

## Pre-configured TS-Series

# TS-100 Ethernet

*A pre-configured solution for cost efficient Ethernet transport*

### Key benefits:

- Pre-configured solution for reduced Time To Market and Time To Revenue
- Optimized for enterprise, campus or private optical networks
- Efficient transport of four Gigabit Ethernet signals
- Cost efficient utilization of one fiber pair
- Plug and forget system operation through Intelligent WDM (iWDM™)
- Automatic protocol and bit-rate detection via iWDM

The TS-100-Ethernet (TS-100-Eth) configuration is a powerful pre-configured solution consisting of components from Transmode's TS-Series platform enabling optimized and cost efficient transport networks based on CWDM/DWDM technology.

### TS-100-Ethernet

The TS-100-Eth configuration consists of two end nodes. Each end node holds one 5800 Muxponder which enables transparent transport of 4 independent GbE signals over one fiber pair. This is done using TDM multiplexing technology; four GbE signals are combined on to one line signal with reach up to 70km depending on which line interface has been chosen. See table below for link budget and reach. The client interfaces can be either MM, SM or electrical. All interfaces are based on pluggable optics (SFPs).

Each node consist of one 5800 Muxponder as well as one Node Management Board (NMB), see picture below.

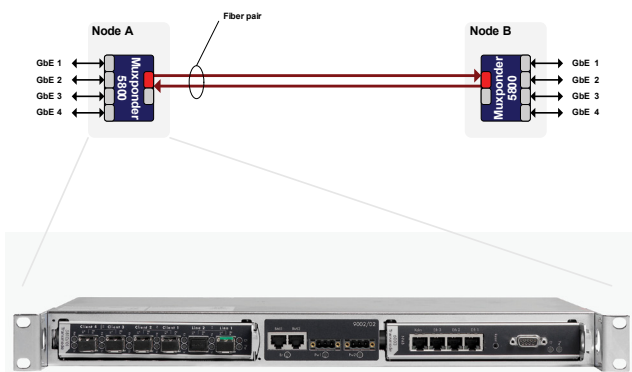


Fig. 1 The TS-100-Eth configuration



### Element Node Management

The Element Node Management software resides on the NMB and is used as a node manager and/or a transfer agent to higher level network management systems by using industry standard SNMP as the network management protocol.

The NMB presents the node information with graphic elements and easy data overview in a standard web browser. For advanced fault tracing or configuration, data is presented in data logs with date and time stamps. Embedded management channel with IP connectivity can be configured between the two nodes for remote access.



Fig. 3 The Element Node Management interface

### TS-Series

The TS-Series is a simple to use, scalable and intelligent C/DWDM solution, ideal for network operators delivering managed services such as metro Ethernet and storage area networks to enterprises and other bandwidth-hungry organizations. The TS-Series WDM platform is easy to install, commission and manage without compromising functionality or performance. The low-cost, operational simplicity, broad protocol support and pay-as-you-grow architecture of the TS-Series make it appealing to users deploying their own private networks over dark fiber.

The TS-Series is ideally suited for applications such as storage area networking, business continuity & disaster recovery, LAN extension and metro Ethernet service transport, video transport and optical infrastructure projects.

## TS-Series in short:

- iWDM features include automatic protocol and bit-rate detection that allow a "plug and forget" system operation.
- Modular system architecture enables seamless integration of DWDM and CWDM wavelengths on the same fiber, amplified or unamplified networking, fiber pair or single fiber networking and multiple chassis size options.
- All services are supported by a single card type with interchangeable SFP or XFP optics on both the client and line side. This simplifies planning and minimizes spare holdings.
- Supports 100 Mb/s to 2.5 Gb/s, 4 Cb/s and 10 Gb/s clients and C/DWDM line rates.
- Low-cost, 4 x Gigabit Ethernet aggregation board.
- Remote node management through in-band management channels.
- Full carrier-grade network management system with fault management and performance monitoring.

## Technical specifications:

<b>Topology</b>	Point-to-point	Possibility to add 1+1 line protection functionality
<b>Link distance</b>	40 or 70 km	
<b>Applications</b>	Transparent transport of 4xGbE Possibility to upgrade to 16xGbE by adding CWDM filter, chassis and Muxponders	
<b>Optics</b>	Client: 850/1310nm/1000Base-T (SFP)	Line: CWDM (SFP) Laser class 1
<b>Modules</b>	Chassis with room for two Plug-In-Units (PIU)	PIUs Pluggable SFP transceivers
<b>Environmental</b>	0 to +55°C/32 to 131°F	Relative humidity 95%, non-condensing
<b>Regulatory</b>	IEC 60950-1, EN 60950-1, ANSI/UL 60950-1, CAN/CSAC22.2 60950-1 EN 300 386, EN 55 022, EN 60 825-1 FCC Part 15 EN 61 000-3-2, -3	EN 61 000-4-2, -3, -4, -5, -6, -11 ETL listed and CE marked NEBS Level3 compliance ETSI compliant
<b>Power</b>	AC and/or DC	Power consumption max. 50W per TS-100 chassis (Typical 30W)
<b>Physical (Height x Width x Depth)</b>	44 x 483 x 240 mm / 1.75 x 19.0 x 9.44" (TS-100 chassis)	
<b>Management</b>	Embedded Management channel (IP connectivity) SNMP agent Graphical User Interface (GUI) Auto discovery of plug-in units Inheritance feature and "Hot swap"	Ethernet management over LAN. Handles web, ftp and Telnet Command Line interface, CLI, through the console port or a telnet session Simple Network Management Protocol, SNMPv2 SSH HTTPS

## Configuration specification:

Configuration Codes	Distance and Link Budget	Description
<b>TS-100-Eth-40-XX</b>	Max 40km and 15 dB	Two nodes which enables transparent transport of four GbE signals. For full component list see table below.
<b>TS-100-Eth-70-XX</b>	Max 70km and 25 dB Min link attenuation 10 dB	"XX" in the order code refers to the type of client interfaces used, Multimode (MM), Single mode (SM) or electrical (EL).

## Order specification:

Order Codes with component description	TS-100-Eth-40-SM	TS-100-Eth-40-MM	TS-100-Eth-40-EL	TS-100-Eth-70-SM	TS-100-Eth-70-MM	TS-100-Eth-70-EL
19" Chassis, 1U, 2slots, DC (9002/02)	2	2	2	2	2	2
AC/DC converter (external) for 9002/02 (9202/01)	4	4	4	4	4	4
Node Management Board including needed SW and SNMP (6003)	2	2	2	2	2	2
GbE Muxponder with Embedded Management Channel (5800/01)	2	2	2	2	2	2
SFP, CWDM, SM, 1/2/4 Cb/s, 40 km (TRX100045/01)	2	2	2			
SFP, CWDM, SM, 1/2/4 Cb/s, 70 km (TRX100052/01)				2	2	2
SFP, 850nm, MM, 100-2500Mb/s, 100m (TRX100006)		8			8	
SFP, 1310nm, SM, 100-2500Mb/s, 2km (TRX100007)	8			8		
SFP, Elec. 1000Base-T, 1250Mb/s, 100m (TRX100025)			8			8

For other configurations, please contact your Transmode Sales representative. See [www.transmode.com/contact](http://www.transmode.com/contact) for contact details.

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