



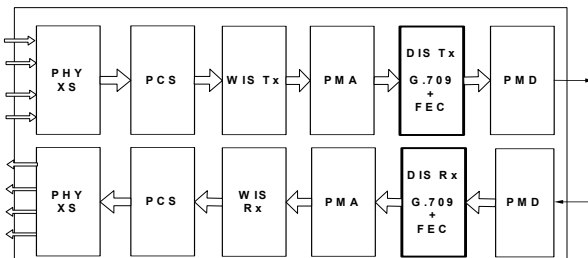
## OTN XENPAK MSA Compliant DWDM 11.1Gb/s Transceiver with Integrated G.709 and FEC



### Description

Menara Networks OTN XENPAK DWDM transceiver combines carrier grade OTN G.709 and FEC performance into a XENPAK MSA compliant package. OTN XENPAK is the only industry XENPAK MSA that can transparently carry a native 10G LAN PHY payload with a carrier grade DWDM Optical Transport Network (OTN) interface without the need for bandwidth limitation. OTN XENPAK offers G.709 compliant Digital Wrapper and Forward Error Correction (FEC) for superior optical performance and management functions equal to those found in DWDM Transponder systems. OTN XENPAK is designed to interoperate with any Open DWDM line system that support 100GHz spaced wavelengths per the ITU-T C-band grid thus offering complete and cost effective DWDM transport for IP, MPLS, and Ethernet applications.

OTN XENPAK G.709 digital wrapper overhead and FEC functions are handled by the DWDM Interface Sublayer (DIS), which is integrated into the XENPAK module. The DIS Sublayer provides OTN Operations Administration and Management (OAM) functions with G.709 alarms and Performance Management statistics.



In those applications where backward compatibility is required, the OTN Digital Wrapper feature can be bypassed via MDIO software commands.

### Management

Management of OTN XENPAK is provided via the XENPAK MSA MDIO interface, which supports digital diagnostic monitoring, alarms and loop backs to include G.709 and FEC management registers. Routers and Switches can reap the performance gains of FEC without changes to the existing MDIO interface in a management Transparent Mode of operation, in which OTN XENPAK activates the G.709 Digital Wrapper and FEC coding without the need for MDIO provisioning.

### Applications

- IP/MPLS and Ethernet Switches
- Access, Metro and Regional Carrier Ethernet DWDM Networks
- 10GE WDM Network Extensions

### Features

- Compliant with XENPAK MSA
- Integrated OTN G.709 Digital Wrapper
- >6dB Net Coding Gain FEC for superior optical performance
- Adaptive Receiver Decision Threshold Control for improved OSNR range
- Multi-protocol and bit rate support for both 10GE LAN and WAN PHY modes
- Fully transparent 10G LAN PHY OTU2e at 11.09 Gbps
- ITU-T C-band 100GHz WDM interface
- Tunability over two 100 GHz ITU wavelengths: 50% inventory reduction
- True link BER reporting and Integrated 10 Gbps BERT for test set free link turn-up
- OTN and 802.3ae Digital diagnostics and alarm reporting
- Software Download upgradable
- SBS Suppression

## OTN XENPAK MSA Compliant DWDM 10Gb/s Transceiver with Integrated G.709 and FEC

### Transceiver Optical Specifications (G.709 and FEC Enabled)

Parameter	Symbol	Min	Typical	Max	Units
Host Native Nominal Bit Rate		9.9533 (WAN PHY) 10.3125 (LAN PHY)			Gbps
DWDM Line Interface Bit Rate		10.7092 (OTU2 WAN PHY) 11.0957 (OTU2 LAN PHY)			Gbps
OTN Interface Bit Rate Deviation		+/- 20			ppm
DWDM Wavelength Range	$\lambda_{\text{WDM}}$	1528.77	-	1564.68	nm
Channel Spacing	$f_{\text{SPACING}}$	100			GHz
Laser Tuning Range	$f_{\text{TUNE}}$	100			GHz
Wavelength Accuracy (Beginning and End of Life)	$\Delta\lambda_{\text{BOL}}$ $\Delta\lambda_{\text{EOL}}$	-20 -100	-	+20 +100	pm
Extinction Ratio	ER	9			dB
Side Mode Suppression Ratio	SMSR	35	-	-	dB
Average Output Power	$P_{\text{OUT}}$	0	-	+3	dBm
Average Output Power (Laser off)	$P_{\text{DIS}}$	-40	-	-	dBm
Receiver Operating Range <sup>1</sup>					
0ps/nm Dispersion	$P_{\text{IN}}$	-28	-	-5	dBm
+1600ps/nm Dispersion		-25	-	-8	dBm
OSNR Requirement 0 ps/nm	$\text{OSNR}_{\text{MIN}}$	16	-	-	dB/ 0.1nm
Jitter Compliance	-	802.3ae/GR-253i3			
Power Dissipation	$P_{\text{DC}}$	-	8.5	9.7	W
Operating Case Temperature	$T_{\text{C}}$	0	-	70	°C
Storage Temperature	$T_{\text{stg}}$	-40	-	85	°C



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