

# MODEL TFM-556

## Airborne UHF and VHF High/Low band FM Transceiver



### Technisonic Multi-Band VHF Lo/VHF Hi and UHF Airborne Transceiver

The Technisonic TFM-556 Multi-Band airborne VHF/UHF FM transceiver provides for FM communications on every currently available channel within the General Radio Service VHF/FM Low Band (66-88 MHz), VHF/FM High Band and UHF/FM Band. Coverage is 66 to 88 MHz, 138 to 174 MHz and 403 to 512 MHz all in 2.5 KHz steps. Operating frequencies and other related data are presented on a 96 character, four line LED matrix display

The TFM-556 can be installed to operate in "**Single Mode**" functioning as a multi-band transceiver operating in VHF Lo, VHF Hi or UHF bands in which case combined audio is run through a single audio controller FM input. In this mode, any of the three bands are accessed one at a time. Alternately, the TFM-556 can be installed in **Dual Mode** allowing for simultaneous communications on UHF and either VHF Low or VHF High Band. In dual mode, the VHF Low and VHF High band are combined and only one of these bands can transmit at any given time. All data entry and control commands are entered via an enhanced 12 button keypad situated on the face panel.

The TFM-556 can be operated in the Direct Entry or Simplex mode by simply keying in the desired operating frequency. It can also function without restriction on any split frequency pair within any of its three bands. This unit features 600 preset memory positions (200 channels per band) each capable of storing a receive frequency, a transmit frequency, a separate CTCSS tone for each receive and transmit frequency, an alpha numeric identifier for each channel and a DPL or DCS coded squelch identifier for each channel. This transceiver provides for either 25 kHz wide band or 12.5 kHz narrow band operation on any or all of its 600 preset channels. An upload/download function allows the operator to download channel information from a PC, or upload stored data from the transceiver to a PC. Supporting software is supplied with each unit. Information stored in the transceiver's memory is available for instant recall by keypad entry or, by pressing the M.UP or M.DOWN button which allows the operator to scroll through all preset channels. The TFM-556 transceiver also features a DTMF encoder for signaling during transmit, cross band repeat capability and a scan function. Additionally, a remote control head (RC-556) is offered which provides for slaved operation of the main transceiver from a remote location, allowing for a second position in the aircraft to exercise frequency control.

The TFM-556 transceiver is panel mounted (Dzus) and completely self contained in a 8.0 x 3.75 x 5.75 inch chassis weighing just 5.2 pounds. Front panel controls are **UHF** for UHF audio level; **VHF** for VHF High Band audio level and **VHFLO** for VHF Low Band audio level. The **VHF/UHF/VLO** band switch enables selection of the desired band as well as providing for manual programming, a **VHF/PRI** select switch provides for a VHF priority channel, and a **HI/LO** switch controls transmitter power output. Twenty eight (28) volt DC backlighting is standard, (5 Volt AC is optional) and controlled by the aircraft dimmer bus. Display brightness is controlled from the front panel keypad. The small size and light weight of the TFM-556 Multi-Band transceiver makes this radio ideally suited to helicopter installations. Technisonic FM radios 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 DO-160C, Section 21, Category Z). FCC and IC approval not available on the VHF Low (66-88 MHz) band.

## TFM-556 General Specifications

### General

Active frequency coverage	66.000 to 88.000 MHz, 138.000 to 174.000 MHz and 403.000 to 512.000 MHz
Tuning increments	2.5 KHz, all three bands
Operating mode	F3E Simplex or Semi-Duplex
Memory positions	600 Channels total (200 each band)
Dimensions	Approx. 8.0 in.D. x 3.75 in H. x 5.75 in W.
Weight	5.2 Lbs, 2.4 Kg.
Temperature range	-45 deg C to +70 deg C
Altitude	50,000 feet
Power requirement	28 VDC $\pm$ 15%
	1.2 Amps max. receive
	5.0 Amps, two transmitters, 10 Watts
	1.8 Amps, two transmitters, 1 Watt
	3.4 Amps, 1 transmitter, 10 Watts
	1.4 Amps, 1 transmitter, 1 Watt
Certification	FCC and DOC Type approved except VHF Low (66-88 MHz) band.
RTCA DO-160C Env. Categories	(B2,D1)XXX(B,M,N)XXXXXXABBXXZXXX
CTCSS squelch capability	Encodes/decodes all 64 available tones
DPL/DCS capability	Encodes/decodes all available digital squelch codes
DTMF encoder	All standard DTMF tones supported
Audio output	500 mW into 600 ohms
Audio distortion	Less than 5%
Speaker output	2.5 Watts into 4 ohms
Back lighting	28 VDC (standard) or 5 Volts (specify)
	250mA @ 28V, 500mA @ 5 V
Display	Green (standard), red optional (specify)

### Transmitters

Transmit RF power output	1 Watt or 10 Watts, front panel selectable, all bands
Maximum deviation	Limited to 2.5 kHz for 12.5 kHz channels and 5 kHz for 25 kHz and 30 kHz channels
Spurious attenuation	-90 dB below carrier level
Frequency stability	$\pm$ 0.00025%
Microphone circuit	Carbon or equivalent
Sidetone output	500 mW (max) into 600 Ohms
Harmonic attenuation	-60 dB below carrier level
FM hum and noise	-40 dB
Audio input	50 mV at 2.5 KHz into a 200 Ohm circuit for $\pm$ 3.5 KHz (25 KHz mode), adjustable
	50 mV at 2.5 KHz into a 200 Ohm circuit for $\pm$ 2.0 KHz (12.5 KHz mode), adjustable
Audio distortion	Less than 5%
Transmitter output impedance	50 Ohms

### Receivers

	<u>VHF Low Band</u>	<u>VHF High Band</u>	<u>UHF Band</u>
Frequency Range	66.000 MHz to 88.000 MHz	138.000 MHz to 174.000 MHz	403.00 MHz to 512.00 MHz
Tuning increments	2.5 KHz	2.5 KHz	2.5 KHz
Operating Mode	F3E simplex or semi-duplex	F3E simplex or semi-duplex	F3E simplex or semi-duplex
Channel spacing	12.5 kHz or 25 kHz	12.5 kHz, 25 kHz or 30 kHz	12.5 kHz, 20 kHz or 25 kHz
	As per applicable FCC and IC Type Approvals except VHF Low (66-88MHz).		
Memory positions	200 channels	200 channels	200 channels
Sensitivity at 12 dB SINAD	Better than 0.35 microvolts	Better than 0.35 microvolts	Better than 0.35 microvolts
Adjacent channel	-70 dB (25kHz)	-75 dB for 25 kHz, -70 dB for 12.5 kHz	-70 dB for 25 / 12.5 kHz
Spurious attenuation	-80 dB	-90 dB	-90 dB
Third order intermod	-70 dB	-70 dB	-70 dB
Image attenuation	-80 dB	-80 dB	-70 dB
FM acceptance	$\pm$ 6 kHz	$\pm$ 6 kHz	$\pm$ 6 kHz
Hum and noise	Better than 40 dB	Better than 45 dB	Better than 40 dB
Audio distortion	Less than 5%	Less than 5%	Less than 5%
Ant conducted emission	Less than -80 dBm	Less than -70 dBm	Less than -70 dBm

Note: Specifications are subject to change without notice

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