



Perle S-10GRT-SFP Media Converter

Installation Guide



Overview

This document contains instructions necessary for the installation and operation of the Perle S-10GRT-SFP Standalone Media Converter. This media converter contains one pluggable transceiver port that permits insertion of a SFP/SFP+ and one integrated rate converting (10/100/1G/2.5G/10G RJ45 copper port. This media converter can use either Perle Systems or third party MSA compatible 1G/10G SFP+ modules. See the Technical Specifications section in this guide for supported models.

Visit Perle's web site for the most up to date Installation guides, models and specifications.

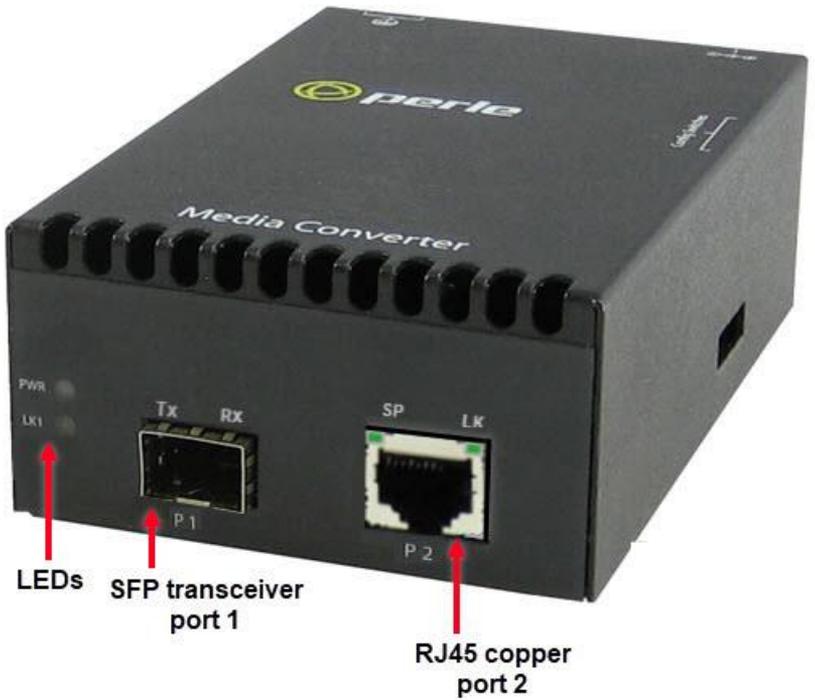
<http://www.perle.com/>

Getting to know your S-10GRT-SFP Media Converter

Your Perle 10-GRT-SFP Standalone Media Converter package consists of the following items:

- S-10GRT-SFP with one RJ45 copper port and one SFP/SFP+ transceiver port.
- Grounding screws
- Country specific power adapter
- Power cord strain relief clip
- Four rubber feet
- This guide

Front View



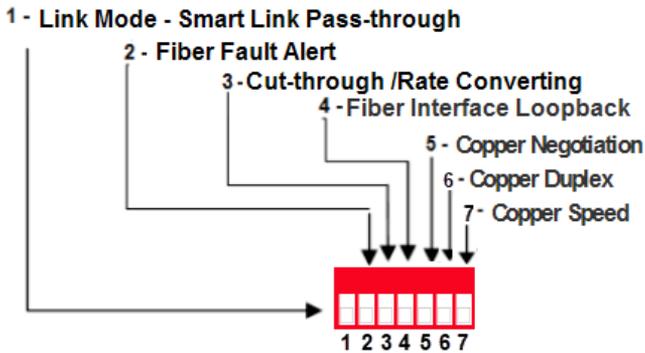
Installation

The default switch setting (all switches in the UP position) will work for most installations.

These are the steps required to configure the media converter.

1. Set the DIP switch settings. (optional)
2. Insert the appropriate SFP/SFP+ into the transceiver port.
3. Connect the fiber cable.
4. Connect the RJ45 (copper cable).

