

# MODEL TAF-550

## VHF/AM/FM Modular Communications

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### Technisonic VHF/AM/FM Modular Communications System

The Technisonic TAF-550 VHF/AM/FM Modular Communications System is a transportable AM and FM base station capable of operating simultaneously on any 25 kHz VHF/AM aeronautical band frequency (117.975 to 138.000 mHz) as well as any VHF/FM high band (138.000 mHz to 174.000 mHz) frequency. Power for the TAF-550 can be external 120 VAC, external 12 VDC or 24 VDC. Both transceiver modules utilize state of the art, microprocessor controlled frequency synthesis techniques to provide communications on every currently available channel. The TAF-550 AM/FM Modular system is mounted into a rugged transportable case with protective covers (front and rear) into which the accessories (microphone, power cables, antenna cable, etc.) can be stored. It is intended for temporary, emergency or backup operation in a fixed environment.

The FM transceiver incorporated into the TAF-550 is the Technisonic TFM-138B which 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. It features 120 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 also offers the capability of allowing for DPL or DCS coded squelch operation. This transceiver allows either 25 Khz wide band or 12.5 Khz narrow band operation on any or all of 120 preset 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.

The VHF/AM transceiver incorporated into the TAF-550 is the Technisonic high performance 91-DE. This transceiver allows the operator to store up to 10 channels in non-volatile memory which are displayed on a front panel liquid crystal display, and then easily recall, seek or scan them. Receive only channels to prevent unauthorized transmission as well as a 90 second time out feature are easily programmed via the front panel 12 button key pad. The highly sensitive and selective receiver provides for superior long distance communication. A 35 dB Rx and Tx audio compressor maintains constant audio level and modulation. A user adjustable squelch and external headset jack are conveniently located on the front panel. A noise cancelling dynamic microphone (included) provides for clear audio even in a high noise environment.

## General Specifications for TAF-550 Components

| Model Designation        | TiL 91-DE (VHF/AM)                 | TFM-138B (VHF/FM)  |
|--------------------------|------------------------------------|--|
| Frequency Range          | 117.975 to 138.000 Mhz             | 138.000 Mhz to 174.000 Mhz                                     |
| Tuning increments        | 25 Khz                             | 2.5 Khz  |
| Operating Mode           |                                    | F3E simplex or semi-duplex                                     |
| Channel spacing          | 25 Khz                             | 12.5 Khz, 25 Khz or 30 Khz as per applicable FCC and DOC spec. |
| Memory positions         | 10                                 | 120 channels   |
| Physical dimensions      | Approx 8.5 in x 10.25 in x 2.75 in | Approx 8.0 in x 3.0 in x 5.75 in                               |
| Weight                   | 3.5 Lbs.                           | 3.1 Lbs (1.4 Kg)   |
| Temperature range        | -40°C to + 55° C                   | -40°C to + 60° C   |
| Certification            | FCC and DOC Type approved          | FCC and DOC Type approved                                      |
| Guard receiver           | N/A                                | 2 channel synthesized  |
| CTCSS squelch capability | N/A                                | Encodes/decodes all 63 available tones                         |
| DPL/DCS capability       | N/A                                | Encodes/decodes all avail digital sq codes                     |
| DTMF encoder             | N/A                                | All standard DTMF tones available                              |
| Audio output             | 100 mw into 600 Ohms               | 500 mw into 600 Ohms   |
| Speaker output           | 3 Watts min                        | 2.5 Watts into 4 ohms  |
| Back lighting            | N/A                                | 28V (standard) or 5V (specify)                                 |
| Display                  | Liquid crystal                     | Green (standard), red (optional)                               |

## Minimum Performance Specifications

### Main receiver

|                            |                            |  |
|----------------------------|----------------------------|--|
| Sensitivity at 12 dB SINAD | Better than 1.5 microvolts | Better than 0.35 microvolts            |
| Adjacent channel           | At least 80 dB             | -75 dB for 25 Khz, -70 dB for 12.5 Khz |
| Spurious attenuation       | At least 90 dB             | -90 dB below carrier                   |
| Third order intermod       | At least 67 dB             | -70 dB                                 |
| Image attenuation          |                            | -80 dB                                 |
| FM acceptance              |                            | ± 6 Khz                                |
| Hum and noise              | Better than 40 dB          | Better than 50 dB                      |
| Audio distortion           | Less than 3.5%             | Less than 5%                           |
| Ant conducted emission     |                            | Less than -70 dBm                      |

### Transmitter

|                       |                      |  |
|-----------------------|----------------------|--|
| RF power output       | 7 Watts nominal      | 1 Watt or 10 Watts   |
| Output impedance      | 50 Ohms              | 50 Ohms  |
| Maximum mod/deviation | Up to 95%            | Limited to 2.5 Khz for 12.5 Khz channels and 5 Khz for 25 Khz channels |
| Spurious attenuation  | -60 dB below carrier | -90 dB below carrier level   |
| Frequency stability   | ±0.00025%            | ±0.00025%  |
| Microphone circuit    | Dynamic microphone   | Carbon or equivalent   |
| Harmonic attenuation  | - 60 dB              | -65 dB below carrier level\  |
| FM hum and noise      | -50 dB               | -40 dB   |
| Audio input           | 50 mV to 2 V rms     | 50 mV into 200 ohms  |
| Audio distortion      | Less than 5%         | Less than 5 %  |

### TAF-550 General

|                              |  |  |
|------------------------------|--|--|
| Power requirement            | AC Input Voltage/Current<br>DC Input Voltage/Current (24 Volts)<br>DC Input Voltage/Current (12 Volts) | 100 to 132 VAC @ 1.5 Amps<br>21.6 VDC to 30.0 VDC @2.5 Amps<br>11.6 VDC to 13.0 VDC @ 4.5 Amps |
| Weight                       | 16 Lbs.  |  |
| Dimensions (includes covers) |  | 10.0 in (width) x 8.75 in (height) by 14.0 in  |
| Operating Temperature        | -25 deg C to +55 deg C   |  |
| Relative Humidity            | 100% non condensing  |  |

*Specifications subject to change without notice*

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