

## XTM SERIES

## TM-3000/II CHASSIS

## Compact and Flexible Platform

The **XTM Series** includes 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 XTM Series chassis – TM-3000/TM-3000/II, TM-301 and TM-102/TM-102/II. The selection of the specific chassis for a node is based upon the number of required slots and expected space for upgrades.

A TM-3000/II chassis can be equipped with any mix of DWDM/CWDM/Layer 2 traffic units, optical amplifiers, ROADMs or passive filter units in either single-fiber or fiber pair configurations.

## Enhanced Fan Units for High-capacity Traffic Units

The TM-3000/II is an enhanced version of the TM-3000 chassis with more powerful fan units. This allows for plug-in units with higher heat dissipation, which is often required by traffic units offering high-capacity transport.

The fan speed is temperature-controlled and an alarm is raised if the actual revolution speed differs from the expected level.

## A Compact and Flexible Chassis

TM-3000/II chassis is a high-capacity enclosure with up to 17 full-sized and up to 10 half-sized slots. The TM-3000/II can be configured to a wide variety of network element (NE) types or combination of NE types.

The generic backplane imposes no restrictions on NE type or NE combinations. As an example, multiple fiber links can be connected to a TM-3000/II node where the plug-in units are configured into terminal multiplexer, add-drop multiplexer (ADM) or ROADM functions. This flexible approach is unique and eliminates the challenges associated with static NE type, such as terminal multiplexer only or add-drop multiplexer only NEs.



## 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
- Powerful fan units to better accommodate high-capacity traffic units
- 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

## Carrier Class

The TM-3000/II 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/II chassis can be combined to form large NEs with the same IP address, and thus can 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/II Chassis.

## Reconfigurable Card Cage

The card cage has 17 slots for plug-in units, such as CWDM/DWDM transponders, muxponders, packet-optical transport switches, optical filters, amplifiers, ROADMs, etc.

The far left slot is dedicated for a control unit (CU). This card guide is coded via a yellow color. The following 11 slots (slot 2 – 12) can be equipped with any type of full-sized traffic units due to the generic back plane.

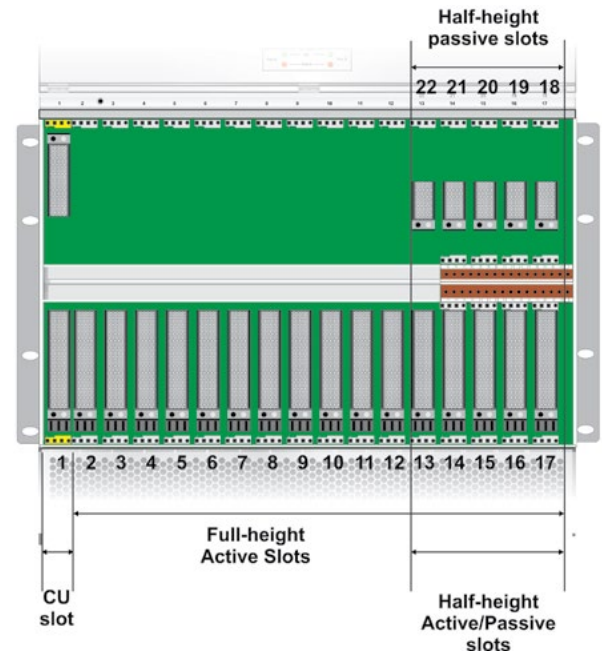


Fig 2. TM-3000/II Card Cage.

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 determined by the length of the shelf. Each chassis is provided with a shelf kit enabling the length to be changed from one slot up to five slots, and hence two to 10 half-sized units. Full-sized units are normally active traffic units (e.g. transponders). Half-sized units are normally passive optical units (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 Embedded Node Manager (ENM) software and provides an aggregated management view of all units within the TM-3000/II chassis. The CU has a backup-copy of all traffic unit configurations, and upon a board replacement, the previous configuration and correct software 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 ensure the performance of the TM-3000/II chassis. Protection of 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-50 ms protection. This last setup will cover a situation in which one of the involved TM-3000/II chassis is hit by a complete power failure.

## Low Power Design

A fully equipped TM-3000/II chassis consumes a maximum of only 690 W with DC power, with many configurations requiring considerably lower power consumption. 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.

### Specifications

Dimensions	Height: 11U / 489 mm (19.2 in) Depth: 298 mm (11.7 in) Width: 445 mm (17.5 in) (excl. mounting brackets)
Primary Power	DC inlets. Redundant, hot swap
Cooling	Redundant fans. Hot swap
Mounting	ETSI, 19", 23"
LAN/ Management Connections	RJ45
Primary Power Range, DC	-40.8 to -57.6 VDC 15 A Class III
Max Power at DC Powering	690 W
Max Inrush Current @ -48VDC	41.1 A / 1.5 ms when using DC/DC module R1E 18.8 A / 0.2 ms when using DC/DC module R1F
Primary Power Range AC	100-240 VAC 50/60 Hz, 2.5 A, Class I (via separate 1U AC/DC converter)
Max Power at AC Powering	850 W
Weight	20 kg (44.09 lb) mechanics + 2x fan unit + 2x DC inlet module + LAN module
Operating Conditions	ETSI EN 300 019-1-3 class T3.1

Specifications and Features Are Subject to Change