



### **QDD-400GB-AEC-2M-OPC**

MSA and TAA 400GBase-AEC QSFP-DD to QSFP-DD Active Electrical Cable (AEC, 2m, CMIS 5.2)

#### **Features**

- Compliant with QSFP-DD MSA and CMIS 5.2
- Supports 8x56G PAM4 Electrical Data Rates
- Enables 400Gbps Transmission
- Wire Gauge: 30AWG
- Typical Power Consumption: 7.5W Per End
- Single 3.3V Power Supply
- Operating Temperature Range: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 400GBase Ethernet

#### **Product Description**

This is an MSA Compliant compatible 400GBase-AEC QSFP-DD to QSFP-DD active electrical cable that operates over active copper with a maximum reach of 2.0m (6.6ft). 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 TAA (Trade Agreements Act) compliant, and 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.

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

## 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



## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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