

HF/50 MHz 100 W Transceiver

FTDX3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments

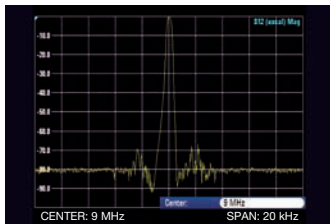


The amazing Crystal Roofing Filter performance has been proven in the FTDX 5000!

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters. Implementing the extra sharp Crystal Roofing Filters provides superior close-in dynamic range and affords the best receiver performance possible.



300 Hz, 600 Hz, 3 kHz Crystal roofing Filters



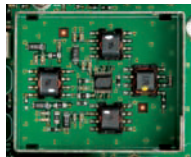
Characteristics of the Crystal Roofing Filter (300 Hz)

Outstanding receiver performance is the heritage of the FTDX 5000

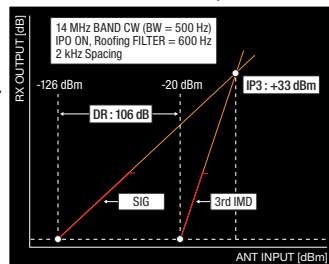
The essential elements in receiver performance are the RF amplifier and the 1st mixer. YAESU pursued the ultimate performance of these circuits. The RF amplifier has optimized NF points, and the over-sized wide range RF transformer exhibits minimum saturation in strong signal processing. The optimized devices were selected to guarantee superior multi-signal RX performance. The desired maximum performance has been realized in the development of the FTDX3000 receiver circuitry. The FTDX3000 has the high dynamic range IP3 performance that was realized and proven in the FTDX5000.



RF amp with the large size wide range transformer



The 1st mixer that provides optimum reception performance



3rd Order Dynamic Range / IP3

IF DSP provides effective and optimized QRM rejection

The 32 bit high speed floating decimal DSP (max 2800 MIPS) provides effective cancellation/reduction (DNR) of the random noise that is frequently frustrating in the HF frequencies. Also: the AUTO NOTCH (DNF) that automatically eliminates the dominant beat tone, the CONTOUR, and the APF, are very effective receiver noise reduction tools in the HF bands operations. The YAESU original DSP QRM and noise reduction functions are provided.

Large and wide color LCD display

The 3.5-inch wide color LCD displays the operating information and the status of the transceiver functions, with high resolution (480 x 272 dots) on the screen. The various FTDX3000 functions are displayed on this LCD and provide the operator with easy to read operating information.

High Speed Spectrum Scope built-in

Although the FTDX3000 has only one receiver, a high speed Spectrum Scope is built into the radio. When in the Auto Mode, the Spectrum Scope display is updated in real time. The maximum bandwidth of the scope is 1 MHz, and the minimum span width setting is 20 kHz. The best desired span is selectable for the high resolution display. The current band activity can be monitored in real time.

AF SCOPE display and RTTY/PSK encoder/decoder (optional)

Optional AF SCOPE and optional RTTY encoder/decoder functions have been developed.

The wave form of the AF SCOPE signal can be displayed on the TFT LCD. Also, the RTTY/PSK text may be displayed on the LCD.

Independent Frequency display

The Main operating frequency is the most important display in the radio, VFO-A frequency is located just above the main dial. The newly developed LCD has a wider viewing angle and higher contrast for convenient and effortless viewing.

Other features

- The specialized Receiver amplifier for 50 MHz is built in
- Three antenna connectors are provided. The "ANT-3" terminal may be assigned to "RX-only"
- Signal output for an external receiver and the 9 MHz IF output are furnished
- High speed Automatic antenna tuner built in
- Optional μ -tune unit available
- USB interface equipped



