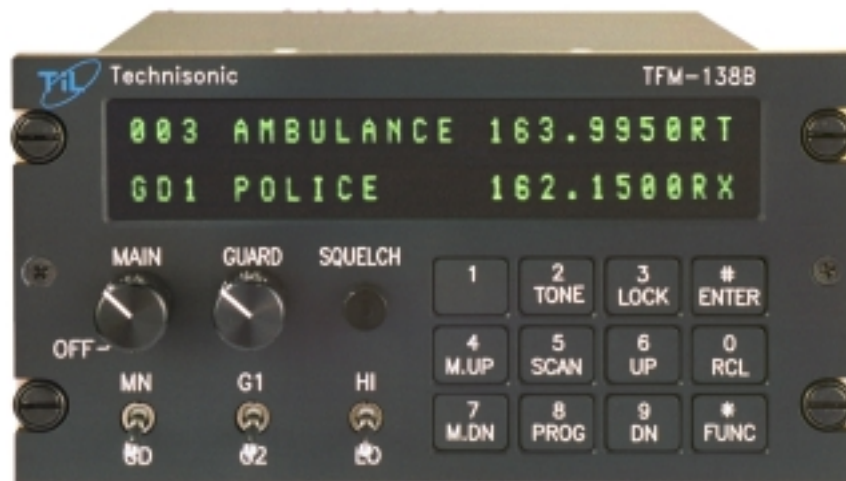


MODEL TFM-138 SERIES

Airborne VHF FM Transceivers

Technisonic VHF FM Airborne Transceivers



Technisonic TFM-138 series airborne VHF/FM transceivers utilize state of the art frequency synthesis techniques to provide FM communications on every currently available channel within the VHF/FM High Band. These radios cover the entire band from 138 to 174 MHz in 2.5 KHz increments. Data entry and function control are via a front panel 12 button keypad. Operating frequency and other related data are presented on a 48 character two line LED matrix display which is available in either green or red.

Technisonic FM transceivers can be operated in the Direct Entry or Simplex mode by simply keying in the desired operating frequency, or can function without restriction on any split frequency pair within the band. The TFM-138 features 100 preset memory positions each of which is capable of storing a receive frequency, a transmit frequency, a separate CTCSS tone for each receive and transmit frequency and an alpha numeric identifier for each channel. The TFM-138B features similar storage capability, but provide for 120 channels of preset memory, and offer the additional capability of allowing for DPL (Digital Private Line) or DCS (Digitally Coded Squelch) operation. The TFM-138 and TFM-138B allows either 25 kHz wide band or 12.5 kHz narrow band operation on any or all their preset memory channels. Data can be easily entered into any of the preset non-volatile memory positions for both main and guard channels via the front panel keyboard. Information stored in memory is available for instant recall by keypad entry, or by pressing the UP or DOWN button which allows the operator to scroll through all preset channels. Technisonic FM transceivers feature a synthesized two channel guard, receiver, a DTMF encoder for signaling during transmit, and a scan function which will scan any or all of the frequencies stored in the preset memory positions.

TFM-138 series transceivers are panel mounted (Dzus mounting) and are completely self contained in a 8.0 x 3.0 x 5.75 inch chassis weighing just 3.1 pounds. Front panel controls are **MAIN** for main channel volume; **GUARD** for guard channel volume; **MON** for squelch test; a **MN/GD** switch provides for main or guard transmitter selection; a **G1/G2** switch selects guard 1 or guard 2 receive and transmit; and a **HI/LO** switch allows for control of transmitter power output. Hi power is 10 Watts output, low power is 1 Watt output, which is necessary to comply with Marine harbor environment rules. These transceivers offer 28 volt DC backlighting, which is controlled by the aircraft dimmer bus. Display brightness is controlled from the front panel keypad. The small size and light weight of TFM-138 series transceivers make them ideally suited to helicopter installations. Technisonic FM transceivers are compliant with RTCA DO-160C categories relating to Vibration, Overpressure, Humidity, Temperature and Altitude, Magnetic Effect, Power Input, Voltage Spike, Decompression, and RF emission (including Section 21, Category Z)

