

Datasheet

LambdaDriver® – 10Gbps Transponder with FEC (TM-6DXFPF)

Forward Error Correction for distance extension



TM-6DXFPF/xx

Overview

The TM-6DXFPF 10Gbps with Forward Error Correction (FEC) transponders are single long slot modules usable in the LD1600, LD1600L and LD400L LambdaDriver chassis, that convert the “gray” wavelength of a 10 Gbps terminal equipment interface to ITU-T grid DWDM wavelength enabling its transport via the LambdaDriver® Optical Transport System (DWDM multiplexer, OADM etc.).

The TM-6DXFPF modules support OC-192/STM-64 and 10 GE protocols with 3R signal conditioning.

A key feature of the modules is the support of 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 via management and set to EFEC by default.

The error-correction performance significantly extends the overall distance reach of the link for very low BER performance.

For 10GE and OC192/STM-64 the G.709 digital wrapper technology is used to transparently pass any type of payload.

Features

- 10 Gbps OC192/STM-64 or GE data rates
- Full 3R support
- G.709 performance monitoring
- Line and Diagnostics Loop-back tests
- 100GHz ITU-T grid (G.694.1) wavelengths for DWDM
- Dispersion tolerance up to 200Km
- Power monitoring
- XFP digital diagnostics
- Link Integrity notification (LIN)
- Hot swappable

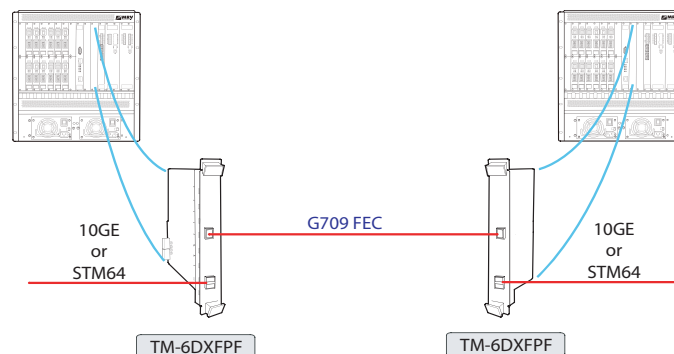
Applications

- 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

Standard performance monitoring is supported for end-to-end SONET/SDH terminated signals providing at each receive side the relevant conditions and alarms as per ITU G.783, GR-474 standard definitions. Statistics for current 15 minutes interval and up to 96 previous intervals can be viewed.

For 10GE traffic, performance parameters as defined by the RFC 2819 (RMON), MIB2 and IfMib extensions are supported. In addition, the extensive information provided by the G.709 monitoring allows for detailed performance analysis such as BER, statistics, etc.

Line and Diagnostic Loop-back functionality is supported and provides an essential tool for troubleshooting and maintenance operations in a live network. The Diagnostic loop-back function checks the integrity of the internal ports 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.



The Link Integrity Notification (LIN) function allows the terminal equipment to detect the link failure in the path between the two terminal equipment units regardless of the location of the failure. The link failure is propagated throughout the network until it reaches the terminal equipment, by disabling the transmission immediately upon failure detection at the opposite port of the transponder. The LIN function is turned off by the management interface (for the case of SONET/SDH signals etc.).

The access (terminal equipment) interface is a XFP (10 Gbps Small Form Factor Pluggable) receptacle, while the trunk (DWDM) port is an ITU-T grid integrated interface

that provides two configuration options, fixed or tunable interface with MU connectors.

The transponders provide power monitoring of the trunk (DWDM) port in addition to Digital Diagnostics provided by the XFP of the access port.

The modules can be managed either through the LambdaDriver® management module by local craft terminal (CLI) or remotely by SNMP with MRV's web-based NMS MegaVision® or any other SNMP management platform.

Environmental	
Operating Temperature	-5 °C to +45 °C
Storage Temperature	-10 °C to +70 °C
Relative Humidity	85% max, non-condensing
Dimensions (W x H x D)	26.93 mm (1.06 in) x 263.4 mm (10.37 in) x 227 mm (8.956 in)
Weight	1.389 kg (3.62 lb)

Technical Specifications		
	Fixed wavelength	Tunable wavelength
WDM TX power (dBm)	0 - 1	4 -7
Maximum receiver sensitivity (dBm)	-29	-30
Overload (dBm)	- 6	- 8
DWDM wavelengths range	Any on ITU-T G694.1 100Ghz grid	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		
TM-6DXFPF8/xx		1600 ps/nm
TM-6DXFPF8T		1600 ps/nm
TM-6DXFPF16T		3000 ps/nm
Dispersion penalty at limit (db)		2
Power Consumption:		
TM-6DXFPF8/xx		15 W
TM-6DXFPF8/T		17 W
TM-6DXFPF16T		18.5 W

Order Info	Product	Description
	TM-6DXFPF8/xx	XFP Access port, 10GE FEC DWDM ch #xx transponder up to 80 Km distance without dispersion compensation
	TM-6DXFPF8T	XFP Access port, 10GE FEC DWDM tunable wave transponder up 80 Km distance without dispersion compensation
	TM-6DXFPF16T	XFP Access port, 10GE FEC DWDM tunable wave transponder up 160 Km distance without dispersion compensation

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