

C-1000MM Gigabit Fiber Converters

 perle.com/products/gigabit-fiber-converter-modules.shtml

1000Base-SX to 1000Base-X Fiber Mode Conversion

- 1000Base-SX to 1000Base-X Fiber to Fiber Media Converter
- Multimode to multimode or multimode to single mode
- Extend multimode fiber to 160km and beyond (through cascading)
- Choice in SC, LC and ST fiber connector models
- Signal regeneration prevents signal degradation
- Advanced Features: Smart Link Pass-Through, Fiber Fault Alert, loopback for each fiber connection
- High density applications with Perle Media Converter Chassis



Installed in a high density Perle Media Converter Chassis, Perle's feature rich **C-1000MM Gigabit Fiber to Fiber Media Converter Modules** enable transparent fiber extension of 1000Base-SX multimode fiber to 1000Base-SX multimode or 1000Base-LX/EX/ZX/BX single mode fiber.

Perle's advanced features make the end to end fiber link completely transparent. This allows for more efficient troubleshooting and less on-site maintenance. In addition, a lifetime warranty and free worldwide technical support make **Perle's C-1000MM Gigabit Fiber to Fiber Media Converter Modules** the smart choice for IT professionals.

Whether you need to extend **multimode to multimode** or **multimode to single mode**, Perle has an extensive range of C-1000MM Gigabit Fiber to Fiber Media Converter Modules to meet your fiber conversion requirement.

C-1000MM Fiber to Fiber Features: 1000Base-SX to 1000Base-X

Auto-Negotiation

The 1000Base-X fiber interfaces negotiate according to 802.3 clause 37.

Smart Link Pass-Through

When the Link Mode switch is placed into Smart Link Pass-Through mode, the 1000Base-T port will reflect the state of the 1000Base-X media converter port. This feature can be used whether fiber auto-negotiation is enabled or disabled.

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| Fiber Fault Alert | With Fiber Fault Alert the state of the 1000Base-X receiver is passed to the 1000Base-X transmitter. This provides fault notification to the partner device attached to the 1000Base-X interface of the media converter. If the 1000Base-X transmitter is off as a result of this fault it will be turned on periodically to allow the condition to clear should the partner device on the 1000Base-X be using a similar technique. This eliminates the possibility of lockouts that occur with some media converters. Applies only when fiber auto-negotiation is disabled. |
| Signal Regeneration | Signal regeneration maintains signal integrity and allows for maximum fiber to fiber connections without degradation. |
| Cascading | Media Converters can be cascaded. Two or more media converters can be chained in a link to achieve even greater distances. |
| Pause (IEEE 802.3x) | Pause signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. The media converter is transparent to Pause frames. |
| VLAN | The Media Converter is transparent to 802.1Q VLAN tagged packets. |
| Duplex | Full and half duplex operation supported. |
| Jumbo Packets | Transparent to jumbo packets up to 10KB. |
| Remote Loopback | The Media Converter can perform a loopback on each 1000Base-X fiber interface. |

Indicators

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| Power / TST | This green LED is turned on when power is applied to the media converter. Otherwise it is off. The LED will blink slowly when in Loopback test mode. |
| Fiber link 1 / Receive activity (LK1) | This green LED is operational only when power is applied. The LED is on when the 100Base-X link is on and flashes with a 50% duty cycle when data is received. |
| Fiber link 2 on / Receive activity (LK2) | This green LED is operational only when power is applied. The LED is on when the 100Base-X link is on and flashes with a 50% duty cycle when data is received. |

