tx 1270nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC29B16DR1D	SFP dual fibre CWDM, <b>Tx 1290nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC31B16DR1D	SFP dual fibre CWDM, <b>Tx 1310nm</b> (CWDM DFB), Rx (PIN), power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
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## 11. Document Revision Information

Revision	Description
A	Initial release

Skylane Optics® supplies a broad range of optical transceivers. Our engineers work closely with our customers to find the best solutions for every application. We are committed to provide high quality products and services to our customers.

For questions on this product please contact:  
[support@skylaneoptics.com](mailto:support@skylaneoptics.com)

Beyond  
Quality

Reliable  
Alliance

Performing  
Smartly