



## TECHNICAL BULLETIN NUMBER 1004C

Transistorized SSB Transmitter/Receiver  
TMC Model TTR-10



- 2 to 32 megacycles
- Four oven- controlled channels
- VOX or PTT operation
- High or low Z microphone input
- Built-in speech processor
- Meets CCIR recommendations
- Remote operation provisions
- AC or DC power supplies
- Better than 1 part in  $10^6$  per day stability

The Technical Materiel Corporation's Model TTR-10 is a four channel SSB Transmitter/Receiver with a frequency range of 2 to 32 mc. The unit provides upper or lower sideband, CW, AM Equivalent (AME) or MCW modes of operation. With the exception of the driver and final output linear amplifier, the unit is solid state. The flexibility of this unit allows it to be used as a transceiver (simplex operation on 1 frequency) or as a transmitter/receiver (transmitting and receiving on separate frequencies simultaneously).

Each of the four pre-tuned receiver and transmitter plug-in modules have crystal ovens to stabilize the HFO and second conversion oscillator for a stability of 1 part in  $10^6$  per day. A special plug-in module is provided to permit dynamic testing or tuning of send and receive modules in an extended position.

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## Transistorized SSB Transmitter/Receiver

Low current drain, low heat, and careful selection of components assures long term trouble-free operation. Many optional features, such as remote control, a wide variety of power supplies, oven control for crystals, etc., make the unit readily adaptable for fixed or mobile station use, tactical voice circuits, Civil Defense and emergency posts, pipeline operations, harbor circuits and telephone extension circuits.

Recent recommendations by the Geneva Convention, contained in an FCC proposal, require conversion to SSB mode for voice transmission in the high frequency band by 1 January 1970. Mobile installations, such as ocean-going vessels, yachts, and harbor craft are readily adapted to SSB by this solid state transmitter/receiver.

Model TTR-10 contains a unique input circuit that creates a much higher average level of power in the speech envelope, making the transmitter considerably more efficient than others with higher PEP ratings. This circuit also prevents overload of the final amplifier. Carrier control is provided for AME mode of operation. The transmitter section features both push-to-talk and VOX (voice operated relay) operation.

Ordering information for The Technical Materiel Corporation's Model TTR-10 is set forth below to allow customer selection of power supplies and frequency range of transmit and receiver modules. Additionally, a prepaid postage form is attached for your convenience in planning your installation.

POWER SUPPLY	RECEIVER MODULES	TRANSMIT MODULES AND AMPLIFIERS
A. AC supply (TTR-10)	1. 2-4 mc.	A. 2-4 mc.
B. DC supply	2. 4-8 mc.	B. 4-8 mc.
	3. 8-16 mc.	C. 8-16 mc.
	4. 16-32 mc.	D. 16-32 mc.

It is possible, by using the above method, to select any transmitter/receiver combination. As an example, to order a unit with DC supply having two modules in the 2-4-mc range, 1 module in the 4-8-mc range, and 1 module in the 8-16-mc range, you would order a TTR-10-B-1123-AABC.

The unit is provided for standard 19" relay rack mounting unless otherwise specified. Other mounting configurations are featured under OPTIONS/ACCESSORIES.

### COMMON TECHNICAL SPECIFICATIONS, TMC MODEL TTR-10

FREQUENCY RANGE: 2 to 32-mc by crystal controlled plug-in RF modules. Modules provide coverage of 2-4, 4-8, 8-16, 16-32 mc.

## TMC Model TTR-10

MODES OF OPERATION:	Front panel selectable SSB (upper or lower), AM equivalent, CW, MCW or sideband with carrier 20 db below peak power. Simplex operation by use of coaxial antenna transfer relay, or duplex operation can be accomplished with separate antennas.
FREQUENCY CONTROL AND STABILITY:	Crystal ovens control HFO and IFO stability to better than 1 part in $10^6$ per day.
TUNING:	Front panel switches provide selection of any one of four transmit/receive or transceiver channels. Output tuning circuit will match into a load of up to 3:1 VSWR.
NOISE LEVEL:	Better than 50 db below full PEP.
METERING:	Front-panel meter monitors PA plate current, PA drive, RF output voltage and PA high voltage.
SAFETY FEATURES:	<ol style="list-style-type: none"><li>1. PA magnetic operated overload circuit breaker on front panel.</li><li>2. All DC operating voltages fused.</li><li>3. Transformer primary fused.</li><li>4. Oven supply lines fused.</li><li>5. Interlock on output modules prevents accidental operation when no module is in place.</li></ol>
TRANSMIT/RECEIVE RELAY:	A transmit/receive relay is provided to facilitate operation of the unit to send and receive on the same antenna. This relay may be bypassed if simultaneous transmission and reception on separate frequencies using separate antennas is desired.
INSTALLATION DATA:	Size: 10½" h. x 19" w. x 16½" d. Weight: approximately 65 lbs less cabinet and slides.
PRIMARY POWER:	115/230 volts AC $\pm$ 10%, 50/60 cps, 1 phase (DC supply available. See OPTIONS/ACCESSORIES.)
POWER REQUIREMENTS:	<ol style="list-style-type: none"><li>1. Transmit 230 watts, key down.</li><li>2. Transmit standby 25 watts (receiver on).</li><li>3. Receive only, 8 watts.</li></ol> Ovens require 6 watts each in addition to the above.
INSTRUCTION BOOKS:	TMC IN 1004A.