

SYNTHESIZED SOLID STATE MULTI-MODE EXCITER

TMC **MMX-2**



CW · AM · SSB · ISB · FSK · FAX · 1.6 TO 29.9999 MHz IN 100 Hz INCREMENTS

THIS ALL NEW COMPACT, HIGH QUALITY MULTI-MODE EXCITER PROVIDES THE OPERATIONAL BASIS FOR A NEW CONCEPT IN TRANSMITTER DESIGN AND COMPLETELY OUTMODES ALL EXISTING EQUIPMENT...



THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

TMC

MMX-2**GENERAL DESCRIPTION AND APPLICATIONS**

The Series MMX Multi-Mode solid state exciter is a totally new and unique concept in synthesized exciter design and construction. The MMX is not only an exciter, but is an ultra compact and comprehensive Modulator-Synthesizer-Keyer combination. It provides low level RF excitation on all modes of transmission normally encountered in the HF frequency spectrum and accomplishes all this in only 5¼" of vertical rack space, including power supply.

FREQUENCY SELECTION

The MMX is tuned from 1.6 to 29.9999 MHz continuously via 6 decade controls which display the output frequency directly in 100 Hz increments. Tuning, interpolating or peaking controls are not used. It is simply necessary to select frequency and mode, whereupon controlled output is available. All outputs are referenced directly to either an internal 1 MHz standard of 1 part in 10⁶ stability or optionally to an external higher stability standard.

RF OUTPUT

Up to 250 mw of RF power is available to drive the associated linear amplifier. The output is filtered and processed internally to provide a clean signal, and output is continuously adjustable by means of a front panel control and is monitored via the front panel multi-meter which also permits monitoring of all primary circuits.

ENVIRONMENT

The MMX is designed and constructed to operate within specifications under all ambient conditions normally encountered when operating similar type and quality of equipment. In addition to the 0° to +50°C and 95% humidity ratings, the unit is designed to operate effectively and reliably when mounted as an internal component of our high power transmitters.

POWER SUPPLY

The power supply is a bridge type, incorporates both passive and active voltage and current regulation, and is short circuit proof.

FREQUENCY INFORMATION

Range 1.6 to 29.9999 MHz in .1 KHz steps.
Presentation Direct reading, digital.
Stability Synthesized 1 part in 10⁸ standard; 1 part in 10⁷ optionally with external standard.
 Important Note: For range of 10 KHz to 2 MHz see Model LIFE.

POWER DISTORTION & NOISE RATINGS

Power Output 0-250 mw, continuously adjustable.
Output Impedance 50 ohms, unbalanced.
Intermodulation Distortion 40 db below either tone of a 2-tone test at 100 mw output.
Spurious Signals 60 db below full PEP output, when measured at least 120 Hz from the carrier.
Harmonic Suppression 2nd at least 45 db below full PEP. All other at least 55 db below full PEP.
Hum and Noise 60 db below either tone of a 2-tone test.

OPERATIONAL

Modes ISB, USB, LSB, AM, AME, CW, FSK & FAX.
Tuning Manual digital frequency selection.
Metering Built-in multi-meter permits monitoring of selected circuits and power output.
ALDC Automatic load and drive control accepts 0 to -11 volts DC from ALDC circuit of associated linear amplifier. Improves linearity, limits distortion and delivers a constant output level during high modulation peaks.
Carrier Insertion -55 db to full output, continuously variable.

AUDIO

Response, Sideband Filters Refer to "Optional Specifications".
Input 1. Two independent 600 ohm channels, balanced or unbalanced. -20 dbm to +5 dbm.
 2. Built-in microphone preamplifier for low level dynamic microphone. Front panel selection and jack.
Mike Input -55 db into 47K ohms, front panel jack.
Audio Control Two front panel "fader" controls allow ease in injecting either the microphone or the line inputs into the upper or the lower sideband.

KEYING INFORMATION

CW Key jack on front panel and terminals on rear apron allow up to 300 WPM carrier keying, dry contact.
Keying Input 60 ma, 20 ma, 50 volt, 100 volt, either positive or negative with respect to ground.
Keying Speed Up to 75 baud (higher keying speeds available).
Shift ±53 Hz, ±106 Hz, ±212 Hz or ±42 Hz
FAX +1 to +10 VDC will provide a linear shift of 800 Hz.

INSTALLATION AND ENVIRONMENTAL DATA

Size 5¼ inches (13.4 cm) high x 19 inches (48.25 cm) wide x 18 inches (45.57 cm) deep.
Weight 35 lbs. (16 kg) installed.
Primary Power 110/230 V, 50/60 Hz, single phase, 60 watts.
Environmental 0°C to +50°C ambient; up to 95% humidity.
Loose Items Mating BNC type coaxial fittings and Technical Manual supplied.
Components & Construction All equipment manufactured in accordance with U.S. Jan/Mil Specifications wherever practicable.

