

## S-10G Media Converters 10 Gigabit Ethernet Standalone Converters



- Fiber to Fiber, 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
- Support for Power Level 1,2,3 as well as high-power Level 4 XFPs
- Optical signal regeneration: 3R (re-amplify, reshape, and retime)

Perle **S-10G Media Converters** transparently connect 10 Gigabit Ethernet links over multimode or single mode fiber. Each 10GbE Media Converter comes with two pluggable transceiver ports that support fiber to fiber, copper to fiber or copper to copper media conversion.

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 **S-10G 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:

- SFP+ to SFP+
- XFP to XFP
- XFP to SFP+
- SFP to SFP (1000Base-x to 1000Base-x)
- 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 onsite maintenance. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make Perle **S-10G Media Converters** the smart choice for IT professionals.

## S-10G Media Converter Features

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 ( <b>R</b> e-amplify, <b>R</b> eshape, and <b>R</b> etime 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	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.

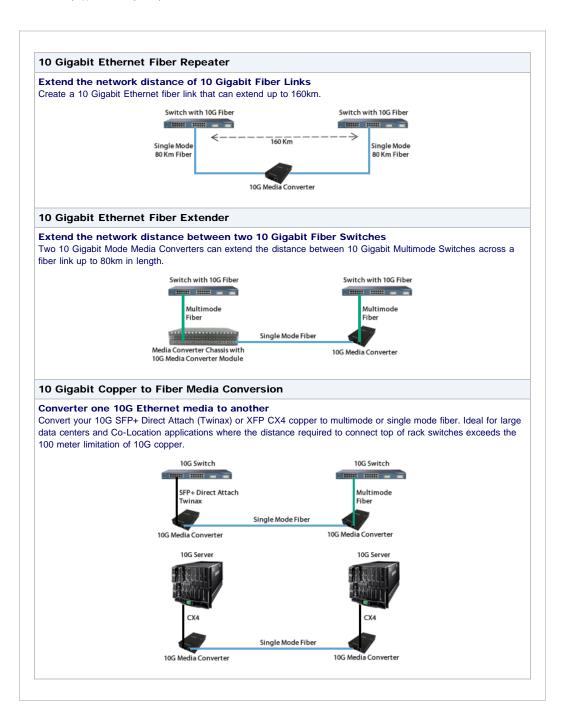
High Power Level 4 XFPs	High powered Level 4 XEPs are supported in XLSH and XLXH models			
Gigabit SFP support	The 10 Gigabit media converter model with dual SFP+ slots can also support Gigabit (1000Base-X) SFPs. This allows users to use Gigabit SFPs today and migrate to 10G SFP+ in the future. Both slots must be populated with Gigabit SFPs.			
Jumbo Packets	Transparent to jumbo 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 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.			

