



## QDD-400GB-AEC-0-5M-MX-SKY

Mellanox® Compatible 400GBase-AEC QSFP-DD to QSFP-DD Active Electrical Cable (AEC, 0.5m, CMIS 5.2)

### Product Description

This is a Mellanox® compatible 400GBase-AEC QSFP-DD to QSFP-DD active electrical cable that operates over active copper with a maximum reach of 0.5m (1.6ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This active electrical 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 with QSFP-DD MSA and CMIS 5.2
- Enables 400Gbps Transmission
- Supports 8x56G PAM4 Electrical Data Rates
- Typical Power Consumption: 7.5W Per End
- Single 3.3V Power Supply
- Wire Gauge: 30AWG
- RoHS Compliant and Lead-Free
- Operating Temperature Range: 0 to 70 Celsius



### Applications:

- 400GBase 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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## General Specifications

| Parameter                       | Symbol | Min.  | Typ. | Max.  | Unit | Notes |
|---------------------------------|--------|-------|------|-------|------|-------|
| Storage Temperature             | Tstg   | -40   |      | 80    | °C   |       |
| Operating Case Temperature      | Tc     | 0     |      | 70    | °C   |       |
| Power Supply Not Damage Voltage | V      | -0.5  |      | 3.6   |      |       |
| Relative Operating Humidity     | RH     | 0     |      | 85    | %    |       |
| Power Supply Working Voltage    | V      | 3.135 | 3.3  | 3.465 |      |       |
| Bit Rate                        | Gbps   |       | 400  |       |      |       |

## Pin Descriptions

| Pin | Symbol       | Logic       | Name/Description                                                                    | Notes |
|-----|--------------|-------------|-------------------------------------------------------------------------------------|-------|
| 1   | GND          |             | Module Ground.                                                                      |       |
| 2   | Tx2-         | CML-I       | Transmitter Inverted Data Input.                                                    |       |
| 3   | Tx2+         | CML-I       | Transmitter Non-Inverted Data Input.                                                |       |
| 4   | GND          |             | Module Ground.                                                                      |       |
| 5   | Tx4-         | CML-I       | Transmitter Inverted Data Input.                                                    |       |
| 6   | Tx4+         | CML-I       | Transmitter Non-Inverted Data Input.                                                |       |
| 7   | GND          |             | Module Ground.                                                                      |       |
| 8   | ModSelL      | LVTTL-I     | Module Select.                                                                      |       |
| 9   | ResetL       | LVTTL-I     | Module Reset.                                                                       |       |
| 10  | VccRx        |             | +3.3V Receiver Power Supply.                                                        |       |
| 11  | SCL          | LVC MOS-I/O | 2-Wire Serial Interface Clock.                                                      |       |
| 12  | SDA          | LVC MOS-I/O | 2-Wire Serial Interface Data.                                                       |       |
| 13  | GND          |             | Module Ground.                                                                      |       |
| 14  | Rx3+         | CML-O       | Receiver Non-Inverted Data Output.                                                  |       |
| 15  | Rx3-         | CML-O       | Receiver Inverted Data Output.                                                      |       |
| 16  | GND          |             | Module Ground.                                                                      |       |
| 17  | Rx1+         | CML-O       | Receiver Non-Inverted Data Output.                                                  |       |
| 18  | Rx1-         | CML-O       | Receiver Inverted Data Output.                                                      |       |
| 19  | GND          |             | Module Ground.                                                                      |       |
| 20  | GND          |             | Module Ground.                                                                      |       |
| 21  | Rx2-         | CML-O       | Receiver Inverted Data Output.                                                      |       |
| 22  | Rx2+         | CML-O       | Receiver Non-Inverted Data Output.                                                  |       |
| 23  | GND          |             | Module Ground.                                                                      |       |
| 24  | Rx4-         | CML-O       | Receiver Inverted Data Output.                                                      |       |
| 25  | Rx4+         | CML-O       | Receiver Non-Inverted Data Output.                                                  |       |
| 26  | GND          |             | Module Ground.                                                                      |       |
| 27  | ModPrsL      | LVTTL-O     | Module Present.                                                                     |       |
| 28  | IntL/RxLOSL  | LVTTL-O     | Interrupt. Optionally configurable as RxLOSL via the management interface.          |       |
| 29  | VccTx        |             | +3.3V Transmitter Power Supply.                                                     |       |
| 30  | Vcc1         |             | +3.3V Power Supply.                                                                 |       |
| 31  | LPMoDe/TxDis | LVTTL-I     | Initialization Mode. Optionally configurable as TxDis via the management interface. |       |

