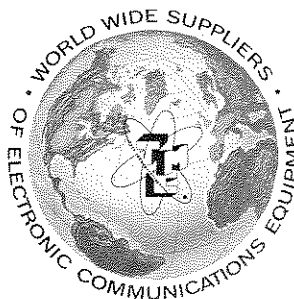


TECHNICAL BULLETIN NUMBER 2008B



PROPERTY OF SPECIFICATIONS
AND STANDARDS ENGINEERING

Transmitting Mode Selector

TMC Models SBE-8

SBE-9

SBE-10



PURPOSE

Models SBE-8, 9 and 10 provide SSB, ISB, AM, AME and CW operating modes at 250 mw with any linear amplifier over the frequency range of 1.75-32 mcs. The unit provides oven controlled stability of one part in 10^6 per day.

APPLICATION

- Central Exciter Control of Linear Amplifiers
- Transmitter Modernization Program
- Laboratory Experiments
- Institutional Training Programs
- Test Instrument

FEATURES

- 1.75-32 mcs
- SSB, ISB, AM, AME, CW operating modes
- Provides up to 250 mw RF output
- 10 oven crystal positions 1 part in 10^6 per day stability
- External VMO input
- 0-55 db Carrier Suppression
- VOX and Anti-Vox
- ALDC input

DISCUSSION

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

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.

For nomenclature on our product line see Field Engineering Bulletin 4.

Transmitting Mode Selector

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">1. Crystal controlled, at least 1 part in 10^6 per day for 15°C change in temperature within the range of 0 to 50°C.2. VFO controlled by external input. Stability that of external VFO.
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: ± 1.5 db from 250 to 3040 cps.

SBE-9: ± 1.5 db from 250 to 7500 cps.

SBE-10: ± 1.5 db from 250 to 6080 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 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.

STORAGE CONDITIONS:

Equipment will not be materially affected under storage of -20° 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 Selector

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:

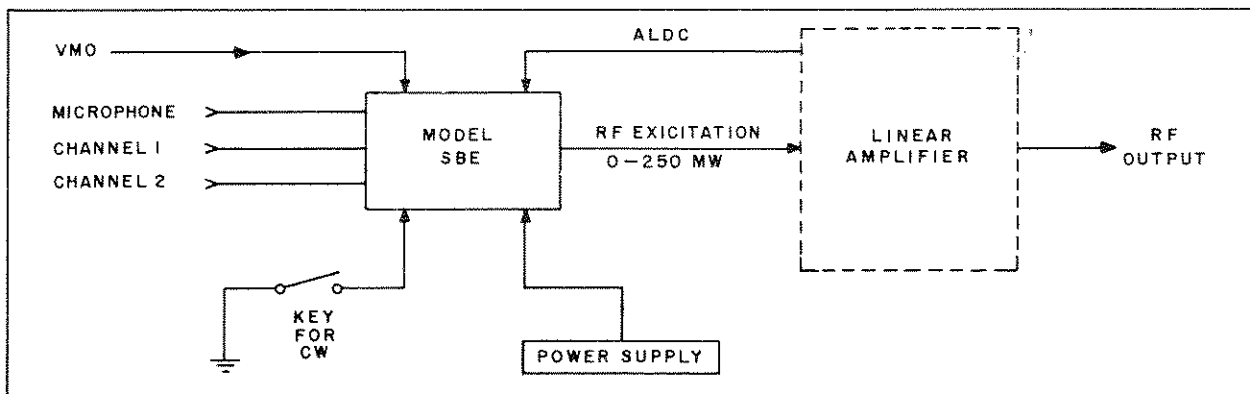
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LOOSE ITEMS:

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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