SMI-10G Managed Media Converters
10 Gigabit Copper and Fiber Converters

- Fiber to Fiber, copper to fiber and copper to copper conversion
- 2 empty slots that use a variety of **10G transceivers supplied by Perle**, **Cisco** or other MSA compliant SFP+ and XFPs
- Advanced features –Smart Link Pass-Through, Fiber Fault Alert, Built-in Link Test Generator and Loopback
- Support for Power Level 1,2,3 as well as high-power Level 4 XFPs
- Optical signal regeneration: 3R (re-amplify, reshape, and retime)
- **Manage via SNMP, CLI - Telnet/SSH, Internet browser**, or **PerleVIEW Central Management Platform**

Perle **SMI-10G-STS Managed Media Converters** transparently connect 10 Gigabit Ethernet links over multimode or single mode fiber in **environments where network security is critical**. Each 10GbE Media Converter comes with two pluggable transceiver ports that support fiber to fiber, copper to fiber or copper to copper media conversion.

SMI-10G-STS Managed Media Converters support all **authentication, authorization and accounting (AAA) security** services used in corporate networks, including TACACS+, RADIUS, LDAP, Kerberos, NIS and RSA. To further protect ID's and passwords from someone 'snooping' on the network, Perle Managed Media Converters provide **secure management sessions** by supporting **SSH, SNMPv3, Telnet and HTTPS**. These types of features are used when managing your corporate firewalls, switches and routers. This is why Perle makes them available in the **SMI-10G-STS Managed Media Converter**. 10G Media Converters are also available for **unmanaged applications**.

Fiber to Fiber and **Copper to Fiber** conversion is achieved by inserting XFP or SFP+ fiber transceivers that support multimode and single-mode fiber, including CWDM/DWDM wavelengths. **Copper to copper** is achieved by inserting SFP+ Direct Attach Cable (DAC), also known as twinax, or XFP 10Gbase-CX4 transceivers.

The empty transceiver ports on the **SMI-10G-STS Managed Media Converters** allow for flexible network configurations to meet any requirement using a variety of **10G transceivers supplied by Perle**, **Cisco** or other manufacturers of MSA compliant SFP+ and XFPs. You can use these products to convert:

- XFP to XFP
- XFP to SFP+
- SFP+ to CX4

Perle 10 Gigabit Ethernet to Fiber Converters provide an economical path to extend the distance of an existing 10GbE link. Network Administrators can "see-everything" with Perle's advanced features such as Smart Link Pass-Through, Fiber Fault Alert, a built-in Link Test capability and Loopback. 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 **SMI-10G-STS Media Converters** the smart choice for IT professionals.

SMI-10G-STS Managed Media Converter Features

SFP Speed Sensing

Automatically detects whether a SFP has been inserted and adjusts the speed accordingly

Smart Link Pass-Through

- When the Smart Link Pass-Through switch is enabled (default), each port will reflect the state of its port peer. In this mode, if a link loss is detected on one port, the transmit signal on the other port is disabled "passing through" the state of the failed link. This enables managed switches and other devices to report link failures to their network NMS.
- When the switch is in the down position, Smart Link Pass-Through is disabled. If a link loss is detected on one port, the transmit signal remains enabled on the other port.

Fiber Fault Alert

With Fiber Fault Alert the state of the 10 Gigabit Ethernet receiver is passed to the transmitter. This provides fault notification to the partner device attached to the 10G Ethernet interface of the media converter.

3R – Optical Signal Regeneration

Optical signal regeneration: 3R (Re-amplify, Reshape, and Retime the signal) ensures that there is a quality link at 10 Gigabit speeds.

Built-in Link Test

When enabled, the built-in packet generator transmits Ethernet test frames to its 10 Gigabit Ethernet peer. The remote media converter will auto-detect the test frames and loopback the test frames. Any frames received in error, will cause the Power, LK1 and LK2 LEDs to illuminate in a specific combination to identify the error. During the test different bit test patterns will be utilized every 5 seconds ensuring a thorough link test.

Test Mode Auto-detect

When enabled through the management interface, the remote media converter will enter test mode automatically when requested by its central site peer. This virtually eliminates unnecessary truck rolls to a remote site when diagnosing a link failure.

EDC Mode Control

Electronic Dispersion Compensation (EDC) is an algorithmic method used to compensate for optical dispersion that occurs on high speed 10 Gigabit links. EDC mode settings are automatically configured by the media converter based on the information retrieved from the SFP+ or XFP module. This will enable proper operation for extended multimode 10GBase-LRM as well as active or passive copper cabling.