DIP Switches



DIP Switch Settings

The DIP switches are located on the side of the unit.

Note: Switch changes made when the unit is powered up take effect immediately and will result in a link reset on both ports.

Link Mode (Switch 1)

Switch Position	Mode
Up (default)	Smart Link Pass-through
Down	Standard

Smart Link Pass-through: In this mode, the link state on one port connection is directly reflected through the media converter to the other port connection. If link is lost on one of the connections, then the other link will be brought down by the media converter.

Standard: In this mode, the links can be brought up and down independently of each other. A loss of link on either connection can occur without affecting the other connection.

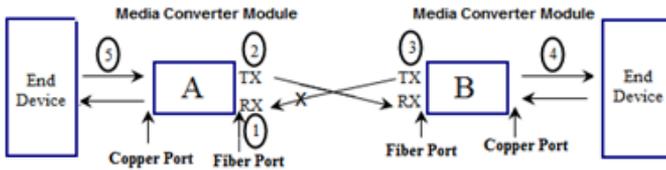
Fiber Fault Alert (Switch 2)

Switch Position	Mode
Up (default)	Enabled
Down	Disabled

Enabled: If the media converter detects a loss of signal on the fiber port, the media converter notifies the link partner on that same port that an error condition exists by bringing down the link.

Disabled: The media converter will not monitor for fiber fault.

Media Converter Module or Media Converter



Fiber Fault Alert Sample Config

Media Converter A Configuration

- Link Mode – Standard Mode
- Fiber Fault Alert

Media Converter B Configuration

- Link Mode–Smart Link Pass through Mode
- Fiber Fault Alert

Sequence of Events

1. Media Converter **A** loses fiber connection (RX).
2. Media Converter **A** notifies the remote Media Converter that there is a fault on the Link.
3. Media Converter **B** detects loss of fiber link on receiver (RX).
4. Media Converter **B** turns off transmitter (TX).

Cut-through / Rate converting (Switch 3)

Switch Position	Type
Up (default)	Rate converting
Down	Cut-through

Rate converting: Both ports can operate at the same or different speeds.

Cut-through: Both ports need to be the same speed and set to full duplex mode.

Fiber Interface Loopback (Switch 4)

Switch Position	Mode
Up (default)	Disabled
Down	Enabled

Disabled: When disabled, the media converter will not be in Fiber loopback mode.

Enabled: When enabled, the media converter will be in Fiber loopback mode.

Copper Negotiation (Switch 5)

Switch Position	Mode
Up (default)	Auto
Down	Manual

Auto: The media converter will auto negotiate copper link parameters.

Manual: The media converter will use the parameters as defined by Switch 6 and 7.

Copper Duplex (Switch 6)

Switch Position	Mode
Up (default)	Full Duplex
Down	Half Duplex

Note Switch 5 must be set to manual for this setting to take affect.

UP: The copper port will be set to Full Duplex mode.

Down: The copper port will be set to Half Duplex mode.

Copper Speed (Switch 7)

Switch Position	Mode
Up (default)	100Mbps
Down	10Mbps

Note Switch 5 must be set to manual for this setting to take affect.

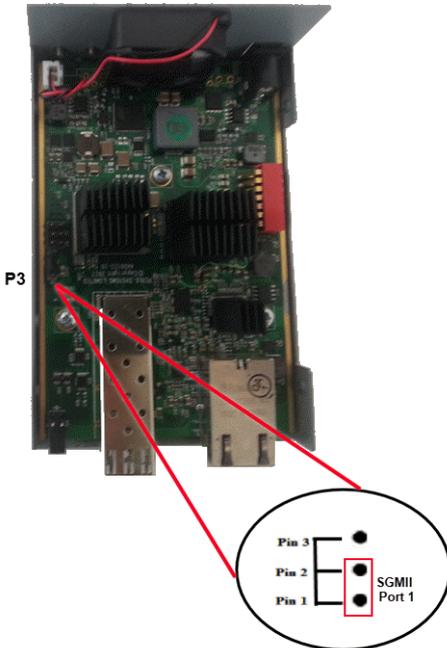
UP: The copper port will be fixed at 100 Mbps.

