



**Perle**  
**Protocol Transparent**  
**Media Converter**  
**Modules**

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## **Installation Guide**

**C-4GPT-DSFP**  
**CM-4GPT-DSFP**



Part#5500335-10 (Rev A)

# Overview

This document contains instructions necessary for the installation and operation of the Perle Protocol Transparent Media Converter modules. These Media Converter modules allow connection and cross-connection of fiber networks of different types to each other. They are protocol independent using standard SFP\* modules with speeds up to 4.25 Gbps. These modules can be ordered as unmanaged modules (C) or as managed modules (CM). Both models are used in conjunction with a Perle management card.

\*(purchased separately)

**Note:** for information on the management options of your CM modules please refer to your Perle Management Module guide that came with your Perle Transparent Protocol Media Converter module.

## Supported modes of operation

- Multimode to multimode
- Multimode to single mode
- Single mode to single mode
- Multimode to single Mode Single strand
- Wavelength Transponder (CWDM/DWDM)
- Dual and single fiber (Simplex to Duplex)

## Key Features

- Protocol and rate transparency for fiber SFPs
- Support for all standard MSA-complaint SFPs
- SFP rates from 1 up to 4.25 Gbps
- Support for multi-rate SFPs
- Smart Link Pass-through
- Fiber Fault Alert
- Integrated management features
- Provides diagnosis LED functions

Refer the Perle web site for the most up to date Installation guides, models and specifications. [www.perle.com](http://www.perle.com)

# Installation

The default switch settings (all switches in the UP position) will work for most installations. See the Operation section of this guide for more details.

The module comes equipped with a bank of DIP switches and a set of jumpers for setting configuration.

The following steps are used to configure the Media Converter module.

1. Set the Auto-Config jumper. (CM models only) (optional).
2. Set the DIP switch settings (optional).
3. Insert SFP modules into the transceiver ports.
4. Insert the module into the chassis.

## ***Auto-Config Jumper (CM only)***

The Auto-Config jumper is J5. Refer to the diagram below for labelling.

**Auto (Pin 2 and Pin 3 are strapped):** When set to Auto the module will, at power-up, check its internal flash memory to see if configuration information has been downloaded to it from a management module. If so, it will use this as its running configuration. If there is no configuration in flash it will read the settings of the DIP switches and use those as its running configuration.

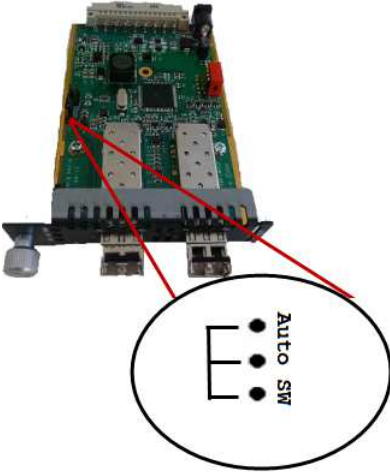
**SW: (Pin 1 and Pin 2 are strapped):** When set to SW (Switch), the module will, at power-up, read the settings of the DIP Switches and use those as its running configuration. It will ignore any configuration information in its flash memory.

**Note: The default jumper setting is Auto**

## ***Auto-Config Jumper (CM only)***

Cover the top Pin and middle Pin for Auto mode (default).

Cover the middle Pin and bottom Pin for SW



# DIP Switch Settings

- 1 - Link Mode
- 2 - Fiber Fault Alert
- 3 - Rate Select
- 4 - Unused



## ***Link Mode (Switch 1)***

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

**Smart Link Pass-Through:** In this mode, the fiber link state on one fiber connection is directly reflected through the Media Converter module to the other fiber connection. Since this media converter module is protocol independent, it monitors the Signal Detect indicator from the SFP and reflects this on the TX port of the other SFP by turning off the transmitter. When the signal (Link) gets restored and Signal Detect becomes active the affected transmitter will get re-enabled.

**Standard Mode:** In Standard Mode the media converter module will monitor the fiber link in the same manner. If Signal Detect goes down the media converter module will output a 25MHz signal on the TX port of the other SFP.

## ***Fiber Fault Alert (Switch 2)***

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

**Enabled:** If the media converter module detects a loss of fiber signal on its fiber receiver, it will disable its fiber transmitter on the same SFP. This, in effect, notifies the fiber link partner that an error condition exists on the fiber connection.