Module Temperature Protection

Protects your DOM/DMI capable SFP+ or XFP module by monitoring its internal temperature and will automatically shut down the XFP or SFP if the module is operating above its maximum temperature threshold.

High Power Level 4 XFPs

High powered Level 4 XFPs are supported in XTSH and XTXH models.

Gigabit SFP support

The 10 Gigabit media converter model with dual SFP+ slots can also support Gigabit (1000Base-X) SFPs. This allows users to use Gigabit SFPs today and migrate to 10G SFP+ in the future. Both slots must be populated with Gigabit SFPs.

Jumbo Packets

Transparent to Jumbo Frames with a maximum MTU size of 10,024 bytes

VLAN

Transparent to VLAN tagged packets.

Remote Loopback

Capable of performing a loopback on each 10 Gigabit interface. In this mode, all frames received on the port in loopback mode will be transmitted back. This provides users with the capability of utilizing their own in-house test generators for testing the link.

Configuration Mode selection

Select whether to use the on-board DIP switches or the management software for mode selection.

Converter Information

- Media converter model and serial
- User configurable name
- User configurable fiber port name
- Hardware revision number
- Firmware version number

Module DIP switch settings

View hardware DIP switch settings.

Port Control

Enable or disable individual fiber ports on the module.

Fiber Port Status

- Port Enabled (Yes/No)
- Connector
- Link Status (Up/Down)
- Fiber Fault Alert (OK, Failed)
- Fiber Loopback mode (On/Off)

Control

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

Manage Tune-able DWDM XFP modules

Select transceiver ITU 50GHz center wavelengths and channel numbering on tune-able XFP transceivers.

SMI-10G-STS 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 Authorization and Accounting with primary and secondary server support

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

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

Power		
Input Supply Voltage	12 vDC Nominal	
Maximum Current Amps @ 12v DC	**Dual XFP** • XTX: 1.25 • XTXH: 1.6	**XFP to SFP** • XTS: 1.0 • XTSH: 1.6
Maximum Power * Requirements (watts)	**Dual XFP** • XTX: 15.0 * • XTXH: 19.3 *	**XFP to SFP** • XTS: 12.0 * • XTSH: 19.3 *
Power Connector	5.5mm x 9.5mm x 2.1mm barrel socket	

Power Adapter	
Universal AC/DC Adapter	• 100-240v AC, regulated AC/12v DC adapter included • STS and XTS : 12 watt adapter • XTX, XTXH and XTSH : 24 watt adapter

Indicators	
Power / TST	• On: Power indication and in normal operation • Blinking slowly: the unit is in loopback or test mode (either port) • Blinking quickly: the unit has a hardware error (Err LED will also be on)
LK1, LK2	• On: Fiber link present • Blinking quickly: Fiber link present and receiving data.(including test data) • Blinking slowly: Fiber link disabled because the other fiber link went down. • Blinking 1 sec on 3 sec off – invalid SFP+ or XFP inserted • Blinking twice then 3 sec off – module shut down due to high temperature. • LK1, LK2 alternating on and off – 1 sec on 1 sec off incompatible Speeds (Err LED will also be on) • Off: No fiber link present or no module inserted
ERR LED	When in test mode – this indicates test mode errors – will clear when the link has recovered • If Power LED is blinking, this indicates a hardware error • If LNK LEDS blink, this indicates that there is a module compatibility error
Switches - accessible through a side opening in the chassis	
Smart Link Pass-Through	When the Smart Link Pass-Through switch is enabled (default), each port will reflect the state of its port peer. In this mode, if a link loss is detected on one port, the transmit signal on the other port is disabled "passing through" the state of the failed link. This enables managed switches and other devices to report link failures to their network NMS. When the switch is in the down position, Smart Link Pass-Through is disabled. If a link loss is detected on one port, the transmit signal remains enabled on the other port.
Fiber Fault Alert	• *Enabled (Default - Up)* - With Fiber Fault Alert the state of the 10 Gigabit ethernet receiver is passed to the transmitter. This provides fault notification to the partner device attached to the 10G ethernet interface of the media converter • *Disabled (Down)*

EDC Mode	Electronic Dispersion Compensation is an algorithmic method used to compensate for optical dispersion that occurs on high speed 10 Gigabit links. EDC mode settings are automatically configured by the media converter based on the information retrieved from the SFP+ or XFP module. This will enable proper operation for extended multimode 10GBase-LRM as well as active or passive copper cabling.
	In the default UP switch position the media converter will automatically set the 10G transceiver to match the EDC type declared by the SFP+ / XFP module to either to "linear" or "limiting".
	In the event that there is a mismatch, setting the switch to the Down position on the media converter will flip the setting to that declared by the module.
Loopback	Capable of performing a loopback on each 10 Gigabit interface. In this mode, all frames received on the port in loopback mode will be transmitted back. This provides users with the capability of utilizing their own in-house test generators for testing the link.

