

Traverse

VT/TU Switch Module (5G)

Key Features

Full-Featured DCS Design

- Integrates wideband/LO grooming and switching functions into the Traverse Multiservice Transport Switch
- Provides uni-directional, bi-directional, and multicast crossconnections at the VT1.5 and/or VC-11/12 level
- Supports standard DCS/DXC groom and fill, and bridge and roll functions, as well as integrated test access
- Transmultiplexing services are provided by the optional Traverse DS3/E3/EC-1 Transmux SIM

Scalable Switch-Fabric

- Provides 5 Gbps of wideband DCS capacity (2688 VT-1.5s or 2016 VC-12s), equivalent to 96 STS-1s/AU-3s per module
- Wideband DCS matrix supports in-service growth from 96 to 384 STS-1 equivalents of fully protected, non-blocking capacity by adding modules

Applications and Configurations

- Supports 1:1 or 1:N equipment protection
- Optimized for DCS/DXC, VT/TU add-drop multiplexer and terminal mux applications in hub or end-office locations

Comprehensive Management

- TransNav Management System provides intuitive VT/TU level cross-connect provisioning and connection management
- Supports performance management in specialized hardware as well as non-intrusive remote monitoring

Traverse® VT/TU Switch Module integrates wideband/LO and switching functions into the Traverse Multiservice Transport Switch. The Module provides uni-directional, bi-directional, and multicast crossconnections at the VT1.5 and/or VC-11/12 level. The VT/TU module supports standard DCS/DXC groom, fill, bridge, roll functions as well as integrated test access.

Scalable Integrated Cross-Connect Solution

Digital Cross-Connects (DCSs/DXCs) perform a critical bandwidth management function in carriers' SONET/SDH-based transport networks. These systems improve efficiency by switching and grooming traffic at DS1/E1 granularity for hand-off to the IOF network, or for distribution back to the access network. However, with the continued growth in TDM private lines, as well as the use of low-order virtual concatenation to transport Ethernet services, scaling traditional DCSs/DXCs (typically large, power hungry systems that are difficult to manage) becomes increasingly inefficient from both a capital and operational cost perspective.

The VT/TU Switch Module integrates wideband/low-order switching and grooming functions directly into the Traverse Multiservice Transport Switch to create a scalable and economical alternative to replacing or upgrading legacy crossconnect systems. A single optional Traverse VT/TU Switch Module provides 5 Gbps of VT1.5 and/or VC-11/12 crossconnection capacity (2688 VT1.5 or 2016 VC-12 terminations). Or, leveraging the Traverse platform's distributed architecture, multiple VT/TU Switch Modules can be installed to enable in-service scalability to 20 Gbps of non-blocking wideband switching capacity (384 protected STS-1 equivalents) in a single Traverse 2000 shelf. This fully integrated DCS/DXC and SONET/SDH transport solution simplifies carriers' networks, while providing dramatic scalability and cost advantages over legacy DCS/DXC architectures.

A Powerful and Economical DCS/DXC Solution

With the seamless integration of DCS/DXC capabilities via the VT/TU Switch Module, the Traverse Multiservice Transport Switch creates an advanced multi-layer bandwidth management system that supports true "any to any" cross-connection ability. This architecture, which combines SONET/SDH transport with service management capabilities at the wideband, broadband and Ethernet levels as well as high-density electrical and optical access, provides numerous benefits to carriers. In addition to consuming less power and rack space than legacy DCS/DXC systems, the Traverse platform is easier to install and maintain, further reducing costs.

When deployed as a distributed DCS/DXC solution, the Traverse platform minimizes backhaul bandwidth requirements and optimizes bandwidth efficiency at the network edge – improving carriers' ability to meet customer demands for both existing and emerging services. When deployed in central hub locations, the Traverse platform serves as a highly-scalable and economical alternative to replacing or upgrading legacy cross-connects. A single compact Traverse shelf supports inservice growth from 96 to 384 fully protected STS-1 equivalents. As a carrier-class system, the Traverse platform supports full equipment protection and is also compliant with applicable Telcordia GR-2996, GR-253 and TR-233 standards.

Traverse VT/TU Switch Module (5G)

Model	Description
TRA-VT-TU-5G	VT/TU Switching Module for the Traverse platform

Physical

Traverse VT/TU Interface Module

Weight:
2.0 lbs. (.91 kg)

Dimensions:
13.9 x 1.03 x 11 (inches), or 35.3 x 5.23 x 27.94 cm

Environmental

Operating Temperature:
-5°C to +55°C

Operating Humidity:
To 90% max. non-condensing

Power Consumption:
42 Watts

Functional

Switching Capacity

- 5.0 Gbps Non-blocking per module, or:
- 96 STS-1/AU-3 equivalents
- 2688 x 2688 VT1.5s
- 2016 x 2016 VC-12s

Architecture
Non-blocking Time Division Switch

Equipment Protection
1:1

Modules Supported

- 1 per shelf without redundancy for 5Gbps SONET/SDH application
- 2 per shelf with redundancy for 5Gbps SONET/SDH application
- 1-10 per shelf for 5-20Gbps SONET only Multi-shelf application

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

Performance Management
Hardware signal threshold capability

Status LEDs

Power LED

- Blinking Red — module initializing
- Green — module operating
- Red — module failed

Active/Standby

- Blinking green — module in standby mode
- Green — module active
- Blinking Amber — module in standby mode, synchronization with active module not complete
- Amber — module is placed in an invalid slot

Industry Standards

ITU-T

G.707

ANSI

T1.105-1995

Telcordia/NEBS

GR-253-CORE, GR-2996 Section 5, TR-233 Section 4 (where applicable)

Regulatory and Standards Compliance

NEBs

GR-63-CORE; GR-1089-CORE

Safety

UL 60950; EN 60950; CSA C2.22 No. 60950; IEC 60950, CE-Mark

EMI

FCC Part 15, Class A

ETSI

ETS 300 019-1-3, 019-1-3 (Environmental)