

TECHNICAL BULLETIN NUMBER 3010

Solid State SSB Receiver

TMC Model SMR-1



The Technical Materiel Corporation's Model SMR-1, Solid State SSB Receiver, provides rapid selection of any one of eight pre-set channels for SSB, AM, compatible AM, CW and MCW reception in the 2 to 32 megacycle range.

Eight separately tuned RF heads, with two crystal positions per head, provide selection of any one of 16 operating frequencies plus upper and lower sideband. Crystal oven assemblies are available, on special order, to provide operating stabilities of 1 part in 10^6 per day or better. A front panel speech clarifier control allows the operator to compensate for transmitter frequency variations.

Each of the eight plug-in modules has two operating crystals selected by front panel switch to provide:

- 1.) on frequency CW operation
- 2.) shift of operating frequency within 0.5% of the assigned frequency
- 3.) sidestepping of frequency to avoid radio circuit interference.

"In station" remote control is accomplished by means of an accessory telephone desk set that allows pushbutton selection of operating channels as well as selection of upper and lower sideband. This remote unit has control of the receiver volume at the handset and can be used either with the SMR-1 alone or with a companion solid state exciter, Model SME-1, described in Bulletin 2030.

Signal inputs and outputs are monitored by front panel selection switch. Individual control of line and monitor audio outputs as well as variable threshold squelch are added features of this receiver.

Solid State SSB Receiver

TECHNICAL SPECIFICATIONS, TMC MODEL SMR-1

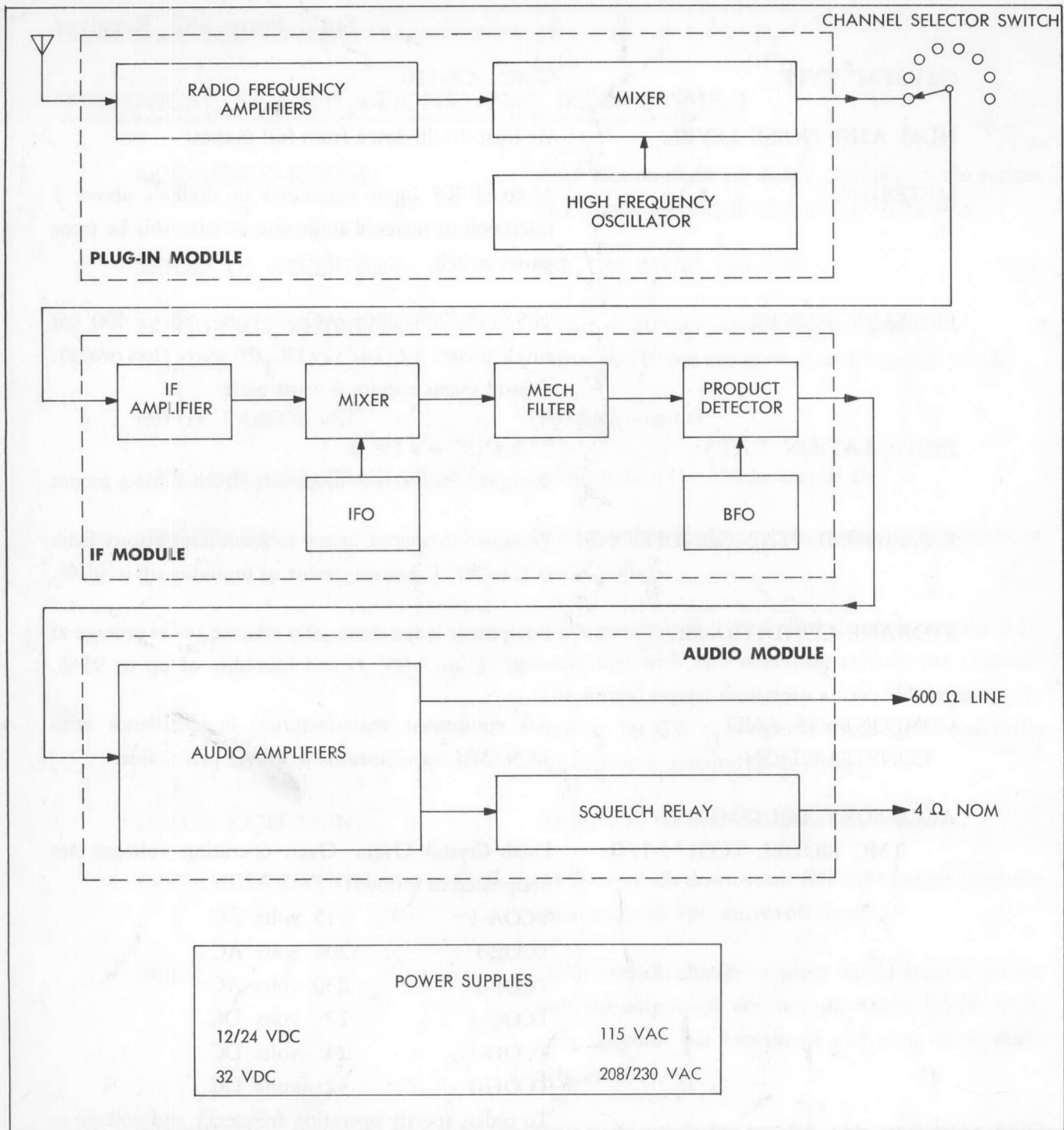
FREQUENCY RANGE:	2-32 mcs on eight pre-tuned channels in the ranges of 2-4 mcs, 4-8 mcs, 8-16 mcs and 16-32 mcs.
MODES OF RECEPTION:	SSB, CW, MCW, AM, FSK.
FREQUENCY STABILITY:	1 part in 10^5 per day offered as standard. 1 part in 10^6 per day with optional crystal ovens.
INPUT IMPEDANCE:	50 ohms nominal.
INTERMEDIATE FREQUENCY:	1.75 mc first IF; 250 kc second IF.
SENSITIVITY:	1 microvolt with a signal + noise to noise ratio of at least 15 db.
TUNING:	Eight pre-set crystal controlled channels over the 2-32 mc range with two operating crystals per channel. The second crystal frequency allows sidestepping the receiver for CW operation to avoid QRM and shifting receive frequency up to 0.5%.
IMAGE REJECTION:	At least 50 db over full frequency range.
INTERMODULATION:	At least 40 db down from full PEP output in a two tone test with 100 microvolt input.
AGC:	With 100 db change in input signal from 1 microvolt, the output will not vary more than +6 db. AGC time constant has fast attack and slow decay characteristics.
SQUELCH:	Threshold adjustable squelch with contacts on AGC activated relay brought to rear of cabinet for remote receiver activity indication.
IF RESPONSE:	300 to 3300 cps \pm 2 db (mechanical filter).
AUDIO RESPONSE:	250 cps to 10,000 cps.
AUDIO OUTPUT:	500 mw into nominal 4 ohm unbalanced load. 1 mw into 600 ohms balanced load .