Switches: On-Board

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| Auto-Negotiation | <p><i>Auto (default up)</i> - Fiber Negotiation is performed for both fiber ports. Full and half duplex will be advertised. Pause will advertise support for Symmetrical and Asymmetrical Pause. Pause frame will not be acted upon or generated but will be passed through.</p> <p><i>Off</i> - Negotiation on both fiber ports will be disabled. Settings of Link mode and Fiber fault alert will be determined by those switch settings. Pause frames will not be acted upon or generated but will continue to be passed through.</p> |
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| Link Mode | <p><i>Smart Link Pass-Through:</i> - (default up) - In this mode, the link state on one connection is directly reflected through the media converter to the other connection. If link is lost on one of the connections, then the other link will be brought down by the media converter.</p> <p><i>Standard:</i> - In this mode the links on both fiber ports can be brought up and down independently of each other. A loss of link on either link can take place without affecting the other connection.</p> |
| Fiber Fault Alert | <p><i>Enabled - (default up)</i> - If the media converter detects a loss of fiber signal on a fiber receiver, it will immediately disable its fiber transmitter signal. This, in effect, notifies the remote fiber link partner that an error condition exists on the fiber connection. The setting of this switch applies to both fiber ports.</p> <p><i>Disabled:</i> The media converter will not monitor for fiber fault or generate them.</p> |
| Remote Loopback #1 | <p>The media converter can perform a loopback on the link #1 fiber interface.</p> <p><i>Disabled (Default - Up)</i></p> <p><i>Enabled</i> - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #2's fiber transmitter is taken off the interface</p> |
| Remote Loopback #2 | <p>The media converter can perform a loopback on the link #2 fiber interface.</p> <p><i>Disabled (Default - Up)</i></p> <p><i>Enabled</i> - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #1's fiber transmitter is taken off the interface</p> |
| Fiber Connectors | |
| 1000Base-X | Available in SC, ST and LC connector models |
| Packet Transmission Characteristics | |
| Bit Error Rate (BER) | <10 ⁻¹² |
| Environmental Specifications | |
| Operating Temperature | 0° C to 50° C (32° F to 122° F) |
| Storage Temperature | minimum range of -25° C to 70° C (-13° F to 158° F) |
| Operating Humidity | 5% to 90% non-condensing |
| Storage Humidity | 5% to 95% non-condensing |

| | |
|--|--|
| Operating Altitude | Up to 3,048 meters (10,000 feet) |
| Heat Output (BTU/HR) | 8.53 |
| Maximum Power Consumption (watts) | 2.5 |
| MTBF (Hours) | 421,344 (Calculation model based on MIL-HDBK-217-FN2 @ 30 °C) |
| Mechanical - Hot Swapping Card | |
| Edge Connector | 32 pin DIN 41612 / IEC 60603-2 Type B/2 Male. First make, last break for ground and power |
| Card insertion and removal | Captive thumb screws enable fast insertion and removal. Can be further tightened with a screwdriver. |
| Product Weight | |
| Weight | 0.15 kg, 0.33 lbs |
| Packaging | |
| Shipping Weight | 0.33 kg, .73 lbs |
| Shipping Dimensions | 203 x 38 x 152 mm, 8 x 1.5 x 6 inches |
| Regulatory Approvals | |
| | FCC Part 15 Class A, EN55022 Class A |
| | CISPR 22 Class A CISPR 32:2015/EN 55032:2015 (Class A) CISPR 24:2010/EN 55024:2010 |
| Emissions | EN61000-3-2 |
| Immunity | EN55024 |
| | UL/EN/IEC 62368-1 CAN/CSA C22.2 No. 62368-1 |
| | UL 60950-1 IEC 60950-1(ed 2); am1, am2 EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 |
| Electrical Safety | CE |
| Laser Safety | EN 60825-1:2007 |

Fiber optic transmitters on this device meet Class 1 Laser safety requirements per IEC-60825 FDA/CDRH standards and comply with 21CFR1040.10 and 21CFR1040.11.

Environmental Reach, RoHS and WEEE Compliant

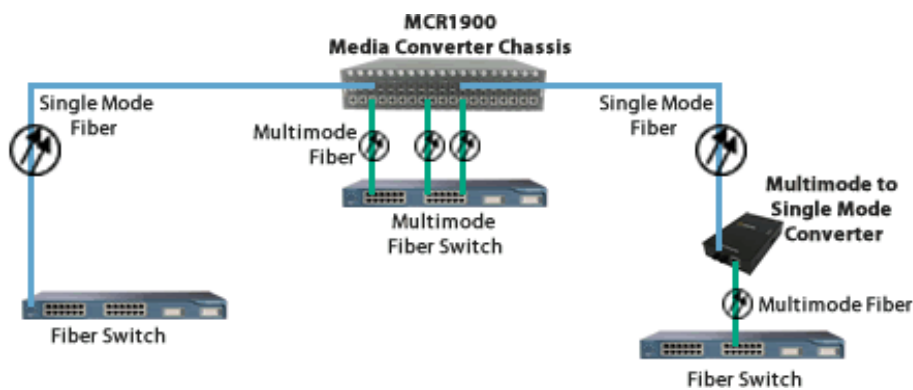
ECCN: 5A991

HTSUS Number: 8517.62.0020

Other Perle Limited Lifetime Warranty

High Density Fiber Distribution from Fiber Switch Equipment at Corporate Headquarters

