

# TW7000 Commercial HF Transceiver

COMMERCIAL HF



The TW7000 is a commercial, 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 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. The radio now includes as standard a DSP-based voice enhancement module to enhance the received voice quality. BITE capability, with fault detection down to the module level, is also 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 for the TW7000 transceivers. For automatic selection of best channel and station-to-station linking, the TW7000 offers MIL-STD-188-141B automatic link establishment (ALE). High-level 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 TW7000 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 TW7000 family.

- 1.6 to 30 Mhz (100 kHz, Rx)
- 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



**Table 1: Commercial HF Transceiver**

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.)

All options are easily installed in the field using standard tools.

**TRANSCIVER MODELS**

	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 up to 2 km remote control from TW7201I high-speed 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 2: Internal Options**

INTERNAL OPTIONS	P/N	Description
MIL-STD-188-141B	7000ALE-141B	ALE compliant to MIL-STD-188-141B
FED-STD-1045A	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 use with TW7201F RCU
HIGH-SPEED REMOTE CONTROL MODEMS	7000RI	High-speed modem for use with TW7201I RCU

### Table 3: TW7000 Major Accessory Equipment

In addition to the items shown below, 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.

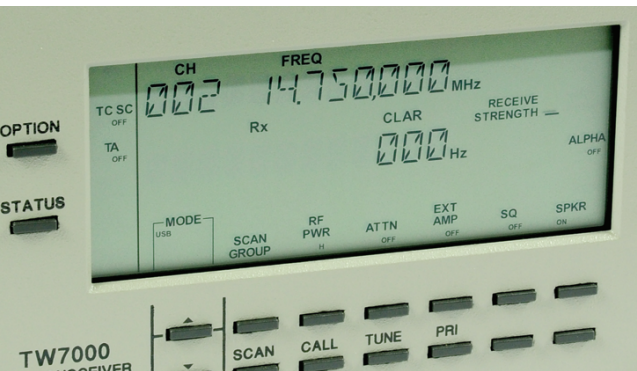
ACCESSORY	Description
<b>RF AMPLIFIERS</b>	
TW500D	1.6 - 30 MHz, 500 W, voice & data RF Amplifier with internal ac/dc power supply (rack mounting)
TW1000D	1.6 - 30 MHz, 1 kW, voice & data RF Amplifier with internal ac/dc supply (rack mounting)
<b>DATA EQUIPMENT</b>	
TW5300	High-speed HF data modem (up to 3000 bps) with ARQ
E110A	MIL-STD-188-110A/B HF data modem on a 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
<b>ANTENNA TUNERS</b>	
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
<b>ANTENNAS</b>	
AWM	2.7 meter, narrowband whip antenna with spring base for mobile mounting
AW7	7 meter, narrowband whip antenna with flange mount for base station use
AW10	10 meter, narrowband whip antenna with flange mount for base station use
AB100A	Broadband 2 - 30 MHz, 150W antenna for base station use
ABB1000A	Broadband 2 - 30 MHz, 1 kW antenna for base station use
<b>POWER SUPPLIES</b>	
PF3000-110	A switch-mode power supply for the TW7000, 110 vac
PF3000-220	A switch-mode power supply for the TW7000, 220 vac



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 high-speed direct 2-wire link (2 km range) or FSK tones (unlimited distances) control console 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.



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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 - 15 Vdc;
- **INPUT POWER PROTECTION** Reverse polarity, transient and under/over-voltage
- **ANTENNA PORT** 50 ohms, type SO-239 connector
- **ANTENNAS** 50 ohms broadband or narrowband with antenna tuner (AT7000B, RAT1000C)
- **INTERFACE** Control: two COM ports - RS232; optional EIA RS422/423/485 COM2 port  
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; 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 1009  
Made in the USA