TW7000
Professional HF Transceiver

The TW7000-series are professional, 1.6 to 30 MHz transceivers designed to provide long distance voice and data transmission capability over HF. Accessories, including RF booster amplifiers, antenna tuners, and power supplies are available to complement the core TW7000 transceivers and form system configurations with RF power levels up to 5000W. Easily installable plug-in options add additional functionality to the basic transceiver.

Table 1 illustrates the transceivers available in the TW7000 family. ALL are designed to meet the environmental specifications of MIL-STD-810 for shock, vibration, and temperature. Standard modes, including USB, LSB, CW, and AME are available, as are up to 1000 preset memory channels. The RF output power is conservatively rated at 125W, PEP, and 100W, average, and there is complete protection against antenna mismatch. BITE capability, with fault detection down to the module level, is standard in all TW7000's. BITE 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 on all TW7000 models. For interoperability purposes, the TW7000 offers a full FED-STD-1045A compatible automatic link establishment (ALE) system. High-level voice encryption, DSP-based voice enhancement, and special data and CW filters are other embedded features that can easily be added to the standard transceiver. For a detailed description of 7000-series internal options, please see Datron's "HF Internal Options" data sheet.

Multiple system configurations can be created using the TW7000 and its line of accessory equipment. Rack-mount configurations are available for voice and data systems up to 5 kW using either broadband or narrow-band antenna systems. Datron also has high-speed modems, data terminals, and application software packages to help configure even the most complex network data system. Table 3 is a listing of major accessory products offered with the TW7000 family.

- **1.6 to 30 MHz (100 kHz, Rx)**

- **Continuous duty operation-voice & data**

- **FED-STD-1045A ALE**

- **Voice encryption**

- **DSP-based voice processing**

- **Remote & extended control capability**

- **Core of high-power systems**

- **B.I.T.E. capability**
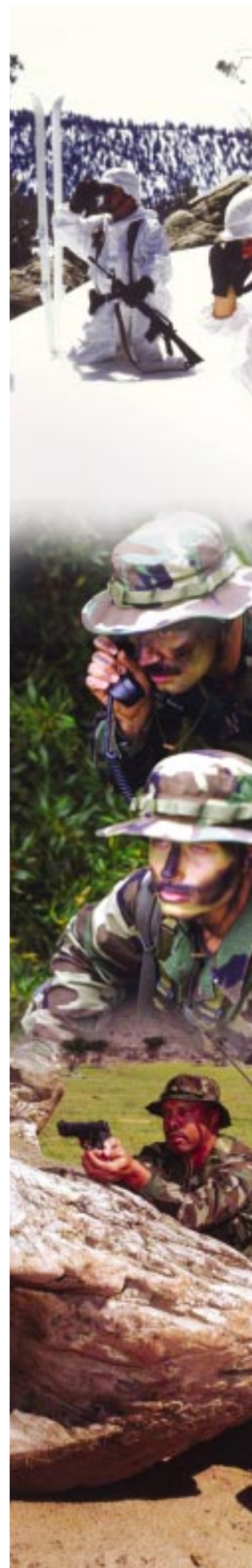
- **Separate receivers and transmitters available**

Datron World Communications, Inc.

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Transceiver Model	Description
TW7000	1.6 to 30 MHz HF Transceiver with full-function front panel
TW7000E	Transceiver with blank front panel designed for extended (up to 50 ft.) control from TW7201E control console
TW7000RF	Transceiver with blank front panel designed for long-range remote control from TW7201F FSK-based control console. Includes internal 7000RF modem
TW7000RI	Transceiver with blank front panel designed for 2 km remote control from TW7201I ISDN-type based control console. Includes internal 7000RI modem
TW7000C	Transceiver with blank front panel designed for computer control from external PC
TW7000RX	Receiver-only model of TW7000. 100 kHz to 30 MHz
TW7000TX	Transmitter-only version of TW7000. 1.6 to 30 MHz

Table 1. TW7000 Transceiver models. The TW7000 can also be remotely controlled to provide a transceiver with both local (front panel) and remote control capability. (Datron also offers RC2, a complete programming and remote control software program that runs on a PC.)

Internal Option	P/N	Description
FED-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 (TW7000RF)
RCU-I direct 2-wire link modem	7000RI	Direct 2-wire link modem

Table 2. TW7000 internal options. All options are plug-in PC cards and are easily installed in the field using standard tools.

Accessory	Description
RF Amplifiers	
TW500D	1.6 - 30 MHz, 500 W, voice & data RF Amplifier with internal ac/dc power supply (for rack mounting)
TW1000D	1.6 - 30 MHz, 1 kW, voice & data RF Amplifier with internal ac/dc supply (for rack mounting)
Data Equipment	
TW5300	High-speed HF data modem (up to 3000 bps) with ARQ
E110	MIL-STD-110A/B HF data modem on a PC Card, for embedding in a notebook
E110A	MIL-STD-110A/B HF data modem on a PCI Card, for embedding in a desktop PC
DT9400C	Rugged notebook computer
DT5300C	Rugged notebook computer with embedded 5300-series HF modem
DT110C	Rugged notebook computer with embedded MIL-STD-110A/B HF modem
Antenna Tuners	
AT7000B	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	
AW7M	7 meter, flange mount narrowband whip
AW10	10 meter, flange-mount narrowband whip
ABB100AN	Broadband 2 - 30 MHz, 150W antenna
ABB1000AN	Broadband 2 - 30 MHz, 1 kW antenna
Power Supplies	
PF7000	Heavy-duty switch-mode power supply for 125W systems; 90-240Vac input
PF3000-110	A switch-mode power supply for 125W systems, 110 vac
PF3000-220	A switch-mode power supply for 125W systems, 220 vac

Table 3. TW7000 major accessory equipment. In addition to the items shown above, a line of rack mounts, audio accessories, power supplies, cables, spares, and miscellaneous interface devices are available. Please contact Datron for detailed specifications on all accessories.

A variety of remote control options are offered for use with the TW7000. An extended front panel can be used as a controller for short distance (up to 50 feet) operation. Full-function remote control is achieved by using either the direct 2-wire link (2 km range) or FSK tones (unlimited distances) over any voice-grade 2-wire line. The TW7000 is also capable of full computer control from a PC utilizing a variety of interface standards. 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.

DATRON

TW7000
Specifications

General

Frequency range	1.6 to 30 MHz (Tx); 100 Hz 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 - 15 Vdc;
Input power protection	Reverse polarity, transient and under/over-voltage
Antenna port	SO-239
Antennas	50 ohms or automatic antenna tuner (AT7000, RAT1000C)
Interface	Control: two COM ports - RS232; compatible with EIA RS422/423/485 with option. Audio: 600 ohms, balanced and isolated.

Mechanical, Environmental

Size	3.5" x 13" x 17" (8.9 cm x 33 cm x 43 cm), (H x W x D)
Weight	21 lbs., (9.5 kg)
Cooling	On-demand fan (internal)
Temperature	-30 to +60 degrees C, operating
Shock, vibration	Per MIL-STD-810

Transmitter

RF Power output	125W, PEP; 100W, average
Duty cycle	Continuous service, all modes
Harmonics	-60 dB (2 to 30 MHz)

Receiver

Sensitivity	10 dB SINAD for 0.5uV input (2-30 MHz)
Attenuator	+20 dB, operator selectable
Audio	5W into 4 ohms; 0 dBm into 600 ohms.

Note: all specifications subject to change without notice   **Made in the USA**