CM-100 Fast Ethernet Converters

100Base-TX to 100Base-FX Fiber Mode Conversion

- 100Base-TX to 100Base-FX Fiber Media Converters
- Extend network distances up to 120km
- SC, LC and ST Media Converters
- Advanced Features: Link Pass-Through, Far-End Fault, Auto-MDIX
- 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 feature rich **Managed Fast Ethernet Media Converter Modules** transparently connect UTP copper to fiber. Our fast ethernet media 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.

Network Administrators can rest assured with Perle's advanced features such as Auto-Negotiation, Auto-MDIX, **Link Pass-Through**, Far End Fault, and Pause which make the end to end link completely transparent. This allows for more efficient troubleshooting and less on-site maintenance. Along with a **Media Converter Management Module** in the chassis, configuration and monitoring of the copper and fiber ports can be performed. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make Perle's **managed fast ethernet media 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.

CM-100 Managed Media Converter 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

Auto-MDIX

Auto-MDIX (automatic medium-dependant interface crossover) detects the signaling on the 100Base-TX interface to determine the type of cable connected (straight-through or crossover) and automatically configures the connection when enabled. With Auto-MDIX enabled, either a straight-through or crossover type cable can be used to connect the media converter to the device on the other end of the cable. Can manually set Auto or MDIX on the copper port via on-board strap or via the management card

Module Information

- 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

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

Fiber Port Status

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

Module Control

- Reset card
- Reset to factory default
- Phy specific commands such write/read config, read dip switches
- Update firmware
- Fiber Loopback mode. (On/Off)
- 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 (802.3u)

The media converter supports auto negotiation on the fast ethernet 100Base-TX interface.

Link Pass-Through

With Link Pass-Through the state of the 100Base-TX receiver is passed to the 100Base-FX transmitter to make the media converter appear transparent to the end devices that are connected. In addition if Far-End Fault is enabled the media converter can turn off the 100Base-TX transmitter when a FAR-End Fault is received.

Using Link Pass-Through with Far-End Fault minimizes data loss when a fault occurs. Should a fault occur, the end devices have the indication of a failure available to them making trouble shooting easier.

Far-End Fault (FEF)

The media converter implements the 802.3 standard for Far-End Fault for the indication and detection of remote fault conditions on the 100Base-FX fiber connection. With Far-End Fault enabled the media converter transmits the Far-End Fault Indication over the 100Base-FX fiber connection whenever a receive failure is detected on the 100Base-FX fiber connection. The media converter continuously monitors the 100Base-FX fiber connection for a valid signal.

The action the media converter takes on receiving a Far-End Fault Indication is dependent on the Link Pass Through switch setting.

Pause (IEEE 802.3xy)

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 fast ethernet media converter supports pause negotiation on the 100Base-TX copper connection.

VLAN

The media converter is transparent to VLAN tagged packets.

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 100Base-FX link is on and flashes with a 50% duty cycle when data is received.
Copper link on / Receive activity (LKC)	This green LED is operational only when power is applied. The LED is on when the 100Base-TX link is on and flashes with a 50% duty cycle when data is received.

Switches: On-Board (If Auto/Switch strap is set to Switch)	
Auto-Negotiation (802.3u)	• *Enabled (Default)* - The media converter uses 802.3u Auto-negotiation on the 100Base-TX interface. It is set to advertise full duplex. • *Disabled* - The media converter sets the 100Base-TX port to full duplex.
Pause	• Pause should be enabled when all devices connected to the media converter support pause. Auto-Negotiation must be Enabled to use this feature. • *Enabled (Default)* - The Media converter will advertise Pause capability during Auto-Negotiation on the 100Base-TX interface. • *Disabled* - The Media converter will advertise that it does not have Pause capability during Auto-Negotiation on the 100Base-TX interface.
Link Pass Through	• *Enabled (Default)* - When the state of the receiver is changed on the 100Base-TX interface it is reflected on the 100Base-FX fiber transmitter. When the state of the receiver on the 100Base-FX interface is changed it is reflected on the 100Base-TX transmitter. • When a Far-End Fault Indication is received on the fiber interface the 100Base-TX transmitter is turned off. When the Far-End Fault Indication is cleared the transmitter is turned back on. • *Disabled* - The 100Base-TX and the 100Base-FX fiber interface operate independently. Far-End Fault indication on the 100Base-FX fiber interface has no effect on the 100Base-TX interface.
Far-End Fault (FEF)	• *Enabled (Default)* - The media converter transmits the Far-End Fault Indication over the 100Base-FX fiber connection whenever a receive failure is detected on the 100Base-FX fiber connection. The media converter continuously monitors the100Base-X fiber connection and clears the Far-End Fault Indication condition when a valid signal is received. • *Disabled* - Far-End Fault Indications are not transmitted regardless of the condition of the receive signal on the 100Base-FX fiber connection.

