

SMI-10GR-STS Managed Media Converters

1G to 10G Fiber and Rate Converters



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

The Perle **SMI-10GR-STS Managed Media Converter** transparently connects 1G and 10G Ethernet links over multimode or single mode fiber in **environments where network security is critical**. Each Media Converter comes with two pluggable transceiver ports that support fiber to fiber, copper to fiber or copper to copper media conversion.

The SMI-10GR-STS Managed Media Converter supports key features for ultimate network flexibility and growth.

- 1G and 10G rate conversion can be enabled to automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different. This is ideal in scenarios where disparate networks need to be connected.
- Cut-Through Forwarding can be configured for environments where throughput speed is critical. This will increase the media converter's throughput and reduce latency by performing packet forwarding in the most efficient manner possible.

SMI-10GR-STS Managed Media Converter 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 Managed Media Converter**. 10G Media Converters are also available for **unmanaged applications**.

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

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

Copper to Fiber Conversion (1G and 10G)

- 1G Copper SFP to 1G Fiber SFP
- 1G Copper SFP/SFP+ to 10G Fiber SFP+

Fiber to Fiber Conversion (1G and 10G)

- 1G Fiber SFP to 1G Fiber SFP
- 1G Fiber SFP to 10G Fiber SFP+
- 10G Fiber SFP+ to 10G Fiber SFP+

Copper to Copper Conversion (1G and SGMII)

- 1G Copper SFP to 1G Copper SFP

The Perle SMI-10GR-STS Managed Media Converter provides an economical path to extend Ethernet data transmission distances or convert network speeds. Network Administrators can “see-everything” with Perle’s advanced features such as Smart Link Pass-Through, Fiber Fault Alert 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 the Perle **SMI-10GR-STS Managed Media Converter** the smart choice for IT professionals.

SMI-10GR-STS Managed Media Converter Features

Rate Conversion

The Media Converter can automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different.

Cut-Through Forwarding

When the same Ethernet speed for both ports is enabled, the Media Converter can be configured for Cut-Through Forwarding. This will increase the media converter’s throughput and reduce latency by performing packet forwarding in the most efficient manner possible. Forwarding of a packet will begin as soon as the destination address is processed.

SFP Speed Sensing

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

SGMII Interface Support

The Media Converter supports 1000Mbps SGMII SFPs on port 1.

Smart Link Pass-Through

- When Smart Link Pass-Through 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.

Module Temperature Protection

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

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 the 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
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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)
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Control

- Reset
 - Reset to factory default
 - Ability to specific read/write phy registers
 - Update firmware
 - Fiber Loopback mode (Yes/No)
 - Upload/download configuration
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SMI-10GR-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
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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**
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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
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Advanced IP feature set

- IPV4 and IPV6 address support
 - DHCP
 - DNS
 - Dynamic DNS
 - NTP
 - TFTP
 - Telnet
 - SSH V2 and V1
 - HTTP
 - HTTPS
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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 authentication
 - Kerberos
 - NIS
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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
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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	0.8			
Maximum Power * Requirements	19.5 watts*			
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 • 12 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+ 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	<i>Enabled (Default - Up)</i> 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	<i>Enabled (Default - Up)</i> 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.

Cut-through / Rate converting	<i>Rate Converting (Default - Up)</i> The Media Converter can automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different. When the same Ethernet speed for both ports is enabled, the Media Converter can be configured for Cut-Through Forwarding. This will increase the media converter's throughput and reduce latency by performing packet forwarding in the most efficient manner possible. Forwarding of a packet will begin as soon as the destination address is processed
Fiber Interface Loopback	<i>Disable (Default - Up)</i> When enable, the media converter will be in fiber loopback mode. In this mode all frames received on the fiber port will be transmitted back. This provides users with the capability of utilizing their own in-house test generators for testing the link
Loopback Interface	<i>Port 1(Default - Up)</i> In this mode, all frames received on the fiber port 1 in loopback mode will be transmitted back. When switch is set down, port 2 will be in loopback mode and transmitting all frames received back.
Connectors – Two SFP / SFP+ Transceiver Slots. Hot insertion and removable.	
Supported 10 Gigabit Fiber SFP+ transceivers	Power Levels 1 and 2 IEEE 802.3ae compliant: • 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM
Supported 1 Gigabit Copper SFPs	• 1000Base-T • 1000Base-T SGMII
Supported Gigabit Fiber SFPs	Standard SFP Power level 1 (1 watt) and level 2 (1.5 watts) as per SFP-8431 • 1000Base-SX • 1000Base-LX/LH • 1000Base-EX • 1000Base-ZX • 1000Base-BX • CWDM/DWDM

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)	67
MTBF (Hours)*	• Without power adaptor: 132,947 Hours • With power adaptor: 92,122 Hours <i>**Calculation model based on MIL-HDBK-217-FN2 @ 30°C</i>
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	1.2 Kg, 2.6 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 • CISPR 32 / EN 55032 • EN61000-3-2

Immunity	CISPR 35 / EN 55035
Electrical Safety	• UL/EN/IEC 62368-1 (previously 60950-1) • CAN/CSA C22.2 No. 62368-1 • CE
*Maximum rating for both media converter and modules inserted. Actual rating is dependent on the power consumption of the SFP or SFP+ modules inserted.	

Product List



SMI-10GR-STS - Managed 10 Gigabit Media and Rate Converter with dual SFP+ slots (empty).
Includes AC power Adapter

Power Cord & Part Number(s)

USA	UK	EU	SA	AUS	None
05071364	05071361	05071362	05071365	05071366	05071368

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

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