

# RT7000 Rugged HF Transceiver

TACTICAL HF



The RT7000 is a rugged, 1.6 to 30 MHz, HF/SSB transceiver designed to provide long distance voice and data communications. The RF output power is rated at 125W, PEP, and 100W, average, and there is complete protection against antenna mismatch. Modes include USB, LSB, CW, and AME; and up to 1000 preset memory channels are available. A wide variety of mobile and base station system configurations are offered with RF power levels up to 5000W that include desktop and rack-mounted systems with remote control and broadband or narrowband antenna systems.

Table 1 shows the basic transceivers available in the RT7000 family. All models are available in either +12Vdc or +28Vdc for use in any type of vehicle; all are fully protected against input power disturbances. The radios are waterproof and ruggedly built to meet the environmental specifications in MIL-STD-810D, E, and F for operation in harsh environments. The radios now include as standard a DSP-based voice enhancement module to enhance the received voice quality. Automatic BITE capability, with fault detection down to the module level, also is standard in all RT7000's. BITE status messages are shown on the display to allow even unskilled operators to easily repair the radio at the field level.

Table 2 shows the internal options available for the RT7000 transceivers. For automatic selection of best channel and station-to-station linking, the RT7000 offers MIL-STD-188-141B automatic link establishment (ALE). Voice encryption, impulse noise blanking, and special data and CW filters are other embedded features that can easily be added to the standard transceiver.

A complete line of accessories are available for the RT7000 including RF booster amplifiers, antenna tuners, high-speed modems, rugged notebook computers, and HF E-mail and network management application software to provide comprehensive HF communications solutions. A variety of remote control options are offered including extended front panel control, long-range remote control, high-speed remote control, and computer control. Table 3 lists the accessory products that are available with the RT7000 family.

- Rugged 125W HF transceiver
- Mobile and fixed station
- Continuous duty operation – voice & data
- MIL-STD-188-141B ALE
- Voice encryption
- Remote & extended control capability
- Core of high-power systems
- B.I.T.E. capability
- Separate receivers and transmitters available
- MIL-STD-810 tested



**Table 1: RT7000 Transceiver Models**

The basic RT7000 can also be remotely controlled to provide a transceiver with both local (front panel) and remote control capability. (+12VDC OR +28VDC INPUT POWER AS INDICATED)

**TRANSCIVER MODELS**

Model	Description
RT7000-12 or RT7000-28	1.6 to 30 MHz HF transceiver with full-function front panel.
RT7000E-12 or RT7000E-28	Transceiver with blank front panel designed for extended (up to 50 ft.) control from RT7201E control console.
RT7000RF-12 or RT7000RF-28	Transceiver with blank front panel designed for long-range remote control from RT7201F FSK-based control console. Includes internal 7000RF modem.
RT7000RI-12 or RT7000RI-28	Transceiver with blank front panel designed for up to 2 km remote control from RT7201I high-speed control console. Includes internal 7000RI modem.
RT7000C-12 or RT7000C-28	Transceiver with blank front panel designed for computer-only control from external PC.
RT7000RX-12 or RT7000RX-28	Receiver-only model of RT7000. 100 kHz to 30 MHz
RT7000TX-12 or RT7000TX-28	Transmitter-only version of RT7000. 1.6 to 30 Mhz

**Table 2: RT7000 Internal Options**

INTERNAL OPTIONS	P/N	Description
MIL-STD-188-141B	7000ALE-141B	ALE compliant to MIL-STD-188-141B
FED-STD-1045A ALE	7000ALE	ALE compatible to FED-STD-1045A
DSP VOICE ENHANCEMENT	7000VEM	Voice enhancement module using special DSP algorithms to enhance speech processing
MEMORY CHANNEL EXPANSION	7000ACH	Provides up to 1000 preset memory channels
HIGH STABILITY	7000HS	Provides 0.1 ppm frequency stability
VOICE ENCRYPTION	7000ENCR	High-level embedded voice encryption
NOISE BLANKER	7000NB	Impulse-type noise blanker
COM PORT PROTOCOL	7000RS	RS422/423/485 protocol for 2nd COM port
WIDEBAND DATA FILTER	7000WB1	300-3300 kHz wideband data filter
CW FILTER	7000CW	Narrowband CW filter
FSK REMOTE CONTROL MODEM	7000RF	FSK modem for "RF" remote control radios (RT7000RF)
HIGH-SPEED REMOTE CONTROL MODEM	7000RI	High-speed modem for "RI" remote control radios (RT7000RI)

### Table 3: RT7000 Major Accessory Equipment

In addition to the items shown below, a line of mounts, audio accessories, cables, spares, and miscellaneous interface devices are available. Please consult Datron for detailed specifications.

