S-10GT Media Converters

10GBase-T Standalone Fiber Converters

- Copper to fiber and copper to copper conversion

- Uses 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

- High density applications with Perle MCR1900 Media Converter Chassis

- Support for Power Level 1,2,3 as well as high-power Level 4 XFPs

Perle S-10GT Media Converters transparently connect 10GBase-T Ethernet links over multimode or single mode fiber. Each 10GbE Media Converter comes with one RJ45 10GBase-T port and an empty slot for one SFP+ or XFP module.

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 **S-10GT 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:

- 10GBase-T (RJ45) to SFP+

- 10GBase-T (RJ45) to XFP

- 1000Base-T (RJ45) to 1000Base-X (SFP)

- 10GBase-T (RJ45) to Direct Attach DAC copper twinax (SFP+)

- 10GBase-T (RJ45) to 10GBase-CX4 (XFP)

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 **S-10GT Media Converters** the smart choice for IT professionals. 10G Media Converters are also available for managed networks with AAA Security.

S-10GT Media Converter Features

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 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.
Green Ethernet	Utilizes Green Ethernet energy saving technology based on industry standards such as: • Short Reach Mode (less than 30 meters) as per IEEE 802.3an. This enables 10GBase-T operation with less power consumption. • Energy Efficient Ethernet (EEE) as per 802.3az. This provides power savings during idle network activity.
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	No switches are required to be flipped in order to go into test mode. 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.
Gigabit SFP support	The 10 Gigabit media converter model with the SFP slot can also support Gigabit (1000Base-X) SFPs. This allows users to use Gigabit SFPs today and migrate to 10G SFP+ in the future.
Jumbo Packets	Transparent to jumbo packets.
VLAN	Transparent to VLAN tagged packets.

Power Strain Relief strap	A strain relief strap is provided to ensure a solid and secure power connection to the media converter. Ideal for areas that may be exposed to any vibration.	
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.	

Power	**10GT to SFP**	**10GT to XFP**
Input Supply Voltage	9 - 30 vDC, unregulated (12 vDC Nominal)	
Maximum Power Consumption (watts)	10*	15*
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	

Indicators	
Power / TST	- On: Power indication and in normal operation - Blinking slowly: the unit is in loopback or test mode (either port) - Red solid: the unit has a hardware error (upon power up) - Red and blinking: the unit has a hardware error specified by combination of LK1 and LK2
LK1 (SFP/XFP)	- On: 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 – module shut down due to high temperature. - Off: No fiber link present or no module inserted
LK2	- On: 10GBase-T link present - Blinking quickly: Link present and receiving data - Blinking slowly: Link disabled because Link 1 went down - Off: 10GBase-T link is not active

Switches - accessible through a side opening in the chassis

Link Mode	When the Link Mode switch is enabled (default), each port will reflect the state of its port peer using Smart Link Pass-Through. 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)*
Test Mode	Through the use of three dip switches the unit, and its peer, can be placed into a link test mode which will verify the integrity of the link through the use of its built-in link test generator. The unit can also be placed into a simple line loopback.
EEE Green Ethernet	When enabled (default), the media converter will operate as an IEEE 802.3az Energy Efficient Ethernet (EEE) compliant device.
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.

Connectors	10GT to SFP	10GT to XFP
10GBase-T (RJ45)	IEEE 802.3an 100 meters on CAT6A or better	IEEE 802.3an 100 meters on CAT6A or better
Pluggable 10G Fiber Transceiver slot (Hot insertion and removable)	10 Gigabit SFP+ Slot • Power level 1, 2	10 Gigabit XFP Slot • Power level 1,2,3,4
Voltages supplied to XFP slots	-	1.8V, 3.3V, 5V and -5.2V
Supported 10 Gigabit Fiber	IEEE 802.3ae compliant:	IEEE 802.3ae compliant:

pluggable transceivers	• 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM	• 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM
Supported 10 Gigabit Copper pluggable transceivers	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
Supported Gigabit Fiber SFPs	1000Base-SX 1000Base-LX/LH 1000Base-EX 1000Base-ZX 1000Base-BX CWDM/DWDM Note: the RJ45 interface will auto-negotiate to 1000Base-T (Gigabit)	N/A

Environmental Specifications	10GT to SFP	10GT to XFP
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)	34	51
MTBF (Hours)**	Without power adaptor: 259,954 With power adaptor: 168,431	Without power adaptor: 284,367 With power adaptor: 190,260
Chassis	Metal with an IP20 ingress protection rating	

Mounting		
Din Rail Kit	Optional	
Wall / Rack Mount Kit	Optional	

Product Weight and Dimensions	**10GT to SFP**	**10GT to XFP**
Product Weight	0.36 kg, 0.8 lbs	0.38 kg, 0.84 lbs
Product Dimensions	8 x 12 x 4.2 cm (3.1 x 4.7 x 1.7 inches)	
Shipping Weight	0.64 kg, 1.41 lbs	0.93 kg, 2.1 lbs
Shipping Dimensions	26 x 17 x 7 cm (10.2 x 6.7 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 24:2010/EN 55024:2010	
	EN61000-3-2	
Immunity	EN55024	
Electrical Safety	UL 60950-1	
	IEC 60950-1(ed 2); am1, am2	

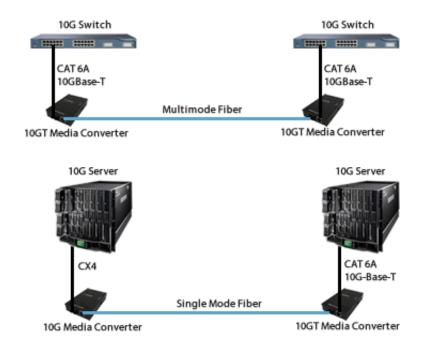|	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
	CE
Environmental	Reach, RoHS and WEEE Compliant
Other	ECCN: 5A991
	HTSUS Number: 8517.62.0050
	Perle Limited Lifetime Warranty

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

**Calculation model based on MIL-HDBK-217-FN2 @ 30 °C

10 Gigabit Copper to Fiber Media Conversion

Convert one 10G Ethernet media to another

Convert your 10GBaseT copper link to multimode or single mode fiber. Ideal for large data centers and Co-Location applications where the distance required to connect top of rack switches exceeds the 100 meter limitation of 10G copper.