Connectors		
Pluggable 10G Fiber Transceiver slots (Hot insertion and removable)	**Dual XFP** Two 10 Gigabit XFP Slots • Power level 1,2,3 • Power Level 4 (XTSH model)	**XFP to SFP** One 10 Gigabit SFP+ • Power Level 1, 2 One 10 Gigabit XFP • Power level 1,2,3 • Power Level 4 (XTSH model)
Voltages supplied to XFP slots	**Dual XFP** 1.8V, 3.3V, 5V and -5.2V	**XFP to SFP** 1.8V, 3.3V, 5V and -5.2V
Supported 10 Gigabit Fiber pluggable transceivers	**Dual XFP** IEEE 802.3ae compliant: • 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM	**XFP to SFP** IEEE 802.3ae compliant: • 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM

Supported 10 Gigabit Copper pluggable transceivers	**Dual XFP** IEEE 802.3ak compliant: - XFP 10GBase-CX4 copper	**XFP to SFP** SFP+ Direct Attach Cable (DAC). Also known as: - Twinax - 10GBase-CU - 10GSFP+Cu - 10GBase-CX1 - 10GBase-CR1 Note: Passive and Active cable types supported IEEE 802.3ak compliant: - XFP 10GBase-CX4 copper
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)	**Dual XFP** - XTX: 51.2 * - XTXH: 65.9 *	**XFP to SFP** - XTS: 40.9 * - XTSH: 65.9 *
MTBF (Hours)	**Dual XFP** - Without power adaptor: 184,350 Hours - With power adaptor: 139,590 Hours	**XFP to SFP** - Without power adaptor: 184,350 Hours - With power adaptor: 133,071 Hours
	Calculation model based on MIL-HDBK-217-FN2 @ 30°C	
Chassis	Metal with an IP20 ingress protection rating	

Mounting	
Din Rail Kit	Optional
Wall / Rack Mount Kit	Optional

Product Weight and Dimensions	
Weight	0.93 Kg, 2.1 lbs
Dimensions	175 x 145 x 46mm, 6.9 x 5.7 x 1.8 inches

Packaging	
Shipping Weight	• STS and XTS : 1.2 Kg, 2.6 lbs • XTX, XTXH and XTSH : 1.5 Kg, 3.3 lbs
Shipping Dimensions	300 x 200 x 70 mm, 11.8 x 7.9 x 2.8 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 60950-1 • IEC 60950-1(ed 2); am1, am2 • EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 • CE

*Maximum rating for both media converter and modules inserted. Actual rating is dependent on the power consumption of the SFP+/XFP modules inserted.

Product List

SMI-10G-XTS - 10 Gigabit Ethernet IP-Managed Stand-Alone Media Converter with one XFP slot (empty) and one SFP+ slot (empty). AC adapter included

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071114	05071111	05071112	05071115	05071116	05071118

SMI-10G-XTSH - 10 Gigabit Ethernet IP-Managed Stand-Alone Media Converter with one XFP slot (empty) and one SFP+ slot (empty). Supports Power Level 4 XFPs. AC adapter included

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS
05071124	05071121	05071122	05071125	05071126

SMI-10G-XTX - 10 Gigabit Ethernet IP-Managed Stand-Alone Media Converter with dual XFP slots (empty). AC adapter included

Power Cord & Part Number(s)

None	USA	UK	EU	SA	AUS
05071178	05071174	05071171	05071172	05071175	05071176

SMI-10G-XTSH - 10 Gigabit Ethernet IP-Managed Stand-Alone Media Converter with one XFP slot (empty) and one SFP+ slot (empty). Supports Power Level 4 XFPs. AC adapter included

Power Cord & Part Number(s)

None
05071128

SMI-10G-XTXH - 10 Gigabit Ethernet IP-Managed Stand-Alone Media Converter with dual XFP slots (empty). Support Power Level 4 XFPs. AC adapter included

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071184	05071181	05071182	05071185	05071186	05071188

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.	Standalone media converter wall / rack mount bracket
04030840	**05059999**