

PRC7700H 100

Spectre H™ Tactical HF 100W Mobile Radio System

SPECTRE™ H



Datron's Spectre H™ radios offer secure communications in ruggedized form-factors, provide a sophisticated feature-set, and utilize a simplified user interface for ease of operator training. The PRC7700H is an IP-addressable, digital HF software defined radio (SDR) that combines DSP-IF circuitry and powerful microprocessors in a robust manpack configuration that is also suitable for mobile, rack-mounting or desktop use. The PRC7700H is fully interoperable with Datron's RT7700H HF transceiver, supporting the demands for voice and data communications.

The Joint Interoperability Test Command (JITC) confirms that the PRC7700H, manufactured in the USA, supports the mandatory requirements for the core radio, including the Automatic Link Establishment (ALE) specifications in Appendix A.

The PRC7700H is capable of transmitting up to 25 Watts PEP continuous RF power over a 100% duty cycle. The DSP-IF and audio circuitry are optimized to support voice and data services. The radio provides excellent AGC group delay characteristics through the DSP-based IF and audio circuitry. Modes of operation include 2x ISB, USB, LSB, AM, AME, CW, Data and Digital Voice (MELPe), with optimized bandwidths.

The PRC7700H integrates a MIL-STD-188-141D ALE MODEM and a MIL-STD-188-110D HF MODEM. Supported modes and data rates are FSK to 600 bps, Serial Tone (PSK to 2400 bps) and PSK/QAM (to 9600 bps in 3 kHz, SSB). 19,200 bps is supported using 2-ISB.

Being IP addressable, the PRC7700H can be remotely controlled via Ethernet port, over a LAN or WAN. The PRC7700H is fully supported with a remote control and messaging software application.

In order to facilitate maintenance, the PRC7700H incorporates a comprehensive BITE system with the ability of isolating faults down to the LRU level (lowest replaceable unit).

A full range of software and hardware accessories are available including MHS (H-189/U) handsets, tuners, and antennas, among others. These accessories support the integration of the PRC7700H into a wide range of user environments.

Features

- AM, AME, USB, LSB, ISB, DATA and Digital Audio (MELPe)
- DSP-IF Based with Direct Digital Synthesizer
- Integrated MIL-STD-188-141D ALE MODEM
- MIL-STD-810F Construction
- Immersion: MIL-STD-810F 512.4; IP-67: 1m for 30 minutes*
- Integrated MIL-STD-188-110D MODEM
- Digital COMSEC
- ECCM
- Internal GPS Receiver
- Available in OD Green and Desert Sand



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GENERAL

- **FREQUENCY RANGE**
TX: 1.5 to 30 MHz (10 Hz steps)
RX: 100 kHz to 30 MHz
- **TOTAL CHANNELS**
≥ 280,000
- **PROGRAMMABLE CHANNELS**
1000 Simplex or half-duplex
- **FREQUENCY STABILITY**
±0.5 x 10⁻⁶
- **MODES OF OPERATION**
Clear, Digital (MELPe) and Encryption (COMSEC must be enabled)
- **MODULATION**
2x ISB, USB, LSB, AM, AME, CW, and DATA
- **MEMORY RETENTION**
Non-volatile
- **SCAN**
Manual or Automatic (2 or 5 channels/sec w/ALE)
- **LOCAL CONTROL**
Front Panel Keypad for frequency, modes, and other core parameters. Computer or Fill Gun for COMSEC and ECCM (Frequency Hopping)
- **REMOTE INTERFACE**
Ethernet (10/100BaseT)
- **ADDRESSABILITY**
Radio is IP addressable
- **RADIO TYPE**
SDR Radio. Waveforms, modulation types, wide/narrow bands, and communications security can be updated via software**
- **DATA MODEM**
Integrated MIL-STD-188-110D, which includes error correction (FEC)
- **ALE MODEM**
Integrated MIL-STD-188-141D
- **COMSEC/ECCM OPTION**
Integrated high-level encryption option with front panel quick-connect Key Fill port and zeroize button.
- **RF INPUT/OUTPUT IMPEDANCE**
50-Ohm nominal unbalanced; whip or long wire antenna
- **ANTENNA INPUT PROTECTION**
To +43 dBm. Lightning protection via an external RF Surge Suppressor
- **OVERHEATING PROTECTION**
Transmitter will reduce power in the event of overheating
- **BITE**
Fault isolated to module level (LRU), descriptive readout on front panel, and individual module indication
- **MTBF**
≥ 5000 Hours, per MIL-HDBK-217F
- **MTTR**
≤ 15 Minutes, per MIL-HDBK-472, procedure V, part B
- **100W SYSTEM INPUT VOLTAGE**
DC: 22-32 VDC
- **FORMAT**
Manpack or mobile/vehicular mount
- **GPS**
Internal GPS receiver with external TNC antenna connector mounted on front panel

ENVIRONMENTAL

- **TEMPERATURE**
Operating: -30°C to +60°C; Storage: -40°C to +70°C
- **HUMIDITY**
95% at +50°C
- **ENVIRONMENTAL TESTING**
MIL-STD-810F, methods 501.4, 502.4, and 507.4
- **VIBRATION**
MIL-STD-810F, method 514.5
- **IMMERSION**
MIL-STD-810F, method 512.4; IP-67: 1m for 30 minutes*
- **EMI**
MIL-STD-461E, CS101, CE102, RE102 and RS103

RECEIVER

- **SELECTIVITY - SSB**
SSB: 300 Hz to 3050 Hz
AM: ±3000 Hz
- **ADJACENT CHANNEL REJECTION**
Greater than 50 dB
- **SENSITIVITY**
SSB/ISB: -113 dBm for 10 dB SINAD (2-30 MHz)
AM: -97.5 dBm for 10 dB SINAD (2-30 MHz)
CW: -116 dBm for 10 dB SINAD (2-30 MHz)
Line audio: Up to 15 mW into 600-Ohm
Handset: 1K-Ohm Ear
Balanced speaker: 15mW into 600 Ohms
- **AUDIO OUTPUT**
80 dB minimum
Compatible with selected mode of operation
Syllabic
- **IMAGE & IF REJECTION**
- **AGC**
- **SQUELCH**

TRANSMITTER

- **OUTPUT POWER**
SSB, 2-ISB: 25W PEP Total; AM: ≥5W average
- **HARMONIC SUPPRESSION**
Greater than 40 dB
- **CARRIER SUPPRESSION**
Greater than 50 dB
- **UNDESIRE SIDEBAND**
Greater than 50 dB
- **VSWR**
Operates at VSWR 2:1 (Automatic power reduction above 2:1)
- **AUDIO INPUT**
Microphone and 600-Ohm lines

* Immersion specification applies to radio and amplifier

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* Subject to export regulations
** As permitted by core hardware design
Specifications subject to change without notice - rev 210504
Made in the USA

This datasheet contains no ITAR data.



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PRC7700H 100W System

PRC7700H	HF Transceiver, 25W PEP
MHS	Military style handset, H-189/U-type
AM7700H	100W HF linear amplifier (1.5 to 30 MHz), 24VDC
MT7700H-1	28VDC Mount Interface for PRC7700H
RAT7000B	125W Automatic antenna tuner, includes C991620 antenna lead
AM7700H-MM	AM7700H mounting kit
RAT7000B-SM	RAT7000B shock mounting kit
MAR-16T	16 ft. (4.9m) whip antenna with tilt-mount adapter and flexible spring base