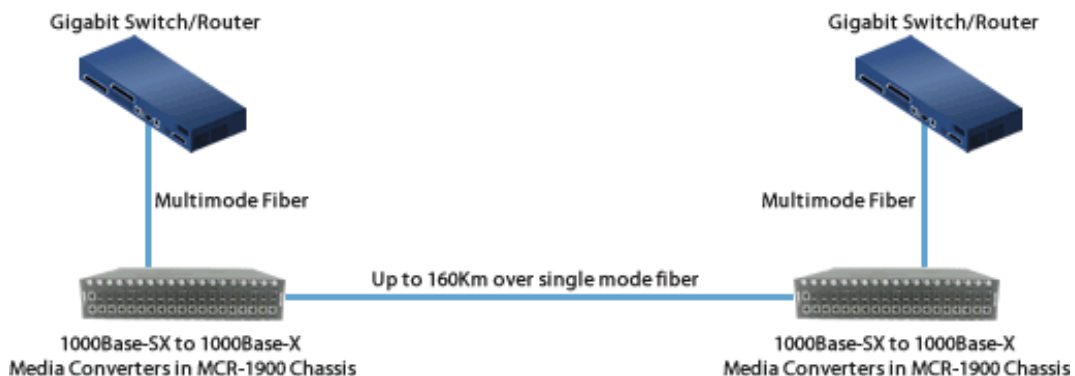
In this enterprise campus application, up to 19 Perle Fiber to Fiber Media Converters (Multimode to Single mode) are installed in the MCR1900 Media Converter Chassis. A remote single mode fiber enabled Ethernet switch is connected directly to the central MCR1900 Chassis. Another standalone Fiber Media Converter is connected to a remote office Fiber switch. In all cases, multimode or single-mode fiber can be used. Fiber links can be extended up to 160km using single-mode fiber.



Extend between two Gigabit Fiber Switches

Extend the network distance between two Gigabit Fiber switches

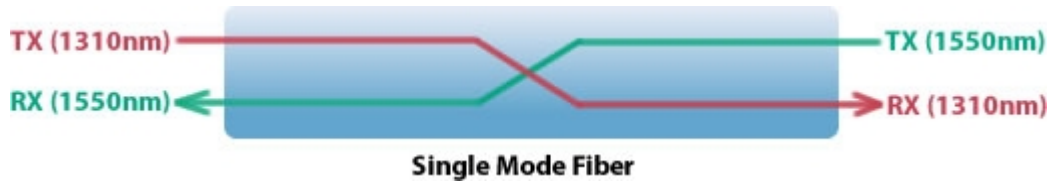
Two Gigabit Fiber to Fiber Media Converters can extend the distance between Fiber Switches across a single mode fiber link up to 160km in length.



Single Mode / Single Fiber

Connect fiber ports over a single fiber strand (also referred to as “Bi-Directional” BiDi)

When Single Strand fiber is used, a pair of Single Fiber Media Converters is needed for the fiber to fiber conversion. Perle Single Fiber Media Converters are also referred to as “Up/Down” models. For example the C-1000MM-S1SC20U (“Up”) and C-1000MM-S1SC20D (“Down”), shown below, must be used in pairs. An “Up” must be matched with a “Down” peer to deal with transmit and receive frequencies separately.



C-1000MM-S1SC20UC-1000MM-S1SC20D

The majority of installations for single mode fiber media converters are of the “dual connector” or “dual fiber” type where one fiber connection is used for transmit, the other for receive. These are physically “crossed” to match up the Transmit/Receive links.

However, to reduce costs, or where there are limits on available fiber, WDM technology may be utilized. WDM uses separate transmit and receive frequencies to communicate on a single fiber strand. WDM technology relies on the fact that optical fibers can carry many wavelengths of light simultaneously without interaction between each wavelength. Thus, a single fiber can carry many separate wavelength signals or channels simultaneously.

So remember, if Single Strand fiber is used, you will need an “Up” Media Converter on one side and a “Down” Media Converter on the other for fiber to fiber conversion.

Perle offers a wide variety of Single Fiber (“Up/Down”) Media Converters to connect 10BaseT, Fast Ethernet and Gigabit to single fiber. Whether you need Managed or Unmanaged, Standalone or Modular Chassis Based, 20km or 120km, Perle has the right model to meet your fiber conversion requirement.

