SMI-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
- Manage via SNMP, CLI - Telnet/SSH, Internet browser, or **PerleVIEW Central Management Platform**

Perle's advanced line of **Managed Fast Ethernet Media Converters**, transparently connects UTP ethernet copper to multimode or single mode fiber. While providing an economical means of extending your existing copper based network connection, these media converters are SNMP manageable to enable complete control and status viewing of your fiber links.

Perle Fast Ethernet Managed Media Converters come standard with extensive cost and time saving features. In addition, a lifetime warranty and free worldwide technical support make Perle's Managed Fast Ethernet Converters the smart choice for IT professionals.

SMI-100 Managed Fast Ethernet 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 software

Converter Information

- User configurable converter name
- User configurable fiber port name
- User configurable copper port name
- Hardware revision number
- Firmware version number

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)

Control

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

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.

SMI-100 Advanced Management Features

Enterprise and carrier-grade security is available through the support of strong authentication systems such as TACACS+, RADIUS and LDAP. Secure in-band access is assured via SNMPv3, SSH CLI and secure HTTPS Internet browser. This media converter also has many **NERC CIP** compliance features.

SNMP

- Full read/write capabilities via central SNMP servers and **PerleVIEW**
- Send SNMP traps (up to 4 servers)
- SNMPv3, V2C and V1
- SNMPv3 – encryption and authentication for both management and trap support
- RFC1213 MIB II
- Proprietary MIB provided

Telnet / SSH CLI access

In-band command line access via Telnet or **SSH application**

Internet Browser access

- Fast and intuitive graphical web interface for use with common internet browsers such Internet Explorer, Mozilla Firefox and Safari
- HTTP or secure HTTPS
- **PerleVIEW Central Management Platform**

Console port CLI access

Out-of-band command line access via Cisco compatible RJ45 serial console port using common “rolled” CAT5 cable. Console port can be enabled (default) or disabled

Concurrent management sessions

Run multiple management sessions simultaneously for multiple users

Inactivity timeout

Protect secure management sessions by setting an inactivity timeout value

Alert event reporting

Alert level events are stored in the local event log and sent as:

- SNMP traps to up to 4 servers
- SYSLOG messages to a SYSLOG server
- Email to user defined email address

Advanced IP feature set

- IPV4 and IPV6 address support
- DHCP
- DNS
- Dynamic DNS
- NTP
- TFTP
- Telnet
- SSH V2 and V1
- HTTP
- HTTPS

Advanced Management User Authentication with primary and secondary server support

- TACACS+
- RADIUS
- LDAP
- Active Directory via LDAP
- RSA Secure ID-agent or via RADIUS authentification
- Kerberos
- NIS

Advanced Management User Authorization and Accounting

- TACACS+
- RADIUS

Encryption

- AES (256/192/128), 3DES, DES, Blowfish, CAST128, ARCFOUR(RC4), ARCTWO(RC2)
- Hashing Algorithms: MD5, SHA-1, RIPEMD160, SHA1-96, and MD5-96
- Key exchange: RSA, EDH-RSA, EDH-DSS, ADH
- X.509 Certificate verification: RSA, DSA

Access Control List

An access control list can be created which can filter out only those workstations that are authorized to access the management resources. Filter on IP and/or Ethernet MAC addresses

Network Services Filter

Enable only those network services on the management module that are allowed on your network (Telnet, SSH, HTTP, HTTPS, SNMP)

Firmware download

Update the latest level firmware for management and media converter modules via TFTP or **PerleVIEW**

Specifications				
Lifetime limited warranty	**Reach, RoHS and WEEE Compliant**	**HTSUS Number:** 8517.62.0020	**UNSPSC Code:** 43201553	**ECCN:** 5A992

CCATS Number:
G134373

Media Converter Module 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.

Management Module Indicators / reset	
Power	Blinking green during startup cycle Steady green: module has power and is ready Red : error

