

XTM SERIES

TM-102/II CHASSIS

Compact and Flexible Platform for Multiple Access Applications

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-102/II chassis can be equipped with either DWDM, CWDM or hybrid C/DWDM plug-in units in either single-fiber or fiber pair configurations.

The TM-102/II is an enhanced version of the TM-102 chassis and is optimized for plug-in units requiring more power.

A Compact and Flexible Chassis

The TM-102/II chassis has one full-sized slot for one traffic unit (transponder or muxponder). Consequently, a control unit (CU) is not required to provide an aggregated management view as would be required in a TM-3000/TM-3000/II or TM-301 network element (NE).

Instead, the unit processor on the traffic unit contains the Embedded Node Manager (ENM) software. This is accessed in the same way as for an NE with a CU, i.e. via command line interface (CLI) commands or via an Internet browser providing a graphical user interface (GUI).

Remote login to other network elements is achieved via embedded management channels that are provided by the traffic units or via a local data communication network (DCN) connection.

The compact size of the TM-102/II is ideal for the small collector nodes such as those often used in triple-play networks. See a number of example configurations later in this datasheet.



Key benefits:

- Compact and flexible, making it ideal for access applications, such as mobile fronthaul, triple-play networks, etc.
- 1U height requiring small footprint
- Multiple and redundant fan units as well as dual primary power inlets, enabling maximum availability and carrier-class performance
- Low power design for low power consumption

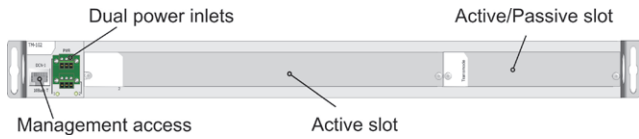


Fig 1. TM-102/II Chassis.

Carrier Class

The TM-102/II chassis has multiple and redundant fan units as well as dual primary power modules. All connections are made on the front of the chassis, so no rear access is required.

An unpowered TM-102/II version is also available, where both the full-sized and half-sized slots are for passive units.

Wide Area of Use

Figures 2-4 show a number of typical scenarios in which the TM-102/II is an ideal chassis choice. These scenarios show the flexibility of the TM-102/II chassis and its wide range of uses.

Example 1: Business Ethernet application

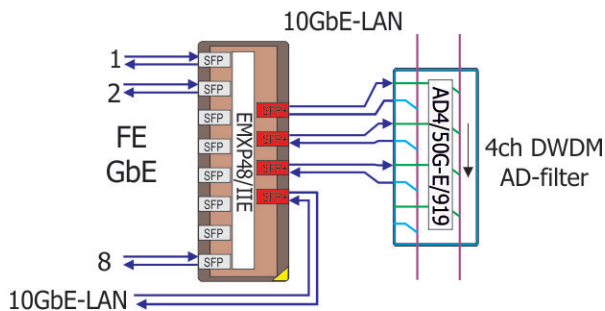


Fig 2. TM-102/II with an EMXP48/IIIE.

The EMXP48/IIIE is part of the EMXPIIE range and is specially designed to deliver an optimized Ethernet transport solution using selective integration of Layer 2 and MPLS-TP functions.

The 10G interfaces that face the line fiber can optionally turn on forward error correction (FEC) coding (G.709) to extend the distance without the need for a separate transponder unit. Figure 2 shows an example where 1 GbE and 10 GbE-LAN traffic is collected, switched and relayed onto three different DWDM 10G channels. The EMXP48/IIIE uses a full-sized slot while a 4-channel DWDM add-drop-filter occupies a half-sized slot of the TM-102/II chassis.

Example 2: Mobile fronthaul application

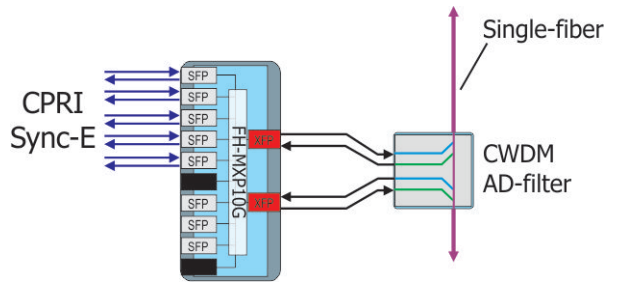


Fig 3. TM-102/II with an FH-MXP10G.

The Fronthaul Muxponder 10G (FH-MXP10G) is a unique TDM multiplexer for mobile fronthaul applications. The low and stable latency enables multiplexing of multiple Common Public Radio Interface (CPRI) or Open Base Station Architecture Initiative (OBSAI)-formatted fronthaul signals, which normally would need to be transported separately over multiple wavelengths.

Figure 3 shows an example configuration where the FH-MXP10G unit is connected to a CWDM single-fiber add-drop filter in a 1+1 protected configuration.

Example 3: Ultra-compact line amplifier NE

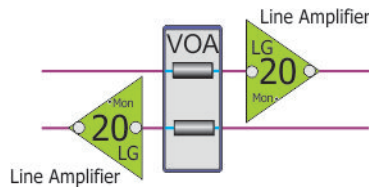


Fig 4. TM-102/II as a Line Amplifier NE.

In the example shown in Figure 4, a full-sized slot is equipped with a dual erbium-doped fiber amplifier (EDFA) unit. A half-sized slot may be equipped with an active 2-channel variable optical attenuator (VOA) to provide an ultra-compact line amplifier NE where changes in fiber attenuation can be compensated via the VOA unit.

Low Power Design

The max power for consumption of a TM-102/II based NE is ~85 W, with many typical configurations requiring considerably lower power consumption. As an example, Figure 3 above showing configuration number 2 consumes about 42 W. Low power consumption in combination with a small footprint reduces site costs to provide more capacity at sites with restrictions on power consumption, cooling and space.



Specifications

Dimensions	Height: 1U / 44 mm (1.7 in) Depth: 249 mm (9.8 in) excl mounting brackets. 295 mm (11.6 in) incl mounting brackets Width: 448 mm (17.6 in) excl mounting brackets
Primary Power	DC-inlets. Redundant
Cooling	Multiple, fixed fans
Mounting	ETSI, 19"
LAN/ Management Connections	RJ45
Primary Power Range, DC	48 VDC (40.8 – 57.6 VDC), 3 A Class III
Max Power at DC Powering	85 W
Max Inrush Current @ -48VDC	1.9 A / 30 ms
Primary Power Range AC	External AC/DC-converter 100–240 VAC, 50/60 Hz, 1.1A Class I
Max Power at AC Powering	90 W (via external AC/DC converter)
Max Power Consumption in Card Cage	75 W
Operating Conditions	ETSI EN 300 019-1-3 class T3.1

Specifications and Features Are Subject to Change

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