Select a Model to obtain a Part Number - C-1000MM Gigabit Fiber to Fiber Media Converter Module

| Model | Port | Connector | Type | Transmit (dBm) | | Receive (dBm) | | Power Budget (dBm) | Wavelength (nm) | Fiber Type | Core Size (um) | Modal Bandwidth (MHz* Km) | Operating Distance |
|-----------------|--------|-----------|-------------|----------------|------|------------------|------|--------------------|-----------------|------------|----------------|---------------------------|--------------------|
| | | | | Min | Max | Min | Max | | | | | | |
| C-1000MM-MZS105 | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | 62.5 | 200 | 275 m (902 ft) | | | | | | | |
| | | | | 50 | 400 | 500 m (1,640 ft) | | | | | | | |
| | | | | 50 | 500 | 550 m (1,804 ft) | | | | | | | |
| | | | | 50 | 2000 | 1000 m (3281 ft) | | | | | | | |
| C-1000MM-MZS105 | Port 2 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | 62.5 | 200 | 275 m (902 ft) | | | | | | | |
| | | | | 50 | 400 | 500 m (1,640 ft) | | | | | | | |

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|------------------------|--------|---------|-------------|------|------|-------|-------|-----|------|-----|------|------|---------------------|
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| <u>C-1000MM-MZSC05</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| <u>C-1000MM-MZLC05</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| <u>C-1000MM-MZS12</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| <u>C-1000MM-MZSC2</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |

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|------------------------|--------|---------|----------------|------|------|-------|-------|------|------|-------|------|------|---------------------|
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| <u>C-1000MM-M2LC2</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| <u>C-1000MM-S2ST10</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-LX/LH | -9.5 | -3.0 | -20.0 | -3.0 | 10.5 | 1310 | MMF* | 62.5 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 400 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 500 | 550m (1,804 ft) |
| | | | | | | | | | | SMF** | ** | - | 10 km (6.2 mi) |
| <u>C-1000MM-S2SC10</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-LX/LH | -9.5 | -3.0 | -20.0 | -3.0 | 10.5 | 1310 | MMF* | 62.5 | 500 | 550m (1,804 ft) |
| | | | | | | | | | | | 50 | 400 | 550m (1,804 ft) |
| | | | | | | | | | | | 50 | 500 | 550m (1,804 ft) |
| | | | | | | | | | | SMF** | ** | - | 10 km (6.2 mi) |
| <u>C-1000MM-S2LC10</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |

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|-------------------------|--------|---------|----------------|------|------|-------|------|------|------|-------|------|------|--------------------|---------------------|
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-LX/LH | -9.5 | -3.0 | -20.0 | -3.0 | 10.5 | 1310 | MMF* | 62.5 | 500 | 550m (1,804 ft) | |
| | | | | | | | | | | | | 50 | 400 | 550m (1,804 ft) |
| | | | | | | | | | | | | 50 | 500 | 550m (1,804 ft) |
| | | | | | | | | | | SMF** | ** | - | | 10 km (6.2 mi) |
| <u>C-1000MM-S2ST140</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-EX | -2 | 2.0 | -23.0 | -3.0 | 21 | 1310 | SMF** | ** | - | | 40 km (25 mi) |
| <u>C-1000MM-S2SC40</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-EX | -2 | 2.0 | -23.0 | -3.0 | 21 | 1310 | SMF** | ** | - | | 40 km (25 mi) |
| <u>C-1000MM-S2LC40</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-EX | -3 | 2.0 | -23.0 | -3.0 | 20 | 1310 | SMF** | ** | - | | 40 km (25 mi) |
| <u>C-1000MM-S2ST170</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-ZX | -2 | 5.0 | -23.0 | -3.0 | 21 | 1550 | SMF** | ** | - | | 70 km (43.5 mi) |
| <u>C-1000MM-S2SC70</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |

| | | | | | | | | | | | | | | |
|-------------------------|--------|---------|-------------|------|------|-------|-------|------|------|-------|------|------|---------------------|---------------------|
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-ZX | -2 | 5.0 | -23.0 | -3.0 | 21 | 1550 | SMF** | ** | - | - | 70 km (43.5 mi) |
| <u>C-1000MM-S2LC70</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) | |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) | |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) | |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) | |
| | Port 2 | Dual LC | 1000BASE-ZX | 0 | 5.0 | -23.0 | -3.0 | 23 | 1550 | SMF** | ** | - | - | 70 km (43.5 mi) |
| <u>C-1000MM-S2ST120</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) | |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) | |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) | |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) | |
| | Port 2 | Dual ST | 1000BASE-ZX | 0 | 5.0 | -9.0 | -32.0 | 32.0 | 1550 | SMF** | ** | - | - | 120 km (75 mi) |
| <u>C-1000MM-S2SC120</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) | |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) | |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) | |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) | |
| | Port 2 | Dual SC | 1000BASE-ZX | 0 | 5.0 | -9.0 | -32.0 | 32.0 | 1550 | SMF** | ** | - | - | 120 km (75 mi) |
| <u>C-1000MM-S2LC120</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) | |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) | |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) | |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) | |
| | Port 2 | Dual LC | 1000BASE-ZX | 0 | 5.0 | -9.0 | -32.0 | 32.0 | 1550 | SMF** | ** | - | - | 120 km (75 mi) |
| <u>C-1000MM-S2SC160</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) | |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) | |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) | |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) | |

