

MTX-1

Matrix Switch



Key Features

- ◆ Non-blocking, single-stage crosspoint design
- ◆ Small footprint – 16 ports in 5.25” high chassis
- ◆ Chaining of two chassis creates a 32 port non-blocking switch
- ◆ Dual controllers
- ◆ Control:
 - ◆ Ethernet SNMP
 - ◆ T100 via Telnet or Serial ASCII
 - ◆ UDP Interface with CorScan[®] 400
- ◆ Data rates up to 10 Mbps
- ◆ Broadcast mode
- ◆ Lead and alarm scanning
- ◆ Test and monitor bus functions
- ◆ Connectorized backplane with DB-25 port interface
- ◆ Supports multiple interfaces and selectable interface port cards
- ◆ Transparent to all protocols
- ◆ Interface conversion capable
- ◆ Supports station clock

The Cornet Technology, Inc. (CTI) MTX-1 is 16-port high-speed, non-blocking, digital matrix switch that packs the same functionality of larger MTX series systems into a compact, space saving chassis. For higher port switch requirements, two MTX-1 chassis can be chained together with fiber to create a 32-port non-blocked switch.

The MTX-1's single stage crosspoint switching is an efficient means of connecting any input to any output thus increasing reliability, speed, and ease of use. A non-blocking architecture ensures that switching is without restriction to similar interfaces.

System Design

The MTX-1 chassis is 5.25” (3 RU) high by 11” deep and 19” wide with slots for 16 port cards and two (one standard and one optional) control/switch cards.

The MTX-1 switch and port cards are designed for use with a variety of interface types. Port cards are available for all standard and some non-standard interface types. For ease of maintenance, all cards are hot swappable and mount from the front of the chassis. Each of the 16 ports operates in either full or half duplex mode, synchronous or asynchronous at data rates from 50 bps to 10 Mbps.

All interface cabling is on the rear of the chassis, which contains sixteen standard DB-25 female connectors. Different interface connectors are accommodated through a connector or cable adaptors.

Since the MTX-1 is a physical-layer switch, it is transparent to all protocols. All inputs look the same to the MTX-1 and they are all processed in the same manner. Accurate station clock control is accommodated through dual RJ-11 connectors mounted on the rear of the chassis, which supports single and redundant station clock inputs distributed across 16 port-interfaces. Both the control/switch card and the port cards use this station clock input to clock data at station-clock derive-rate instead of the normal internal clock rate. This feature eliminates the need for additional clocking equipment, minimizes the additional cabling of the additional equipment, and thus provides a substantial return on investment.

The ability of any port to connect to any or all other ports enables the MTX-1 to function as a broadcast switch. In broadcast mode, the root port will broadcast to all node cards in a simplex fashion. The first node card selected allows full duplex communications.

Should test and monitoring functionality be required, the MTX-1 offers special monitor cards. These cards allow test equipment to be attached to the chassis to passively monitor and interactively test other chassis cards from a remote control point.

Optional MTX-1 dual controllers ensure reliability. All system configuration data is stored in flash memory on both cards and all connection data is stored in a battery backed Non-Volatile Random Access Memory (NVRAM). If a control card fails, the redundant controller takes over while the defective card is repaired. Should the unit be affected by a power outage, the NVRAM preserves all system connections and reconnects them within 20 seconds after power is restored.

Fiber Extension

Two fiber options are available. Multimode fiber is standard and allows the MTX-1 chassis to be separated up to 260 meters. Where longer distances are required, a single-mode fiber control card allows the matrix chassis to be separated up to 80 kilometers.

Control

The MTX-1 offers users a choice of control methods. Ethernet UDP allows the unit to be controlled via Cornet Technology's CorScan 400 control software or through a standard SNMP manager such as HP OpenView[™] or CastleRock PC[™] via a MIB. Simple system configurations and connection can be accomplished via Telnet or serial ASCII VT-100 menu control through a dumb terminal.