Solid State SSB Receiver

CRYSTAL TYPE:	TMC CR-110
HUM AND NOISE LEVEL:	At least 40 db down from full output.
METERING:	Metered RF input calibrated in decibels above 1 microvolt or metered audio output selectable by front panel switch.
PRIMARY POWER:	105/115/208/230v AC \pm 10%, 50 to 400 cps single phase. 12/24/32v DC; 20 watts (less ovens). Crystal ovens require 6 watts each.
INSTALLATION DATA:	7" h x 19" w x 16" d. Weight: 50 lbs. rack mounted; 70 lbs. cabinet mount
ENVIRONMENTAL CONDITIONS:	Designed to operate in any ambient temperature from 0°C to 50° C and any value of humidity up to 90%.
STORAGE CONDITIONS:	Equipment is not materially affected under storage at -40° C to +85° C and humidity of up to 95%.
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.
ACCESSORY EQUIPMENT:	
TMC MODEL TCO(*)-1/F _o	Dual Crystal Oven. Oven operating voltages are designated as follows: TCOA-1 115 volts AC TCOE-1 208 volts AC TCOF-1 230 volts AC TCOG-1 12 volts DC TCOD-1 24 volts DC TCOH-1 32 volts DC To order, specify operating frequency and voltage as per the following sample: TCOA-1/11.250 mcs * * Designates the operating frequency.

TMC MODEL TPC-11

Transmitter-Receiver Telephone Control. Provides for remote control channel selection of upper or lower sideband and contains volume control in the handset for receive system only. Provisions are included to operate SMR-1 and SME-1 on simplex or duplex circuits.



SMR-1 FUNCTIONAL BLOCK DIAGRAM

COPYRIGHT 1963
THE TECHNICAL MATERIEL CORP.



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N. Y.

AND ITS SUBSIDIARIES . . .

TMC (Canada), Ltd., Ottawa, Canada
 TMC Industrial Corp., Mamaroneck, N. Y.
 TMC Systems, Inc., Alexandria, Va.
 TMC Systems, (Texas), Inc., Garland, Texas

TMC Systems, (Calif.), Inc., Oxnard, Calif.
 TMC Systems, (Florida), Inc., Pompano Beach, Fla.
 TMC Power Distribution, Inc., Alexandria, Va.
 TMC Systems, A. G., Luzern, Switzerland
 TMC Research Inc., San Luis Obispo, Calif.

CABLE TWX
TEPEI 914-835-3782