

## XTM SERIES

## COLORLESS MDU 50 GHz

### Cost-efficient Colorless Mux/Demux Unit for Flexible Optical Networks

The colorless Mux/Demux Unit (MDU) is a powerful part of the Infinera XTM Series, which enables optimized and cost-efficient high capacity transport networks based on DWDM technology.

#### Optimized for Colorless Dynamic Network Applications

The colorless MDU is a compact solution for network topologies aiming for a future-proof dynamic traffic design with hitless changes in wavelength routing. The colorless MDU unit – fully supported as a plug-in unit in the TM-3000 and TM-3000/II chassis – works as a significant building block in ROADM nodes to create colorless applications.

The colorless MDU has 16 ports for add-drop channels, all individually tunable in the drop direction to be able so as to allocate any wavelength to any port. The unit supports a selection of any of the 80 DWDM channels on the ITU-T C-band grid. All ports are fully reconfigurable to enable wavelength rerouting on a per-port level.

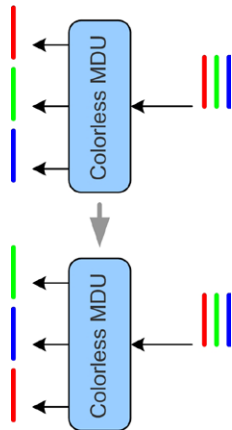
#### Increased Network Flexibility and Simpler Wavelength Planning

By using the colorless MDU instead of fixed filters, on wavelength planning requirements are relaxed. With the combination of tunable line XFPs, ROADM nodes for wavelength routing and colorless MDUs



#### Key benefits:

- Creates the ability to add or drop any wavelength at any port at any time
- Dynamic tuning of add-drop wavelengths enables colorless applications with simpler wavelength planning and greater network agility
- Increases flexibility in network planning by removing the need for fixed wavelength components
- Built-in variable optical attenuator (VOA) for easier channel power balancing
- Compact design with a small footprint
- Fully integrated in XTM Series and Digital Network Administrator for XTM Series (DNA-M)
- Low power design ensures low total cost of ownership



**Fig 1.** Schematic Principal of Colorless MDU Functionality, Showing Different Color Options on the Client Ports.

for wavelength port allocation, any service throughout the network can be dynamically and remotely reconfigured without the need for manual onsite commissioning.

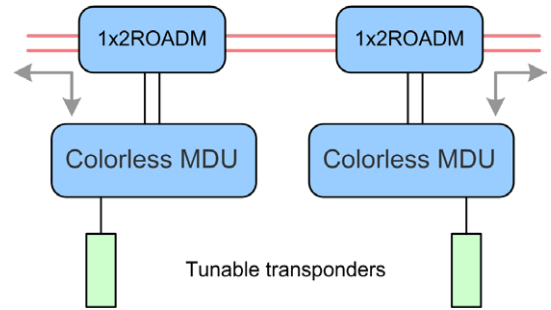
Thus, the colorless MDU increases the network flexibility and reduces operating expenditure (OpEx), while also reducing lead time to establish or reroute services.

### Built-in VOA Functionality

The colorless MDU includes VOA functionality on all drop ports. This facilitates the balancing of channels toward the traffic units. In combination with the integrated VOA functionality of the ROADMs units, channel balancing may be controlled in multiple directions, removing the need for fixed attenuators and simplifying the commissioning of any service.

### Linear Add-drop Application

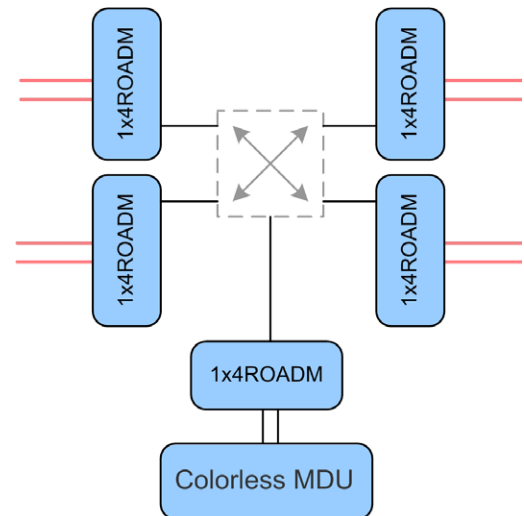
For ring and bus network structures, the colorless MDU is combined with the 1x2 ROADM, enabling a colorless linear ROADM node with dynamic allocation of wavelength per port. The simple structure of the building block design can be applied to multidimensional ROADM nodes too, where the colorless MDU is combined with 1x4 ROADMs or 1x8 ROADMs to provide colorless multidimensional ROADM nodes.



**Fig 2.** Linear Colorless ROADM Node Example.

### Colorless and Directionless Applications

To further increase the flexibility in the network, the building blocks of a colorless ROADM node can be combined in an extended way to create a colorless and directionless node, enabling a service to be added on any wavelength at any port and transported in any direction. This creates the ability to fully reroute a service in any direction and on any wavelength available.



**Fig 3.** Colorless, Directionless Multi-dimensional ROADM Node.

### Low Power Design

A colorless MDU consumes less than 6 watts (W). Low power consumption in combination with a small footprint reduces site costs and enables more capacity to be handled at sites with restrictions on power consumption, cooling and space.

The colorless MDU can be mounted in a TM-3000 or TM-3000/II chassis, where it occupies three full-size slots.



**Specifications**

Insertion Loss	Add loss: Max 14.2 dB Drop loss: Max 7.5 dB
Range	80 channels on ITU-T 50 GHz C-band grid
Add Ports	Passive optical coupler
Drop Ports	Wavelength selective switch (WSS)
Drop Port Feature	Variable optical attenuator (VOA) on all individual wavelengths
No of Add/Drop Ports	16
Switching Time	Max 500 ms
VOA	Range: 0–10 dB Step size: 0.1 dB
Dimensions	Three full sized slots in TM-3000 chassis
Power Consumption	Max 6 W

Specifications and Features Are Subject to Change

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