ALM	Red alarm indicator activated when an alert event occurs
LKC	Green indicator indicating an active Ethernet link. Blinking indicates RX and TX of data
100/1000	• Green - 1000 Mbps link • Yellow - 100 Mbps link • Off - 10 Mbps or no Link
Reset button	Recessed pinhole button resets module
Connectors	
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)
Management ethernet port	• 10/100/1000Base-T - RJ45 • Auto- MDI/MDIX
Management console port	RS232 Serial RJ45 - Cisco pinout for use with standard CAT5 *"rolled cable"* (crossover) 9600 to 115k bps 7/8 bits Odd,even, no parity 1/2 stop bits Hardware/software flow control DCD/DSR monitoring
Packet Transmission Characteristics	
Bit Error Rate (BER)	$<10^{-12}$
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 the 100Base-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
Power	
Input Supply Voltage	(12 vDC Nominal)
Current	0.33amps at 12vdc
Power Consumption	3.98watts
Power Connector	5.5mm x 9.5mm x 2.1mm barrel socket
Power Adapter	
Universal AC/DC Adapter	100-240v AC, regulated DC adapter included
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)	13.6
MTBF (Hours)*	• 245,769 Hours without power adaptor • 168,532 Hours with power adaptor: *Calculation model based on MIL-HDBK-217-FN2 @ 30°C*
Chassis	Metal with an IP20 ingress protection rating
Mounting	
Din Rail Kit	Optional
Rack Mount Kit	Optional
Product Weight and Dimensions	
Weight	0.722 kg
Dimensions	175 x 145 x 23 mm
Packaging	
Shipping Weight	1.2 kg
Shipping Dimensions	300 x 200 x 70 mm
Regulatory Approvals	
Emissions	• FCC Part 15 Class B* • 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

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.
* When used with a Class B rated AC power adapter.	

Product List

SMI-100-M2SC2 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (SC) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070304	05070301	05070302	05070305	05070306	05070308

SMI-100-M2ST2 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (ST) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070314	05070311	05070312	05070315	05070316	05070318

SMI-100-M2LC2 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (LC) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070324	05070321	05070322	05070325	05070326	05070328

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070334	05070331	05070332	05070335	05070336	05070338

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070344	05070341	05070342	05070345	05070346	05070348

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070354	05070351	05070352	05070355	05070356	05070358

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070364	05070361	05070362	05070365	05070366	05070368

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070374	05070371	05070372	05070375	05070376	05070378

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070384	05070381	05070382	05070385	05070386	05070388

SMI-100-S2SC80 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (SC) [40 km/49.7 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070394	05070391	05070392	05070395	05070396	05070398

SMI-100-S2ST80 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (ST) [40 km/49.7 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070404	05070401	05070402	05070405	05070406	05070408

SMI-100-S2LC80 - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45 [100 m/328 ft.] to 100Base-FX 1550nm single mode (LC) [40 km/49.7 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070414	05070411	05070412	05070415	05070416	05070418

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070424	05070421	05070422	05070425	05070426	05070428

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070434	05070431	05070432	05070435	05070436	05070438

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

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070444	05070441	05070442	05070445	05070446	05070448

SMI-100-S1SC20U - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070454	05070451	05070452	05070455	05070456	05070458

SMI-100-S1SC20D - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070464	05070461	05070462	05070465	05070466	05070468

SMI-100-S1SC40U - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070474	05070471	05070472	05070475	05070476	05070478

SMI-100-S1SC40D - Fast Ethernet Standalone IP Managed Media Converter. 100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05070484	05070481	05070482	05070485	05070486	05070488

SMI-100-M1SC2D - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1550nm TX / 1310nm RX single fiber multimode (SC) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071204	05071201	05071202	05071205	05071206	05071208

SMI-100-M1SC2U - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1310nm TX / 1550nm RX single fiber multimode (SC) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071194	05071191	05071192	05071195	05071196	05071198

SMI-100-M1ST2U - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1310nm TX / 1550nm RX single fiber multimode (ST) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071294	05071291	05071292	05071295	05071296	05071298

SMI-100-M1ST2D - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1550nm TX / 1310nm RX single fiber multimode (ST) [2 km/1.2 miles]

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071304	05071301	05071302	05071305	05071306	05071308

SMI-100-S1ST20U - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1310nm TX / 1550nm RX single fiber single mode (ST) [20 km/12.4 miles

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071274	05071271	05071272	05071275	05071276	05071278

SMI-100-S1ST20D - Fast Ethernet IP Managed Media Converter. 100BASE-TX (RJ-45) [100 m/328 ft.] to 100BASE-BX 1550nm TX / 1310nm RX single fiber single mode (ST) [20 km/12.4 miles

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071284	05071281	05071282	05071285	05071286	05071288

Related Accessories

Accessories

DIN Rail Mounting Kit for 4 & 8 port IOLAN desktop models, all Stand-Alone Media Converters and all Stand-alone Ethernet Extenders. Two of these brackets are required for the 8 port STS8-D model.

04030840

Standalone media converter wall / rack mount bracket

05059999

Power Supplies

UK 12VDC / 12W power adapter with Barrel connector for Perle Device Servers, Media Converters, and Ethernet Extenders

04031581

EU 12VDC / 12W power adapter with Barrel connector for Perle Device Servers, Media Converters, and Ethernet Extenders

04031582

USA 12VDC / 12W power adapter with Barrel connector for Perle Device Servers, Media Converters, and Ethernet Extenders

04031584

Australia 12VDC / 12W power adapter with Barrel connector for Perle Device Servers, Media Converters, and Ethernet Extenders

04031586