

XTM SERIES

QUAD MULTI-PROTOCOL TRANSPONDER

Multi-service Layer 1 Transport

The **Quad Multi-Protocol Transponder (TPQMP)** is a powerful part of the Infinera XTM Series and a versatile, multi-purpose device with four individual transponders on the same board. Each transponder is bit rate- and protocol-transparent from 125 Mb/s to 4.9 Gb/s.

With its wide span of supported traffic formats, the TPQMP is ideal for access and metro networks. The TPQMP supports Common Public Radio Interface (CPRI) protocols and is thus especially suitable in mobile fronthaul applications.

Both client and line interfaces are SFP-based, enabling each interface to use uncolored CWDM or DWDM plug-in units in any combination.

Figure 1 shows various operational modes of the TPQMP. These can be set up independently since each transponder function is individual. 1+1 line protection is provided via a software configuration where two transponder functions are collapsed into a single transponder with two line ports.

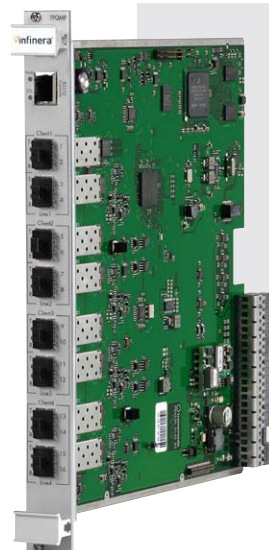
Tailored Network Element Options

The TPQMP can be mounted in any of the XTM Series chassis options:

- As a self-managed network element in a 1U TM-102 chassis
- As one of many traffic units in a TM-3000 (10U)/TM-3000II (11U) or TM-301 (3U) chassis

The TPQMP enables a tailored setup depending on the current and future capacity requirements of the site.

In the TM-102 option, the TPQMP initiates the complete Embedded Node Manager (ENM) on the onboard microprocessor. This enables local management simply by connecting any PC or workstation and launching a standard Internet browser.



Key benefits:

- Transparent transport of any service between 125 Mb/s and 4.9 Gb/s
- Four individual transponders, which can be configured to provide 1+1 protection with sub-50 ms switching
- Supports a wide range of CPRI protocols, making it ideal in mobile fronthaul applications
- Technology-agnostic. Pluggable transceivers enable use in CWDM as well as DWDM networks
- Multi-functional plug-in unit. Each transponder can also be used in a regenerator function or to translate between CWDM and DWDM networks
- Low power design for low total cost of ownership

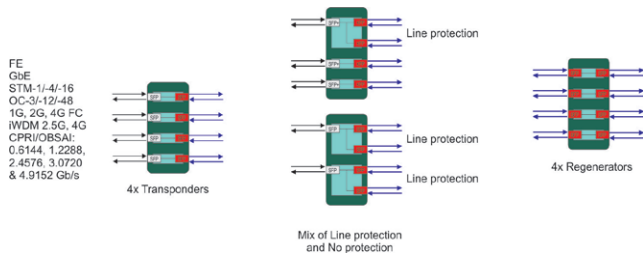


Fig 1. Four Operational Modes of the TPQMP, Proving Its Multi-functional Capabilities.

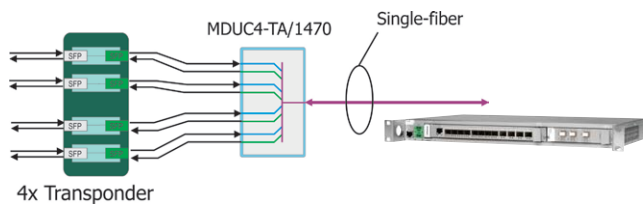


Fig 2. A Common TPQMP Configuration: 1U Multi-Service NE.

Figure 2 shows a 4-channel CWDM collector node in a TM-102 chassis, which is a typical TPQMP configuration. The four transponder functions of the TPQMP match perfectly with the 4-channel CWDM mux/demux unit (MDU). These CWDM MDUs are available in both single-fiber and fiber pair configurations.

Metro to Regional Network Translation

Figure 3 shows another typical example of how the TPQMP can be deployed. Here, the TPQMP is used as a CWDM collector node in an access network. A second TPQMP in the hub node translates from CWDM to an amplified DWDM network by using CWDM SFPs and DWDM SFPs.

Low Power Design

A fully equipped TPQMP consumes less than 25 W. Low power consumption in combination with a small footprint reduces site costs and provides more capacity at sites with restrictions on power consumption, cooling and space.

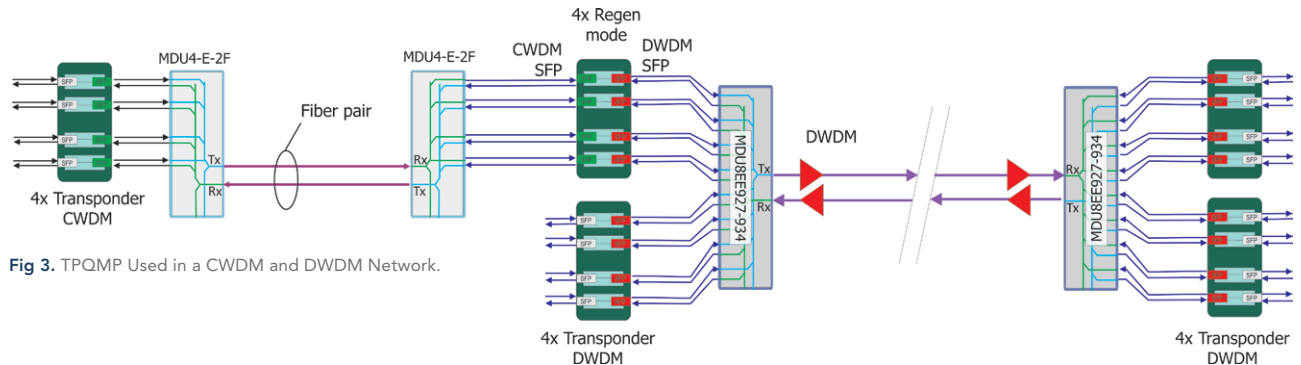


Fig 3. TPQMP Used in a CWDM and DWDM Network.



Specifications

Supported Traffic Formats	STM-1/-4/-16, OC-3/-12/-48 1 Gb/s FC, 2 Gb/s FC, 4 Gb/s FC FE, GbE, Sync-E (G.8262/Y.1362 option 1) CPRI/OBSAI 0.6144, 1.2288, 2.4576, 3.0720 and 4.9152 Gb/s Arbitrary 125 Mb/s – 4.9 Gb/s
Layer 1 Performance Monitoring	Simplified, based on LOS, LOF Collected every 15min/24h and presented according to G.826 using ES, SES, etc.
Protection	1+1 Line protection. Non-revertive switching in normal mode, typically <20 ms Equipment/client protection (later release)
Power Consumption	Max 25 W worst case (with all client ports active and using DWDM SFPs)
Misc Line Interface Features	Loop-back
Interfaces	Client interfaces: SFP-based. Supporting MM, SM at 1310 nm/1550 nm, electrical SFPs, etc. Line interfaces: SFP-based. 40-ch DWDM, 16-ch CWDM
Latency	<10 ns between two transponder functions
Timing	3R, through-timing
Certifications	Brocade Data Center Ready

Specifications and Features Are Subject to Change

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