Down: The copper port will be fixed at 10 Mbps.

SGMII Interface Support

The Perle Standalone Media Converter supports SGMII on the SFP interface for the SFPs that require 1000 Mbps SGMII.

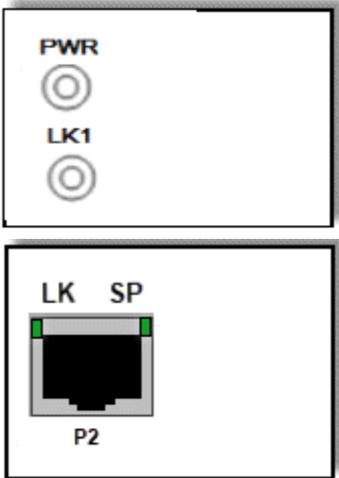
1. Remove the top of the unit to access the internal jumpers.
2. The SGMII jumper is located on the outer edge, at the midpoint of the card (P3). Jumper Pin 1 and Pin 2.



Operation

Status LED

The Perle S-10GRT-SFP media converter LEDs statuses.



PWR – Power/Test

Green On: Power is on and the module is in normal operation mode.

Green blinking slowly: the module is in test or loopback mode.

Red Solid: Hardware error detected. (See PWR Red LED Errors)

Red Blinking quickly: Error detected. (See LK1/LK Errors)

LK1 – Port 1 Activity

On: Fiber link present.

Blinking quickly: Fiber link present and receiving data.

Blinking slowly: The fiber link has been taken down as a result of Smart Link Pass-Through.

Off: No fiber link present.

SP – Port 2 Speed

Green: 2.5G/10G

Yellow: 100M/1G

Off: 10M

LK – Port 2 Activity

On: Copper link present.

Blinking quickly: Copper link present and receiving data.

Blinking slowly: The copper link has been taken down as a result of Smart Link Pass-Through.

Off: No copper link present.

LK1 / LK Error Codes

LK1	LK	Meaning
Off	Off	Incompatible SFP/SFP+
On	On	Internal Error
Off	On	Mismatch in Cut-through mode
On	Off	SFP/SFP+ communication error

PWR-Red LED Errors

LK1	LK	Meaning
Blinking	n/a	Blinking one second on, 3 seconds off: the maximum specified operating temperature within the inserted module has been exceeded
Off	Off	Internal Hardware.

Grounding the Chassis

If your installation requires additional grounding follow this procedure.

Grounding the chassis requires the following items:

- ✓ One grounding lug (not provided)
- ✓ One 18-12 AWG wire (not provided)

Note: For your safety, when installing this equipment, always ensure that the chassis ground connection is installed first and disconnected last

Attaching the Grounding Lug



1. Attach the grounding lug to one end of an 18-12 AWG wire.
2. Attach the grounding lug to the chassis and secure with the grounding screw(s).

Attaching the Power Cord Strain Relief Clip



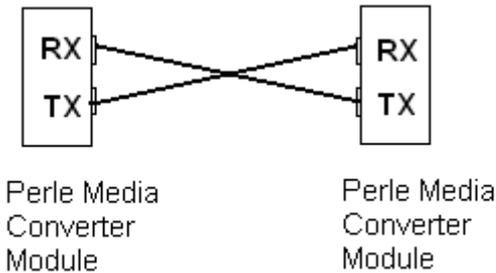
1. Feed the power cord through the opening in the power cord relief clip.
2. Attach the power cord relief clip to the chassis and secure with the provided screw.

Installing the SFP Fiber Module

1. Locate appropriate fiber module and insert into the opening.
2. Ensure the SFP/SFP+ module is properly seated.
3. Proceed with fiber cable connection.