**Disabled:** The Protocol Transparent Media Converter module will not monitor for Fiber Fault.

**Note:** *If 2 media converters are connected to each other, FFA should not be enabled on both since this could create a “dead-lock” state.*

### **Rate Select (Switch 3)**

| Switch Position | Mode       |
|-----------------|------------|
| Up (default)    | High Speed |
| Down            | Low Speed  |

**High Speed** – When a multi-rated SFP is inserted, it is enabled for its higher speed of operation.

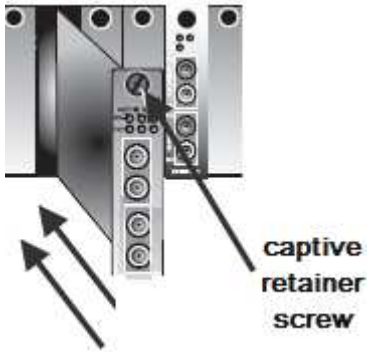
**Low Speed** – When a multi-rated SFP is inserted, it is enabled for its slower speed of operation.

# ***Installing Protocol Transparent Media Converter Modules***

**Caution:** *Observe electrostatic discharge precautions when installing the Protocol Transparent Media Converter module(s) into the chassis. Failure to observe this caution could result in damage to the module(s) and/or chassis.*

The Protocol Transparent Media Converter module(s) can be installed in any available slot and in any order within the MCR1900 chassis.

1. Remove the module from its packaging.
2. Using a cross-head screwdriver, remove the screw holding the face plate to the chassis to reveal the slot opening.
3. Set the jumper and DIP switches on the module to the desired operating mode. (optional)
4. Locate the top and bottom alignment guides inside the MCR chassis.
5. Using the module alignment guides gently slide the module into the slot until it becomes flush with the front of the chassis. Light pressure may be needed to seat the module. Do not force the module as you might cause damage. If there is resistance, remove the module and check the module connector for damaged or incorrectly aligned pins. If these are not damaged, retry module insertion.
6. Tighten the captive retainer screw to ensure the module is locked in place.
7. Remove the dust cap from the fiber connectors.



**All open slots in the chassis must be covered with a face plate in order to maintain proper circulation throughout the chassis**

## ***Removing Media Convert Modules***

1. Loosen the captive retainer screw on the front of the Protocol Transparent Media Converter Module and gently pull the module out.
2. If not inserting a replacement Protocol Transparent Media Converter Module then cover the opening slot with a face plate and secure the screw.



# Operation

## Status LED

The Media Converter modules have three status LEDs located on the face plate of the module.



|  |
|--|
| <b>PWR</b><br><i>On</i> – Power On<br><i>Blinking Fast</i> – Hardware Error  |
| <b>LK1</b><br><i>On</i> – Signal Detected<br><i>Off</i> – No Signal Detected |
| <b>LK2</b><br><i>On</i> – Signal Detected<br><i>Off</i> – No Signal Detected |

# Troubleshooting

## General

- Ensure the module is securely seated in the chassis. The PWR LED on the module should be On solid.
- Ensure all cabling is of the correct type and is in good operating condition.
- Ensure both devices on either end of the fiber are compatible. If using a simplex fiber connection, ensure that you have both an Upstream (U) SFP module inserted and a Downstream (D) SFP module inserted.

# Technical Specifications

|                             |                              |
|-----------------------------|------------------------------|
| Max Power Input Consumption | 3.85 Watts                   |
| Ratings                     | 6-30 VDC, 0.625A             |
| 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)    |

**Note:** all combinations of modules within the MCR1900 chassis cannot exceed the chassis power input consumption. The full power consumption for the MCR1900 chassis can be found on the Perle website.

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

# **Compliance Information**

## **EMI/EMC**

EN 55022/CISPR22

EN 55022/CISPR22

## **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.

## **Safety**

IEC 60950-1 2<sup>nd</sup> edition

UL 60950-1 CAN/CSA STD C22.2 No 60950-1

## **Warranty / Registration**

Perle's standard Lifetime Warranty provides customers with return to factory repairs for Perle products that fail under the conditions of the warranty coverage. Details can be found at:

[http://www.perle.com/support\\_services/warranty.shtml](http://www.perle.com/support_services/warranty.shtml)

## **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](http://www.perle.com/support_services/support_request.shtml)

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