



## TECHNICAL BULLETIN NUMBER 2008A

Transmitting Mode Selectors

TMC Models SBE-8

SBE-9

SBE-10



- 1.75 to 32 megacycles
- SSB, ISB, AM, AM Equivalent and CW
- Voice operated relay control
- 10 oven crystals
- 1 part in  $10^6$  per day stability

The Technical Materiel Corporation's Models SBE are universal sideband exciters that may be used with any linear amplifier that will accept up to 250 milliwatts PEP of drive to provide ISB, SSB, AM, AME and CW modes of operation. Oven control of up to 10 crystal frequencies affords stability of at least 1 part in  $10^6$  per day.

Speech, voice tone telegraph and CCIR requirements are met by the models available.

These models incorporate design changes that provide increased operational capabilities and improved performance characteristics over those found in earlier equipments.

## Transmitting Mode Selectors

All models SBE incorporate Voice Operated Relay Control (VOX) with anti-trip (squelch) control to allow proper VOX operation under varying ambient noise conditions. Models SBE will accept ALDC control voltage from their associated linear amplifiers to minimize distortion and limit drive during high modulation peaks or load changes.

### TECHNICAL SPECIFICATIONS, TMC MODELS SBE

|                              |  |
|------------------------------|--|
| FREQUENCY RANGE:             | 1.75 to 32 mcs continuous, bandswitched.   |
| MODES OF OPERATION:          | CW, AM, AM equivalent, SSB and ISB. (FSK and FAX with tone converters such as TMC Model TIS-3).  |
| POWER OUTPUT:                | 0 to 250 mw PEP, Continuously adjustable.  |
| OUTPUT IMPEDANCE:            | 72 ohms unbalanced, nominal.   |
| FREQUENCY STABILITY:         | <ol style="list-style-type: none"> <li>1. Crystal controlled, at least 1 part in 10<sup>6</sup> per day for 15°C change in temperature within the range of 0 to 50°C.</li> <li>2. VFO controlled by external input. Stability that of external VFO.</li> </ol> |
| FREQUENCY CONTROL:           | 10 crystals, front panel selected, plus external VMO input. All crystals contained in temperature controlled oven.   |
| TUNING SYSTEM:               | All front panel tuning controls directly calibrated in frequency.  |
| SIGNAL/DISTORTION RATIO:     | Distortion products are at least 45 db below either tone of a standard two-tone test at 250 mw PEP output.   |
| UNWANTED SIDEBAND REJECTION: | A signal of 500 cps in the desired sideband is at least 60 db down from full PEP in the other sideband.  |
| SPURIOUS EMISSION:           | All spurious outputs, as a result of internal mixing, are at least 60 db below full PEP output.  |
| CARRIER INSERTION:           | -55 db to full PEP output.   |
| HARMONIC SUPPRESSION:        | <p>Second harmonics are at least 40 db below full PEP output.</p> <p>All other harmonics are at least 50 db below full PEP output.</p>   |

## TMC Models SBE-8, SBE-9, SBE-10

### AUDIO RESPONSE:

SBE-8:  $\pm 1.5$  db from 250 to 3500 cps.

SBE-9:  $\pm 1.5$  db from 250 to 8500 cps.

SBE-10:  $\pm 1.5$  db from 275 to 6000 cps.

(Other audio bandpass filters are available on special order.)

### AUDIO INPUTS:

1. 500,000 ohms for high impedance crystal or dynamic mike.  $-50$  dbm input will provide full RF output.

2. Two independent 600 ohm channels, balanced or unbalanced,  $-20$  dbm to  $+10$  dbm.  $-20$  dbm input will provide full RF output.

### ALDC:

Models SBE will accept 0 to approximately  $-11$  volts DC from ALDC circuit of an associated linear amplifier to improve linearity, limit distortion and deliver a relatively constant output level during high modulation peaks or load changes. It is recommended that the ALDC input voltage have an attack time of approximately 2 ms and a decay time of approximately 100 ms in order to give faithful reproduction on voice circuits and multichannel tone telegraph signal operation.

### VOICE OPERATED RELAY:

Voice Operated Relay, which includes anti-trip feature, adjustable gain and squelch, is provided.

### METERING:

Front panel meter with a five position switch provides metering of the following:

1. Calibration.
2. Lower sideband audio level.
3. Upper sideband audio level.
4. Carrier insertion level.
5. RF output level.

### ENVIRONMENTAL CONDITIONS:

Designed to operate in any ambient temperature between  $0^{\circ}$  and  $50^{\circ}$  C, and any value of humidity up to 90%.

### STORAGE CONDITIONS:

Equipment will not be materially affected under storage of  $-20^{\circ}$  to  $+65^{\circ}$  C and humidity of 0 to 95%.

### KEYING INFORMATION:

For CW keying, connections are provided on rear terminal strip that opens the cathode circuit of the first RF amplifier.

## Transmitting Mode Selectors

### INSTALLATION DATA:

Exciter: Weight: Approximately 38 lbs.  
Size: 19" w × 8¾" h × 15" d.

Power Supply: Weight: Approximately 35 lbs.  
Size: 19" w × 5¼" h × 8⅝" d.

### PRIMARY POWER:

115/230v 50/60 cycles single phase, 120 watts average. 140 watts with oven on.

### SHIPPING DATA:

130 lbs. Domestic pack, 6 cu. ft.

140 lbs. Level "A" pack, 9 cu. ft.

### INSTRUCTION BOOKS:

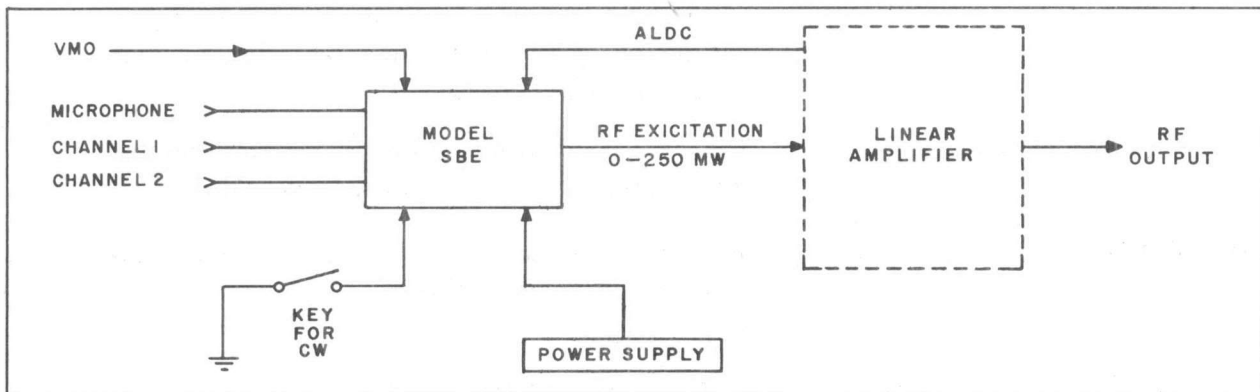
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### LOOSE ITEMS:

Mating RF plugs, unit interconnecting cables and fanning strip are provided as loose items as well as two (2) copies of the instruction manual.

### COMPONENTS AND CONSTRUCTION:

All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.



FUNCTIONAL BLOCK DIAGRAM, MODEL SBE.

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