BULLETIN-#2030B

# MULTI-CHANNEL SIDEBAND EXCITER TMC SME-6


## CW • AM • AME • USB • LSB • ISB • FSK • FAX 1.6 MHz TO 30 MHz

- VOX OPERATION CAPABILITY
- ONE BASIC MODEL
- SOLID STATE EXCITER
- REMOTE CONTROL OPTION
- FREQUENCY RANGE 1.6 MHz TO 30 MHz
- NINE PRESET CHANNELS FOR FSK/FAX OPERATIONS
- TEN PRESET CHANNELS FOR CW, USB/LSB, ISB OR AM

WORLD WIDE SUPPLIERS OF ELECTRONIC COMMUNICATIONS EQUIPMENT

THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

# TMC SME-6 GENERAL DESCRIPTION AND APPLICATIONS

The SME-6 is a totally solid-state multi-mode exciter which features several new design and construction concepts and increased operational capabilities over older units. The straightforward design and operation of these units will be immediately appreciated by operators and the compact size will allow maximum freedom in system layout. Newly developed circuits are incorporated to limit overall distortion and improve the signal to distortion ratio of the transmitted intelligence.

Full front panel control facilities are available, including push-to-talk, VOX control, individual sideband audio adjustment and carrier suppression controls. In addition, full metering is provided as are indicator lamps, fuses and RF output control. The built-in VOX circuitry permits hands-off operation of the entire system thereby freeing the operator for other tasks.

## POWER SUPPLY

The full wave bridge rectifier power supply is protected against damage from both shorted and open circuit conditions and contains active voltage as well as current regulating circuits.

## POWER OUTPUT

The RF output power is continuously adjustable via a single front panel control from 0 — 250 mw PEP. No additional tuning is required. Each audio channel incorporates special circuitry to maintain the modulation at the optimum level in each mode and thereby prevent transmitter overload and distortion.

## CARRIER INSERTION

Two front panel controls are provided to facilitate setting the carrier suppression. Both pre-set values of 0, —6, —26 and —55 db are available as well as an infinite resolution control which may be pre-set or adjusted from 0 to —55 db carrier suppression. A front panel meter with selector switch is used to indicate carrier output levels.

## METERING

A built-in front panel multi-meter and selector switch permits monitoring of all primary circuits, audio levels in each channel, carrier level and RF output. Meter scale is coded for rapid determination of correct operating parameters.

## CONSTRUCTION AND OPERATIONAL MODES

The base chassis of the SME-6 contains all facilities previously mentioned as are necessary for ten channel emission including dual audio inputs, VOX circuitry, all switching and monitoring and power supply.

The balance of the components are mounted on military grade plug-in printed circuit cards using all silicon type solid state devices, and the receptacles are special multi-pin connectors with gold plated spring contacts for long trouble free operation.

Three cards are always supplied with the base chassis. These are, the carrier generator card which contains a stabilized MHz crystal, oven controlled, a broadbanded output card (the same for all output frequencies) and a converter card.

The customer may then select the following, depending on mode desired:

1. True double sideband AM with carrier
2. FSK and FAX
3. Upper sideband 3 KHz or 6 KHz
4. Lower sideband 3 KHz or 6 KHz

C. W. operation is always available, and use of two sideband filters (upper and lower) permits independent sideband operation. With one each 6 KHz upper and lower sideband filters installed, four channel ISB operation is possible with the TMC TMX adapter.

## FREQUENCY COVERAGE AND STABILITY

When operational modes have been selected, the customer may then indicate the output frequencies desired. Ten frequency possibilities are contained on five cards (two frequencies to a card within the range of 1.6 to 30 MHz). These frequencies are then instantly available by switching. Only necessary frequencies need be purchased (from two to ten).
Standard stability is ±50 cycles absolute.
At extra cost absolute stability of ±10 cycles is available.

From the foregoing, it is apparent that the customer can elect to obtain CW, AM, AME, USB, LSB, ISB, FSK and FAX with the availability of four channel ISB with the TMX adapter.

The SME-6 may be automated for instantaneous selection of frequency by any of the standard TMC remote control systems.

# TECHNICAL SPECIFICATIONS SME-6

## FREQUENCY INFORMATION

| | |
|---|---|
| **Range** | 1.6 to 30 MHz via plug-in modules. |
| **Presentation** | Channel selector switch, 1-10 |
| **Stability** | Customer Selected:<br>Temperature controlled crystal oscillator for maximum deviation of ±50 Hz from 0 —50°C. Proportional oven control for maximum deviation of ±10 Hz from —30° to +50°C. |
| **Control** | Temperature compensated, crystal ovens. |

## POWER DISTORTION AND NOISE RATINGS

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| **Power Output** | 0 to 250 mw PEP, continuously adjustable from front panel. |
| **Output Impedance** | 50 ohms nominal unbalanced. |
| **Intermodulation Distortion** | At least 40 db below either tone of a two-tone test at 100 mw PEP output. |
| **Spurious Signals** | Better than 60 db down at full PEP output. |
| **Harmonic Suppression** | 2nd at least 45 db below full PEP. All others at least 55 db down. |
| **Hum and Noise** | Better than 60 db down at full PEP. |

## OPERATIONAL

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|---|---|
| **Modes** | Customer Selected:<br>ISB, USB, LSB, AM, AME, CW, FAX & FSK. |
| **Tuning** | Ten preset crystal controlled channels over the range of 1.6 to 30 MHz. |
| **Metering** | Built-in multi-meter permits full time monitoring of selected circuits, power output and inputs. |
| **ALDC** | Automatic Load and Drive Control accepts 0 to —11 volts DC from ALDC circuit of associated linear amplifier to improve linearity, limit distortion and deliver a relatively constant RF output level during high modulation peaks. |
| **Carrier Insertion** | Automatically set at —6, —26 or greater than —55 db below PEP. |

