



# Synthesized HF Exciter Model MMX-2

TECHNICAL BULLETIN 204-4115

- 200 mW, 2-30 MHz
- Solid State
- Rapid Digital Frequency Selection
- CW, AM, SSB, ISB, FSK, FAX
- Compact Package
- Remote Control Capability



The TMC Model MMX-2 Series, Two Channel Independent Sideband Exciter is a compact all solid state unit designed particularly to accommodate the high capacity, multi-channel voice, teletype, data and FAX requirements of critical commercial and government point-to-point and tactical circuits. It is readily adaptable however to the less sophisticated single channel CW, USB or LSB requirements of back-up or other circuits where frequency allocations or operational needs dictate.

The small size, versatility and operational simplicity of this Exciter make it especially suitable for transportable applications. Radio operators will immediately appreciate the ease of operation. Output frequencies are easily set up without any calculation, and are displayed clearly in digital form. No tuning or peaking is required.

Advanced circuitry innovations and printed circuit techniques have enabled TMC to provide ultra-stable operation under all environmental conditions. Solid state components assure dependable and stable performance over the long life of this equipment. The use of plug-in circuit cards facilitates maintenance. Special circuitry is incorporated to improve linearity, limit distortion and enable the associated transmitter to deliver a constant RF output level in all modes and under all conditions of operation.

The MMX-2 Exciter is currently being procured by Government agencies for the purpose of upgrading their existing unsynthesized transmitter installations. It has been assigned military nomenclature designations MD-946/UR and O-1706/TSC-25 and is also available on GSA Contract No. GS-00-86443. In addition, all of its components and plug-in modules are fully identified with national stock numbers and are supported in the Defense Electronics Supply system.

**THE TECHNICAL MATERIEL CORPORATION**

## TECHNICAL SPECIFICATIONS

### OPERATING PARAMETERS

FREQUENCY RANGE		2-29.9999MHz
	Optional	1.6-29.9999MHz
FREQUENCY SELECTION		Direct synthesis in 100Hz steps Phase Jitter: Less than 5 degrees in two successive 10 msec. periods
FREQUENCY STABILITY		One part in $10^8$ per day/15°C change
	Optional	One part in $10^9$ per day/15°C change
FREQUENCY DISPLAY		Front-panel digital
MODES OF OPERATION		CW (A1)/AM (A3)/AME (A3H)/UBS, LSB (A3A, A3J)/ISB (A3B)
	Optional	FSK (F1)/FAX (F4)
POWER OUTPUT		100 milli-watts PEP and Average (CW)
INPUT/OUTPUT IMPEDANCE		50 ohm (nominal) unbalanced, BNC-type connector
TUNING		Six front-panel rotary switches
REMOTE CONTROL	Optional	Interface circuits are available for remote monitoring and control of frequency, mode, carrier, RF level, main power, and status of complete exciter system including antenna.

### AUDIO PARAMETERS

AUDIO SIDEBAND RESPONSE		250-3040Hz, $\pm$ 1.5 db CCIR
	Optional	250-6080Hz, $\pm$ 1.5 db CCIR
EQUALIZED FILTERS	Optional	250-3040Hz; 1.5 db max. Envelope delay: Less than 500 uscc, 600-2900Hz Less than 150 usec for any 100 Hz step, 500-3050Hz
AUDIO INPUT		1. Independent 600-ohm channels, balanced or unbalanced -20 to +10 dbm; rear-apron terminals. 2. Built-in microphone pre-amplifier for low-level dynamic input; -55 db into 47 K-ohms; front-panel jack.
KEYINT INPUT		1. CW key jack on front panel; 200-baud; dry contact 2. FSK: 75-baud or optional 200-baud and higher. Shift $\pm$ 42.5/85/170/425Hz; Others on request. Input 20/60 ma, 50 or 100 volts, dry contact $\pm$ to ground 3. FAX: +1 to +10VDC produces 800 Hz linear shift.
	Note	Tone keyers are available for audio FSK operation (single or multi-tone)

### TRANSMIT CHARACTERISTICS

UNWANTED SIDEBAND REJECTION	500Hz tone is minimum 60 db below PEP
SPURIOUS SIGNALS	Minimum 60 db below PEP
INTERMODULATION DISTORTION	Minimum 40 db below either tone of a two-tone test at rated PEP
RESIDUAL NOISE AND HUM	Minimum 70 db below PEP. Power supply ripple 55 db below PEP
CARRIER SUPPRESSION	Selectable at -6, -20, -30, -55 db (FULL); Others values on request

### ENVIRONMENTAL AND INSTALLATION

COOLING	Convection.
ACOUSTIC NOISE	Less than 70 db above reference level of $10^{-16}$ w/cm <sup>2</sup> at 3.25 feet from cabinet (average conversation) when installed to TMC spec.
OPERATING CONDITIONS	0 to +50°C; up to 90% relative humidity at MSL
STORAGE CONDITIONS	-30°C to +80°C; up to 95% humidity at MSL
POWER SUPPLY	Totally solid-state. 115 or 230 volts AC $\pm$ 10%, 50/60/400Hz, single-phase
SIZE AND WEIGHT	5.25" (13.4 cm) high x 19" (48.3 cm) wide x 20" (50.8 cm) deep 36 pounds/16.4 kg installed
SHIPPING DATA	Commercial packing for domestic U.S. (air) shipment. One (1) container — 10" x 30" x 30" Total weight/cube — 58 pounds/5.2 cu. ft.

*Technical Specifications Are Subject to Change Without Notice*

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