General Specifications

Model Designation TFM-138

TFM-138B

Frequency Range	138.000 MHz to 174.000 MHz	138.000 MHz to 174.000 MHz
Tuning increments	2.5 kHz	2.5 kHz
Operating Mode	F3E simplex or semi-duplex	F3E simplex or semi-duplex
Channel spacing	25 kHz or 30 kHz as per applicable FCC and DOC specifications	12.5 kHz, 25 kHz or 30 kHz as per applicable FCC and DOC spec.
Memory positions	100 channels	120 channels
Physical dimensions	Approx. 8.0 in x 3.0 in x 5.75 in	Approx. 8.0 in x 3.0 in x 5.75 in
Weight	3.1 Lbs. (1.4 Kg)	3.1 Lbs. (1.4 Kg)
Temperature range	-45°C to +70° C	-45°C to +70° C
Altitude	50,000 ft	50,000 ft
Power requirement	28 VDC	28 VDC
	Receive - 600 ma	Receive - 600 ma
	1 Watt transmit - 1.3 amps	1 Watt transmit - 1.3 amps
	10 Watts transmit - 2 amps	10 Watts transmit - 2 amps
Certification	FCC and DOC Type approved	FCC and DOC Type approved
Environmental Categories	RTCA DO-160C (B2,D1)XXX(B,M,N)XXXXXXZBBXXZX	RTCA DO-160C (B2,D1)XXX(B,M,N)XXXXXXZBBXXZX
Guard receiver	2 channel synthesized	2 channel synthesized
CTCSS squelch capability	encodes/decodes all 63 available tones	encodes/decodes all 63 available tones
DPL/DCS capability	not available	encodes/decodes all avail digital sq. codes
DTMF encoder	All standard DTMF tones available	All standard DTMF tones available
Audio output	500 mw into 600 Ohms	500 mw into 600 Ohms
Speaker output	2.5 Watts into 4 ohms	2.5 Watts into 4 ohms
Back lighting	28V (standard) or 5V (specify)	28V (standard) or 5V (specify)
Display	Green (standard), red (optional)	Green (standard), red (optional)

Minimum Performance Specifications

Main receiver

Sensitivity at 12 dB SINAD	Better than 0.35 microvolts	Better than 0.35 microvolts
Adjacent channel	-78 dB for 25 kHz	-78 dB for 25 kHz, -70 dB for 12.5 kHz
Spurious attenuation	-90 dB below carrier	-90 dB below carrier
Third order intermod	-70 dB	-70 dB
Image attenuation	-80 dB	-80 dB
FM acceptance	± 6 kHz	± 6 kHz
Hum and noise	Better than 50 dB	Better than 50 dB
Audio distortion	Less than 5%	Less than 5%
Ant conducted emission	Less than -70 dBm	Less than -70 dBm

Guard receiver

All specifications identical to main receiver

Transmitter

RF power output	1 Watt or 10 Watts	1 Watt or 10 Watts
Output impedance	50 Ohms	50 Ohms
Maximum deviation	Limited to 5 kHz	Limited to 2.5 kHz for 12.5 kHz channels and 5 kHz for 25 kHz channels
Spurious attenuation	-90 dB below carrier level	-90 dB below carrier level
Frequency stability	±0.0005%	±0.00025%
Microphone circuit	Carbon or equivalent	Carbon or equivalent
Sidetone output	500 mw (max) into 600 ohms	500 mw (max) into 600 ohms
Harmonic attenuation	-65 dB below carrier level	-65 dB below carrier level
FM hum and noise	-40 dB	-40 dB
Audio input	50 mV at 2.5 kHz into 200 ohm circuit for ±3.5 kHz deviation, adjustable	50 mV at 2.5 kHz into 200 ohm circuit for ±3.5 kHz deviation (25 kHz mode). 50 mV AT 2.5 kHz into 200 ohm circuit for ±2.0 kHz (12.5 kHz mode), adjustable
Audio distortion	Less than 5%	Less than 5 %

Specifications subject to change without notice
DPL is a trademark of Motorola Corporation

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