C4FM FDMA/FM
144/430 MHz 50 W DUAL BAND TRANSCEIVER

FTM-400DR
FTM-400DE

http://www.yaesu.com/
Advanced visibility and operability with full color touch panel Operation New Functions Enabled by the C4FM FDMA Digital Communication System

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**3.5-inch full color touch panel operation**

The icon symbols, multi-function key display and pop-up messages are all displayed in high-resolution color thanks to the full-color, high luminance TFT liquid crystal screen. The settings and status of the wireless devices are displayed in an easy-to-understand format. You can perform various operations simply and easily by gently touching the screen.

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**Snapshot Function (Image Data Transmission)**

Simply connect an MH-85A11U (option) microphone with camera. Press the microphone shutter button to take snapshots, and then the image data can be displayed on the screen, and easily sent to other C4FM FDMA digital transceivers.

Image data which was sent from a group member is displayed on the full-color screen. This image data also retains a time record and the GPS location data of the snapshot. It is easy to navigate to that pictured location by using back track function. In addition, you can observe on the screen whether or not transmitted data was successfully received by the member station. The snapshot image or received data is stored in a high capacity micro SD card. You can recall and send that image data from the SD card anytime. The pictures and data files may be easily viewed and edited by using a personal computer.

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* DTMF Microphone MH-48A6JA, Mounting Bracket, Bracket for Controller, Control Cable 10ft (3m), PC connection Cable SCU-20, and DC Power Cable included.

* micro SD card is required by the snapshot function.
AMS (Automatic Mode Select)

The FTM-400DR/FTM-400DE operates in three digital modes and an analog mode to suit your needs. The Automatic Mode Select (AMS) function instantly detects the received signal mode. The AMS function enables stress-free operation and eliminates the need to manually switch between communication modes.

- **V/D mode (Voice/Data simultaneous communication mode)**
  The digital voice signal is transmitted in one half of the band width. Simultaneously the other half of the 12.5 kHz band width channel is used for error correction of the voice signal and other data. By incorporating powerful error correction technology developed for professional communication devices, effective error correction codes provide the advantage of fewer interruptions to conversations. The Clear Voice technology developed for the C4FM/FDMA Digital mode provides the ideal balance of error correction and sound quality.

- **Voice FR mode (Voice Full Rate Mode)**
  This mode uses the full 12.5 kHz bandwidth to transmit digital voice data. The increased amount of voice data permits high quality voice communication, providing superb sound quality for a “no chew” with friends.

- **Data FR mode (High Speed Data Communication Mode)**
  This high-speed data communication mode uses the full 12.5 kHz bandwidth for data communication. The transceiver automatically switches to Data FR mode when transmitting snapshot pictures, and can be used to transmit large quantities of data at high speed.

- **Analog FM mode**
  Analog FM is effective when weak signal strength causes audio drop out in the digital mode, and enables communication up to the borderline of the noise level. Also the use of established Yaesu low power circuit designs provides greater efficiency than the digital modes.

Digital Group Monitor (GM) Function

The digital GM function automatically checks whether members registered to a group are within the communication range, and displays information such as the distance and orientation for each call sign on the screen. This useful function not only enables you to see which friends are within communication range, it also permits you to see at a glance where all group members are located. Additionally, this function can be used to send messages and image data between group members.

Smart Navigation Function

Real-time navigation function enables location checking at any time

In digital V/D mode, information such as position data is transmitted together with voice signals so the distance and direction to the other stations can be displayed in real-time while communicating with them.

Backtrack function that starts navigation direction to a previously registered point

The backtrack function enables navigation to a registered location at the touch of a button. When hiking or camping, simply register your starting point or campsite before departure, and the distance and orientation from the current location are displayed on the screen.

Additional operating and support features

**Wideband Receive Capability**
Covers 108 MHz - 999.990 MHz (A (Main) / B (Sub Band), VHF Marine, Aircraft, Public service channels, etc.)

**Hands-free operation**
Hands-free operation is available by using the optional wireless Bluetooth® unit and headset. (Optional Bluetooth® unit (HS-21) and Headset (HS-5A) are required.)

**High Power Audio Output**
Loud 3 W Audio Outputs. 8 W output for Optional External Speaker (MLS-300-M70)

**Voice Guide and Recording Function**
Optional Voice Guide Unit (FVS-2) announces your current operating frequency, band change and APRS® messages. You can record up to 5 minutes of received signals, or continuously record the last 30 seconds of received audio.
### Other Useful Features

- Real-time Band Scope with uninterrupted RX audio
- 500 Memory Channels for each A(Main) and B(Sub) band
- Storage of the Memory channels and personal settings on an inserted micro SD card
- By using a micro SD card, it is easy to copy and transfer the radio data to other compatible radios
- 1200/9600bps APRS® (Automatic Packet Reporting System) Data communication capability*
- Versatile Scanning Receiver for Monitoring Enthusiasts (VFO Scan, Memory Scan, etc)
- Built-in GPS receiver and antenna provides location, time, direction and APRS® information* (External GPS devices can be connected)
- GPS Logging Function
- Analog and Digital Clock
- Timer function: Event timer with Lap or count down functions

