



## DAPSSM011020000

MSA Compliant 10GBase-CU SFP+ to SFP+ Direct Attach Cable (Passive Twinax, 1m, -40 to 85C)

### Product Description

This is an MSA compliant 10GBase-CU SFP+ to SFP+ direct attach cable that operates over passive copper with a maximum reach of 1m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach cable is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

### Features:

- Compliant to SFF-8431/8432 and INF-8074
- Passive copper
- Up to 10.3125Gbps
- 30AWG Wire Gauge
- Industrial Temperature -40 to 85 Celsius
- Built-in EEPROM function
- RoHS Compliant and Lead Free
- Metal with Lower EMI



### Applications:

- 10GBase Ethernet

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*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.*

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## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015.
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2.
- Immunity: compatible with IEC 61000-4-3.
- EMI: compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B.
- Laser Eye Safety: compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1, 2.
- RoHS: compliant with 2002/95/EC 4.1&4.2 2005/747/EC.

## General Specifications

| Parameter                  | Symbol | Min. | Typ. | Max. | Unit |
|----------------------------|--------|------|------|------|------|
| Supply Voltage             | Vcc    | 3.13 | 3.3  | 3.47 | V    |
| Storage Temperature        | Tstg   | -40  |      | 85   | °C   |
| Operating Case Temperature | Tc     | -40  |      | 85   | °C   |
| Humidity                   | RH     | 5    |      | 85   | %    |
| Data Rate                  |        |      | 10   |      | Gbps |

## Cable Specifications

| Parameter       | Symbol                        | Min. | Typ. | Max. | Unit |
|-----------------|-------------------------------|------|------|------|------|
| Length          | L                             |      |      | 1    | M    |
| AWG             |                               | 30   |      |      | AWG  |
| Jacket Material | PVC, Black (Or Customization) |      |      |      |      |

## Electrical Specifications

| Parameter                 | Symbol   | Min.                                                                                                                                    | Typ. | Max.  | Unit |
|---------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------|------|-------|------|
| Resistance                | Rcon     |                                                                                                                                         |      | 3     | Ω    |
| Insulation Resistance     | Rins     |                                                                                                                                         |      | 10    | MΩ   |
| Raw Cable Impedance       | Zca      | 95                                                                                                                                      | 100  | 110   | Ω    |
| Mated Connector Impedance | Zmated   | 85                                                                                                                                      | 100  | 110   | Ω    |
| Insertion Loss at 5.16GHz | SDD21    |                                                                                                                                         |      | 17.04 | dB   |
| Return Loss               | SDD11/22 | $\text{Return\_loss}(f) \geq \begin{cases} 12-2\sqrt{f} & 0.05 \leq f < 4.1 \\ 6.3-13\log_{10}(f/5.5) & 4.1 \leq f \leq 10 \end{cases}$ |      |       | dB   |

