

## XTM SERIES

## 1X2 ROADM – 50/100 GHz

### Cost-efficient ROADM for Flexible Optical Networks

The 1x2 reconfigurable optical add/drop multiplexer (ROADM) is a powerful part of the Infinera XTM Series, enabling optimized and cost-efficient high-capacity transport networks based on dense wavelength-division multiplexing (DWDM) technology.

#### Optimized for Dynamic Network Applications

The 1x2 ROADM is a compact solution for all network topologies, with dynamic traffic design and hitless changes in wavelength routing. The 1x2 ROADM unit – fully supported as a plug-in unit in the TM-3000 and TM-3000/II chassis – serves as a building block for reconfigurable linear add-drop nodes.

The 1x2 ROADM comes in two versions, one supporting 40 DWDM channels using 100 GHz channel spacing (1x2 ROADM/100G) and the other supporting 80 DWDM channels using 50 GHz channel

spacing (1x2 ROADM/50G) on the ITU-T C-band grid. This allows the operator to tailor its network to a cost-efficient solution depending on the amount of channels required.

#### Dynamic Selection of Add/Drop Wavelengths

The 1x2 ROADM has two individual add-drop ports. The add ports use a wavelength selective switch (WSS) to dynamically select which of the DWDM channels to add to the line signal for each add port. An optical coupler is used to distribute the incoming line signal to the drop ports. One of the drop ports is generally used as a local drop port while the remaining port is used for express traffic. A DWDM add-drop filter or mux/demux unit (MDU) is used for locally terminating traffic.



#### Key benefits:

- Creates the ability to add/drop any wavelength at a node, giving maximum flexibility in wavelength allocation
- Dynamic selection of add/drop wavelengths enables hitless capacity changes
- 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

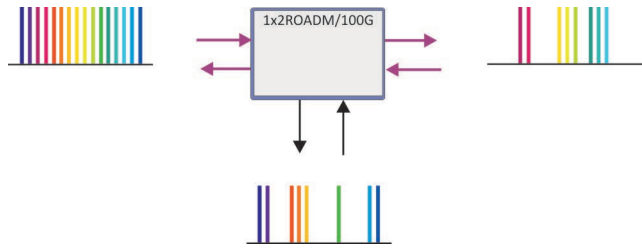


Fig 1. Schematic Principal of ROADM Functionality.

### Built-in VOA Functionality

The 1x2 ROADM includes VOA functionality on all wavelengths added to the line signal. This facilitates channel power balancing in amplified networks.

### Node Management for Simplified Commissioning

Grouping of ports on different units can be done in the node management software to enable the setting of identical channel selection. Also, restrictions on channel selection can be made on individual or grouped ports to simplify commissioning and minimize the risk of faulty handling.

### Linear Add-drop Application

For ring and bus network structures the 1x2 ROADM is the perfect choice, enabling dynamic add-drop nodes with two-dimensional east- and westbound traffic by pairing two units and connecting them via one of the add-drop ports for the express traffic.

The traffic terminating locally is allocated to the remaining add-drop port, where a mux/demux unit or a filter is used to separate the add/drop wavelengths.

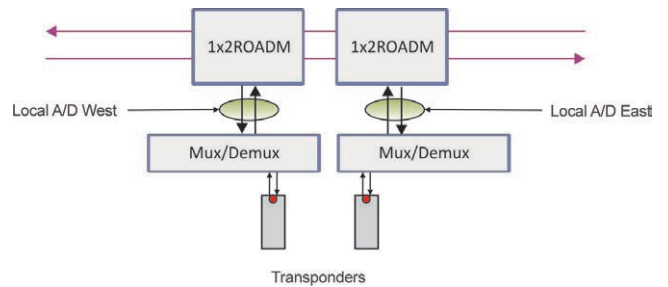


Fig 2. Linear Add/Drop Node Example.

### Low Power Design

A 1x2 ROADM consumes less than 15 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 1x2 ROADM can be mounted in a TM-3000 or TM-3000/II chassis, where it occupies one full-size slot.

**Specifications (50 GHz 1x2 ROADM)**

Insertion Loss 1x2 ROADM / 50 GHz	Local add loss: 7.2 dB Local drop loss: 2.2 dB Express loss between two units: 13.2 dB
Range	80 channels on ITU-T 50 GHz C-band grid
Add Ports	WSS (wavelength selective switch)
Drop Ports	Passive optical coupler
Line Side Features	Variable optical attenuator (VOA) on all individual wavelengths
No of Add/Drop Ports	2
Switching Time	Max 500 ms
VOA	Range: 0–15 dB Step size: 0.1 dB
Dimensions	One full-sized slot in TM-3000 or TM-3000/II chassis
Power Consumption	15 W max
Monitor Port	2% coupler

**Specifications (100 GHz 1x2 ROADM)**

Insertion Loss 1x2 ROADM / 100 GHz	Local add loss: 7.2 dB Local drop loss: 2.2 dB Express loss between two units: 13.2 dB
Range	40 channels on ITU-T 100 GHz C-band grid
Add Ports	WSS (wavelength selective switch)
Drop Ports	Passive optical coupler
Line Side Features	Variable optical attenuator (VOA) on all individual wavelengths
No of Add/Drop Ports	2
Switching Time	Max 500 ms
VOA	Range: 0–15 dB Step size: 0.1 dB
Dimensions	One full-sized slot in TM-3000 or TM-3000/II chassis
Power Consumption	15 W max
Monitor Port	2% coupler

Specifications and Features Are Subject to Change

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