



## TTR-2101M Multiband Manpack

*The TTR-2101M is part of Titan's next generation family of high performance tactical radios. Designed to provide reliable high quality voice and data communications over the full 1.5 to 108 MHz frequency band, the TTR-2101 is a true multiband radio system. In addition to complete HF coverage, the radio's extended frequency range allows replacement of dual HF and VHF radio systems with a single radio. The TTR-2101M is DSP-based and incorporates key features that include advanced data waveforms, digital voice, ALE, GPS, frequency hopping and encryption.*

The TTR-2101M is available as a 20W manpack, or as the core of 150W and 400W vehicular systems. Designed for reliable operation in extremely harsh situations, the TTR-2101M is a rugged, completely immersible unit that meets the demanding environmental specifications of MIL-STD-810.

Accurate position location and time-of-day capability is a standard feature of the TTR-2101M using its embedded GPS receiver. Automatic Link Establishment (ALE) compliant to MIL-STD-188-141B is also standard and provides automatic "best channel" selection. A high dynamic range receiver allows operation in situations where multiple radios are co-located.

Multiple HF data waveforms, including MIL-STD-188-110B serial tone and Appendix C (QAM), MIL-STD-110B 39 tone, STANAG's 4285, 4415 and 4529, and conventional FSK up to 600 bps allow high-speed and robust data transfer. Wideband FSK is available to provide 16 kbps data transfer in the VHF frequency band.

HF Digital Voice is possible through the implementation of LPC-10e, STANAG 4591 MELPe, or CVSD. Frequency hopping and AES encryption options offer a high level of jamming resistance and transmission security for both voice and data communications.

In order to host the most complex waveforms available today and ensure upgradability in the future, the TTR-2101 is a completely Software Defined/ Digital Signal Processor based radio. In addition to these two key features, the TTR also incorporates a state of the art Wideband Digital Front End. The completely digital nature of the TTR design translates to higher performance, lower weight, longer battery life and smaller size for the user.

- **COMPLETE 1.5 TO 108 MHZ COVERAGE**
- **20 WATTS, WITH EMBEDDED AUTOMATIC ANTENNA TUNER – 1.5 TO 108 MHZ**
- **SMALLEST & LIGHTEST MULTIBAND MANPACK AVAILABLE**
- **SOFTWARE DEFINED DSP-BASED**
- **HF/VHF FREQUENCY HOPPING**
- **DIGITAL ENCRYPTION**
- **HIGH SPEED DATA WAVEFORMS**
  - HF: 75 TO 9600 BPS
  - VHF: 16 KBPS (VHF ECCM-300 HPS)
- **DIGITAL VOICE**
- **REMOTE CONTROL – FULL FUNCTION**
- **RUGGED AND WATERPROOF – MIL-STD-810**
- **LOW SIGNATURE – MIL-STD-461**





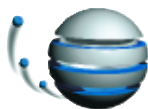
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National Security Solutions

## SPECIFICATIONS (TTR-2101M)

<b>General Specifications</b>	
Frequency Range	1.5 to 107.999 MHz (Tx); 100 Hz to 107.999 MHz (Rx)
Resolution	1.5 to 107.999 MHz (100 Hz)
Net Presets	100, programmable
Frequency Stability	1 ppm
Modes of Operation	J3E (USB, LSB, suppressed carrier telephony); H3E (compatible AM - SSB plus full carrier); A2A (CW); A3E (AM); F3E (FM)
Power Input	26 Vdc; operational over the range of 20 to 32 Vdc
Battery Types	Standard: BA-5590/U, BB-590/U, BB-490/U, BB-390/U
Data Interface	RS232, MIL-STD-188-114A (synchronous, asynchronous) Ethernet
<b>Transmitter</b>	
Power Output	1/5/20 watts, selectable (1.5 – 107.999 MHz);
Carrier, Undesired SB Suppression	-60 dB referenced to PEP
Harmonics	-46 dB, referenced to PEP
Spurious	-50 dB, referenced to PEP
Audio Levels	1.5 mV at 150 ohms, or 0 dBm at 600 ohms for rated output
<b>Receiver</b>	
Sensitivity	0.5 uV for 10 dB SINAD (SSB, AME – 3 kHz, CW – 350 Hz); 3.0 uV (AM – 6 kHz); 0.5 uV (FM – 22 kHz)
Image, IF Rejection	-80 dB
Squelch	Digital, front panel adjustable
AGC Response	The change in audio output will be less than $\pm 3$ dB for an RF input range of -103.0 dBm to 0.0 dBm
Audio Output	The audio output at the handset connector shall be adjustable from -30 dBm to 0.0 dBm into a 1000 ohm load
<b>Antenna Tuner</b>	
Type	Internal, automatic
Antennas	Whips, long wires, & NVIS (HF); AT-271A/U 10 ft whip (1.5 to 107.999 MHz); AT-892/U 3 ft tape (30 – 107.999 MHz)
Memory Channels	100
<b>Mechanical</b>	
Size	3.2 in. x 10.5 in. x 8.1 in. (H x W x D), w/o battery
Weight	8 lbs., w/o battery
Color	OD
<b>Environmental</b>	
Temperature	-40 to +70°C
Immersion	Waterproof (to 1m)
Other	MIL-STD-810F
<b>EMI</b>	
EMI, RFI	MIL STD-461E for ground tactical radio equipment
<b>Features</b>	
Data	HF: MIL-STD-188-110B serial tone (to 2400 bps), Appendix C, QAM (to 9600 bps), Appendix B, 39 tone: STANAG 4285 (2400 bps); STANAG 4415 (robust 75 bps); STANAG 4529 (1200 bps); conventional FSK (to 600 bps); VHF: WB FSK (VHF- 16 kbps)
Digital Voice	HF: LPC-10e (2400 bps); MELPe (600, 1200, 2400) VHF: CVSD (16kbps)
ALE	MIL-STD-188-141B, Appendix A
Frequency Hopping	Serial tone ECCM
Encryption	AES, voice and data
GPS	Internal GPS receiver (with external GPS antenna port)

Note: all specifications subject to change without notice



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