

CM-1000-SFP Managed Media Converter

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



- 1000Base-T to 1000Base-X Fiber SFP Media Converters
- Advanced features - Smart Link Pass-Through, Fiber Fault Alert, Auto-MDIX and Loopback
- Empty slot for **Cisco** and other industry standard **Gigabit Fiber SFPs**
- SFP Monitoring
- High density applications with **Perle Media Converter Chassis**
- Manage via SNMP, CLI - Telnet/SSH, Internet browser, or **PerleVIEW Central Management Platform** with an **MCR-MGT Media Converter Management Module**

Installed in a high density **Perle Media Converter Chassis**, Perle's line of feature rich **Gigabit SFP Managed Media Converter Modules** transparently Gigabit copper to SFP for multimode or single mode fiber. Our Gigabit Ethernet to Fiber Converters provide an economical path to extend the distance of an existing network, the life of non-fiber based equipment, or the distance between two devices. The pluggable fiber optics port allows for flexible network configurations using **SFP tanceivers supplied by Perle, Cisco** or other manufacturers of MSA compliant SFPs.

Network Administrators can "see-everything" with Perle's advanced features such as Auto-Negotiation, Auto-MDIX, Link Pass-Through, Fiber Fault Alert, and Loopback. Along with a **Media Converter Management Module** in the chassis, configuration and monitoring of the copper and fiber ports can be performed. This allows for more efficient troubleshooting and less on-site maintenance. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make Perle's **Gigabit SFP Managed Converter Modules** the smart choice for IT professionals.

For those environments requiring a medium to large-scale deployment of media converters, a centralized platform that simplifies the configuration, administration, monitoring, and troubleshooting of this gear is recommended. **PerleVIEW Device Management** software is a multi-user, Windows server-based application that delivers this level of Enterprise-grade solution.

Gigabit SFP Managed Media Converter Module Features

Configuration Mode selection

Select whether the module is to use the on-board DIP switches or enable the management module in the chassis to manage

Module Information

- SFP Signaling rate
 - SFP Link Reach for :
 - 9/125 fiber
 - 50/125 fiber
 - 62.5/125 fiber
 - SFP wavelength
 - Chassis Slot number that the module is in
 - Media converter model and serial
 - User configurable module name
 - User configurable fiber port name
 - User configurable copper port name
 - Hardware revision number
 - Firmware version number
-

Module DIP switch settings

View hardware DIP switch settings

Low power mode

If enabled it sets the Gigabit copper transceiver into “low power mode” which limits the strength of the signal. (for shorter cable lengths). Default is disabled

Port Control

Enable or disable individual fiber or copper port on the module

Copper Port Status

- Port Enabled (Yes/No)
 - Link Status (Up/Down)
 - Auto Negotiation Settings (Disabled, Complete or In Progress)
 - Resolved as crossover MDI or MDIX type
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SFP Status

- DOM / DMI Optical monitoring of :
 - SFP temperature
 - TX supply voltage
 - TX bias current
 - TX output power
 - RX received optical power
 - Port Enabled (Yes/No)
 - Connector type (SC, LC, ST, SFP)
 - Link Status (Up/Down)
 - Far End Fault (OK, Failed)
 - Fiber Loopback mode (On/Off)
-

Fiber Port Status

- Port Enabled (Yes/No)
 - Connector type (SC, LC, ST, SFP)
 - Link Status (Up/Down)
 - Far End Fault (OK, Failed)
 - Fiber Loopback mode (On/Off)
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Module Control

- Reset card
 - Reset to factory default
 - Ability to specific read/write phy registers.
 - Update firmware
 - Fiber Loopback mode (Yes/No)
 - Upload/download configuration
-

Backup and Restore

Provides fast and easy module replacement. Management module will always save a copy of the media converter configuration and will restore this configuration automatically to the media module when it is detected in the slot

Auto-Negotiation (802.3ab)

The media converter supports auto negotiation. The 1000Base-X fiber interface negotiates according to 802.3 clause 37. The 1000Base-T negotiates according to 802.3 clause 28 and 40. The 1000Base-X will link up with its partner after the highest common denominator (HCD) is reached and the copper has linked up with its partner. The 1000Base-X will continue to cycle through negotiation transmitting a remote fault or offline (provided this is enabled through the switch setting) until the copper is linked up and the HCDs match.

The media converter supports auto-negotiation of full duplex, half duplex, remote fault, full duplex pause, asymmetric pause and Auto MDI-X.

Auto-MDIX with Skew Correction

Auto-MDIX (automatic medium-dependant interface crossover) detects the signaling on the 1000Base-T interface to determine the type of cable connected (straight-through or crossover) and automatically configures the connection when enabled. The media converter can also correct for wires swapped within a pair.

The media converter will adjust for up to 64ns of delay skew between the 1000Base-T pairs.

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.

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.

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 supports pause negotiation on the 1000Base-T fiber connection and 1000Base-X fiber connection. Select Symmetrical, asymmetrical TX or asymmetrical RX

Duplex

Full and half duplex operation supported.

