

## 02310MUM-C

Huawei® 02310MUM Compatible TAA Compliant 40GBase-CU QSFP+ to 4xSFP+ Direct Attach Cable (Passive Twinax, 5m)

### Features:

- Hybrid cable conforms to the Small Form Factor SFF-8436 and SFF-8431
- Support for multi-gigabit data rates: 1 Gbps - 10Gbps (per channel)
- Maximum aggregate data rate: 40 Gbps (4 x 10 Gbps)
- High-Density QSFP 38-PIN and 4x SFP
- 20-PIN connector
- Power Supply: +3.3V
- Operating temperature: 0 to 70 Celsius
- Lower power consumption: 0.02W
- RoHS Compliant and Lead-Free



### Applications:

- 10/40Gigabit Ethernet
- Infiniband 4x SDR, DDR, QDR

### Product Description

This is a Huawei® 02310MUM Compatible 40GBase-CU QSFP+ to 4xSFP+ direct attach cable that operates over passive copper with a maximum reach of 5m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. We stand behind the quality of our products and proudly offer a limited lifetime warranty. This cable is TAA (Trade Agreements Act) compliant and is built to comply with MSA (Multi-Source Agreement) standards.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



## Absolute Maximum Ratings

| Parameter                   | Symbol            | Min. | Typ. | Max. | Unit |
|-----------------------------|-------------------|------|------|------|------|
| Storage Ambient Temperature | T <sub>stg</sub>  | -40  |      | 85   | °C   |
| Operating Case Temperature  | T <sub>c</sub>    | 0    |      | 70   | °C   |
| Power Supply Voltage        | V <sub>cc</sub>   | 3.14 | 3.3  | 3.47 | V    |
| Power Dissipation           | P <sub>DISS</sub> |      |      | 0.02 | W    |

## Pin Descriptions

| Pin | Logic       | Symbol  | Name/Description  | Notes |
|-----|-------------|---------|---|-------|
| 1   |             | GND     | Module Ground.  | 1     |
| 2   | CML-I       | Tx2-    | Transmitter Inverted Data Input.                        |       |
| 3   | CML-I       | Tx2+    | Transmitter Non-Inverted Data Input.                    |       |
| 4   |             | GND     | Module Ground.  | 1     |
| 5   | CML-I       | Tx4-    | Transmitter Inverted Data Input.                        |       |
| 6   | CML-I       | Tx4+    | Transmitter Non-Inverted Data Input.                    |       |
| 7   |             | GND     | Module Ground.  | 1     |
| 8   | LVTTL-I     | ModSelL | Module Select.  | 2     |
| 9   | LVTTL-I     | ResetL  | Module Reset.   | 2     |
| 10  |             | VccRx   | +3.3V Receiver Power Supply.                            |       |
| 11  | LVC MOS-I   | SCL     | 2-Wire Serial Interface Clock.                          | 2     |
| 12  | LVC MOS-I/O | SDA     | 2-Wire Serial Interface Data.                           | 2     |
| 13  |             | GND     | Module Ground.  | 1     |
| 14  | CML-O       | Rx3+    | Receiver Non-Inverted Data Output.                      |       |
| 15  | CML-O       | Rx3-    | Receiver Inverted Data Output.                          |       |
| 16  |             | GND     | Module Ground.  | 1     |
| 17  | CML-O       | Rx1+    | Receiver Non-Inverted Data Output.                      |       |
| 18  | CML-O       | Rx1-    | Receiver Inverted Data Output.                          |       |
| 19  |             | GND     | Module Ground.  | 1     |
| 20  |             | GND     | Module Ground.  | 1     |
| 21  | CML-O       | Rx2-    | Receiver Inverted Data Output.                          |       |
| 22  | CML-O       | Rx2+    | Receiver Non-Inverted Data Output.                      |       |
| 23  |             | GND     | Module Ground.  | 1     |
| 24  | CML-O       | Rx4-    | Receiver Inverted Data Output.                          |       |
| 25  | CML-O       | Rx4+    | Receiver Non-Inverted Data Output.                      |       |
| 26  |             | GND     | Module Ground.  | 1     |
| 27  | LVTTL-O     | ModPrsL | Module Present. Internally pulled down to the GND.      |       |
| 28  | LVTTL-O     | IntL    | Interrupt output should be pulled up on the host board. | 2     |
| 29  |             | VccTx   | +3.3V Transmitter Power Supply.                         |       |
| 30  |             | Vcc1    | +3.3V Power Supply.                                     |       |
| 31  | LVTTL-I     | LPMode  | Low-Power Mode.   | 2     |

|    |       |      |                                      |   |
|----|-------|------|--------------------------------------|---|
| 32 |       | GND  | Module Ground.                       | 1 |
| 33 | CML-I | Tx3+ | Transmitter Non-Inverted Data Input. |   |
| 34 | CML-I | Tx3- | Transmitter Inverted Data Input.     |   |
| 35 |       | GND  | Module Ground.                       | 1 |
| 36 | CML-I | Tx1+ | Transmitter Non-Inverted Data Input. |   |
| 37 | CML-I | Tx1- | Transmitter Inverted Data Input.     |   |
| 38 |       | GND  | Module Ground.                       | 1 |

**Notes:**

1. GND is the symbol for signal and supply (power) common for the QSFP+ module. All are common within the QSFP+ module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, Vcc1, and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. Requirements defined for the host side of the Host Edge Card Connector are listed. Recommended host board power supply filtering is shown. VccRx, Vcc1, and VccTx may be internally connected within the QSFP+ module in any combination. The connector pins are each rated for a maximum current of 500mA.

**Mechanical Specifications**



## About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

## Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

## Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



## Contact Information

ProLabs US

Email: [sales@prolabs.com](mailto:sales@prolabs.com)

Telephone: 952-852-0252

ProLabs UK

Email: [salesupport@prolabs.com](mailto:salesupport@prolabs.com)

Telephone: +44 1285 719 600