

## TM-3000 chassis

### Compact and flexible network element platform

#### Key benefits:

- Compact and highly flexible allowing configuration to any network element type as well as card cage reconfiguration
- Card cage can be reconfigured in-service avoiding any traffic outage
- Generic backplane enables multiple network element configurations
- Dual fan units and primary power inlets for maximum availability and carrier class performance
- Low Power Design for low power consumption

The TM-Series system platform contains a wide range of active and passive plug-in units optimized for cost-effective Layer 1 and Layer 2 transport. These plug-in units can be mounted in any of the three enclosures TM-3000, TM-301 and TM-101/-102. The selection of enclosure is based upon the number of required board slots and expected space for upgrades.

A TM-3000 chassis can be equipped with any mix of DWDM and CWDM plug-in units in either single-fiber or fiber-pair configurations.

#### A compact and flexible system platform

TM-3000 chassis is a high capacity enclosure with up to 17 full-sized and up to 10 half-sized slots. The TM-3000 can be configured to any network element (NE) type or combination of NE-types. The generic backplane imposes no restrictions on NE-type or NE combination. Multiple fiber links can be connected to a TM-3000 NE to perform single or multiple Terminal Multiplexer (TM) and/or Add/Drop Multiplexer (ADM) functions. This flexible approach is unique and eliminates the challenges associated with static NE-types, such as Terminal Multiplexer only or Add-Drop Multiplexer only NEs.

#### Carrier Class

The TM-3000 chassis has dual and redundant fan units as well as primary power modules. All connections are made from the front.

#### Expandable

Up to eight TM-3000 chassis can be combined to form large NE's with the same IP-address, i.e. be managed as one entity. This is done by selecting one chassis as master and connecting the remaining chassis as slaves.

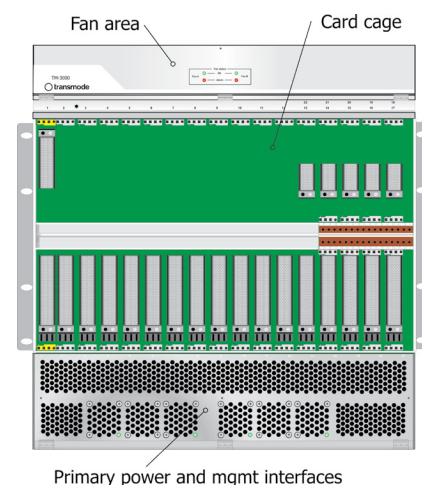


Fig. 1 TM-3000 chassis

#### Reconfigurable card cage

The card cage has 17 slots for plug-in units, for example Transponders, Muxponders, Optical Filters, Amplifiers etc.

The far left slot is dedicated for a Control Unit (CU). This card guide is coded via a yellow color. The following eleven slots (slot 2 - 12) can be equipped with any type of full-sized traffic units due to the generic back plane.

The last five slots (13 - 17) can either be used for full-sized or half-sized units. The half-sized units require a small shelf to support the smaller board sizes. This is a modular shelf and the number of half-height units is given by the length of the shelf. Each chassis is provided with a shelf-kit enabling the length to be changed from 1 slot up to 5 slots, and hence 2 to 10 half-sized units mechanisms.

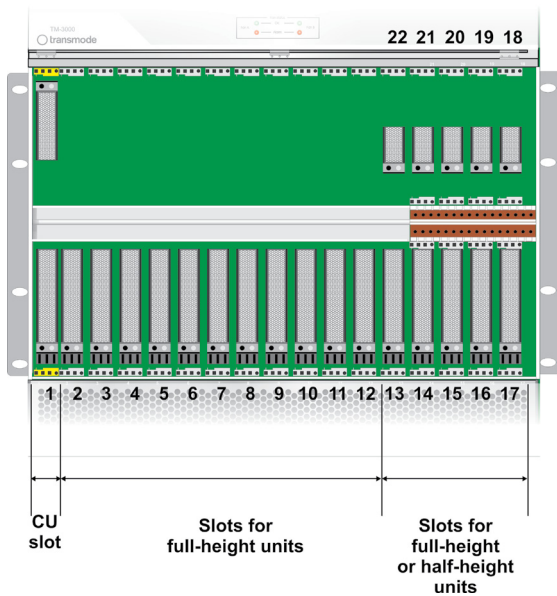


Fig. 2 TM-3000 card cage

Full-sized units are normally active traffic devices (e.g. Transponders). Half-sized units are normally passive optical devices (e.g. add/drop filters).

When a unit is inserted into a card slot, the slot position is detected by the unit and forwarded to the CU. The CU contains the node management SW (ENM) and provides an aggregated management view of all units within the TM-3000 chassis. The CU has a backup-copy of all traffic unit configurations and upon a board replacement the previous configuration and correct SW-version can be downloaded to the new unit from the CU.

Similarly, all traffic units have a backup-copy of the CU configuration, i.e. NE configuration. Upon a CU failure the replacement board can be set into the previous configuration automatically.

## Resilience

Dual fan units and dual primary power inlets ensures the performance of the TM-3000 chassis. Protection of the traffic can be established in many ways. Some traffic units provide 1+1 line protection directly. Other traffic units can be configured for equipment protection when placed in the same card cage. A third option is to place the two traffic units in separate chassis at separate locations and still provide sub 50ms protection. This last setup will cover the situation when one of the involved TM-3000 chassis is hit by a complete power failure.

## Low Power Design

A fully equipped TM-3000 chassis consumes a maximum of only 700W, with many configurations requiring considerably lower power consumption. 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.

## Technical specifications:

<b>Dimensions</b>	Height: 10,35U / 460mm (18.1in) Depth: 298mm (11.7in) Width: 445mm (17.5in) (excl. mounting brackets)
<b>Primary power</b>	DC-inlets. Redundant, Hot-swap
<b>Cooling</b>	Redundant fans. Hot-swap
<b>Mounting</b>	ETSI, 19", 23"
<b>LAN/Management connections</b>	RJ45
<b>Primary power range DC</b>	-40,8 to -57,6VDC 15A Class III
<b>Max power at DC powering</b>	600 W
<b>Max Inrush current @ -48VDC</b>	41,1A / 1,5ms when using DC/DC module R1E 18,8A / 0,2ms when using DC/DC module R1F
<b>Primary power range AC</b>	100-240VAC 50/60Hz, 2.5A, Class I (via separate 1U AC/DC converter)
<b>Max power at AC powering</b>	700 W
<b>Weight</b>	18 kg (39.68 lb) mechanics + 2x fan unit + 2x DC inlet module + LAN module
<b>Operating conditions</b>	ETSI EN 300 019-1-3 class T3.1

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