|    |          |       |                                      |  |
|----|----------|-------|--------------------------------------|--|
| 32 | GND      |       | Module Ground.                       |  |
| 33 | Tx3+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 34 | Tx3-     | CML-I | Transmitter Inverted Data Input.     |  |
| 35 | GND      |       | Module Ground.                       |  |
| 36 | Tx1+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 37 | Tx1-     | CML-I | Transmitter Inverted Data Input.     |  |
| 38 | GND      |       | Module Ground.                       |  |
| 39 | GND      |       | Module Ground.                       |  |
| 40 | Tx6-     | CML-I | Transmitter Inverted Data Input.     |  |
| 41 | Tx6+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 42 | GND      |       | Module Ground.                       |  |
| 43 | Tx8-     | CML-I | Transmitter Inverted Data Input.     |  |
| 44 | Tx8+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 45 | GND      |       | Module Ground.                       |  |
| 46 | Reserved |       | For Future Use.                      |  |
| 47 | VS1      |       | Module Vendor-Specific 1.            |  |
| 48 | VccRx1   |       | +3.3V Receiver Power Supply.         |  |
| 49 | VS2      |       | Module Vendor-Specific 2.            |  |
| 50 | VS3      |       | Module Vendor-Specific 3.            |  |
| 51 | GND      |       | Module Ground.                       |  |
| 52 | Rx7+     | CML-O | Receiver Non-Inverted Data Output.   |  |
| 53 | Rx7-     | CML-O | Receiver Inverted Data Output.       |  |
| 54 | GND      |       | Module Ground.                       |  |
| 55 | Rx5+     | CML-O | Receiver Non-Inverted Data Output.   |  |
| 56 | Rx5-     | CML-O | Receiver Inverted Data Output.       |  |
| 57 | GND      |       | Module Ground.                       |  |
| 58 | GND      |       | Module Ground.                       |  |
| 59 | Rx6-     | CML-O | Receiver Inverted Data Output.       |  |
| 60 | Rx6+     | CML-O | Receiver Non-Inverted Data Output.   |  |
| 61 | GND      |       | Module Ground.                       |  |
| 62 | Rx8-     | CML-O | Receiver Inverted Data Output.       |  |
| 63 | Rx8+     | CML-O | Receiver Non-Inverted Data Output.   |  |
| 64 | GND      |       | Module Ground.                       |  |
| 65 | NC       |       | Not Connected.                       |  |
| 66 | Reserved |       | For Future Use.                      |  |
| 67 | VccTx1   |       | +3.3V Transmitter Power Supply.      |  |
| 68 | Vcc2     |       | +3.3V Power Supply.                  |  |
| 69 | Reserved |       | For Future Use.                      |  |
| 70 | GND      |       | Module Ground.                       |  |
| 71 | Tx7+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 72 | Tx7-     | CML-I | Transmitter Inverted Data Input.     |  |
| 73 | GND      |       | Module Ground.                       |  |
| 74 | Tx5+     | CML-I | Transmitter Non-Inverted Data Input. |  |
| 75 | Tx5-     | CML-I | Transmitter Inverted Data Input.     |  |
| 76 | GND      |       | Module Ground.                       |  |

Electrical Pin-Out Details



Mechanical Specifications



# 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.