Power	Dual SFP	Dual XFP	XFP to SFP			
Input Supply Voltage	9 - 30 vDC, unregulated ( 12 vDC Nominal )					
Maximum Power		XTX: 12.0*	XTS: 9.6*			
Consumption (watts)	7.2*	XTXH: 16.8*	XTSH: 16.8*			
Total Transceiver		XTX: 7.0	XTS: 5.0			
power supports	3.0					
(watts)		XTXH: 11.0	XTSH: 7.0			
Power Connector		9.5mm x 2.1mm barrel socket				
Power Adapter						
Universal AC/DC Adapter	100-240v AC, r	egulated AC/12v DC adapter in	cluded			
Indicators						
On: Power indication and in normal operation						
	<ul> <li>Blinking slowly: the unit is in loopba</li> </ul>					
Power / TST	Red solid: the unit has a hardware	error (upon power up)				
	Red and blinking: the unit has a had	ardware error specified by comb	ination of LK1 and LK2			
	<ul> <li>On: Fiber link present</li> </ul>					
	<ul> <li>Blinking quickly: Fiber link present</li> </ul>	and receiving data.(including te	est data)			
LK1, LK2	Blinking slowly: Fiber link disabled	because the other fiber link we	nt down.			
	<ul> <li>Blinking 1 sec on 3 sec off – modul</li> </ul>		rature.			
	<ul> <li>Off: No fiber link present or no mod</li> </ul>	dule inserted				
Switches - acc	essible through a side opening	j in the chassis				
	When the Smart Link Pass-Through switch	n is enabled (default), each port	will reflect the state of its port			
	peer. In this mode, if a link loss is detected	d on one port, the transmit signa	al on the other port is disabled			
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Through						
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Supported 10 Gigabit Copper pluggable transceiversknownSupported 10 Gigabit Copper pluggable transceiversNote: supported 1000E 1000ESupported Gigabit Fiber SFPs1000E 1000E 1000E 1000ESupported Gigabit Fiber SFPs1000E 1000E 1000ESupported Gigabit Fiber SFPs1000E 1000E 1000ESupported Gigabit Fiber SFPs1000E 1000E 1000ESupported Gigabit Fiber SFPs1000E 1000E 1000E 1000ESupported Gigabit Fiber SFPs1000E <b< th=""><th><ul> <li>Direct Attach Cable (DAC). Also n as:</li> <li>Twinax</li> <li>10GBase-CU</li> <li>10GSFP+Cu</li> <li>10GBase-CR1</li> <li>Passive and Active cable types orted</li> </ul> Base-SX Base-LX/LH Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%</th><th></th><th><ul> <li>10GBase-ER</li> <li>10GBase-ZR</li> <li>CWDM/DWDM</li> <li>SFP+ Direct Attach Cable (DAC). Also known as:         <ul> <li>Twinax</li> <li>10GBase-CU</li> <li>10GSFP+Cu</li> <li>10GBase-CX1</li> <li>10GBase-CR1</li> </ul> </li> <li>Note: Passive and Active cable types supported</li> <li>IEEE 802.3ak compliant:         <ul> <li>XFP 10GBase-CX4 copper</li> </ul> </li> <li>N/A</li> <li>XFP to SFP</li> <li>58° F)</li> </ul></th></b<>	<ul> <li>Direct Attach Cable (DAC). Also n as:</li> <li>Twinax</li> <li>10GBase-CU</li> <li>10GSFP+Cu</li> <li>10GBase-CR1</li> <li>Passive and Active cable types orted</li> </ul> Base-SX Base-LX/LH Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%		<ul> <li>10GBase-ER</li> <li>10GBase-ZR</li> <li>CWDM/DWDM</li> <li>SFP+ Direct Attach Cable (DAC). Also known as:         <ul> <li>Twinax</li> <li>10GBase-CU</li> <li>10GSFP+Cu</li> <li>10GBase-CX1</li> <li>10GBase-CR1</li> </ul> </li> <li>Note: Passive and Active cable types supported</li> <li>IEEE 802.3ak compliant:         <ul> <li>XFP 10GBase-CX4 copper</li> </ul> </li> <li>N/A</li> <li>XFP to SFP</li> <li>58° F)</li> </ul>			
Supported 10 Gigabit Copper pluggable transceivers Note: supported Gigabit Fiber SFPs Environmental Specifications Dua CWD Note: nust Environmental Specifications Dua CWD Note: must Environmental Specifications CWD Note: must Environmental Specifications 2 CWD Note: must Environmental Specifications 2 CWD Note: must Environmental Specifications 2 CWD Note: must CWD Note: must CWD Note: must Storage Humidity 2 Storage Humidity 2 Storage Humidity 2 Storage Humidity 2 Storage Humidity 2 Storage Humidity 2 Storage Humidity 2 CMD Storage Humidity 2 Storage Humidity 3 Storage Humidity 3 Storag	M  Direct Attach Cable (DAC). Also n as: Twinax Twinax TogBase-CU TogBase-CU TogBase-CX1 TogBase-CR1 Passive and Active cable types orted Base-SX Base-LX/LH Base-EX Base-ZX Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP O° C minimum range 5%	CWDM/DWDM         IEEE 802.3ak compliant:         • XFP 10GBase-CX4 copper         copper         N/A         N/A         Dual XFP         to 50° C (32° F to 122° F)         e of -25° C to 70° C (-13° F to 1         to 90% non-condensing	CWDM/DWDM 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 N/A XFP to SFP			
Supported 10 Gigabit Copper pluggable transceivers Note: supported Gigabit Fiber SFPs 10006 100000000	<ul> <li>Direct Attach Cable (DAC). Also n as:</li> <li>Twinax</li> <li>10GBase-CU</li> <li>10GSFP+Cu</li> <li>10GBase-CR1</li> <li>Passive and Active cable types orted</li> </ul> Base-SX Base-LX/LH Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	IEEE 802.3ak compliant:       XFP 10GBase-CX4     copper  N/A  N/A  Dual XFP  to 50° C (32° F to 122° F)  e of -25° C to 70° C (-13° F to 1 for 90% non-condensing	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 N/A			
