

SYNTHESIZED LOW FREQUENCY SIDEBAND EXCITER

TMC **LFE-2**

CW · AM · AME · USB · LSB · ISB · FSK · FAX

- REMOTE CONTROL CAPABILITY
- COMPACT PACKAGE
- 10 KHz TO 2 MHz IN 10 Hz INCREMENTS
- NO TUNING OR PEAKING CIRCUITS
- TOTALLY SOLID STATE CIRCUITRY
- SSB, ISB, AM, AME, CW, FSK & FAX



THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

ES BULLETIN #0020

TMC LFE-2 GENERAL DESCRIPTION AND APPLICATIONS

The Model LFE() Synthesizer/Exciter is the low frequency counterpart of the Model MMX for higher frequencies. The LFE() covers all frequencies from 10 KHz to 1.9999 MHz in increments of 10 Hz. Like the MMX, it is simply necessary to set the desired mode of operation and frequency. Adjustable output in the mode desired is then instantly available. This all mode exciter function is self-contained in only 5¼" of panel space.

Your attention is directed to the range of 10 to 30 KHz. Since the transmitted intelligence becomes a significant part of the output frequency, care must be exercised in the use of sideband in this portion of the overall frequency coverage. CW and FSK at suitable keying rates of course will always be satisfactory in this range.

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 printed 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.

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| FREQUENCY RANGE | 10 KHz to 1.99990 MHz in 10 Hz increments. 30 KHz to 1.99990 MHz for SSB, AM & ISB. Remote Tuning available. |
| FREQUENCY PRESENTATION | Direct reading, digital. |
| MODES OF OPERATION | ISB, SSB, CW, AM & FSK/FAX. |
| OUTPUT POWER | Continuously adjustable from 0 to 250 mw. All modes. |
| OUTPUT IMPEDANCE | 50 ohms nominal. |
| FREQUENCY STABILITY | 1 part in 10^6 per day for ambient temperature change of 15 degrees C. within the range of 0-50 degrees C. 1 part in 10^7 per day optional with external standard. |
| FREQUENCY CONTROL | All frequency determining elements are referenced to built-in 1 MHz source. |
| METERING | Built-in multi-meter allows monitoring of major circuits and RF output. |
| TUNING | Digital frequency selection by front panel control. |
| SIGNAL/DISTORTION RATIO | Distortion products are at least 40 db below either tone of a two tone test at 100 mw. |
| SIDEBAND REJECTION | A signal of 500 Hz in the unwanted sideband is at least 60 db down from PEP in the wanted sideband. |
| SPURIOUS SIGNALS | Spurious signals greater than 120 Hz removed from the carrier are at least 60 db below full PEP output. |
| HUM AND NOISE LEVEL | Noise level is at least 60 db down from either tone of a two tone test. |
| CARRIER INSERTION | -55 db to full output, continuously variable. |
| AUDIO RESPONSE | Flat within ± 1.5 db, 350-3500 Hz, either upper or lower sideband. A filter providing ± 1.5 db, 250-3040 Hz, and another ± 1.5 db, 250-6080 Hz, are available on special order. |
| AUDIO INPUT | For ISB: Two independent, 600 ohm channels, balanced or unbalanced, -20 dbm to +5 dbm. Built-in microphone pre-amplifier for low level dynamic mike with front panel selection. |
| MIKE INPUT | -55 db into 47,000 ohms, front panel jack. |
| AUDIO CONTROL | Two front panel "fader" controls for easy insertion or line inputs, into the upper or the lower sideband. |
| ALDC | Accepts zero to approximately -11 volts DC from the 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. |
| ENVIRONMENTAL CONDITIONS | Designed to operate in any ambient temperature between 0 degrees and +50 degrees C. and any value of humidity up to 95%. |
| DC KEYING INFORMATION | Key jack on front panel connection or rear panel for up to 300 wpm carrier keying in CW mode, dry contact. |

BULLETIN-#2042B

TMC
LFE-2**SYNTHESIZED LOW FREQUENCY SIDEBAND EXCITER****FSK CAPABILITY
KEYING INPUT**

60 ma, 20 ma, 50 volt, 100 volt, either positive or negative with respect to ground.

KEYING SPEED

Up to 75 baud. Alternate keying speeds available

SHIFT ± 425 , ± 212 , ± 106 , ± 53 Hz selectable.**FACSIMILE INPUT**

+1 to +10 volts will provide a linear shift of 1000 Hz.

INSTALLATION DATASize: 5 $\frac{1}{4}$ inches high x 19 inches wide x 18 inches deep. (13.4 cm high x 48.25 cm wide x 45.75 cm deep)

Weight: Approximately 35 lbs. (16 Kg.)

PRIMARY POWER115/230 volts, $\pm 10\%$, 50/60 Hz, single phase 60 watts.**LOOSE ITEMS**

Mating coaxial fittings (BNC) and instruction manual.

COMPONENTS AND CONSTRUCTION

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

PRINTED IN U.S.A.

**THE TECHNICAL MATERIEL CORPORATION**

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