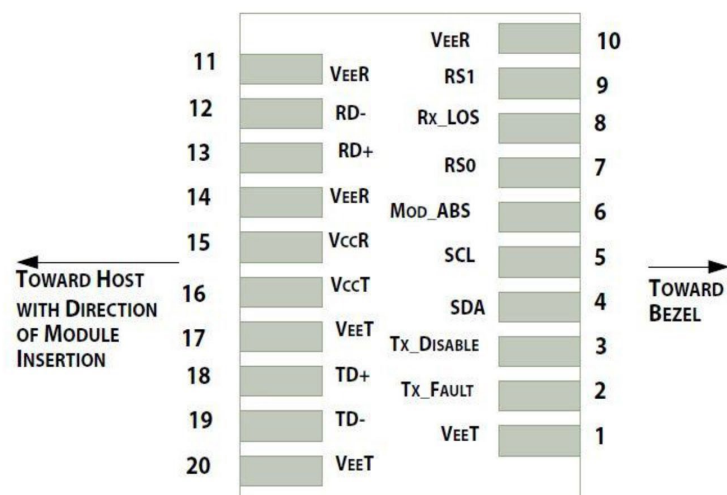
## Pin Descriptions

| Pin | Logic     | Symbol     | Power Sequence Order | Name/Description                                                                                           | Note |
|-----|-----------|------------|----------------------|------------------------------------------------------------------------------------------------------------|------|
| 1   |           | VeeT       | 1 <sup>st</sup>      | Module Transmitter Ground.                                                                                 | 3    |
| 2   | LVTTL-O   | Tx_Fault   | 3 <sup>rd</sup>      | Module Transmitter Fault.                                                                                  | 4    |
| 3   | LVTTL-I   | Tx_Disable | 3 <sup>rd</sup>      | Transmitter Disable. Turns off the transmitter laser output.                                               | 5    |
| 4   | LVTTL-I/O | SDA        | 3 <sup>rd</sup>      | 2-Wire Serial Interface Data (Same as MOD_DEF2 in INF-8074i).                                              |      |
| 5   | LVTTL-I/O | SCL        | 3 <sup>rd</sup>      | 2-Wire Serial Interface Clock (Same as MOD_DEF1 in INF-8074i).                                             |      |
| 6   |           | MOD_ABS    | 3 <sup>rd</sup>      | Module Absent. Connected to VeeT or VeeR in the module.                                                    |      |
| 7   | LVTTL-I   | RS0        | 3 <sup>rd</sup>      | Rate Select 0. Optionally controls the SFP+ module receiver.                                               |      |
| 8   | LVTTL-O   | Rx_LOS     | 3 <sup>rd</sup>      | Receiver Loss of Signal Indication. In FC, designated as Rx_LOS. In Ethernet, designated as Signal Detect. | 4    |
| 9   | LVTTL-I   | RS1        | 3 <sup>rd</sup>      | Rate Select 1. Optionally controls the SFP+ module transmitter.                                            |      |
| 10  |           | VeeR       | 1 <sup>st</sup>      | Module Receiver Ground.                                                                                    | 3    |
| 11  |           | VeeR       | 1 <sup>st</sup>      | Module Receiver Ground.                                                                                    | 3    |
| 12  | CML-O     | RD-        | 3 <sup>rd</sup>      | Receiver Inverted Data Output.                                                                             |      |
| 13  | CML-O     | RD+        | 3 <sup>rd</sup>      | Receiver Non-Inverted Data Output.                                                                         |      |
| 14  |           | VeeR       | 1 <sup>st</sup>      | Module Receiver Ground.                                                                                    | 3    |
| 15  |           | VccR       | 2 <sup>nd</sup>      | +3.3V Module Receiver Supply.                                                                              |      |
| 16  |           | VccT       | 2 <sup>nd</sup>      | +3.3V Module Transmitter Supply.                                                                           |      |
| 17  |           | VeeT       | 1 <sup>st</sup>      | Module Transmitter Ground.                                                                                 | 3    |
| 18  | CML-I     | TD+        | 3 <sup>rd</sup>      | Transmitter Non-Inverted Data Input.                                                                       |      |
| 19  | CML-I     | TD-        | 3 <sup>rd</sup>      | Transmitter Inverted Data Input.                                                                           |      |
| 20  |           | VeeT       | 1 <sup>st</sup>      | Module Transmitter Ground.                                                                                 | 3    |

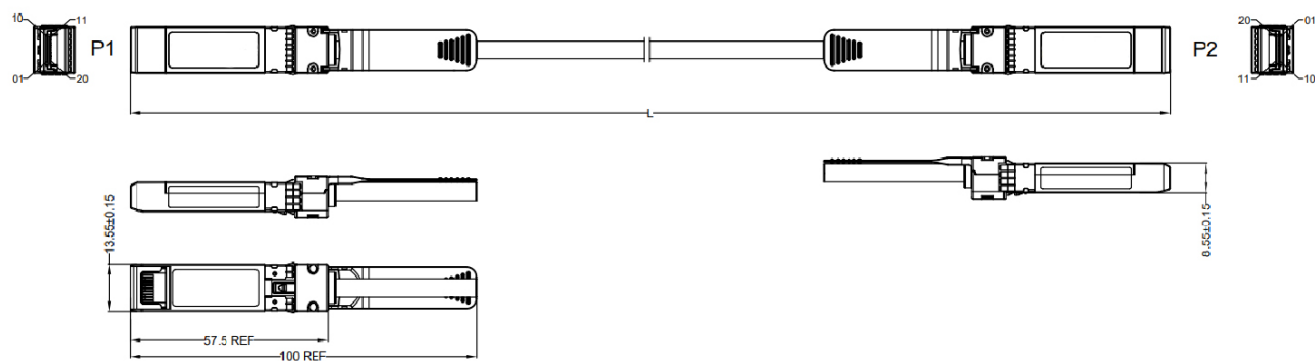
### Notes:

1. Labeling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact with the cage before any of the board edge contacts are made.
3. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
4. This contact is an open collector/drain output contact and shall be pulled up on the host board. Pull-ups can be connected to one of several power supplies; however, the host board design shall ensure that no module contact has a voltage exceeding the module VccT/R+0.5V.
5. Tx\_Disable is an input contact with a 4.7kΩ to 10kΩ pull-up to the VccT inside the module.

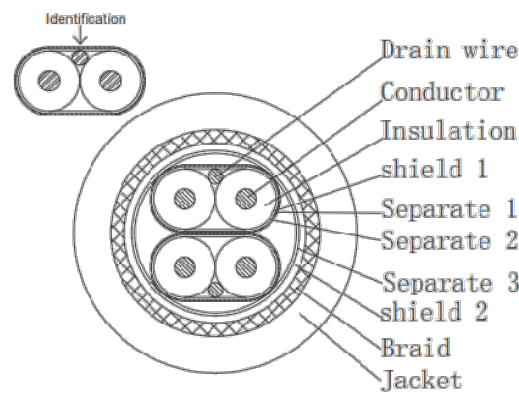
Electrical Pin-Out Details for SFP



Mechanical Specifications



Cable Cross Section



# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

