# Perle S-10GR-STS Media Converter

## Installation Guide

# Overview

This document contains instructions necessary for the installation and operation of the Perle S10-GR-STS Standalone Media Converter. This media converter contains two pluggable transceiver ports that permits insertion of two SFP/SFP+. This media converter can use either Perle Systems or third party MSA compatible 10G/2.5G/1G SFP+ modules. See the Technical Specifications section in this guide for supported modules.

 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-10GR-STS Media Converter

Your Perle S-10GR-STS Standalone Media Converter package consists of the following items:

- S-10GR-STS with two SFP/SFP+ transceiver ports
- Grounding screws
- Country specific power adapter
- Power cord strain relief clip
- Four rubber feet
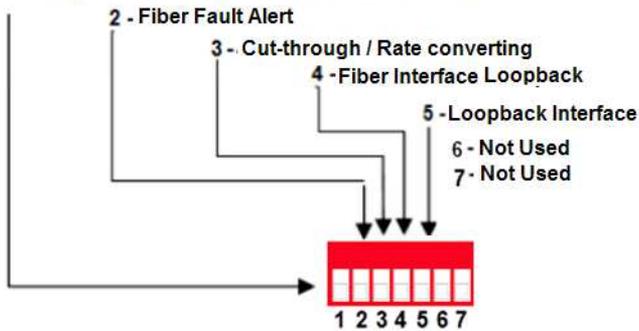- This guide

# 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 S-10GR-STS media converter.

1. Set the DIP switch settings. (optional).
2. Insert the appropriate SFP/SFP+ into the transceiver ports.
3. Connect the fiber cables.

## DIP Switches

1 - Link Mode -Smart Link Pass-through /Standard

2 - Fiber Fault Alert

3 - Cut-through / Rate converting

4 - Fiber Interface Loopback

5 - Loopback Interface

6 - Not Used
7 - Not Used

1 2 3 4 5 6 7

# 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
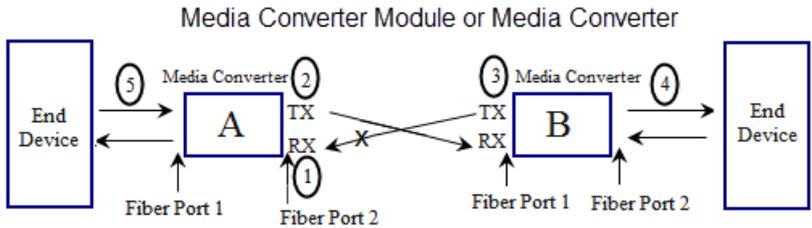


# Fiber Fault Alert Sample Config

## 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 in full duplex mode.

# Fiber Interface Lookback (Switch 4)

| Switch Position | Mode |
|---|---|
| Up (default) | Disabled |
| Down | Enabled |

**Enabled:** When enabled, the media converter will be in fiber loopback mode.
**Disabled**: When disabled, the media converter will not be in fiber loopback mode.

# Fiber Loopback Interface (Switch 5)

| Switch Position | Mode |
|---|---|
| Up (default) | Port 1 |
| Down | Port 2 |

**UP:** The media converter will perform loopback testing on Port 1.
**Down:** The media converter will perform loopback testing on Port 2.

# Not Used (Switch 6 and 7)

# SGMII Interface Support

The Perle Standalone Media Converter has 1000 Mbps SGMII interface support on port 1.

To set the jumper, remove the screws from the sides of the unit, then remove the lid.

The SGMII jumper is located on the outer edge, at the midpoint of the card (P3). Jumper Pin 1 and Pin 2 to select SGMII for port 1.
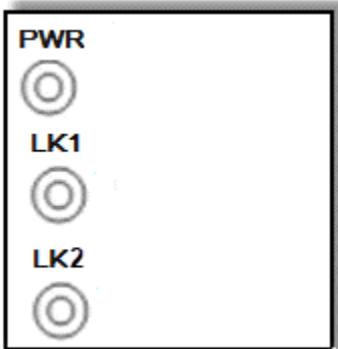
**NOTE:** Only port 1 supports SGMII.
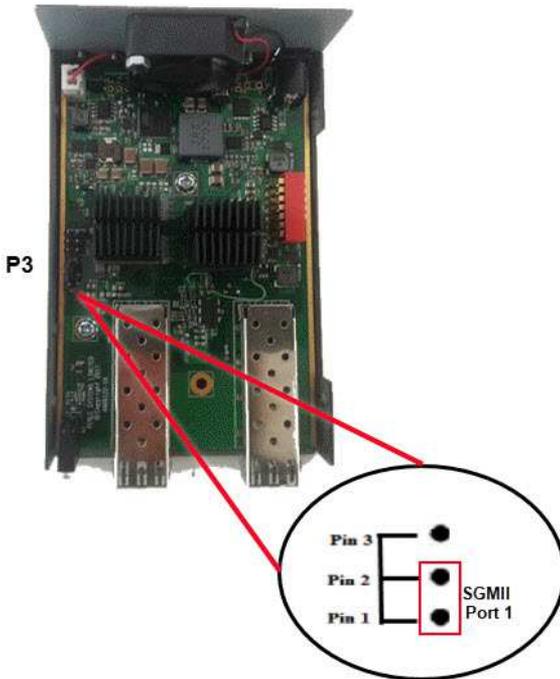
# Operation

## Status LED

The Perle S-10GR-STS 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:** During power up: Hardware error detected. (See PWR Red LED Errors)
**Red Blinking quickly:** Error detected. (See LK1/LK2 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.

## LK2 – Port 2 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.

## *LK1 / LK2 Error Codes*

| LK1 | LK2 | Meaning |
|-----|-----|---------|
| Off | Off | Incompatible SFP/SFP+ |
| On | On | Internal Error |
| Off | On | Mismatch in Cut-though mode |
| On | Off | SFP/SFP+ communication error |

## *PWR-Red LED Errors*

| LK1 | LK2 | Meaning |
|-----|-----|---------|
| Blinking | Blinking | Blinking one second on, 3 seconds off: the maximum specified operating temperature within the inserted module has been exceeded |
| Off | Off | Internal Hardware. |

# Attaching the Grounding Lug

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



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 modules and insert into the openings.
2. Ensure the SFP/SPF+ modules are properly seated.
3. Proceed with fiber cable connections.

# 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.
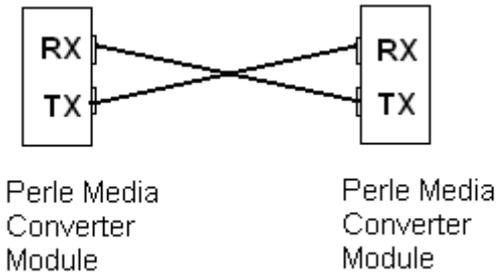
# Installing the Simplex Fiber Cable

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

# Temperature Protection

Every S-10GR-STS 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-10GR-STS 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-10GT-STS will return the module to normal operating.

### 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.

# Technical Specifications

The following applies to the Perle S-10GR-STS Media Converter.

| | |
|---|---|
| Maximum power consumption (watts) | 18.2 |
| Current Consumption @ 12v | 1.6 amps |
| Pluggable 10G Fiber Transceivers | Power levels 1 and 2 EEE 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 |

*Actual rating is dependent on the power consumption of the SFP/SFP+ modules 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

Note: In this mode both SFPs need to operate at 1000Base-X

## Fiber Cabling Requirements

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

**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+ modules are inserted correctly into the transceiver ports.

**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 warrantee and registration, please refer to
http://www.perle.com/support_services/warranty.shtml