Remote Loopback	The media converter can perform a loopback on the 100Base-X fiber interface. Disabled (Default - Up) *Enabled* - The 100Base-X receiver is looped to the 100Base-X transmitter. The 100Base-TX transmitter is taken off the interface.
Auto-MDIX (Internal Strap)	• If Auto-Negotiation (802.3u) is enabled, the media converter uses the HP Auto-MDIX method for the 100Base-TX interface. • If Auto-Negotiation (802.3u) is disabled the Media converter will use the RX Energy method on the 100Base-TX interface to set the port MDI or MDIX whichever is appropriate. • *Enabled (Default)* - Either a straight-through or crossover type cable can be used to connect the media converter to the device on the other end of the cable. • *Disabled* - If the partner device on the other end of the cable does not have the Auto-MDIX feature a specific cable, either a straight-through or crossover will be required to ensure that the media convertor's transmitter and the partner devices transmitter are connected to the others receiver. The Media Convertor's 100Base-TX port is configured as MDI with this switch setting.
Configuration Mode (Strap)	• Auto (default) enable management module to overwrite hardware switch settings • Switch - Use onboard DIP switches
Cables	
100Base-TX	RJ45 connector, 2 pair CAT 5, EIA/TIA 568A/B or better cable
Magnetic Isolation	1.5kv
Fiber Optic Cable	• Multimode: 62.5 / 125, 50/125, 85/125, 100/140 micron • Single Mode: 9/125 micron (ITU-T 625)
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)	6.8
Maximum Power Consumption (Watts)	2.0
MTBF (Hours)*	595,000 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

CM-100-M2ST2 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (ST) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05052200

CM-100-M2SC2 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (SC) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05052210

CM-100-M2LC2 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (LC) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05052220

CM-100-S2ST20 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (ST) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05052320

CM-100-S2SC20 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (SC) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05052230

CM-100-S2LC20 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (LC) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05052240

CM-100-S2ST40 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (ST) [40 km/24.9 miles]. Managed or unmanaged operation

Part Number(s)
05052330

CM-100-S2SC40 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (SC) [40 km/24.9 miles]. Managed or unmanaged operation

Part Number(s)
05052250

CM-100-S2LC40 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (LC) [40 km/24.9 miles]. Managed or unmanaged operation

Part Number(s)
05052360

CM-100-S2ST80 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (ST) [80 km/49.7 miles]. Managed or unmanaged operation

Part Number(s)
05052340

CM-100-S2SC80 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (SC) [80 km/49.7 miles]. Managed or unmanaged operation

Part Number(s)
05052260

CM-100-S2LC80 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (LC) [80 km/49.7 miles]. Managed or unmanaged operation

Part Number(s)
05052370

CM-100-S2ST120 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (ST) [120 km/74.6 miles]. Managed or unmanaged operation

Part Number(s)
05052350

CM-100-S2SC120 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (SC) [120 km/74.6 miles]. Managed or unmanaged operation

Part Number(s)
05052310

CM-100-S2LC120 - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (LC) [120 km/74.6 miles]. Managed or unmanaged operation

Part Number(s)
05052380

CM-100-M1ST2U - Fast Ethernet Media Converter. Managed Module 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, multimode (ST) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05042810

CM-100-M1ST2D - Fast Ethernet Media Converter. Managed Module 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, multimode (ST) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05042800

CM-100-M1SC2U - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, multimode (SC) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05042930

CM-100-M1SC2D - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, multimode (SC) [2 km/1.2 miles]. Managed or unmanaged operation

Part Number(s)
05042920

CM-100-S1SC20U - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, single mode (SC) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05052270

CM-100-S1SC20D - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, single mode (SC) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05052280

CM-100-S1ST20U - Fast Ethernet Media Converter. Managed Module 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, single mode (ST) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05042780

CM-100-S1ST20D - Fast Ethernet Media Converter. Managed Module 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, single mode (ST) [20 km/12.4 miles]. Managed or unmanaged operation

Part Number(s)
05042790

CM-100-S1SC40U - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, single mode (SC) [40 km/24.9 miles]. Managed or unmanaged operation

Part Number(s)
05052290

CM-100-S1SC40D - Fast Ethernet Media Converter Managed Module. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, single mode (SC) [40 km/24.9 miles]. Managed or unmanaged operation

Part Number(s)
05052300