C-1000MM Gigabit Fiber Converters

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-X link on one port will reflect the state of the other 1000Base-X media converter port. This feature can be used whether fiber auto-negotiation is enabled or disabled.

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.

Specifications				
Lifetime limited warranty	**Reach, RoHS and WEEE Compliant**	**HTSUS Number:** 8517.62.0020	**UNSPSC Code:** 43201553	**ECCN:** 5A991

Indicators	
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	
Auto-Negotiation	• *Auto (default up)* - 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. • *Off* - 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.

Link Mode	• *Smart Link Pass-Through:* - (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. • *Standard:* - 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
Fiber Fault Alert	• *Enabled - (default up)* - 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 • *Disabled:* The media converter will not monitor for fiber fault or generate them.
Remote Loopback #1	• The media converter can perform a loopback on the link #1 fiber interface. Disabled (Default - Up) • *Enabled* - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #2's fiber transmitter is taken off the interface
Remote Loopback #2	• The media converter can perform a loopback on the link #1 fiber interface. Disabled (Default - Up) • *Enabled* - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #1's fiber transmitter is taken off the interface.
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 Hours *Calculation model based on MIL-HDBK-217-FN2 @ 30°C*
Mechanical - Hot Swapping Card	
Edge Connecter	32 pin DIN 41612 / IEC 60603-2 Type B/2 Male. Fist make, last break for ground and power
Card insertion and removal	Captive thumb screws enable fast insertion and removal. Can be further tighten 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	
Emissions	• FCC Part 15 Class A, EN55022 Class A • CISPR 22 Class A • CISPR 32:2015/EN 55032:2015 (Class A) • CISPR 35/EN 55035 • EN61000-3-2
Immunity	EN55024

Electrical Safety	• 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 • CE
Laser Safety	• EN 60825-1 • 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.

Product List

C-1000MM-M2ST05 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.].

Part Number(s)
05061210

C-1000MM-M2SC05 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.].

Part Number(s)
05061190

C-1000MM-M2LC05 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.]

Part Number(s)
05061200

C-1000MM-M2ST2 - Gigabit Ethernet Fiber to Fiber Media Converter Module. 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-LX 1310nm Extended multimode (ST) [2km /6562 ft.]

Part Number(s)
05061490

C-1000MM-M2SC2 - Gigabit Ethernet Fiber to Fiber Media Converter Module. 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-LX 1310nm Extended multimode (SC) [2km /6562 ft.]

Part Number(s)
05061470

C-1000MM-M2LC2 - Gigabit Ethernet Fiber to Fiber Media Converter Module. 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-LX 1310nm Extended multimode (LC) [2km /6562 ft.]

Part Number(s)
05061480

C-1000MM-S2ST10 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-LX/LH 1310 nm single mode (ST) [10 km/6.2 miles]

Part Number(s)
05061240

C-1000MM-S2SC10 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-LX/LH 1310 nm single mode (SC) [10 km/6.2 miles]

Part Number(s)
05061220

C-1000MM-S2LC10 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-LX/LH 1310 nm single mode (LC) [10 km/6.2 miles]

Part Number(s)
05061230

C-1000MM-S2ST40 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-EX 1310 nm single mode (ST) [40 km/24.9 miles].

Part Number(s)
05061270

C-1000MM-S2SC40 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-EX 1310 nm single mode (SC) [40 km/24.9 miles].

Part Number(s)
05061250

C-1000MM-S2LC40 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-EX 1310 nm single mode (LC) [40 km/24.9 miles].

Part Number(s)
05061260

C-1000MM-S2ST70 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-ZX 1550 nm single mode (ST) [70 km/43.5 miles]

Part Number(s)
05061300

C-1000MM-S2SC70 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-ZX 1550 nm single mode (SC) [70 km/43.5 miles]

Part Number(s)
05061280

C-1000MM-S2LC70 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-ZX 1550 nm single mode (LC) [70 km/43.5 miles]

Part Number(s)
05061290

C-1000MM-S2ST120 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (ST) [550 m/1804 ft.] to 1000Base-EZX 1550 nm single mode (ST) [120 km/74.6 miles]

Part Number(s)
05061330

C-1000MM-S2SC120 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-EZX 1550 nm single mode (SC) [120 km/74.6 miles]

Part Number(s)
05061310

C-1000MM-S2LC120 - Gigabit Ethernet Fiber to Fiber Media Converter Module, 1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-EZX 1550 nm single mode (LC) [120 km/74.6 miles]

Part Number(s)
05061320

C-1000MM-S2ST160 - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000BASESX 850nm multimode (ST) [550 m/1804 ft.] to 1000BASEEZX 1550 nm single mode (ST) [160 km/100 miles]

Part Number(s)
05061460

C-1000MM-S2SC160 - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-EZX 1550 nm single mode (SC) [160 km/100 miles]

Part Number(s)
05061440

C-1000MM-S2LC160 - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (LC) [550 m/1804 ft.] to 1000Base-EZX 1550 nm single mode (LC) [160 km/100 miles]

Part Number(s)
05061450

C-1000MM-S1SC10U - Gigabit Ethernet Fiber to Fiber Media Converter Module,
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1310nm TX / 1490nm RX single strand fiber, single mode (SC) [10 km/6.2 miles]

Part Number(s)
05061340

C-1000MM-S1SC10D - Gigabit Ethernet Fiber to Fiber Media Converter Module,
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1490nm TX / 1310nm RX single strand fiber, single mode (SC) [10 km/6.2 miles]

Part Number(s)
05061350

C-1000MM-S1SC20U - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1310nm TX / 1490nm RX single strand fiber, single mode (SC) [20 km/12.4 miles]

Part Number(s)
05061360

C-1000MM-S1SC20D - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1490nm TX / 1310nm RX single strand fiber, single mode (SC) [20 km/12.4 miles]

Part Number(s)
05061370

C-1000MM-S1SC40U - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1310nm TX / 1490nm RX single strand fiber, single mode (SC) [40 km/25 miles]

Part Number(s)
05061380

C-1000MM-S1SC40D - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1490nm TX / 1310nm RX single strand fiber, single mode (SC) [40 km/25 miles]

Part Number(s)
05061390

C-1000MM-S1SC80U - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1510nm TX / 1590nm RX single strand fiber, single mode (SC) [80 km/50 miles]

Part Number(s)
05061400

C-1000MM-S1SC80D - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1590nm TX / 1510nm RX single strand fiber, single mode (SC) [80 km/50 miles]

Part Number(s)
05061410

C-1000MM-S1SC120U - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1510nm TX / 1590nm RX single strand fiber, single mode (SC) [120 km/75 miles]

Part Number(s)
05061420

C-1000MM-S1SC120D - Gigabit Ethernet Fiber to Fiber Media Converter Module.
1000Base-SX 850nm multimode (SC) [550 m/1804 ft.] to 1000Base-BX 1590nm TX / 1510nm RX single strand fiber, single mode (SC) [120 km/75 miles]

Part Number(s)
05061430