Supported 10 Gigabit Copper poluggable iransceiversknownSupported 10 Gigabit Copper poluggable iransceivers10006 10006Supported Gigabit Fiber SFPs10006 10006Supported Gigabit Supported Giga	n as: Twinax TogBase-CU 10GSFP+Cu 10GBase-CX1 10GBase-CR1 Passive and Active cable types orted Base-CX Base-LX/LH Base-EX Base-EX Base-ZX Base-ZX Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	XFP 10GBase-CX4 copper     N/A     Dual XFP     to 50° C (32° F to 122° F)     e of -25° C to 70° C (-13° F to 1     to 90% non-condensing	(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 N/A			
Supported Gigabit Fiber SFPs 1000E Fiber SFPs 1000E CWD Note: must Environmental Specifications 200 Operating Temperature 200 Operating Humidity 200 Storage Humidity 200 Storage Humidity 200 Storage Humidity 200 Environmental 24.6 BTU/HR 24.6	Base-LX/LH Base-EX Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	Dual XFP           3: to 50° C (32° F to 122° F)           4: of -25° C to 70° C (-13° F to 1           5: to 90% non-condensing	XFP to SFP			
Supported Gigabit Fiber SFPs 1000E Fiber SFPs 200E Supported Gigabit Fiber SFPs 200E Supported Gigabit 1000E CWD Note: must Specifications 200E Storage Temperature 200E Storage Humidity 200E Storage	Base-EX Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	Dual XFP           3: to 50° C (32° F to 122° F)           4: of -25° C to 70° C (-13° F to 1           5: to 90% non-condensing	XFP to SFP			
Supported Gigabit Fiber SFPs 1000E CWD Note: must Environmental Specifications Dua Operating Temperature 2 Storage Humidity 2 Storage Humidity 2 Operating Altitude 1 Heat Output ( BTU/HR ) 24.6	Base-ZX Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	Dual XFP           3: to 50° C (32° F to 122° F)           4: of -25° C to 70° C (-13° F to 1           5: to 90% non-condensing	XFP to SFP			
Fiber SFPs 10006 CWD Note: must Environmental Specifications 0 Operating Temperature 0 Storage Humidity 0 Storage Humidity 0 Operating Altitude 1 Heat Output ( BTU/HR ) 24.6 MTBF (Hours)	Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	Dual XFP           3: to 50° C (32° F to 122° F)           4: of -25° C to 70° C (-13° F to 1           5: to 90% non-condensing	XFP to SFP			
Fiber SFPs     1000E       Fiber SFPs     1000E       CWDi     Note:       must     Dua       Specifications     Dua       Operating     C       Temperature     C       Operating Humidity     C       Storage Humidity     C       Operating Altitude     C       Heat Output ( BTU/HR )     24.6       MTBF (Hours)     Without	Base-BX M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	Dual XFP           3: to 50° C (32° F to 122° F)           4: of -25° C to 70° C (-13° F to 1           5: to 90% non-condensing	XFP to SFP			
CWDI       Revironmental       Specifications       Dua       Operating       Temperature       Storage       Temperature       Operating Humidity       Storage Humidity       Operating Altitude       Heat Output ( BTU/HR )       Question       MTBF (Hours)	M/DWDM In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	to 50° C (32° F to 122° F) e of -25° C to 70° C (-13° F to 1 b to 90% non-condensing				
Note: must       Environmental Specifications     Dua       Operating Temperature     Image: Storage Temperature       Operating Humidity     Image: Storage Humidity       Storage Humidity     Image: Storage Humidity       Operating Altitude     Image: Storage Humidity       Heat Output ( BTU/HR )     24.6       MTBF (Hours)     Without	In this mode both SFP modules operate 1000Base-X I SFP 0° C minimum range 5%	to 50° C (32° F to 122° F) e of -25° C to 70° C (-13° F to 1 b to 90% non-condensing				
Environmental Specifications     Dual       Operating Temperature	I SFP 0° C minimum range 5% 5%	to 50° C (32° F to 122° F) e of -25° C to 70° C (-13° F to 1 b to 90% non-condensing				
Temperature       Storage       Temperature       Operating Humidity       Storage Humidity       Operating Altitude       Heat Output ( BTU/HR )       Question       Without	minimum range 5% 5%	e of -25° C to 70° C (-13° F to 1 6 to 90% non-condensing	58° F)			
Temperature       Operating Humidity       Storage Humidity       Operating Altitude       Heat Output ( BTU/HR)       Question       Without	5%	to 90% non-condensing	58° F)			
Storage Humidity Operating Altitude Heat Output ( BTU/HR ) 24.6 Witho	5%					
Operating Altitude Heat Output ( BTU/HR ) 24.6 Witho		to 95% non-condensing	5% to 90% non-condensing			
Heat Output ( BTU/HR ) 24.6 Witho		5% to 95% non-condensing				
BTU/HR) 24.6 Witho MTBF (Hours)	Up to 3,048 meters (10,000 feet)					
MTBF (Hours)		XTX: 41.0	XTS: 38.2			
MTBF (Hours)		XTXH: 57.3	XTSH: 57.3			
MTBF (Hours)		XTX & XTXH without power adaptor: 332,711	XTS & XTSH without power adaptor: 332,711			
	out power adaptor: 364,715	XTX with power adaptor:	XTS with power			
	power adaptor: 206,946	196,235	adaptor:196,235			
		XTXH with power adaptor: 210,748	XTSH with power adaptor: 210,748			
Mounting						
Din Rail Kit		Optional				
Wall / Rack Mount Kit		Optional				
Product Weight and Dua Dimensions	I SFP	Dual XFP	XFP to SFP			
Product Weight 0.36 H	kg, 0.80 lbs	0.38 kg, 0.84 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 I	0.64 kg, 1.41 lbs 0.66 kg, 1.46 lbs 0.66 kg, 1.46 lbs					
Shipping Dimensions		0.00 kg, 1.10 lb0				

