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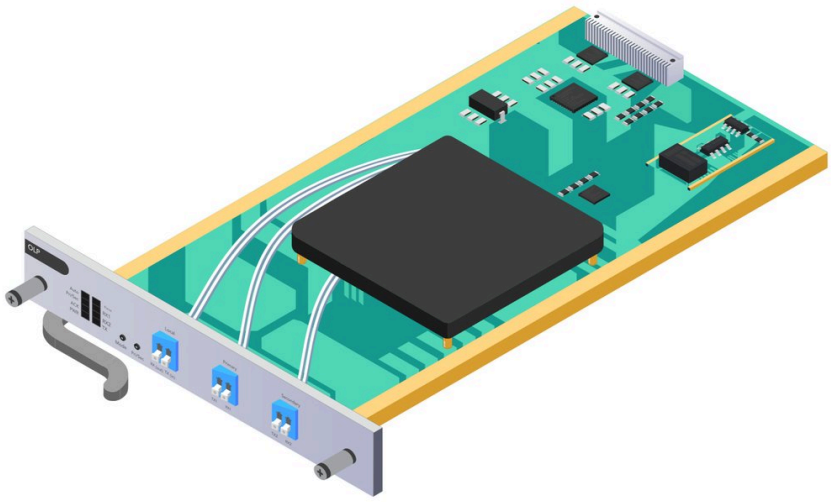
OTN SYSTEMS WDM PLATFORMS

Optical Line Protection Card for WDM Chassis

The Optical Line Protection Card (OLP) adds optical-layer protection to a WDM link, switching traffic from the main fibre route to a backup route when the signal is interrupted or degrades, without waiting for a higher-layer protocol to react. It works in two modes. In 1+1 mode, the signal travels on both routes at all times and the receiver simply selects the better one, switching in under 20ms; this mode is also available in a single-fibre version. In 1:1 mode, only one route carries the signal and both ends coordinate the switchover, in under 40ms. Either way, protection at the optical layer reacts faster than upper-layer service protection, keeping traffic flowing through a fibre cut or an equipment fault.



HIGHLIGHTS

Optical-layer protection

Continuously monitors main and backup routes and performs automatic safe switching entirely at the optical layer, in 1+1 or 1:1 mode.

1+1 or 1:1 protection

Selectable at order time; 1+1 mode is also available in a single-fibre variant.

Fast optical switching

Physical switching time under 20ms in 1+1 mode, under 40ms in 1:1 mode - well ahead of upper-layer protocols reacting to a fault.

Broad wavelength support

Operates across 1260–1650nm, covering O-band through L-band traffic.

Low insertion loss

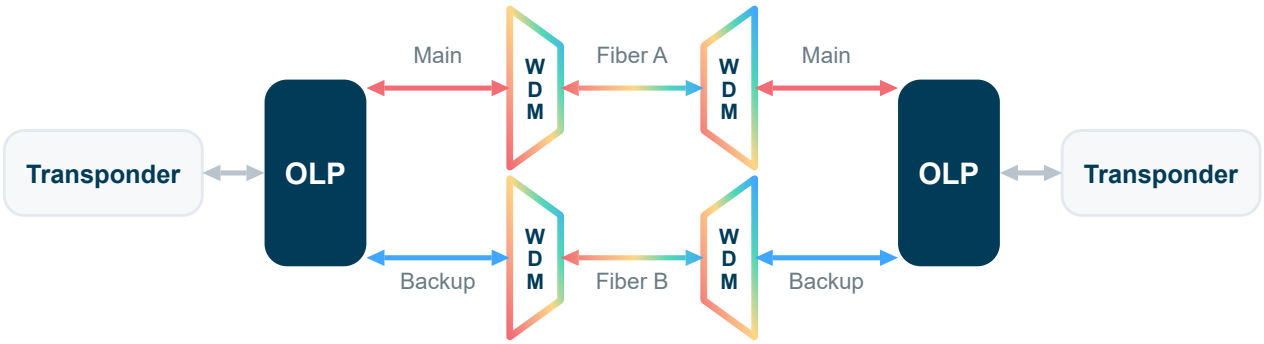
Under 3dB end to end in 1:1 mode and under 5dB in 1+1 mode (3.8dB on the transmit side, 1.2dB on the receive side); under 7dB for the single-fibre version.

Real-time network management

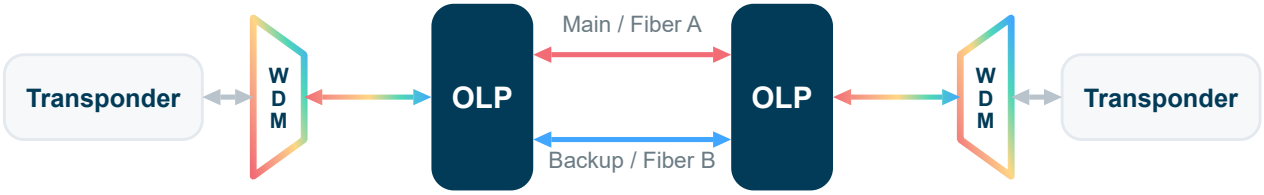
Switching events, optical power, and route status are reported for centralised monitoring.

FUNCTIONAL STRUCTURE

a. Optical wavelength 1+1 protection



b. Optical line 1+1 protection



FRONT PANEL



FORMAT

CARD FOR WDM CHASSIS 1 SLOT

SPECIFICATIONS

Optical

Operating Wavelength Range	1260–1650nm

Protection Modes

MODE	FIBRE	SWITCHING MECHANISM	SWITCHING TIME	INSERTION LOSS (END TO END)
1+1	Dual Fibre (default)	**Dual transmission, selective reception** Both routes carry the signal at all times; the receiver simply picks the better one.	<20ms	<5dB (transmit side <3.8dB, receive side <1.2dB)
	Single Fibre (-S option)			<7dB
1:1	Dual Fibre only	**Single active path, coordinated switchover** Only one route carries the signal at a time; switching requires coordination at both ends.	<40ms	<3dB

Monitoring Optical Power Range	-30dBm to +20dBm

Management & Mechanical

Network Management	Real-time monitoring of optical power, active switching scheduling, performance management, and routing management
Slots Occupied	1 (compatible with all OTN WDM chassis)
Optical Interface	LC/UPC
Maximum Power Consumption	5W

ORDERING INFORMATION

NAME	Optical Line Protection Card for WDM Chassis
DESCRIPTION	Optical line protection card, 1 slot. Assists a WDM system with optical-layer protection, monitoring main and backup route signal status in real time and automatically switching to the standby route at the optical layer if the signal is interrupted or degrades. 1+1 mode (dual transmission, selective reception, fast switching) or 1:1 mode (single active path, coordinated switchover) selectable; single-fibre operation available as an option on 1+1 mode.
PART NUMBER	WDM-OLP- **{Mode}** [- **S**]-1S

{Mode}	1R1 (1:1 protection) · 1P1 (1+1 protection), see Protection Modes in Specifications above, required
-S	Single-fibre operation. Optional, valid only with 1P1 (1+1); omit for dual-fibre (default), not available with 1R1 (1:1)

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