| | | | | | | | | | | | | | |
|-------------------------|--------|---------|-------------|------|------|-------|-------|------|------|-------|------|------|---------------------|
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-ZX | 2 | 5.0 | -9.0 | -32.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |
| <u>C-1000MM-SZLC160</u> | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-ZX | 2 | 5.0 | -9.0 | -32.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |
| <u>C-1000MM-SZST160</u> | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-ZX | 2 | 5.0 | -9.0 | -32.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |

Single Fiber Models Recommended use in pairs

| Model | Port | Connector | Type | Transmit (dBm) | | Receive (dBm) | | Power Budget (dBm) | Wavelength (nm) | Fiber Type | Core Size (um) | Modal Bandwidth (MHz* Km) | Operating Distance |
|-------------------------|--------|-----------|-----------------|----------------|------|---------------|------|--------------------|-----------------|------------|----------------|---------------------------|---------------------|
| | | | | Min | Max | Min | Max | | | | | | |
| <u>C-1000MM-STSC10U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX10-U | -9 | -3.0 | -20.0 | -3.0 | 11 | 1310/1490 | SMF** | ** | - | 10 km (6.2 mi) |
| <u>C-1000MM-STSC10D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX10-D | -9 | -3.0 | -20.0 | -3.0 | 11 | 1490/1310 | SMF** | ** | - | 10 km (6.2 mi) |
| <u>C-1000MM-STSC20U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |

| | | | | | | | | | | | | | | |
|-------------------------|--------|-----------|---------------|------|------|-------|-------|------|-----------|-------|----|------|------|---------------------|
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -8 | -3.0 | -3.0 | -22.0 | 14.0 | 1310/1490 | SMF** | ** | - | - | 20 km (12.4 mi) |
| <u>C-1000MM-STSC20D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-D | -8 | -3.0 | -3.0 | -22.0 | 14.0 | 1490/1310 | SMF** | ** | - | - | 20 km (12.4 mi) |
| <u>C-1000MM-STSC40U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -3 | 2.0 | -3.0 | -23.0 | 20.0 | 1310/1490 | SMF** | ** | - | - | 40 km (25 mi) |
| <u>C-1000MM-STSC40D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-BX-D | -3 | 2.0 | -3.0 | -23.0 | 20.0 | 1490/1310 | SMF** | ** | - | - | 40 km (25 mi) |
| <u>C-1000MM-STSC80U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -2 | 3.0 | -3.0 | -26.0 | 24.0 | 1510/1590 | SMF** | ** | - | - | 80 km (50 mi) |
| <u>C-1000MM-STSC80D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |

| | | | | | | | | | | | | | |
|--------------------------|--------|-----------|---------------|------|------|-------|-------|------|-----------|-------|------|------|---------------------|
| | Port 2 | Single SC | 1000BASE-BX-D | -2 | 3.0 | -3.0 | -26.0 | 24.0 | 1590/1510 | SMF** | ** | - | 80 km (50 mi) |
| <u>C-1000MM-STSC120U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -3.0 | 2.0 | -9.0 | -34.0 | 31.0 | 1510/1590 | SMF** | ** | - | 120 km (75 mi) |
| <u>C-1000MM-STSC120D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | | 200 | 275 m (902 ft) |
| | | | | | | | | | | | | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-D | -3.0 | 2.0 | -9.0 | -34.0 | 31.0 | 1590/1510 | SMF** | ** | - | 120 km (75 mi) |

The minimum fiber cable distance for all converters listed is 2 meters.

*A mode-conditioning adapter as specified by the IEEE standard, is required regardless of the span length. Note how the mode conditioning adapter for 62.5-um fibers has a different specification from the mode-conditioning adapter for 50-um fibers.

**ITU-T G.652 SMF as specified by the IEEE 802.3z standard

Media Converter Accessories

4 DIN Rail Mount Bkt DIN Rail Mounting Kit

MCSM Standalone media converter wall mount bracket

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