



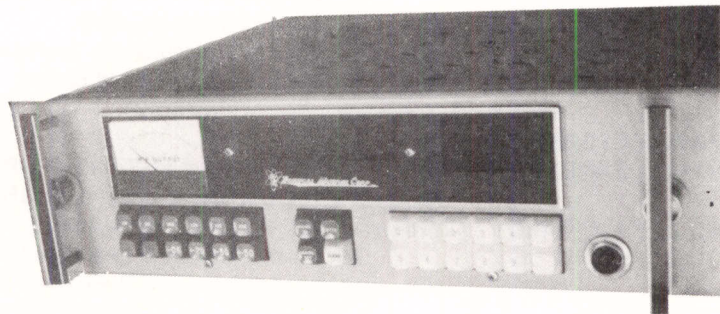
# SYNTHESIZED H.F. EXCITER

## Model MMX-4

TECHNICAL BULLETIN 204-4119

13,644

- \* 1 Watt, 2-30 MHz
- \* CW, AM, SSB, ISB, FSK, FAX
- \* Remote Control Capability with RS-232 Interface
- \* Milli-second Frequency and Mode Selection



The TMC Model MMX-4 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 requirements of critical commercial or government point-to-point and tactical circuits. It is readily adaptable however to the less sophisticated single channel CW, USB, LSB or ISB 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.

All frequencies are derived from a 1 MHz source, without the use of phase locked oscillators, making the MMX-4 a truly synthesized exciter. There are no relays or electro-mechanical components other than the front panel controls. All of these features combine to make the MMX-4 an extremely reliable synthesized exciter.

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 <sup>8</sup> per day/15°C change
	Optional	One part in 10 <sup>9</sup> 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) (Special options AFSK, MCW)
POWER OUTPUT		1W PEP and Average (CW)
INPUT/OUTPUT IMPEDANCE		50 ohm (nominal) unbalanced, BNC-type connector
TUNING		Remote/Local (digital)
REMOTE CONTROL	Optional	Interface circuits are available for remote monitoring and control of frequency, mode and carrier.

### AUDIO PARAMETERS

AUDIO SIDEBAND RESPONSE		250-3040Hz, +/- 1.5 db CCIR
	Optional	250-6080Hz, +/- 1.5 db CCIR
EQUALIZED FILTERS	Optional	250-3040Hz: 1.5 db max. Envelope delay: Less than 500 usec, 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.
KEYING INPUT		1. CW key jack on front panel; 200-baud; dry contact 2. FSK: 75-baud or optional 200-baud and higher. Shift +/- 42.5/85/170/425Hz; Others on request. Input Neutral or Polar 20/60 ma, 50 or 100 volts and dry contact keying. 3. FAX: + 1 to + 10VDC produces 800 Hz linear shift. Tone keys 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	Nominal 60 db below PEP
INTERMODULATION DISTORTION	Minimum 40 db below either tone of a two-tone test at 100 mw 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.
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 +/- 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 30 pounds/(13.66 kg)
SHIPPING DATA	Commercial packing for domestic U.S. (air) shipment. One (1) container — 10" x 30" x 30" Total weight — 58 pounds (26.36 kg) Total cube — 5.2 cu. ft. (.15 cu. meters)

Technical Specifications Are Subject to Change Without Notice

## THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD, MAMARONECK, NEW YORK 10543 U.S.A.  
TEL.: 914-698-4800 TWX: 710-566-1100 TLX: 137-358