

# S-10GRT-SFP Media Converter

 [perle.com/products/media-converters/10gbase-t-standalone-rate-converter.shtml](http://perle.com/products/media-converters/10gbase-t-standalone-rate-converter.shtml)

## 10/100/1000/2.5G/10GBase-T to SFP Copper or Fiber Converter

- Copper to fiber and copper to copper conversion
- Uses a variety of transceivers supplied by Perle, Cisco or other MSA compliant SFP+
- 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



The Perle S-10GRT-SFP Media Converter transparently connects 10/100/1000/2.5G/10GBase-T Ethernet links over multimode or single mode fiber. Each Media Converter comes with one RJ45 Ethernet 10GBase-T port and an empty slot for one SFP or SFP+ module.

The S-10GRT-SFP Media Converter supports key features for ultimate network flexibility and growth.

- 10/100/1000/2.5G/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.

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+ Direct Attach Cable (DAC), also known as twinax.

The empty transceiver port on the S-10GRT-SFP Media Converter allows for flexible network configurations to meet any requirement using a variety of transceivers supplied by Perle, Cisco or other manufacturers of MSA compliant SFPs. You can use this products to convert:

### Copper to Fiber Conversion:

- 10/100/1000/2.5G/10GBase-T to 1G Fiber SFP
- 10/100/1000/2.5G/10GBase-T to 10G Fiber SFP+

### Copper to Copper Conversion:

10/100/1000/2.5G/10GBase-T to 1G Copper SFP

The Perle S-10GRT-SFP 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 S-10GRT-SFP Media Converter the smart choice for IT professionals. If you need a Media Converter that can operate in a managed environment with AAA security, check out the SMI-10GRT-SFP.

## S-10GRT-SFP 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
Copper Auto-Negotiations	The media converter supports auto negotiation on Ethernet copper interface port
Copper Duplex	Full and half duplex operation is supported
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: Energy Efficient Ethernet (EEE) as per 802.3az. This provides power savings during idle network activity.
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 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 Frames with a maximum MTU size of 10,024 bytes

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

Input Supply Voltage	9 - 30 vDC, unregulated ( 12 vDC Nominal )
Maximum Power Consumption	15.5 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
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#### Indicators

Power / TST	<ul style="list-style-type: none"> <li>• On: Power indication and in normal operation</li> <li>• Blinking slowly: the unit is in loopback or test mode (either port)</li> <li>• Red solid: the unit has a hardware error (upon power up)</li> <li>• Red and blinking: the unit has a hardware error specified by combination of LK1 and LK2</li> </ul>
LK1 (SFP)	<ul style="list-style-type: none"> <li>• On: Link present</li> <li>• Blinking quickly: Fiber link present and receiving data.(including test data)</li> <li>• Blinking slowly: Fiber link disabled because the other fiber link went down.</li> <li>• Blinking 1 sec on 3 sec off – module shut down due to high temperature.</li> <li>• Off: No fiber link present or no module inserted</li> </ul>
LK2	<ul style="list-style-type: none"> <li>• On: 10GBase-T link present</li> <li>• Blinking quickly: Link present and receiving data</li> <li>• Blinking slowly: Link disabled because Link 1 went down</li> <li>• Off: 10GBase-T link is not active</li> </ul>

#### Switches - accessible through a side opening in the chassis

Smart Link Pass-Through	<p><i>Enabled (Default - Up)</i></p> <p>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.</p> <p>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.</p>
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Fiber Fault Alert	<p><i>Enabled (Default - Up)</i></p> <p>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.</p>
Cut-through / Rate converting	<p><i>Rate Converting (Default - Up)</i></p> <p>The Media Converter can automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different.</p> <p>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</p>
Fiber Interface Loopback	<p><i>Disable (Default - Up)</i></p> <p>In this mode, all frames received on the fiber 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.</p>
Copper Negotiation	<p><i>Auto (Default - Up)</i></p> <p>In this mode, the media converter will auto negotiate copper link parameters. When switch is down, the media converter will be in manual mode and will use the parameters as define by Copper Duplex and Copper Speed switches</p>
Copper Duplex	<p><i>Full Duplex (Default - Up)</i></p> <p>In this mode, the copper port will be set to full duplex mode. If switch is down, the copper port is set to half duplex mode</p>
Copper Speed	<p><i>100Mbps (Default - Up)</i></p> <p>In this mode, the copper port will be fixed at 100 Mbps. When switch down, the copper port will be fixed at 10 Mbps. Note: Copper Negotiation switch must be set to manual for Copper Speed switch to work.</p>
<b>Connectors</b>	
1 x RJ45	<p>10/100/1G/2.5G/10GBase-T</p> <p>IEEE 802.3an</p> <p>100 meters on CAT6A or better</p>

1 x SFP / SFP+ Transceiver slot	Supported 10 Gigabit Fiber pluggable transceivers (IEEE 802.3ae compliant): <ul style="list-style-type: none"> <li>• 10GBase-SR</li> <li>• 10GBase-LRM</li> <li>• 10GBase-LR</li> <li>• 10GBase-ER</li> <li>• 10GBase-ZR</li> <li>• CWDM/DWDM</li> </ul>
Power level 1 (1 watt) and level 2 (1.5 watts) as per SFP-8431	
Hot insertion and removable	Supported 1 Gigabit Copper SFPs <ul style="list-style-type: none"> <li>• 1000Base-T</li> <li>• 1000Base-T SGMII</li> </ul>
	Supported Gigabit Fiber SFPs <ul style="list-style-type: none"> <li>• 1000Base-SX</li> <li>• 1000Base-LX/LH</li> <li>• 1000Base-EX</li> <li>• 1000Base-ZX</li> <li>• 1000Base-BX</li> <li>• CWDM/DWDM</li> </ul>
Supported 10 Gigabit Fiber pluggable transceivers	IEEE 802.3ae compliant: <ul style="list-style-type: none"> <li>• 10GBase-SR</li> <li>• 10GBase-LRM</li> <li>• 10GBase-LR</li> <li>• 10GBase-ER</li> <li>• 10GBase-ZR</li> </ul>
	CWDM/DWDM
<b>Environmental Specifications</b>	
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	53
( BTU/HR )	

MTBF (Hours)**	Without power adaptor: 142,577 With power adaptor: 96,646  **Calculation model based on MIL-HDBK-217-FN2 @ 30 °C
Chassis	Metal with an IP20 ingress protection rating
<b>Mounting</b>	
Din Rail Kit	Optional
Wall / Rack Mount Kit	Optional
<b>Product Weight and Dimensions</b>	
Product Weight	0.36 kg, 0.8 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
Shipping Dimensions	26 x 17 x 7 cm (10.2 x 6.7 x 2.8 inches)
<b>Regulatory Approvals</b>	
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+ modules inserted.

## 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.

#### Auto-sensing Rate Conversion (10/100/1000/2.5G/10GBase-T)

Using auto-sensing RJ45 Ethernet port and the empty SFP/SFP+ slot, connect and convert copper Ethernet to 1G or 10G multimode or single mode fiber. Or, convert to 1G copper.