Specifications

Control/Switch Card C02316

Control Type: 10/100Base-T Ethernet via RJ-45
Serial ASCII VT-100 via HDDDB-15
CorScan PC Direct (EIA-232) via
HDDDB-15 CorScan PC via ICP (EIA-422) via HDDDB-15
Adapter Cable "Y" cable converts
HDDDB-15 to dual female DB-9
connectors. PC serial.

PC Matrix Control

Input/Output Port: Dual serial DCE async

Interface Pins Utilized:

HDDDB-15 CONTROL IN
EIA-422 selected:
Control 1 - RD (2,7), TD (3,8)
Control 2 - RD (4,9), TD (5,10)
EIA-232 Selected
Control 1 - RD (2), TD (3)
Control 2 - RD (4), TD (5)
Reference Ground (1)
DB-9 on "Y" cable
EIA-422 selected:
Control 1 - RD (2,6), TD (3,7)
Control 2 - RD (2,6), TD (3,7)
EIA-232 Selected
Control 1 - RD (2), TD (3)
Control 2 - RD (2), TD (3)
Reference Ground (1)

Data Rates: 9.6 K bps or 19.2 K bps, selectable

Parity: None

Bits: 8

Stop Bits: 1

Message Format: ASCII Commands

PC Operating System: Microsoft® Windows® 2000 or Windows® XP

Control/Switch Card LEDs: TD, RD to Control I/O
TD, RD to companion card
Controller Number
Companion Failed
Tx, Rx on Ethernet Link
Ethernet Link
Ethernet Collision

Control/Switch card Display: Rolling display indicates chassis address, com bit rate and power status.

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Ethernet Control

Type 10/100Base-T
Connector RJ-45
Pins Tx Data (1,2); Rx Data (3,6)

Fiber Connection Distance:

Single Mode: Up to 80 Km depending on transceiver version
Multi Mode: Up to 260 meters

Matrix General

Maximum Number of Ports 16 ports
Number of Crosspoints 256
Matrix Type Single-stage crosspoint, electronic
Blocking Factor None
Broadcast Capability 1 to All
Single Connection Time 40 msec.
Signal Delay through Engine 50 nanoseconds per crosspoint
Maximum Port Data Rate 10 Mbps

Port Cards

Multi-interface ONEcard 2 Mbps C99200-1
Multi-interface ONEcard 10 Mbps Dual Station Clock C05200-2
Multi-interface ONEcard 2 Mbps Dual Station Clock C05200-3
Multi-interface ONEcard 10 Mbps C05200-4
Ternary Interface C05200-5
Bus Card Odd and Even to 10 Mbps C05200-6
EIA-232/V.24 port card C00205-3
CDI C01278-1
DDS C00222-1
T1/E1 Selectable C99330-1
T1/E1 Selectable Dual Station Clock C99330-2
T1/CSU Balanced C98320-1
E1/CSU Balanced C98320-2
E1/CSU Unbalanced C98320-3
T1/CSU Dual Station Clock C98320-5
E1/CSU Dual Station Clock C98320-6
E1/CSU Unbalanced, Dual Station Clock C98320-7
ISDN ST Interface C04350-1
4-Wire E&M C99250-1
FXO C99250-2
FXS C99250-3

Station Clock

Number of Inputs 2
Connector Type RJ-11
Accepted Frequencies 1.544 Mbps
Output Frequencies 1.544M, 2.048M, Nx56 to 1.792M, Nx64 to 2.048M, 1.2K, 2.4K, 3.6K, 4.8K, 7.2K, 9.6K, 14.4K, 19.2K, 28.8K, 38.4K.

Physical Specifications:

Dimensions: 5.25" H x 19" W x 6" D
Ruggedized: 5.25" H x 19" W x 11"D

Weight: Approx. 30 Lbs

Power Requirements: **3A @ 120 VAC**
-3A @ 100-240 VAC

MTBF: 17,000 hours

Environment Conditions:

Temperature: Operating: -10° C to +50° C
Non-Operating: -40°C to +75°C

Humidity: 98% RH @ +65C

Altitude: Up to 3050m above sea level



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