#### ACCESSORY

##### RF AMPLIFIERS

	Description
RA400	1.6 - 30 MHz, 400 W, voice & data RF Amplifier; waterproof, +28Vdc; vehicle or base station usage
RA500D	1.6 - 30 MHz, 500W, voice & data RF Amplifier with internal ac/dc supply (rack mounting)
RA1000D	1.6 - 30 MHz, 1 kW, voice & data RF Amplifier with internal ac/dc supply (rack mounting); 220Vac

##### DATA EQUIPMENT

RT5300	High-speed external HF data modem (up to 3000 bps) with ARQ
E110A	MIL-STD-188-110A/B high-speed HF data modem (PCI Card, for embedding in a desktop PC)
DT9400	Rugged notebook computer
DT5300C	Rugged notebook computer with embedded 5300-series HF modem
DT110	Rugged notebook computer with embedded MIL-STD-188-110A/B HF modem

##### ANTENNA TUNERS

RAT7000B	Waterproof, 125W, automatic 1.6 - 30 MHz tuner with 100 memory channels
RAT1000C	Waterproof, 1 kW, automatic 1.6 - 30 MHz tuner with 100 memory channels

##### ANTENNAS

RA-MAS	16 ft., 4-section, narrowband MIL whip antenna for mobile mounting
RA-PAS	32 ft., 8-section, narrowband MIL whip antenna for base station use
MAR-12	12 ft., narrowband whip antenna with spring base for mobile mounting
MAR-16	16 ft., narrowband whip antenna with spring base for mobile mounting
MAR-16T	16 ft., narrowband whip antenna with ratcheted base for mobile mounting, for NVIS when tilted
ABB100AN	Broadband 2 - 30 MHz, 150W antenna for base station use
ABB1000AN	Broadband 2 - 30 MHz, 1kW antenna for base station use

##### POWER SUPPLIES

UPF7000A-12 or UPF7000A-28	Heavy-duty switch-mode power supplies for the RT7000; 110Vac input
UPF7000A-12-220 or UPF7000A-28-220	Heavy-duty switch-mode power supplies for the RT7000; 220Vac input



Full-function remote control options available for the RT7000 include an extended control unit (RT7201E) for short distance (up to 50 feet) operation, and remote control units (RT7201RI or RT7201RF) for longer range using either high-speed direct 2-wire link (2 km range) or FSK tones (long range) over a voice-grade 2-wire line. The RT7000 is also capable of full computer control (RT7000C) from a PC. Both “remote-only” and “local-remote” configurations are available. The former uses a blank front panel, while the latter has the normal full-function front panel to allow multiple control points.



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### GENERAL

- FREQUENCY RANGE 1.6 to 30 MHz (Tx); 100 kHz to 30 MHz (Rx); 10 Hz channel spacing
- PRESET CHANNELS 256, standard; 1000, optional
- SCANNING Multiple scan groups, operator-selectable scan rates
- CHANNEL PROGRAMMING From front panel or remotely via computer or dedicated remote control console
- FREQUENCY STABILITY 0.5 ppm
- MODES USB, LSB, CW, AME; simplex or half-duplex
- INPUT POWER REQUIREMENTS 11 - 16 Vdc (+12Vdc models); 20-32Vdc (+28Vdc models)
- INPUT POWER PROTECTION Reverse polarity, transient and under/over-voltage
- ANTENNA PORT 50 ohms, type N connector
- ANTENNAS 50 ohms broadband or narrowband with antenna tuner (RAT7000B, RAT1000C)
- INTERFACE Control: two COM ports - RS232; optional EIA RS422/423/485 COM2 port available  
Audio: 600 ohms, balanced and isolated.

### MECHANICAL, ENVIRONMENTAL

- SIZE 6" x 14" x 18" (H x W x D)
- WEIGHT 35 lbs.
- COOLING Rear panel heatsink; RT7000FAN-1 Fan Kit (optional) - recommended for continuous duty or any data mode operation
- IMMERSION To 1 meter
- TEMPERATURE -30 to +60 degrees C., operating
- SHOCK, VIBRATION, HUMIDITY, FUNGUS, SAND & DUST Per MIL-STD-810D, MIL-STD-810E, and MIL-STD-810F

### TRANSMITTER

- RF POWER OUTPUT 125W, PEP; 100W, average; programmable - 3 levels
- DUTY CYCLE Continuous service, all modes
- HARMONICS -60 dB (2 to 30 MHz)

### RECEIVER

- SENSITIVITY -113 dBm @ 10 dB SINAD (2-30 MHz)
- ATTENUATOR +20 dB, operator selectable
- AUDIO 5W into 4 ohms; 0 dBm into 600 ohms.

\* Subject to export regulations  
Specifications subject to change without notice - rev 0209  
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