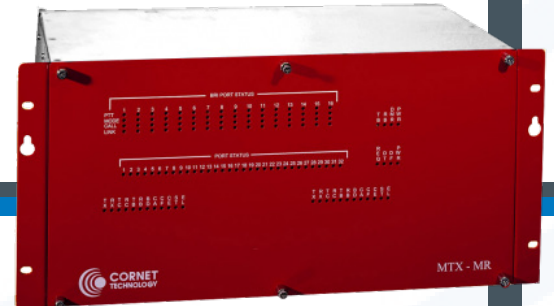# CORNET
SWITCHING SYSTEMS

MTX-MR PBX Conferencing Switch

Automated Secure Voice Switching

The MTX-MR Secure Voice Switch is a compact, non-blocking, high-speed digital conferencing switch ruggedized for military installations and applications. It provides the reliability and space efficiency that is critical to tactical operations. Its primary function is to connect up to 16 ISDN (BRI) telephone lines to up to 32 crypto devices or encrypted radios. By automating the military's unique conferencing and tactical communication requirements, the MTX-MR reduces operator errors and permits switching among any telephone line and crypto devices. The switch can handle 32 simultaneous conferences. Future releases will allow the MTX-MR to be upgraded to accommodate IP interfaces.

With the MTX-MR technicians can quickly isolate network failures and take corrective action to improve reaction time during a crisis. To facilitate accurate trouble ticket reporting, all support actions are logged.

System Description

The MTX-MR lets an operator connect three distinct interface devices such as ISDN telephones (Cornet Switching Systems's CT-2100 and CT-5200), analog crypto devices, and analog recording devices in full-duplex mode. The MTX-MR's non-blocking switch design allows any ISDN telephone to connect to any other locally attached ISDN telephone through the switch. Phones are cabled to the MTX-MR's chassis

and routed directly to the unit's BRI interface card. The BRI interface card has 16 ISDN interfaces that read the two Bearer (B) channels and extract voice and discrete signal data. It also reads the D channel and decodes the call setup information. The output is then passed to the conference card for call connections. This same flexible non-blocking design allows 32 conference calls to be placed simultaneously when the ISDN telephone uses the second ISDN B channel for a second call. In this manner, 16 telephones can create 32 calls, one to each crypto. A conference call can have up to seven users conferenced to one crypto. A total of two 7-user conference calls can be placed on the switch.

Control

A control PC for the MTX-MR is used to configure the switch and to store alarms. Switch configurations consist of downloading the "configuration" tables that establish the user/crypto access list. Specific telephones have access to specific crypto devices, should a user attempt to access a crypto device not on the access list, the switch will not allow the connection. Alarm functions include error messages such as missing cards, power supply failure, and other related alarm items.

Key Features

- Supports line/truck equipment such as: Recorders, Speakers, Voice Loggers, Cryptographic, and Encrypted Radios
- One port card supports all commonly deployed crypto equipment
- Full recording capability for all voice traffic
- Built-in conference and intercom capability
- System control via Ethernet or RS-232
- Removable fan drawer with serviceable filter
- All connectors in rear
- Redundant power supplies
- RS-310 slide extension for ease of servicing
- Management and control via Cornet Switching Systems's CorScan® software or SNMP
- Built-in overall system integrity test
- Secure/Non-secure default is software programmable via CorScan and each port can be set independently of others
- IP interface compatible with Session Initiative Protocol (SIP)

Specifications

PC Matrix Controller

Input/Output Port:	Dual serial DCE async
Interface	Pins
Utilized:	2,3,7,20
Port Connectors:	DB-9 Female
Data Rates:	9.6 K bps or 19.2 K bps, selectable
Parity:	Even, Odd, or Don't Care
Bits:	7 or 8
Message Format:	ASCII Commands
Control PC:	Pentium II with Microsoft Windows for Workgroups 3.11 or Windows 95, 98, 2000
Control Card LEDs:	TD, RD to control, TD, RD to Companion, Control to BRI Card, Backplane Enabled, Card active on backplane, Ethernet Link Active, Companion Failure

Ethernet Interface

Input/Output Port:	Ethernet
Interface	Pins
Utilized:	1, 2, 3, 6
Port Connector:	RJ-45
Data Rate:	10Base-T

Switch General

Maxi. Number of Ports:	16 BRI and 32 Crypto/ Recorder
Switch Type:	Conference, Electronic
Blocking Factor:	None
Conference Capability:	7 to 1 to all crypto devices
Max. Number of Conference Calls:	32 per chassis
Single Connection Time:	70 msec
Signal Delay through Engine:	200 nanoseconds

Switch Interface:

Number of BRI Interfaces:	16
Connector Types:	High Density 78-pin PCU to Switch DB-15 for BRI
ISDN BRI:	Conforms to CCITT 1.430, ETSI ETS 300012, and ANSI T1.605
IP:	Two-port 10/100Base-T interface via an RJ-45 connector
IP Address Assignment:	DHCP client or statically configured
CODECs:	G.711 and G.29A Audio compression
Interoperability:	Compatible with Session Initiative Protocol (SIP) standards

Crypto Port Card

LEDS:	Link (Green) for each port Path Status for switch (primary or redundant) "Mode" for each port
Cards / Chassis:	16
Port / Card:	2
Logical PCU /Chassis:	2

Environment Conditions
Temperature: Operating: 0° C to + 50° C
Non-Operating: -50° C to +100° C
Humidity: 98% RH non-condensing
Altitude: Up to 3050m above sea level

Power Requirements
Matrix Input Power: 1.5A @+/-12VDC
PCU: 5.5A @+5VDC
Fan Panel: 1.5A @+12VDC
Power Supply: 350 Watts

Physical Dimensions:
Switch Chassis: 19" W x 8.75" H x 19" D
PCU Chassis: 19"W x 3.5" H x 13" D

Weight
Conference Chassis: 30 lbs
PCU Chassis: 20 lbs

MTBF Figures
Matrix Engine Chassis: 15,132 Hours*
Chassis Backplane: 564,878 Hours
Conference Card: 339,453 Hours
BRI Card: 114,276 Hours
Control Card: 254,772 Hours
Power Supplies: 100,000 Hours per module

* Chassis MTBF based on configuration with two control cards, one BRI card, one Conference card, one Chassis backplane in the main chassis, and 16 port cards, 1 control card in the PCU chassis. This MTBF calculation is Ground Benign using RelCalc version 5.0-217F (Release 2001).