

Carrier-class M13 Multiplexer

Wide Bank 28

Key Features

Controller cards

- DS3

Lower speed service cards

- DS1

Redundancy

- 1:1 Electronic/Network, 1:1 Electronic, or 1+1 "Hitless"
- 1:7 DS1 or E1 service card redundancy
 - Maintenance Service Option (MSO)

Management

- SNMP, CLI and TL1
- Remote management through NetworkValet™ Element Management System (EMS) supported for the DS3 controller versions

Robust suite of circuit testing, diagnostics and software features

Self-diagnostic DS1 protection capability (DS1 revertive)

Installation-friendly automatic "LOS" alarm suppression capability

A Carrier-Grade Standards-Based M13 Multiplexer

The Wide Bank 28 offers carrier-grade, standards-based M13 multiplexing at a dramatically lower price point and higher port density than traditional M13 solutions. The Wide Bank 28's modular approach to sparing and redundancy reduces downtime and service interruptions. Its unique architecture permits both hitless protection of DS3 and T1/E1 ports and hitless maintenance options for 24/7 service reliability. OSMINE compliance with TL1 provisioning and management capabilities and a NEBS Level-3 certified design make the Wide Bank 28 a true carrier-quality solution.



The Wide Bank® 28 provides a high-density, lowcost DS3-to-DS1 or DS3-to-E1 service delivery solution that offers hitless protection and hitless maintenance as well as dual redundant DS3 options. It featured a carrier-quality NEBS Level-3-compliant design, and is OSMINE-compliant w/TL1 provisioning and management.

Minimal 1RU Footprint, Maximum DS3/DS1 or E1 Port Density

The Wide Bank 28 can be deployed to support growing requirements for DS1/E1 ports in conjunction with the Traverse® Multiservice Transport Switch, or with existing voice switch, Frame Relay, and ATM platforms. With central office (CO) or collocation (COLO) space at a premium, the Wide Bank 28's small footprint make it cost-effective in a variety of applications. Its compact, single rack-unit size solves space problems that often limit the number of DS1 or E1 connections that can be supported in equipment racks or cabinets. Using convection cooling, up to 24 Wide Bank 28 can deliver 672 DS1s (or 504 E1s) per standard 23-inch telco rack. When equipped with forced-air cooling fan faceplates, up to 40 Wide Bank 28s and 1,120 DS1s (or 840 E1s) can be mounted in a single 19-inch or 23-inch telco (seven foot) equipment rack.

Modular Architecture

The Wide Bank 28's modular design includes redundant DS3 controller cards and eight 4-port DS1 or 3-port E1 (DS3 version only) service cards. Its front panel LEDs visually communicate status of controller cards, network connection and service ports. The Wide Bank 28's connector plane features connectorized wiring for power, alarms, management, high-speed and low-speed interfaces greatly reduces installation time and complexity.

Wide Bank 28 Carrier-class M13 Multiplexer

Chassis

Dimensions: 1.75 in (H) x 17 in (W) x 10 in (D) 4.45 cm (H) x 43.2 cm (W) x 25.4 cm (D)

Weight: 10 lb (4.5 kg) fully loaded

Rackmount: 19 in (48.26 cm) or 23 in (58.42 cm)

Power

Dual -48 VDC inputs (-42 to -60 VDC)

Optional battery unit and power converter/ battery charger

Internal fuseless overvoltage and overcurrent protection

Power consumption: 32 W for fully redundant system; 36 W w/FFO

Environmental

Operating temperature: 23 °F to 131 °F (-5 °C to 55 °C)

Relative humidity (non-condensing) range: 0% to 98%

Maximum operating altitude: 15,000 ft (4,572 m)

System Architecture

1+1 or 1:1 protected DS3 controller cards

1:7 protected Quad DS1 service cards (or 1:7 protected 3-port E1 service cards) -Maintenance Service Option (MSO) for hitless service protection

Fan Faceplate Option (FFO) forced air cooling

Dual -48VDC power inputs

Performance Monitoring and Alarms

Telcordia GR-474-CORE, GR-820-CORE

Alarms

4-pin major/minor alarm connector

External alarm relay contacts for critical and non-critical alarms

Front panel alarm cutoff switch (ACO)

Testing & Diagnostics

CSU Loopback/Loop-up

C Bit Loopback/Loop-up

Network Interface Unit (NIU) Loopback/ Loop-up

Internal BERT

Integrated NIU

Startup and self-test

High-Speed Interface

DS3

Line rate: 44.736 Mbps

Line code: B3ZS

Framing format: M23 and C Bit parity 2 BNC coaxial connectors (4 for 1+1 redundant system) Impedance: 75 ±5%, unbalanced

Line build out: 0 to 450 ft (0 to 137.2 m)

Transmit jitter: Meets ANSI T1.102 requirements

Transmit amplitude: 0.36 to 0.85 Vp as per ANSI T1.102 pulse mask requirements for all line build outs (LBOs) up to

450 ft (137.2m)

Receive sensitivity: 0.24 Vp to 0.95 Vp input

Low-Speed Interface

DS1

Line rate: 1.544 Mbps ±32 ppm

Line code: AMI or B8ZS selectable

Line framing: transparent to DS1 framing or lack of framing

Two 64-pin female Champ connectors

Impedance: 100 ±5%, balanced

Line build out: 0 to 655 ft (0 to 199.6 m)

Transmit jitter: as per ANSI T1.403, T1.102 and AT&T 62411 requirements

Transmit amplitude: pulse curve amplitude, 2.7 to 3.3 Vp per ANSI (T1.102 and T1.403)

Receive sensitivity: 0.6 Vp to 3.6 Vp input (-13 dBdsx to +3.3 dBdsx)

E1

Line rate: 2.048 Mbps. ±50bps (32 ppm)

Line code: HDB3

Line framing: transparent to E1 framing or lack of framing

Two 64-pin female Champ connectors

Impedance: 120, balanced, as per ITU-T/G.703

Line build out: 0 to 655 ft (0 to 199.6 m)

Transmit jitter: as per ITU-T/G.823 recommendations

Transmit amplitude: 3.0 V (nominal), pulse shape as per ITU-T/G.703

Receive sensitivity: 0.6 Vp to 3.3 Vp input (-13 dB to 2.7 dB with respect to 3 Vp)

Meets lightning surge protection and power induction protection in accordance with FCC part 68 and GR-1089-CORE

Network Standards

ANSI

T1.102-1993; T1.107-1995

T1.403-1996; 404a-1994

T1.404a-1996; T1.105

CCITT Recommendation V.11

Telcordia™ GR-499-CORE

AT&T 62411 (Stratum 4 enhanced T1 CPE)

Clocking

Network: recovered from DS3 network receive signal

Local: on-board Stratum 4E (20 ppm) clock source

External: 44.736 MHz (DS3) BNC clock input

Management

RS-232/V.24 async craft port for Command Line Interface

10Base-T Ethernet port for SNMP and Telnet sessions

TL1 alarming and provisioning

Support through a separate Enhanced Management System product including software upgrade and configuration backup/restore capability

Regulatory and Certifications

NEBS Level-3 certified – type 2 and 4

(earthquake zone 4) CSA

Telcordia GR-63-CORE,
GR-1089-CORE

FCC Part 15 Class A, Part 68

NRTL safety listed: UL 1950

National Electrical Code 1996 safety requirements

Canadian Safety Association (CSA) Compliant
Industry Canada CS-03

Japanese Approvals Institute for
Telecommunications Equipment (JATE)