*APRS® is a registered trademark of Bob Bruninga, WB4APR.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>General</th>
<th>Transmitter</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range:</td>
<td>RF Power Output: 50 W / 20 W / 5 W</td>
<td>Circuit Type: Double-Conversion Super heterodyne</td>
</tr>
<tr>
<td>A (Main) / B (Sub) band</td>
<td>Modulation Type: FAD, FAD, F5E Variable Resistance Modulation</td>
<td>Intermediate Frequencies: 1st: 44.85 MHz 2nd: 450 kHz (A Band)</td>
</tr>
<tr>
<td>Rx: 108 - 137 MHz (Air Band)</td>
<td>FAD / F5E / FAD</td>
<td>1st: 44.65 MHz 2nd: 450 kHz (B Band)</td>
</tr>
<tr>
<td>137 - 174 MHz (144 MHz HAM)</td>
<td>Spurious Emission: At least 60 dB below</td>
<td>Sensitivity: 0.3 pV/r for 10 dB SIN (108 - 137 MHz, AM)</td>
</tr>
<tr>
<td>174 - 400 MHz (GEN)</td>
<td></td>
<td>0.2 pV/r for 12 dB SINAD (144 - 150 MHz, FM)</td>
</tr>
<tr>
<td>400 - 480 MHz (430 MHz HAM)</td>
<td></td>
<td>0.19 pV/r for BER1% (420 - 470 MHz Digital)</td>
</tr>
<tr>
<td>480 - 999.99 MHz (GEN)</td>
<td></td>
<td>0.2 pV/r for 12 dB SINAD (470 - 520 MHz, FM)</td>
</tr>
<tr>
<td>Cellular Blocked (USA only)</td>
<td></td>
<td>0.4 pV/r for 12 dB SINAD (520 - 600 MHz, FM)</td>
</tr>
<tr>
<td>Tx: 144 - 146 MHz or 144 - 148 MHz</td>
<td></td>
<td>0.8 pV/r for 12 dB SINAD (600 - 999.99 MHz, FM)</td>
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<tr>
<td>430 - 440 MHz or 439 - 450 MHz</td>
<td></td>
<td>Cellular Blocked (USA only)</td>
</tr>
<tr>
<td>Channel Steps: 6.25, 8.33, 10, 12.5, 15, 20, 25, 50, 100 kHz</td>
<td></td>
<td>Selectivity: NFM, AM 12 kHz / 30 kHz (---6 dB) / ---60 dB</td>
</tr>
<tr>
<td>(0.33 kHz: Only for Air band)</td>
<td></td>
<td>AF Output: 3 W (12), THD:10 %, 13.4 V, Internal Speaker</td>
</tr>
<tr>
<td>Frequency Stability: 5.2 ppm --- 7.6° to +140°F (-20°C to +60°C)</td>
<td>0.19 µV/Tuf for BER1% (420 - 470 MHz)</td>
<td></td>
</tr>
<tr>
<td>Emission Type: FAD, FAD, F5E</td>
<td>0.2 µV/r for 12 dB SINAD (470 - 520 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage: Nominal 11.8 V DC, Negative Ground</td>
<td>0.4 pV/r for 12 dB SINAD (520 - 600 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td>Current Consumption: 8.5 A (Receiver)</td>
<td>0.8 pV/r for 12 dB SINAD (600 - 999.99 MHz, FM)</td>
<td></td>
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<tr>
<td>11 A (50 W TX, 144 MHz)</td>
<td>0.2 µV/r for 12 dB SINAD (140 - 150 MHz, FM)</td>
<td></td>
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<tr>
<td>12 A (60 W TX, 430 MHz)</td>
<td></td>
<td>0.19 µV/r for BER1% (440 - 500 MHz Digital)</td>
</tr>
<tr>
<td>Operating Temperature: —10°C to +40°C</td>
<td>0.25 µV/r for 12 dB SINAD (520 - 600 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td>Case Size: Radio Unit 5.5&quot;(W) x 1.6&quot;(H) x 4.9&quot;(D) (140 x 40 x 125mm) w/o Fan</td>
<td>0.3 µV/r for 12 dB SINAD (600 - 999.99 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td>Controler 5.3&quot;(W) x 2.8&quot;(H) x 0.8&quot;(D) (140 x 72 x 20mm) w/o Knob</td>
<td>0.25 µV/r for 12 dB SINAD (600 - 999.99 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td>Weight (Approx.): 2.64 lbs (1.2 kg) w/ Radio Unit, Controller, Control Cable</td>
<td>0.8 µV/r for 10 dB SIN (300 - 336 MHz, AM)</td>
<td></td>
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<tr>
<td></td>
<td>0.25 µV/r for 12 dB SINAD (336 - 450 MHz, FM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2 µV/r for 12 dB SINAD (420 - 470 MHz, FM)</td>
<td></td>
</tr>
</tbody>
</table>

### OPTIONS

- **Microphone with Snapshot camera**
  - MH-63BTR

- **D/F/M Microphone**
  - MH-48a

- **Normal Microphone**
  - MH-42z

- **Bluetooth Bluetooth® Adapter Unit**
  - BU-2

- **Bluetooth Headset**
  - BH-2A

- **Charger Cradle (Batteries)**
  - CD-40

- **AC Adapter for CD-40**
  - PA-46B/C/U

- **Data Cable**
  - CT-163: M009 pin to M010 pin + Double
  - CT-164: M009 pin to M010 pin
  - CT-165: M009 pin to Double
  - CT-167: M009 pin to Open

*1 The same as the supplied accessory
*2 "B" for USA version / "G" for 220 - 240 VAC / "U" for 230 VAC w/ UK Plug

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