OPERATIONAL SPECIFICATIONS

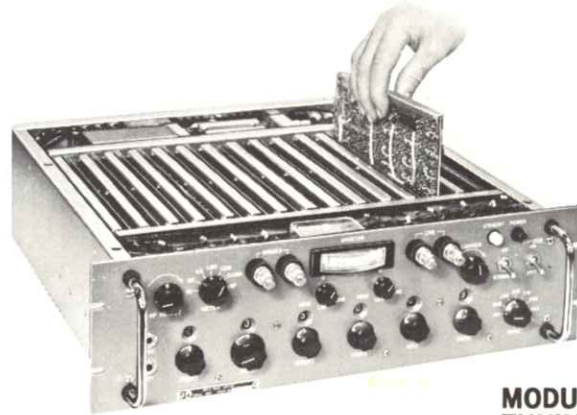
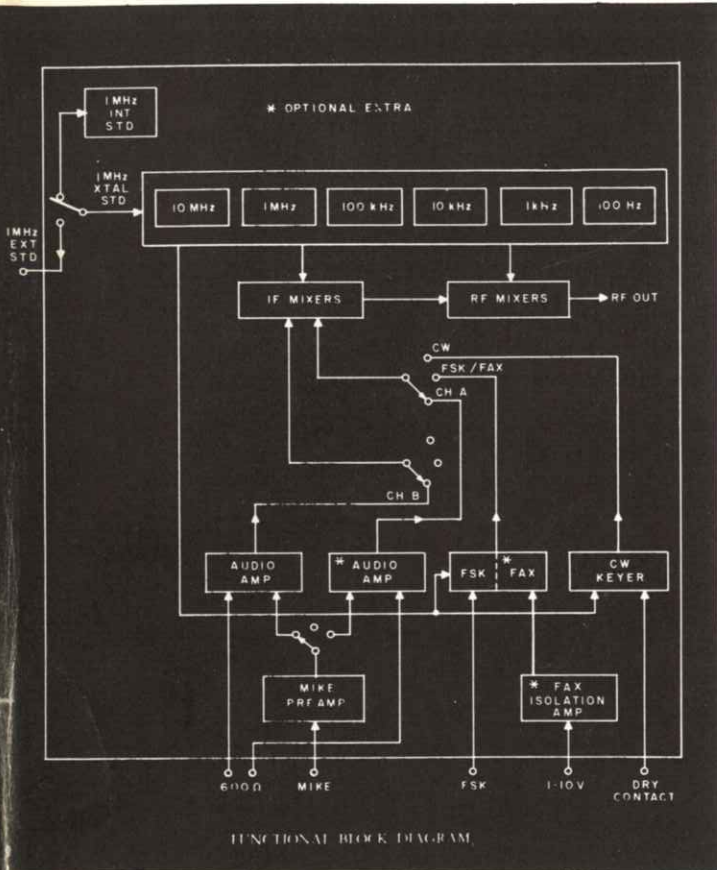
All circuitry for independent sideband operation is included in the MMX. Selection of the proper filters determines the audio bandwidth. Three upper or lower filters are available;
 1. ±1.5 db 350-3500 Hz.
 2. ±1.5 db 250-3040 Hz.
 3. ±1.5 db 250-6080 Hz.
 If filters Number Three are selected for upper and lower sideband four channel operation is possible using the TMC Model TMX as accessory equipment.

ADDITIONAL ACCESSORIES

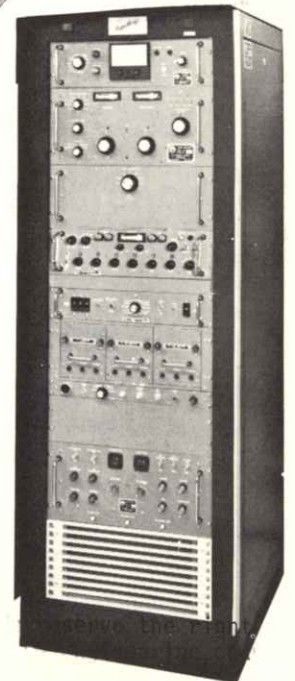
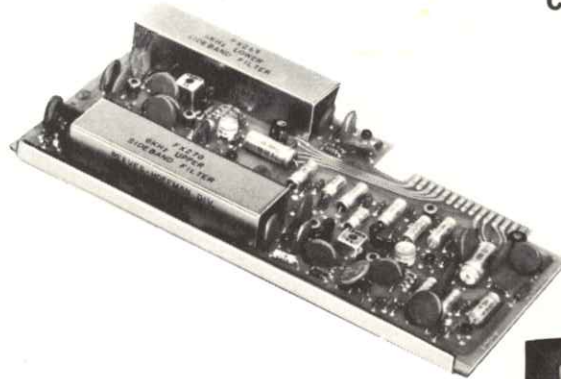
The MMX may be completely remote controlled. A remote control console provides full control of frequency, mode and carrier injection and features real-time readback of all functions. Primarily intended for use over hard-wire or radio audio frequency circuits. Unlimited distance capabilities.

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DIGITAL TUNING FREQUENCY SELECTION ON THE FRONT PANEL FROM 1.6 TO 29.9999 MHz



MODULAR TUNING DRAWER CONCEPT...



USED IN TMC's FAMILY OF TRANSMITTERS... 2.5KW GEN. PURPOSE TRANSMITTER •

The MMX is all solid state, compact, high quality, multi-mode exciter providing the basis for a whole new generation of TMC transmitters. The small size, versatility and operational simplicity of this exciter make it especially suitable for transportable applications.

Radio operators will immediately appreciate the simplicity of the ease of operation. Frequencies are determined without any calculation and are displayed clearly in numerical form. No tuning or peaking is required.

FREQUENCY RANGE: 1.6-29.9999 MHz in 100 Hz incremental steps. Remote tuning optional. • **MODES OF OPERATION:** CW, AM, SSB, AME, ISB, FSK, FAX. • **OUTPUT POWER:** 1. Continuously adjustable to 1 watt, CW, FSK, FAX. 2. Continuously adjustable to 250 mw. PEP. SSB, ISB, AM, AME. • **OUTPUT IMPEDANCE:** 50 ohms nominal.



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