

COMMUNICATIONS IN DIGITAL

The Dawn of New Digital Communications in Ham Radio

Optimizing the merits of digital communications; **12.5 kHz C4FM FDMA**

C4FM FDMA 144/430 MHz
DUAL BAND DIGITAL TRANSCEIVER

FT1DR/E*

- Water Spray Resistant, IPX5 Rating
- AF DUAL Monitor
- Large Dot Matrix LCD
- Wideband Receive Capability
- Built-in GPS Antenna
- Vibrate Alert Function
- Internal AM Bar Antenna



ACTUAL SIZE

C4FM FDMA
Digital Transceiver **FT1DR/E**

- The FT1DR/E can obtain a data transfer speed 9.6 kbps. This realizes the optimum advantage of this digital communications method.
- The FT1DR/E uses the digital communication technology that has been developed from the professional LMR communication radios, and uses the C4FM FDMA technology for a lower BER (bit error rate). This results in stable communications without interruptions during mobile operation (even while moving rapidly in a vehicle).
- It is possible to switch between analog and digital communications by pressing one button on the radio. When the digital communication is interrupted because of a weak signal, you can switch to the analog communication mode, and stay connected to the station you were talking with.
- The FT1DR/E digital technology provides new innovation to amateur radio communication by fully utilizing the merits of the digital communications.

Various functions that are provided by FT1DR/E

GSM (Group Short Message)

An advantage of amateur radio communications is the ability to communicate simultaneously with all the stations that are located in the communication service range. Similarly, the new convenient Short message feature in the FT1DR/E permits sending a short message to the group members simultaneously. Additionally, the message sender can confirm that a message was received by the receipt acknowledgement. The alphanumeric characters (maximum 80 characters) can be transmitted.

Snapshot Function (Image data transfer)



With the optional MH-85A11U, a snapshot can be taken and the image data can be transmitted. This is useful in confirming the location of the user; also a waypoint record may be created to aid in returning to the designated target points.

The image data size is 320 x 240 dots or 160 x 120 dots (the image cannot be viewed on the FT1DR/E, because of the LCD limitation).

This image data also includes the time and the GPS location information of the snapshot. It is easy to edit the data file after taking the pictures. The transmission time for the data is approximately 20 seconds for a 320 x 240 dots image, or approximately 4 seconds for a 160 x 120 dots image.

A micro SD card may be installed in the radio for additional data storage, so you do not need to worry about the memory capacity of the radio itself. The data format is the very popular PC JPG, which is convenient for editing with 3rd party image software on a Personal Computer.



Digital ARTS

The Yaesu Auto-Range Transponding System (ARTS^{PA7}) has been much improved! It can alert users when other member stations within the communicating group are in communication range.

In the FT1DR/E digital radio, the innovative new Digital ARTS also sends the GPS location data. Users can find the direction and the distance of the other stations they desire to communicate with.

Other convenient and prominent features

Data back up



The micro SD card slot is provided on the side of the radio. The GPS logger records the location and track information of the moving station in the memory record inside the radio, the picture image data and other useful information data is stored on the micro SD card.

By using the SD card, it is also possible to clone the radio data to the other FT1DR/E radios.

USB connector



A USB connector is also located on the side of the radio. The optional microphone with camera (MH-85A11U) may be connected to this port.

Your Personal Computer may also be connected to the USB port to update the firmware of the radio.

E2O (Easy to Operate)

In order to simplify the operation of the fully functional FT1DR/E digital radio, all the operations have been reviewed and completely revised.

The frequently used functions and keys are designed for convenient operation. You will be pleased with the improved operations!

E-GPS, GPS data transferring function

In the FT1DR/E, the E-GPS function has been added. This sophisticated function has been simplified, to make it possible to display the direction and the distance to the opposite station, with One Touch.

The back-track feature is also included. The direction and distance required to return to your previous position can be shown very simply and clearly, when the locations are memorized.