	FCC Part 15 Class A, EN55022 Class A	
Emissions	CISPR 22 Class A	
	EN61000-3-2	
Immunity	EN55024	
	UL 60950-1	
Electrical Safety	EN60950	
	CE	
	RoHS - 2002/95/EC Directive	
Environmental	WEEE - 2002/96/EC Directive	
	Reach compliant	
	ECCN: 5A991A	
Other	HTSUS Number: 8517.62.0050	
	Perle 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.



Model	Port	Slot	SFP+ Power Levels	XFP Power Levels	Maximum Total Transceiver Power Supported
S-10G-STS	Port 1	SFP+	Level 1 ( up to 1.0 watts )	-	3.0 watts
			Level 2 ( up to 1.5 watts )	-	-
	Port 2	SFP+	Level 1 ( up to 1.0 watts )	-	-
			Level 2 ( up to 1.5 watts )	-	-
S-10G-XTS	Port 1	XFP	-	Level 1 ( up to 1.0 watts )	5.0 watts
			-	Level 2 (1.5 to 2.5 watts)	-
			-	Level 3 (2.5 to 3.5 watts)	-
	Port 2	SFP+	Level 1 ( up to 1.0 watts )	-	-
			Level 2 ( up to 1.5 watts )	-	-
S-10G-XTSH	Port 1	XFP	-	Level 1 ( up to 1.0 watts )	7.0 watts
			-	Level 2 ( 1.5 to 2.5 watts )	-
			-	Level 3 ( 2.5 to 3.5 watts )	-
			-	Level 4 ( 3.5 to 5.5 watts )	-
	Port 2	SFP+	Level 1 ( up to 1.0 watts )	-	-
			Level 2 ( up to 1.5 watts )	-	-
S-10G-XTX	Port 1	XFP	-	Level 1 ( up to 1.0 watts )	7.0 watts
			-	Level 2 (1.5 to 2.5 watts)	-
			-	Level 3 ( 2.5 to 3.5 watts )	-
			-		-
	Port 2	XFP	-	Level 1 ( to 1.0 watts )	-
			-	Level 2 ( to 1.5 watts )	-
			-	Level 1 ( to 1.0 watts )	-
			-	Level 2 ( to 1.5 watts )	-
S-10G-XTXH	Port 1	XFP	-	Level 1 ( up to 1.0 watts )	11.0 watts
			-	Level 2 (1.5 to 2.5 watts)	-
			-	Level 3 ( 2.5 to 3.5 watts )	-
				Level 4 ( 3.5 to 5.5 watts )	-
	Port 2	XFP		Level 1 ( up to 1.0 watts )	1
				Level 2 (1.5 to 2.5 watts)	1
				Level 3 ( 2.5 to 3.5 watts )	1
				Level 4 ( 3.5 to 5.5 watts )	