Jumbo Packets

Transparent to jumbo packets up to 10KB-default. Jumbo packet support can be disabled.

VLAN

Transparent to VLAN tagged packets. Default Jumbo packet can be disabled.

Remote Loopback

Capable of performing a loopback on the 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 when in Loopback test mode.			
Fiber link on / Receive activity (LKF)	This green LED is operational only when power is applied. The LED is on when the 1000Base-X link is on and flashes with a 50% duty cycle when data is received. The LED will slow blink when the 1000Base-X interface has been taken down as a result of a fault on the 1000Base-T interface.			
Copper link on / Receive activity (LKC)	This green LED is operational only when power is applied. The LED is on when the 1000Base-T link is on and flashes with a 50% duty cycle when data is received. The LED will slow blink when the 1000Base-T interface has been taken down as a result of a fault on the 1000Base-T interface.			

Switches: On-Board	
Auto-Negotiation	• <i>Enabled (Default - Up)</i> - In this mode the 1000Base-X and the 1000Base-T will negotiate to the HCD of the two link partners. The 1000Base-X will link up after the negotiation is completed and the 1000Base-T has linked up. • <i>Disabled</i> - The 1000Base-X will not use auto negotiation. The 1000Base-T will negotiate to the HCD of the Switch settings and the link partner.
Link Mode	Link Mode provides a transparency to the state of the copper link allowing for simplified trouble shooting from the devices connected to the media converter. <i>Normal (Default — Up)</i> • With Fiber Auto Negotiation enabled when the 1000Base-T link goes down the 1000Base-X link is brought down. The 1000Base-X link will advertise Remote Fault (Link Fault). • With Fiber Auto Negotiation disabled the state of the 1000Base-T link has no effect on the 1000Base-X link. <i>Smart Link Pass Through (Down)</i> • With Fiber Auto Negotiation enabled the behavior is as follows. When the 1000Base-T link goes down the 1000Base-X link is brought down. The 1000Base-X link will advertise Remote Fault (Link Fault). When Remote Fault (Link Fault) is received on the 1000Base-X interface the 1000Base-T transmitter will be turned off. When the 1000Base-T receiver is off the 1000Base-X transmitter will be turned off. When the 1000Base-X receiver goes off the 1000Base-T transmitter will be turned off. • With Fiber Auto-Negotiation disabled the behavior is as follows. When the 1000Base-T receiver is off the 1000Base-X transmitter will be turned off. When the 1000Base-X receiver goes off the 1000Base-T transmitter will be turned off.
Pause	When Fiber Auto Negotiation is disabled Pause should only be enabled when all devices connected to the media converter support pause. • <i>Enabled (Default)</i> - The Media converter will advertise Pause capable, Asymmetric pause not needed during Auto-Negotiation. • <i>Disabled</i> - The Media converter will advertise that it does not have Pause capability during Auto-Negotiation.

Fiber Fault Alert	The Fiber Fault Alert switch has meaning when Auto-Negotiation is disabled • <i>Enabled (Default - Up)</i> - When the 1000Base-X receiver is off the 1000Base-X transmitter is turned off. Periodically the 1000Base-X receiver will be turned on for a short period to allow the condition to clear if the 1000Base-X link partner is using a similar feature. • <i>Disabled (Down)</i>
Duplex	• <i>Full (Default-Up)</i> - The media converter will advertise Full Duplex Capable, Half Duplex Capable. • <i>AUTO (Down)</i> - The Media converter will advertise Full Duplex Not Capable, Half Duplex Capable.
Remote Loopback	The media converter can perform a loopback on the 1000Base-X fiber interface. • <i>Disabled (Default - Up)</i> • <i>Enabled</i> - The 1000Base-X receiver is looped to the 1000Base-X transmitter. The 1000Base-T transmitter is taken off the interface.
Connectors	
1000Base-T	RJ45 connector, 4 pair CAT5 UTP cable or better
Magnetic Isolation	1.5kv
Small Form Factor Pluggable (SFP) slot	• SFP slot models: Empty slot for 100Base-X SFP modules supplied by Perle, Cisco or other manufacturers of MSA compliant SFPs. • Hot insertion and removable (hot swappable).
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)	10.2
Maximum Power Consumption (Watts)	3.0
MTBF (Hours)	745,000 Hours <i>Calculation model based on MIL-HDBK-217-FN2 @ 30°C</i>
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 tighten with a screwdriver.
Product Weight	
Weight	0.1 kg, 0.22 lbs
Packaging	
Shipping Weight	0.22 kg, .49 lbs
Shipping Dimensions	203 x 38 x 152 mm, 8 x 1.5 x 6 inches
Regulatory Approvals	
Emissions	• FCC Part 15 Class A • CISPR 32 / EN 55032 • EN61000-3-2
Immunity	CISPR 35 / EN 55035
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

Product List



CM-1000-SFP - Gigabit Ethernet Managed Media Converter Module. 1000Base-T (RJ-45) [100 m/328 ft.] to 1000Base-X - SFP slot (empty). Managed or unmanaged operation

Part Number(s)

05052180