FT1DR/E Specifications

GENERAL

Frequency Ranges: A (Main) Band RX: 0.5 - 1.8 MHz (AM Radio)
 1.8 - 30 MHz (SW Radio)
 30 - 76 MHz (50 MHz HAM)
 76 - 108 MHz (FM Radio)
 108 - 137 MHz (Air Band)
 137 - 174 MHz (144 MHz HAM)
 174 - 222 MHz (VHF Band)
 222 - 420 MHz (GEN1)
 420 - 470 MHz (430 MHz HAM)
 470 - 800 MHz (UHF Band)
 800 - 999 MHz (GEN2)
 USA Cellular Blocked

B (Sub) Band RX: 108 - 137 MHz (Air Band)
 137 - 174 MHz (144 MHz HAM)
 174 - 222 MHz (VHF Band)
 222 - 420 MHz (GEN1)
 420 - 470 MHz (430 MHz HAM)
 470 - 580 MHz (UHF Band)
 144 - 146MHz or 144 - 148 MHz

TX: 430 - 440MHz or 430 - 450 MHz

Channel Steps: 5, 6.25, 8.33, 10, 12.5, 15, 20, 25, 50, 100 KHz
 Frequency Stability: ±2.5ppm -4°F to +140°F (-20°C to +60°C)
 Emission Type: F2D, F3E, F1D, F7W

Supply Voltage: 7.4 V DC Negative Ground
 Current Consumption: 240 mA (Dual Band Receive)
 + 30 mA GPS On
 + 80 mA Digital On
 1.7 A (5 W TX, 144 MHz 7.4 V DC)
 2.0 A (5 W TX, 430 MHz 7.4 V DC)

Operating Temperature: -4°F to +140°F (-20°C to +60°C)
 Case Size: 60(W) × 95(H) × 28(D) mm (W/O knob & antenna)
 Weight (Approx.): 265 g (9.3 oz) with FNB-101LI & antenna

TRANSMITTER

RF Power Output: 5 W (@ 7.4 V or EXT DC)
 Modulation Type: Variable Reactance F2A, F2D, F3E, F1D,
 Variable Reactance C4FM
 Spurious Emission: At least 60 dB below (Hi, MID, L2)
 At least 50 dB below (L1)

RECEIVER

Circuit Type: AM, NFM: Double-Conversion Super heterodyne
 AM/FM Radio: Single-Conversion Super heterodyne
 Intermediate Frequencies: 1st: 47.25MHz (AM, NFM A Band)
 1st: 46.35MHz (AM, NFM B Band)
 2nd: 450 kHz (AM, NFM)
 1st: 130 kHz (AM/FM Radio)

Sensitivity: 3 µV for 10 dB SN (0.5 - 30 MHz, AM)
 0.35 µV TYP for 12 dB SINAD (30 - 54 MHz, NFM)
 1 µV TYP for 12 dB SINAD (54 - 76 MHz, NFM)
 1.5 µV TYP for 12 dB SINAD (76 - 108 MHz, WFM)
 1.5 µV TYP for 10 dB SN (108 - 137 MHz, AM)
 0.2 µV for 12 dB SINAD (137 - 140 MHz, NFM)
 0.16 µV for 12 dB SINAD (140 - 150 MHz, NFM)
 0.2 µV for 12 dB SINAD (150 - 174 MHz, NFM)
 1 µV for 12 dB SINAD (174 - 222 MHz, NFM)
 0.5 µV for 12 dB SINAD (300 - 350 MHz, NFM)
 0.2 µV for 12 dB SINAD (350 - 400 MHz, NFM)
 0.18 µV for 12 dB SINAD (400 - 470 MHz, NFM)
 1.5 µV for 12 dB SINAD (470 - 540 MHz, NFM)
 3 µV TYP for 12 dB SINAD (540 - 800 MHz, NFM)
 1.5 µV TYP for 12 dB SINAD (800 - 999 MHz, NFM)
 USA Version Cellular Blocked
 0.28 µV TYP for BER 1% (Digital Mode)

Selectivity: NFM, AM 12 kHz / 35 kHz (-6 dB / -60 dB)
 AF Output: 200 mW @ 8 Ω for 10 % THD (@ 7.4 V)
 400 mW @ 8 Ω for 10 % THD (@ 13.8 V)

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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