

Traverse

TDM Service Interface Modules

Key Features

- Economical wideband DS1 and broadband DS3 access for the Traverse platform
- Optional 1:2, 1:1, or 0:1 equipment protection
- GR-253 compliant line and path performance monitoring across all interfaces
- Modules can be used in conjunction with all The Traverse platforms – T2000, T1600, and T600
- TransNav™ Management System delivers fast, intuitive TDM service provisioning and management

Comprehensive Management

TransNav™ Management System provides comprehensive management of the Traverse platform enabling carriers to rapidly engineer, deploy, manage, and bill for new services. TransNav's open, client/server based architecture leverages the capabilities of intelligent GMPLS control plane to provide dynamic network discovery and end-to-end service provisioning capabilities. Fault, configuration, performance and service management/monitoring functions are facilitated at the element and sub-network level through an easy-to-use GUI.



Traverses' line of TDM Modules offer high-density connectivity – up to 280 protected DS1, or 240 protected DS3/EC-1 interfaces in one 1/4 rack high shelf. "TMUX" modules provide channelized DS3>DS1>VT1.5 transmultiplexing and optical transmux functionality. TDM modules have Individual physical ports that are provisionable for DS3 or EC-1 operation on any DS3/EC-1 module.

Economical Wideband and Broadband Service Delivery

DS1/DS3-based private line, leased line and voice services constitute the vast majority of service providers' total revenues industry-wide. Their unmatched ability to offer a dedicated, high-bandwidth digital connection with guaranteed QoS has propelled steady growth in traditional TDM services – even as newer IP-based services gain in popularity. Traverse® platform, and accompanying TDM SIMs (Service Interface Modules), create an economical solution that significantly lowers the costs associated with delivering broadband and wideband TDM services, while enabling service providers to migrate to packet based services at their own pace.

Service, Reliability and Flexibility

The Traverse TDM SIMs provide the industry's highest levels of service reliability and flexibility. Protection for DS1 and DS3 is optionally provided on a 1:1, 1:2, or 0:1 (unprotected) basis, with the same module type being provisionable for either working or protect modes of operation. Individual ports on any of the three DS3/EC-1 modules can be configured for clear-channel DS3 or EC-1 operation, while the Transmux SIM offers the additional ability to perform payload transformation and multiplexing of channelized DS3 inputs into VT1.5-structured STS-1s. In addition, the DS1 SIM provides the ability to map ingress clear-channel DS1s into a DS3 or VT1.5 structured STS-1 signal.

Depending upon the type of Traverse shelf in which it's installed, members of the TDM SIM family are suitable for deployments ranging from MTU (multi-tenant unit) to metro access and service hub environments.

A Broad Range of Connectivity Options

Delivering comprehensive support for almost any electrical application, the Traverse platform offers several TDM Service Interface Modules: a 28-port DS1 module, 24-port DS3/EC-1 clear channel modules, and 24- or 48-port DS3/EC-1 TMUX modules. The TMUX modules support "electrical and optical transmux" functionality which enables DS3 payloads contained within optical circuits to be trans-multiplexed into VT mapped payloads. The TDM SIMs are installable in any of the Traverse shelves (T2000, T1600, or T600) – simplifying module sparing and ordering.

Traverse TDM Service Interface Modules

Model	Description
TRA-28P-DS1	28-ports DS1
TRA-24P-DS3E3EC1CC	24-ports DS3/EC-1 Clear Channel
TRA-24P-DS3TMUX	24-ports DS3/EC-1 TMUX
TRA-48P-DS3TMUX	48-ports DS3/EC-1 TMUX

DS1

Traverse TRA-28P-DS1 Interface Module

Interfaces	28 DS1
Port Data Rate	1.544 Mbps, +/-32 ppm
Frame Format	SF, ESF or clear channel
Line Coding	AMI and B8ZS (per ANSI T1.102-1993)
Impedance	100 Ohm
Connector Champ ECM	64 Pin AMP using
Mapping Options	DS3 or VT1.5 Structured STS-1
Loopback Modes Equipment and Facility	Terminal,
Protection Options	1:2, 1:1, 0:1
Power Consumption Maximum	49 Watts

DS3/EC-1 Clear Channel Traverse TRA-24P-DS3E3EC1CC Interface Modules

Interfaces	24 ports
Port Data Rate Mbps,	DS3: 44.736 +/- 20 ppm
Mbps,	EC-1: 51.840 +/- 20 ppm
Frame Format EC-1 GR-499, GR-253, ANSI T1.107, T1.105)	C-bit, M23 or (per
Line Coding	HDB3
Impedance	75 Ohm
Connector	Mini-SMB

Mapping Options Structured STS-1	DS3 or EC-1
Loopback Modes	Terminal and Facility
Protection Options	1:2, 1:1, 0:1
Power Consumption	48 Watts (24P) Maximum

DS3/EC-1 TMUX

Traverse TRA-24P-DS3TMUX and TRA-48P-DS3TMUX Interface Modules

Interfaces	24 or 48 ports*
Port Data Rate	DS3: 44.736 Mbps, +/- 20 ppm EC-1: 51.840 Mbps, +/- 20 ppm
Frame Format	C-bit, M23 or EC-1 (per GR-499, GR-253, ANSI T1.107, T1.105)
Line Coding	HDB3
Impedance	75 Ohm
Connector	BNC using ECM
Mapping Options	DS3, EC-1 or VT1.5 Structured STS-1
Loopback Modes	Terminal and Facility
Protection Options	1 x N n = 12 for 12 port cards, n = 4 for 24/48 port cards, n = 5 in DCS768 matrix shelf
Power Consumption	42 Watts (12P) or 48 Watts (24P or 48P) Maximum

Physical (common specifications)

Weight:	2.0 lbs. (.91 kg)
Dimensions:	13.9 x 2.06 x 11 (inches), or 35.3 x 5.23 x 27.94 cm

Environmental (common specifications)

Operating Temperature:	-5°C to +55°C
Operating Humidity:	To 90% max. non-condensing

Functional

(common specifications)

Switching Capacity	Non-blocking in any configuration
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Architecture
Distributed switching

Bandwidth Management
Any-port to any-port TSA/TSI, hairpinning, broadcast

Industry Compliance

(common specifications)

ANSI	T1.102, T1.105, T1.107, T1.404
Telcordia/NEBS	GR-253, GR-499, GR-1377, GR-63, GR-1089
Safety	CSA/UL/IEC/EN60950
EMI	FCC Part 15, Class A; EN 300 386; EN 55022, Class A

* The 48 port TMUX module supports 24 physical ports, and 24 additional ports can be configured for optical transmuxing