

SPB3201010xD – SFP+ Single Fibre

Tx 1330nm Rx 1270nm / 10km / 10x Gigabit Ethernet

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

SPB3201010xD is a high performance transceiver module for up to 10x Gigabit Ethernet data links over a single mode fibre. The maximum reach is 10km, with 9dB end of life (EOL) power budget. The transmitter is a 1330nm DFB laser, the receiver a 1270nm PIN photodiode. Consequently, a module with a 1270nm transmitter and a 1330nm receiver is required at the opposite side of the link. The recommended counterpart is SPB2301010xD.

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 (SFF-8431)
- Hot pluggable SFP+ footprint
- Serial ID functionality supported according to (SFF-8472)
- Class 1 laser safety standard IEC 60825 compliant
- Single LC connector
- 1330nm DFB transmitter, 1270nm PIN receiver
- 10km point-to-point transmission on single mode fibre
- Operating temperature range -40°C to 85°C
- Low power dissipation (<1.5W)
- Digital diagnostics monitoring (DDM)



Figure 1. SFP+ Single Fiber (non-binding illustration)

3. Applications

- 10x Gigabit Ethernet
- 9.83 Gbps CPRI
- 8x Fiber Channel
- 4x Fiber Channel
- 2x Fiber Channel

4. Optical Interface

| P/N | Wavelength [nm] | Optical Output Power [dBm] | Receiver Sensitivity [dBm] | Dispersion Penalty [dB] | Receiver Overload [dBm] | Power Budget [dB] |
|--------------|--------------------|----------------------------|----------------------------|-------------------------|-------------------------|-------------------|
| SPB3201010xD | Tx 1330 Rx 1270 | -5 to 0 | ≤ -14 | N/A | 0 | ≥ 9 |

1. Distance is estimated assuming typical optical losses after decent quality fiber deployment; Only optical budget value is guaranteed.
2. EOL, over operating temperature range, together with SPB2301010xD
3. Measured with 10.3125Gbps PRBS 231-1, BER≤10⁻¹²
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

7. Module Electrical Pin Definition

SFP+ MSA (SFF-8431)

| Pin Number | Name | Function |
|------------|------------|-------------------------------------|
| 1 | VeeT | Module Transmitter Ground |
| 2 | Tx_Fault | Module Transmitter Fault |
| 3 | Tx_Disable | Transmitter Disable |
| 4 | SDA | 2-Wire Serial Interface Data |
| 5 | SCL | 2-Wire Serial Interface Clock |
| 6 | Mod_ABS | Module Absent |
| 7 | RS0 | Not Used |
| 8 | Rx_LOS | Receiver Loss of Signal |
| 9 | RS1 | Not Used |
| 10 | VeeR | Module Receiver Ground |
| 11 | VeeR | Module Receiver Ground |
| 12 | RD- | Receiver Inverted Data Output |
| 13 | RD+ | Receiver Non-Inverted Data Output |
| 14 | VeeR | Module Receiver Ground |
| 15 | VccR | Module Receiver 3.3V Supply |
| 16 | VccT | Module Transmitter 3.3V Supply |
| 17 | VeeT | Module Transmitter Ground |
| 18 | TD+ | Transmitter Non-Inverted Data Input |
| 19 | TD- | Transmitter Inverted Data Input |
| 20 | VeeT | Module Transmitter Ground |

8. EEPROM

SFP+ MSA (SFF-8472)

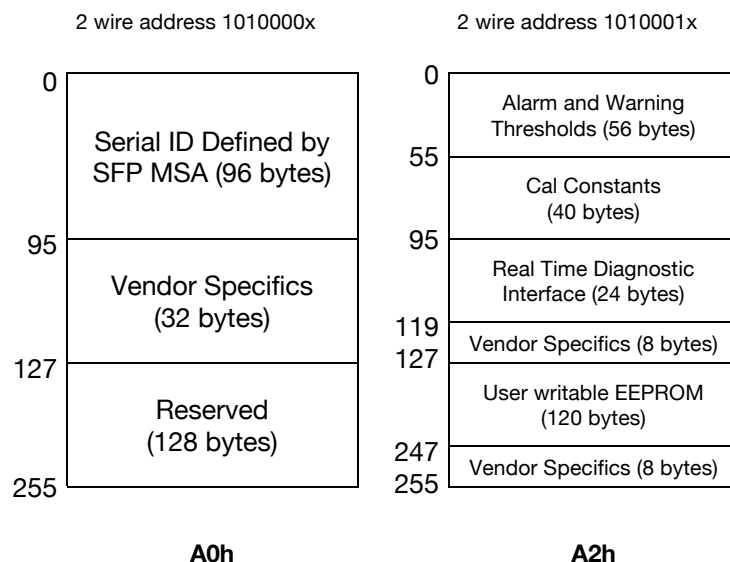


Figure 3. EEPROM of a SFP+

9. Ordering Information

| Part Number | Description |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPB32010100D | SFP+ Single Fibre, Tx 1330nm (DFB) , Rx 1270nm (PIN), maximum distance 10km, power budget 9dB, 10x Gigabit Ethernet, LC connector, 0°C to 70°C , DDM |
| SPB32010101D | SFP+ Single Fibre, Tx 1330nm (DFB) , Rx 1270nm (PIN), maximum distance 10km, power budget 9dB, 10x Gigabit Ethernet, LC connector, -20°C to 85°C , DDM |
| SPB32010102D | SFP+ Single Fibre, Tx 1330nm (DFB) , Rx 1270nm (PIN), maximum distance 10km, power budget 9dB, 10x Gigabit Ethernet, LC connector, -40°C to 85°C , DDM |
| SPB3201010GD | SFP+ Single Fibre, Tx 1330nm (DFB) , Rx 1270nm (PIN), maximum distance 10km, power budget 9dB, 10x Gigabit Ethernet, LC connector, 0°C to 70°C , DDM, Specific Firmware |
| SPB3201010AD | SFP+ Single Fibre, Tx 1330nm (DFB) , Rx 1270nm (PIN), maximum distance 10km, power budget 9dB, 10x Gigabit Ethernet, LC connector, 0°C to 70°C , DDM, Specific Firmware |

10. Document Revision Information

| Revision | Description |
|----------|------------------------------------------------------------------|
| A | Initial release |
| B | Specification updated to include 8x Fiber Channel compatibility |
| C | Ordering information table updated with the "G" and "A" versions |
| D | Specification updated to include CPRI compatibility |

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:
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