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The DIU 3000, which is designed to meet project 25 requirements, acts as the gateway between analog dispatch equipment, telephone interconnect devices, and data interfaces. It performs analog to digital conversions in conventional and trunked ASTRO digital systems.

MULTI-MODE OPERATION
The DIU 3000 is compatible with both conventional and trunked ASTRO systems. It can operate in the clear (non-encrypted) ASTRO digital, encrypted ASTRO digital, and clear (non-encrypted) analog modes, providing compatibility with new ASTRO as well as existing analog radios.

• The DIU 3000 provides a seamless transition between different types of calls by automatically switching to match the mode of each call.

SOFTWARE FLEXIBILITY
The software inherent in the product design allows features and system configurations to be specified through your choice of the appropriate software options.

• One hardware platform can be used in multiple configurations.

SPACE SAVING MODULAR DESIGN
The modular design of DIU 3000 allows up to four units to be placed in one 19" cardcage for rack or cabinet mounting.

• Modular design saves valuable rack space.

HOST DATA INTERFACE
The DIU 3000 connects to a Radio Network Controller (RNC) providing host computer interface for conventional integrated voice and data systems.

• A single device, the DIU 3000, serves as the interface to an ASTRO digital system for consoles, telephone interconnect devices, and host computers.

ANALOG CONSOLE GATEWAY

The DIU 3000 works with CENTRACOM Series II Plus, and Gold Series consoles, and the MCC5500. It also supports voice and basic control functions, with consoles that use standard Motorola function tones.

• The DIU 3000 provides a smooth migration path from analog to digital by allowing most existing analog consoles to operate in an ASTRO digital system.

TELEPHONE INTERCONNECT INTERFACE

The DIU 3000 connects to either a trunking or conventional telephone interconnect device. Refer to product planner for interconnect devices.

• Subscriber radios can send and receive telephone calls in the clear (non-encrypted) ASTRO digital, encrypted ASTRO digital, and clear (non-encrypted) analog modes.

INTEGRATED LINK INTERFACES

A V.24/hybrid link interface or (optional) integrated 9.6 Kbps ASTRO digital modem provides access to ASTRO digital fixed equipment.

• These infrastructure link interfaces are integrated into the DIU 3000, saving valuable site space.

MULTIPLE ENCRYPTION METHODS

The DIU 3000 supports DES-OFB, DES-XL, DVP-XL, and DVI-XL, encryption algorithms for operation in the ASTRO digital mode. The DIU 3000 encryption cartridge is capable of using either one or two of these algorithms. AES and ADP .

• Motorola can tailor your ASTRO system to meet your security needs. With dual encryption algorithm capability, one DIU3000 can support agencies using different algorithms.

CENTRALIZED KEY STORAGE

The DIU 3000 houses the encryption keys for the fixed network. Centralized location of all encryption keys provides greater system security.

• Centralized key storage reduces the possibility of system security being compromised.

MULTIKEY CAPABILITY

Up to eight encryption keys stored in the DIU 3000 can be selected by a console position. Encryption keys are used to decode inbound transmissions from subscriber units and to encode outbound calls from a console.

• With the DIU Crypto Module, the DIU 3000 is capable of storing 1024 total encryption keys. Multikey capability provides the flexibility to configure your system to share a DIU 3000 with several other users using different encryption keys.

KEY TRANSPARENT SYSTEM OPERATION

Since the DIU 3000 contains the encryption key for the fixed network, the rest of the fixed equipment remains key transparent. All other encoding and decoding is done in the mobile and portable units.

• System security and integrity remains at the highest level, as encoding and decoding is minimized.

ASTRO OTAR (Over The Air ReKeying)

• ASTRO OTAR is Motorola's APCO Project 25 Encryption Key Management System. ASTRO OTAR provides the capability of re-keying a DIU 3000 remotely. OTAR functionality is only available in ASTRO Project 25 CAI Conventional Systems.

GENERAL PERFORMANCE SPECIFICATIONS

Power Supply	120 VAC 50/60 Hz at 1 amp; 240 VAC 50/60 Hz at 0.5 amps; 15 VDC at 1.5 amps
Input Current	1.5 Amp at 15VDC
SIze	Without cardcage: 9.7" H x 3.84" W x 13.3" D (246 cm x 97.8 cm x 337.7 cm)
Mounting	Cardcage: 19" wide, 10.5" high (6 rack units), 14" deep
Operating Temperature	−30 to +50°C
Voice Coding Method	Improved Multi-Band Exitation (IMBE)
Vocoder Rate	4.8 Kbps IMBE
Channel Rate	9.6 Kbps
Hum and Noise	−50 dBm (1000 Hz, 0 dBm)
Audio Distortion	3% (analog mode; 1000 Hz, 0 dBm line output)
Transmission Control	Tone Remote Control from analog console or digital keying from Gold Series console. Digital Remote Control to base station or comparator.

ENCRYPTION (OPTIONAL)

Encryption Type	Digital (9.6 Kbps versions of DES-OFB,DES-XL, DVP-XL, and DVI-XLAES, ADP)
Method	Multi-register non-linear combiner
Synchronization	Counter addressing (XL) and/or output feedback
Encryption Key Initialization	Internally derived pseudo-random initializing vector
Encryption Key Generalization	External handheld, microprocessor controlled Key Variable Loader 3000 Plus (KVL3000PLUS)
Encryption Algorithm Capacity	Up to 2 Algorithms per DIU 3000 Encryption Module
Encryption Keys per DIU-II	Up to 512 (EMC) or 1024 (CM) keys (8 accessible by TRC or 16 by digital keying console)
Encryption Key Erasure	Tamper detection and/or keyboard command

WIRELINE CONSOLE INTERFACE

From Console–Input	4-wire, 600 Lhm balanced output, or 2-wire, 600 Ohm balanced ouput
Sensitivity	−25 dBm
Maximum Output To Console	0 dBm at 600 Ohms to the lines
ASTRO Signaling to ASTRO Console Interface Module (ACIM)	Asynchronous 9.6 Kbps signaling (RS-232) from DB25 connector

INFRASTRUCTURE INTERFACES

Modem Signals and ASTRO Comparator/ Station Analog Audio	4-wire, 600 Ohms balanced output for tone signaling to station. Requires 3002 or Type 5 leased line
From ASTRO Comparator/ Station (with modem) Input Sensitivity	−25 dBm
Maximum Ouptut To ASTRO Comparator/ Station (with modem)	0 dBm at 600 Ohms to the lines
ASTRO Digital Signals (with V.24 interface)	Synchronous 9.6 Kbps signal (RS-232) using DB25 connector
To Telephone Interconnect Device	2-wire unbalanced output via RJ45 connector (Note: for Smartnet interconnect using CIT or MBX the 2-4 wire converter, T5715, must be used between each DIU 3000 and the CIT/MBX)
To Radio Network Controller (RNC) for Conventional Data	Synchronous 9.6 Kbps signal (RS-232) using DB25 connector

Specifications subject to change without notice.

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