FTDX3000 Specifications

General

RX Frequency Range: 30 kHz - 56 MHz (operating)
1.8 MHz - 54 MHz (specified performance, Amateur bands only)
TX Frequency Ranges: 1.8 MHz - 54 MHz (Amateur bands only)
Frequency Stability: ± 0.5 ppm (after 1 minute @ +14 °F to +122 °F [-10 °C to +50 °C])
Operating Temperature Range: +14 °F to +122 °F (-10 °C to +50 °C)
Emission Modes: A1A (CW), A3E (AM), J3E (LSB, USB), F3E (FM), F1B (RTTY), F1D (PACKET), F2D (PACKET)
Frequency Steps: 1/10 Hz (SSB, CW, & AM), 100 Hz (FM)
Antenna Impedance: 50 Ohms, unbalanced
16.7 - 150 Ohms, unbalanced (1.8 - 29.7 MHz)
25 - 100 Ohms, unbalanced (50 - 54 MHz)
(Tuner ON, 1.8 MHz - 50 MHz Amateur bands, TX only)
Power Consumption (Approx.): RX (no signal) 1.8 A
RX (signal present) 2.1 A
TX (100 W) 23 A
Supply Voltage: DC 13.8 V $\pm 10\%$ (Negative Ground)
Dimensions (WxHxD): 14.4" x 4.5" x 12.3" (365 x 115 x 312 mm)
Weight (Approx.): 22.0 lbs (10 kg)

Transmitter

Power Output: 5 - 100 watts (2 - 25 watts AM carrier)
Modulation Types: J3E (SSB): Balanced, A3E (AM): Low-Level (Early Stage), F3E (FM): Variable Reactance
Maximum FM Deviation: ± 5.0 kHz/ ± 2.5 kHz
Harmonic Radiation: Better than -60 dB (1.8 MHz - 29.7 MHz Amateur bands: Harmonics)
Better than -50 dB (1.8 MHz - 29.7 MHz Amateur bands: Others)
Better than -65 dB (50 MHz Amateur band)
SSB Carrier Suppression: At least 60 dB below peak output
Undesired Sideband Suppression: At least 60 dB below peak output
3rd-order IMD: -31 dB @14 MHz 100 watts PEP
Bandwidth: 3 kHz (LSB/USB), 500 Hz (CW), 6 kHz (AM), 16 kHz (FM)
Audio Response (SSB): Not more than -6 dB from 300 to 2700 Hz
Microphone Impedance: 600 Ohms (200 to 10k Ohms)

Receiver

Circuit Type: Double-conversion Superheterodyne
Intermediate Frequencies: 9.000 MHz/ 30 kHz (24 kHz for AM/FM)

Sensitivity: SSB (BW: 2.4 kHz, 10 dB S+N/N)
4 μ V (0.5 - 1.8 MHz) (IPO "ON")
0.16 μ V (1.8 - 30 MHz) (RF AMP 2 "ON")
0.125 μ V (50 - 54 MHz) (RF AMP 2 "ON")
AM (BW: 6 kHz, 10 dB S+N/N, 30 % modulation @400 Hz)
28 μ V (0.5 - 1.8 MHz) (IPO "ON")
2 μ V (1.8 - 30 MHz) (RF AMP 2 "ON")
1 μ V (50 - 54 MHz) (RF AMP 2 "ON")
FM (BW: 15 kHz, 12 dB SINAD)
0.5 μ V (28 - 30 MHz) (RF AMP 2 "ON")
0.35 μ V (50 - 54 MHz) (RF AMP 2 "ON")
There is no specification for frequency ranges not listed.
Selectivity (WIDTH): Center: Mode -6 dB -60 dB
CW/RTTY/PKT 0.5 kHz or better 750 Hz or less
SSB 2.4 kHz or better 3.6 kHz or less
AM 6 kHz or better 15 kHz or less
FM 15 kHz or better 25 kHz or less
Image Rejection: 70 dB or better (1.8 MHz - 30MHz Amateur bands)
60 dB or better (50 - 54MHz Amateur band)
Maximum Audio Output: 2.5 W into 4 Ohms with 10% THD
Audio Output Impedance: 4 to 8 Ohms (4 Ohms: nominal)
Conducted Radiation: Less than 4 nW

This device has not been approved by the FCC. This device may not be offered for sale or lease or be sold or leased until approval of the FCC has been obtained. The information shown is preliminary and may be subject to change without notice or obligation.

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