RT7700H

High Performance HF SDR Transceiver

TACTICAL HF

DATRON

SDR Performance for Tactical HF Communications

The RT7700H is an IP addressable, digital HF software defined radio (SDR) which combines DSP-IF circuitry and powerful microprocessors in a robust desktop or rack-mountable package supporting the demands for HF voice and data communications. The RT7700H is the transceiver component of Datron's 7700-Series Tactical HF Communications System. The RT7700H is fully interoperable with Datron's Spectre H™ PRC7700H tactical manpack.

The Joint Interoperability Test Command (JITC) confirms that the RT7700H, manufactured in the USA, supports the mandatory requirements for the core radio, including the Automatic Link Establishment (ALE) specifications in Appendix A. The RT7700H is validated compatibility per MIL-STD-188-203-1A with external Link-11 MODEM in both CLEW and SLEW modes.

It is capable of supplying up to 125 Watts SSB and CW over a 100% duty cycle. The DSP-IF and audio circuitry are optimized to support both current and future voice and data requirements. The radio provides excellent AGC group delay characteristics through the DSP based IF and audio circuitry. Modes of operation include ISB, USB, LSB, AM, AME, CW, Data and Digital Voice (MELPe), with optimized bandwidths.

The RT7700H integrates a MIL-STD-188-141D ALE MODEM and a MIL-STD-188-110D HF MODEM which supports the core requirements. Supported modes 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 ISB.

The RT7700H can be remotely controlled via a built-in Ethernet port. Being IP addressable, the RT7700H can be remote controlled over a LAN or WAN. The RT7700H is fully supported with a virtual remote control and messaging software application. This offers the flexibility of managing the radio system from a remote computer or from an optional ruggedized laptop PC. In order to facilitate maintenance, the RT7700H 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.

The RT7700 can be supplied with an integrated ICAO ground-to-air SELCAL option and compatible DL7700-VRCU software.

Datron 7700-Series Tactical HF solutions deliver the continent-spanning communications your critical missions require.

Features

- AM, AME, USB, LSB, ISB, DATA and Digital Audio (MELPe)
- Configurable as Transceiver, Transmitter-only, or Receiver-only
- DSP-IF Based with Direct Digital Synthesizer
- Integrated 2G ALE Modem MIL-STD-188-141D (Basic and Appendix A)
- STANAG 4538 (3G ALE)
- Validated Link-11 Compatibility/ Link-22 Compatibility
- MIL-STD-810G Construction
- Integrated MIL-STD-188-110D Modem/ STANAG 4539
- AES-256 COMSEC
- ECCM - Up to 25 hops/sec
- Support for External Pre/Post-Selector
- Ground-to-Air SELCAL Option
- Support for 500W, 1000W, 5kW, and 10kW

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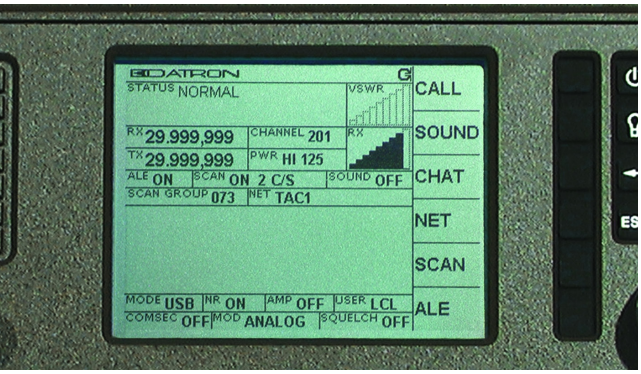

GENERAL

• FREQUENCY RANGE	TX: 1.5 to 30 MHz (1 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 (optional ±1 x 10-8) external clock input available
• MODES OF OPERATION	Clear, Digital, Encryption (COMSEC option must be enabled)
• SIGNAL TYPES	Voice, Data, CW, and Dual audio
• MODULATION	USB, LSB, AM, AME-USB, AME-LSB, and ISB
• SCAN	Manual or Automatic (2 or 5 channels/sec w/ALE)
• LOCAL CONTROL	Front Panel Keypad for frequency, Optional Ground-to-Air SELCAL, modes, and other core parameters
• REMOTE INTERFACE	Ethernet (10/100BaseT) - 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 Appendix C, STANAG 4539
• ALE MODEM	Integrated MIL-STD-188-141D (2G ALE) and STANAG 4538 (3G ALE)
• COMSEC OPTION	AES-256 BIT
• ECCM OPTION	Analog/Digital Voice and Data up to 25 hops/sec
• RF INPUT/OUTPUT IMPEDANCE	50-Ohm nominal, unbalanced.
• ANTENNA INPUT PROTECTION	To +43 dBm.
• 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
• INPUT POWER	DC: 19.2-32 VDC AC: 115/230 VAC 10%, with external power supply

ENVIRONMENTAL

• TEMPERATURE	-40°C to +70°C (Full operating spec. -30°C to +60°C)
• HUMIDITY	95% at +50°C
• ENVIRONMENTAL TESTING	MIL-STD-810G
• VIBRATION	MIL-STD-810G
• IMMERSION	MIL-STD 810G and Per IP67 (1m)
• EMI	MIL-STD-461E, CS101, CE102, RE102 and RS103

RECEIVER

• SELECTIVITY - SSB	300 Hz to 3050 Hz
• SELECTIVITY - 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)
• AUDIO OUTPUT	5 watts into internal speaker @ <10% distortion. Line audio up to 15 mW into 600-Ohm. Handset: low impedance.
• IMAGE & IF REJECTION	80 dB minimum
• AGC	Fast. Medium, and slow (compatible with selected mode of operation)
• SQUELCH	Syllabic

TRANSMITTER

• OUTPUT POWER	SSB: 125W PEP; CW: 125W; ISB: 125W PEP Total; AM: 40W Typical
• HARMONIC SUPPRESSION	Greater than 50 dB
• CARRIER SUPPRESSION	Greater than 50 dB
• UNDESIRED SIDEBAND	Greater than 50 dB
• VSWR	Automatic power reduction above 2:1
• AUDIO INPUT	Microphone and 600-Ohm lines
• DUTY CYCLE	100%
• GPS	Integraged w/external antenna
• Synchronization	GPS or TOD

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Certification # 08.347.1
ISO 9001:2015
Registered Quality System
Datron World Communications, Inc.

*** 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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