MRV

FIBER ACCESS SOLUTIONS

Datasheet

Dual Transponder - LambdaDriver® module (TM2-SFP)

TM2 - SFP module

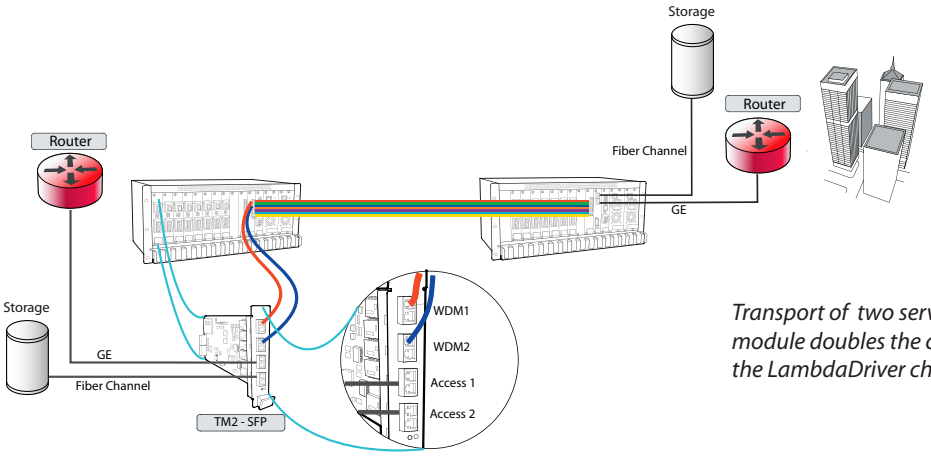
Features

- High port density – 2 transponders per single LambdaDriver® slot
- Use of SFP transceivers on all ports
- Data Rate from 10 Mbps to 2.7 Gbps
- 3R functionality for high data rates
- Standard-compliant Protective Automatic Laser Shutdown (ALS/APR) mechanism
- Link Integrity Notification (LIN) mechanism
- Remote Loop-Back (RLB) functionality
- SNMP manageable, MegaVision Web® supported
- SFF-8472 digital diagnostics support for SFP
- Hardware redundancy options
- Installable in all LambdaDriver® chassis
- Hot-swappable

The TM2-SFP module is part of the Fiber Driver-LD (LambdaDriver®) product line and can be hosted by the LD400, LD800 and LD1600 chassis. This module, though consisting of two transponders on one physical card, is accommodated in a single slot, thus providing two transparent light paths between the terminal equipment and the WDM network. Each transponder can carry any data centric protocol at any rate between 10 Mbps and 2.7 Gbps, enabling carriers to mix different protocols such as SONET/SDH, Fast Ethernet, Gigabit Ethernet, Fibre Channel, ESCON, etc. in a single chassis. There is no restriction or dependency between the two transponders, therefore different data rates (protocols) can be transported on each of them.

TM2-SFP modules are operated completely independently of the other parts of the system and can be hot swapped without interrupting other services running through the same system.
Each transponder of the two on the TM2-SFP module, possesses separate "data rate selection" functionality, allowing carriers remote rate provisioning of different rates for each transponder on the module. In "data selection" modes, the modules perform 3R functionality in order to maintain the signal's highest quality. In cases when it is impossible to define a specific data rate for selection or the data rate is lower than 33 Mbps, transparent 2R (re-shape, re-amplify) mode can be operated.
For laser safety requirements, all transponders possess the Automatic Laser Shutdown (ALS) feature, reducing the optical power of the transmitters automatically in case of a broken link.
The ALS functionality is implemented on both ports of the transponders (WDM side and Terminal equipment side).
Both transponders use SFP interfaces for both the WDM and the Access sides, thus achieving the highest flexibility in terminal equipment and WDM interface selection.

Using SFP transceivers enables the customer to easily change the type of optical interface, according to the different needs of terminal equipment or WDM wavelengths. By means of the SFP receptacle, the same transponder supports any possible protocol (for example, the only difference between GE and OC48 service support is the type of SFP used with the transponder). Similarly the change of WDM wavelength is done simply by exchanging the SFP on the WDM side of the transponder. SFP transceivers are pluggable and can easily be reused at different locations for different applications. This maximizes the return on investment in optics and equipment, reducing the need for on-hand parts inventory.



Transport of two services by one module doubles the capacity of the LambdaDriver chassis

The loop-back as well as the Remote Laser Shutdown functions assist in troubleshooting the network and provide a cost effective way of pinpointing a problem.

The two transponders can be set to operate independently of each other or in redundancy mode. When protection switching is done within the client terminal equipment (like in most SDH applications), the two transponders provide diverse routes for two client interfaces.
When only one client interface is provided, the two transponders work in redundancy mode with only one transponder transmiting to the client interface and the other being in "standby" for protection. This single client interface is connected to two transponders by Y-cable which can be provided upon request.

Accordingly, a single LD400 chassis fitted with 4 TM2-SFP modules, can act as:

- one multiplexer system consisting of 8 full-duplex WDM channels or,
- one multiplexer system consisting of 4 full-duplex WDM channels and having mutual redundancy protection among the transponders

and a single LD800 chassis fitted with 8 TM2-SFP modules can serve as:

- two independent multiplexer systems, each consisting of 8 full-duplex WDM channels or,
- one multiplexer system consisting of 8 full-duplex WDM channels having mutual redundancy protection among the transponders or,
- one multiplexer system consisting of 16 full-duplex WDM channels.

and a single LD1600 chassis fitted with 16 TM2-SFP modules can serve as:

- two independent multiplexer systems, each consisting of 16 full-duplex WDM channels, or
- one multiplexer system consisting of 16 full-duplex WDM channels having mutual redundancy protection among the transponders or,
- one multiplexer system consisting of 32 full-duplex WDM channels.

Optical Performance Monitoring (OPM)

The transponder supports the SFP Digital Diagnostics standard (as per SFF-8472). A powerful OPM tool, it provides access to a number of real-time SFP operating parameters such as optical TX/RX power, voltage and temperature, as well as component information such as vendor code, serial number and wavelength.
The information provided by Digital Diagnostics, together with alarm and warning thresholds, enables a network administrator to identify potential problems and take preemptive action before any service outage might occur.

Technical Specifications

Temperature Range	-5°C to 45°C (23°F to 113°F)
Humidity	85% maximum, non-condensing
Physical dimentions	W:26.93 mm (1.06 In); H:130.7 (5.145 In); D:227.5mm (8.956 In)
Weight	0.55 kg (1.21 lb)
Connectors	SFP receptacles
Data Rate	8 Mbps - 2.7 Gbps

Order Info

TM2-SFP	Dual transponder with SFP ports, protocol transparent at any rate (up to 2.7Gbps)