Installing the Duplex Fiber Cable

1. Locate a 1000/10GBase-X compliant duplex (2 strands) fiber cable with appropriate connectors.
2. Connect the fiber cables from the SFP/SFP+ to the other Media Converter/switch/fiber device ensuring that the RX and TX are reversed (crossed) at the opposite end.



Installing the Simplex Fiber Cable

1. Locate a 1000/10GBase-X compliant simplex (1-strand) fiber cable with appropriate connectors.
2. Connect the fiber cable from the SFP/SFP+ to the other media converter/switch/fiber device.

Installing the Copper Cable

1. Locate 10/100/1000/10GBase-T compliant copper cables with male, RJ45 connectors installed at both ends.
2. Connect the RJ45 cable between the media converter and the device.

Note: The Perle Media Converter supports Auto-MDIX which allows a straight-through or cross-over Ethernet cable.

Temperature Protection

Every S-10GRT-SFP comes equipped with an internal fan to provide cooling to the unit. The fan will come on during power up and then turn off. It will only come on when the temperature inside the case becomes elevated. If the module is operating above its specified maximum operating temperature, the S-10GRT-SFP will reduce the power to the module. The S-10GRT will continue to monitor the operating temperature of the unit until the temperature is below the maximum operating temperature and then the S-10GRT-SFP will return the module to normal operating.

Loopback Mode

Perle Standalone media converters can be put into loopback mode for diagnosis purposes. A packet generator and analyzer must be used to generate and capture the packets in this mode.

Technical Specifications

Maximum power consumption (watts)	15.5 Watt Max, includes modules
Current Consumption @12v	1.3 amps
Pluggable Fiber Transceiver	IEEE 802.3ae (10G-Base-R) 10 Gigabit SFP+ slot support 10GBase-R Standard SFP Power level 1 (1 watt) and level 2 (1.5 watts) as per SFP-8431
Operating Temperature:	0°C-50°C (32°F - 122°F)
Storage Temperature:	-25°C-70°C (-13°F -158°F)
Operating Humidity:	5% to 90% non-condensing
Storage Humidity:	5% to 95% non-condensing
Operating Altitude:	Up to 3,048 m (10,000 ft)
Weight:	0.36kg, 0.79 lbs

The following applies to the Perle S-10GRT-SFP Media Converter.

*Actual rating is dependent on the power consumption of the SFP/SFP+ module inserted.

Supported 10 Gigabit Fiber pluggable transceivers

IEEE 802.3as compliant

- 10GBase-SR
- 10GBase-LMR
- 10GBase-LR
- 10GBase-ER
- 10GBase-ZR

CWDM/DWDMBase

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 are supported

Supported Gigabit Fiber SFP's

- 1000Base-SX
- 1000Base-LX/LH
- 1000Base-EX
- 1000Base-ZX
- 1000-Base-BX

CWDM/DWDMBase

Fiber Cabling Requirements

- **MM:** 50/125 microns or 62.5/125 microns
- **SM** 9/125 microns

Copper Cable Requirements

- Category 6A for 10G speeds, 5/5e used for speeds under 10G
- Straight through or Ethernet crossover

Note: Please refer the product page on the Perle website for the most up to date specifications.

<http://www.perle.com/>

Troubleshooting

General

- ✓ Ensure that the SFP/SFP+ module is inserted correctly into the transceiver port.
- ✓ Ensure that the copper cabling (RJ45) meets Ethernet copper cabling requirements.

No connectivity

Set all DIP switches to the Up position.

Loopback Mode

The media converter can be put into Loopback mode for diagnosis purposes. A packet generator and analyzer must be used to generate and capture the packets in this mode.

Compliance Information

FCC

This product has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

EN 55032 Class A

WARNING This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

EN 55024 Class A

Contacting Technical Support

Contact information for the Perle Technical Assistance Center (PTAC) can be found at the link below. A Technical Support Query may be made via this web page.

www.perle.com/support_services/support_request.shtml

Warranty / Registration

For information and details about product warranty and registration, please refer to

www.perle.com/support_services/warranty.shtml

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