MRV Optical Communications Systems®

EMPOWERING THE OPTICAL EDGE

Datasheet

LambdaDriver®–10Gbps Transponder with FEC (TM-DXFPF)

Forward Error Correction for distance extension

TM-DXFPF8T

Features

- 10 Gbps OC192/STM-64 or 10GE data rates
- Full 3R support
- G.709 performance monitoring
- Line and Diagnostics Loop-back testing
- 50GHz spacing ITU-grid(G.694.1) DWDM Trunk
- Dispersion tolerance up to 200km
- XFP digital diagnostics
- Link Integrity notification (LIN)
- Y-Cable redundancy support
- Hot swappable
- EYEMAX capability

Applications

- 10 GE or SDH/SONET signal regeneration and optical wavelength conversion
- DWDM networks with end-to-end performance monitoring
- Distance extension of existing 10 Gbps DWDM networks

Overview

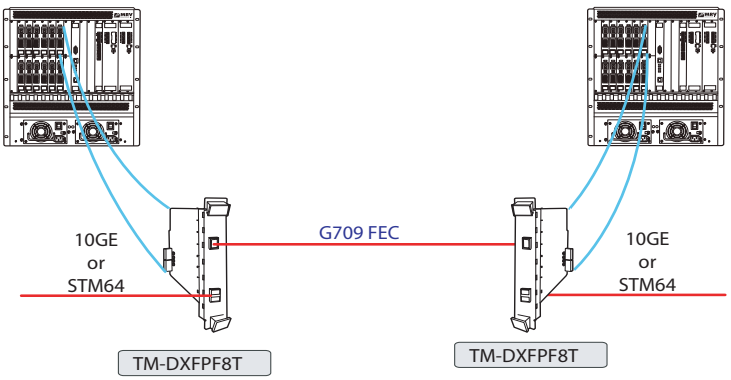
The TM-DXFPF 10Gbps with Forward Error Correction (FEC) transponder converts the "gray" wavelength of a 10 Gbps terminal equipment interface into an ITU-T grid DWDM wavelength enabling its transport via the LambdaDriver® Optical Transport System (DWDM multiplexer, OADM, etc.).
The transponder supports OC-192/STM-64 and 10 GE protocols with 3R signal conditioning.
The access (terminal equipment) interface is an XFP (10 Gbps Small Form Factor Pluggables receptacle) while the trunk (DWDM) port is an integrated 50GHz tunable DWDM interface.

A key feature of the transponder is the support for the G.709 FEC standard protocol as well as Enhanced FEC (EFEC) protocol with better error-correction performance. The FEC/EFEC mode is user-selectable.
The error-correction performance significantly extends the overall distance reach of the link with very low BER.
For 10GE and OC192/STM-64 the G.709 digital wrapper technology is used to transparently pass any type of payload.

Standard performance monitoring is supported for end-to-end SONET/SDH terminated signals providing at each receive end the relevant conditions and alarms as per ITU G.783, GR-474 standard definitions. Statistics for current 15-minute intervals and up to 96 previous intervals can be viewed.
For 10GE traffic, performance parameters are as defined by RFC 2819 (RMON), MIB2, and IfMib extensions. In addition, the extensive information provided by G.709 monitoring allows for detailed performance analyses such as BER, statistics, etc.

The TM-DXFPF8T module has the "EYEMAX" feature, which enables FEC to optimize receiver performance based on the incoming signal "eye pattern" measurement by automatically setting the optimal reception threshold. This feature can be considered as an on-board Automatic Electronic Dispersion Compensator.

Line and Diagnostic Loop-back functionality is supported and provides an invaluable tool for troubleshooting and maintenance operations in a live network. The Diagnostic loop-back function checks the integrity of the port internal circuitry while the Line loop-back is used to check the fiber connections integrity.
The Line Loop-back and the Diagnostic Loop-back are available for Access (Client) ports.



TM-DXFPF8T is a single short slot size module also capable of Y-cable protection .
The Link Integrity Notification (LIN) function allows the terminal equipment to detect link failure in the path between two terminal equipment units regardless of the location of the failure.
The LIN function is automatically disabled for SONET/SDH signals.
The transponder provides power monitoring of the trunk (DWDM) port in addition to Digital Diagnostics provided by the XFP of the access port.

The transaponder can be managed either with the LambdaDriver® management module from a local craft terminal (CLI) or remotely from on SNMP manager such as MRV's MegaVision® NMS.

Enviromental

Operating Temperature	- 5 to 45 °C (23 °F to 113 °F)	
Storage Temperature	-10 to 70 °C (14 °F to 158 °F)	
Relative Humidity	85% max, non-condensing	
Dimensions (W x H x D)	26.93 x 130.7 x 227 mm (1.06 x 5.145 x 8.936 in)	
Weight	0.700 kg (1.54 lb)	
Connector	Access: XFP Trunk: MU	
Power consumption	Module	XFP
	13.5 W	3.5W

Technical Specifications

WDM TX power (dBm)	4 -7
Maximum receiver sensitivity (dBm)	-30
Overload (dBm)	- 8
DWDM wavelengths range	1528 - 1561nm on ITU-T G694.1 50Ghz grid
Wavelengths Accuracy	+/-10pm
Wavelengths Tuning Time - cold start (sec)	30
Wavelengths Tuning Time - warmed - up (sec)	0.5
Chromatic Dispersion tolerance at 1525nm - 1570nm	1600 ps/nm
Dispersion penalty at limit (dB)	2db

Order Info

Product	Description
TM-DXFPF8T	10GE/OC192 FEC DWDM tunable wave transponder, XFP Access port, up 80km operating distance with EYEMAX