## AUDIO

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|---|---|
| **Response, sideband filters** | Customer selected:<br>±1.5 db 300 Hz to 7.5 KHz,<br>±1.5 db 350 Hz to 3000 Hz or<br>±1.5 db 250 Hz to 3040 Hz or<br>±1.5 db 250 Hz to 6080 Hz |
| **Input Line** | Dual inputs —20 to +10 dbm at 600 ohms balanced or unbalanced. |
| **Mike Input** | —55 dbm into 47k ohms, front panel jack only. |
| **Control** | Two front panel "fader" controls allow ease in injecting either the microphone or the line inputs into the upper or lower sideband. |
| **Voice Operated Relay (VOX)** | Voice controlled switch with adjustable threshold. |

## KEYING INFORMATION

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| **CW** | Front panel jack or rear panel dry contact keying circuit up to 200 bauds. |
| **FSK** | 20 and 60 ma, 50 and 100 volts, or dry contact keying. |
| **FSK Shift** | ±425, ±212, ±106, ±53 Hz, switch selected at rear panel. |
| **FSK Keying Speed** | 200 bauds |
| **FAX Input** | +1 to +10 volts for linear shift of 1000 Hz. |

## INSTALLATION AND ENVIORNMENTAL DATA

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|---|---|
| **Environmental** | 0° to +50°C up to 95% humidity. |
| **Storage** | —40°C to +85°C, 95% humidity. |
| **Size** | 5¼ inches (13.3 cm) high x 19 inches (98.25 cm) wide x 18 inches (45.57 cm) deep. |
| **Weight** | 30 lbs. (14 Kg). |
| **Primary Power** | 115/230 volts, 50/60 Hz. |
| **Components & Construction** | All equipment manufactured in accordance with U.S. JAN/MIL specifications wherever practicable. |

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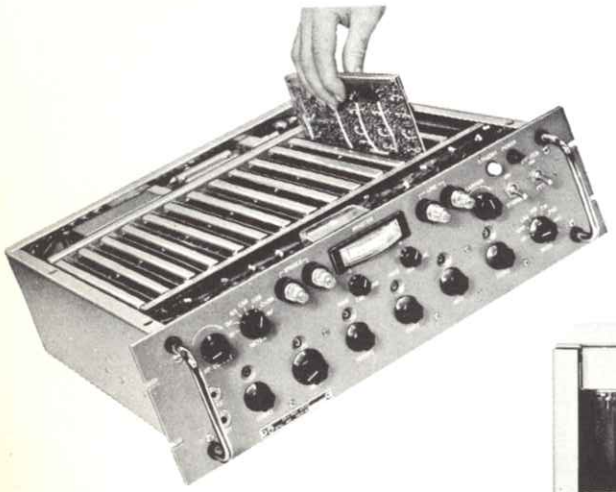
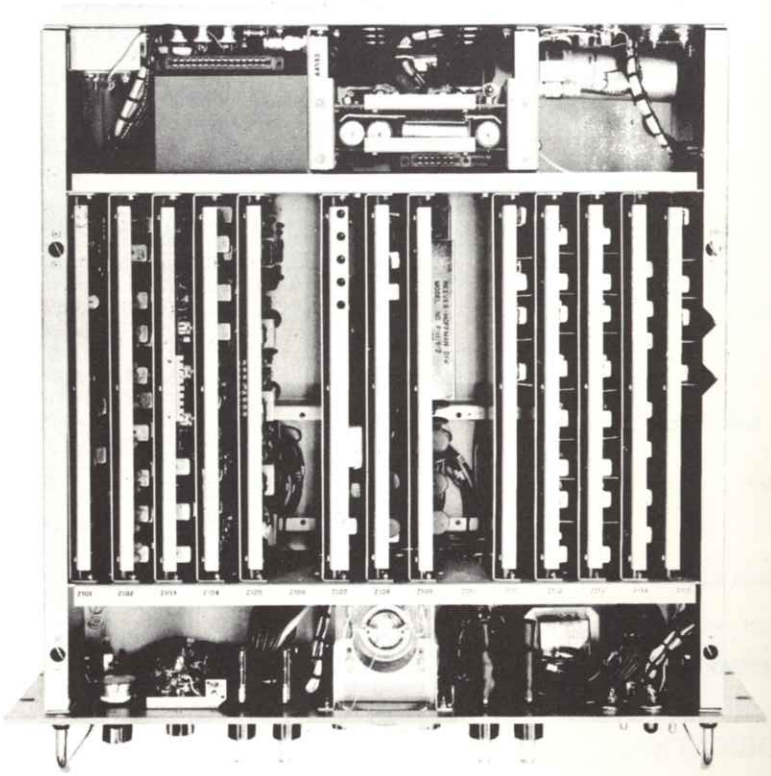
# TMC SME-6

## MULTI-CHANNEL SIDEBAND EXCITER





**MODULAR TUNING DRAWER CONCEPT** . . . by the addition of PC boards you can select the modes of operation you desire.

We reserve the right to make engineering changes.


THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD • MAMARONECK, NEW YORK 10543

SPRINGFIELD, VIRGINIA • OTTAWA, CANADA • LUZERN, SWITZERLAND • TEMPE, ARIZONA

(914) 698-4800 • (613) 822-0244 • twx 710—566—1100 • telex 013—446



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