

C4FM  
FDMA

# FTM-100DR FTM-100DE

C4FM/FM 144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

**AMS**  
Automatic Mode Select

**C4FM**  
Digital ClearVoice  
Clear and Crisp Voice Technology



**YAESU**  
The radio

# A Digital Mobile Transceiver for a New Age, with a Wide Variety of Mobile Operations Made Possible Through Advanced C4FM Technology



**C4FM/FM 144/430 MHz  
DUAL BAND 50 W DIGITAL TRANSCEIVER**

## FTM-100DR

American, Asian and Australian versions

## FTM-100DE

European version

(DTMF Microphone MH-48A6JA, Mounting Bracket, Bracket for Front panel, Control Cable 10 ft, PC connection Cable SCU-20, Stereo Monaural Plug and DC Power Cable included)

## An easy-to-read graphical interface and user-friendly operation via a full dot-matrix display

The full dot-matrix display, provides magnificent image reproduction. The various screens and icons permit rapid access to operating parameters, menu setting, GPS, APRS location and message functions.

The white-LED backlight provides ample brightness and contrast, for improved visibility. The display screens guide you in using the advanced features and changing operating settings.



Memory Tag Screen



Group Monitor Screen



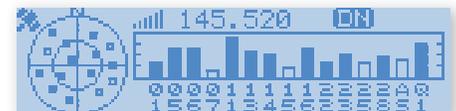
APRS® Information Screen



WIRES-X Screen



Group Monitor Screen (Message List)



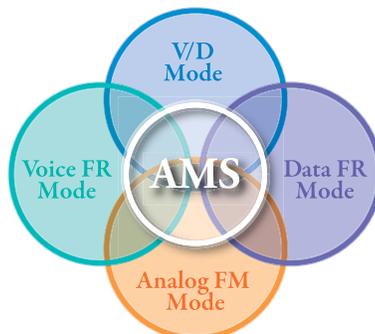
GPS Information Screen

## FM friendly digital operation made possible by AMS (Automatic Mode Select)

You have the choice between of three digital modes using the C4FM protocol, as well as an analog FM mode. The digital modes make effective use of the 12.5 kHz bandwidth for high-quality voice communication, image transmission, messages and data exchange features to accommodate many new operating features.

### AMS (Automatic Mode Select)

C4FM Digital products from Yaesu, feature integrated support for C4FM Digital modes, for analog communication, Internet communication, and more. Thanks to the combination of FM friendly design and the AMS function which automatically selects the best mode in any given situation, the user can enjoy optimal performance without worrying about digital vs. analog FM selection.



### V/D Mode (Voice/Data Simultaneous Communication Mode)

The digital voice signal is transmitted using one half of the bandwidth. Simultaneously the other half of the 12.5 kHz bandwidth channel is used for error correction the audio signal and the accompanying data. The V/D Digital mode provides the ideal balance of error correction and audio quality with the Digital Clear Voice technology developed for C4FM digital.

### Voice FR Mode (Voice Full Rate Mode)

This mode uses the full 12.5 kHz bandwidth to transmit digital voice data. The increased audio data permits high quality voice communication.

### 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 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, The FM mode enables communication up to the borderline of the noise level.



**FTM-100DR  
FTM-100DE**



**FTM-400DR  
FTM-400DE**



**FT1DR  
FT1DE**



**FT2DR  
FT2DE**



**FT-991**

**C4FM**  
Digital Communication  
Clear and Crisp Voice Technology

**C4FM Digital Lineup**

## The FTM-100D supports WIRES-X, an Internet communication system for amateur radio

Connect the FTM-100D to a WIRES-X node station and enjoy worldwide long-distance communications on VHF/UHF bands via the Internet. WIRES-X is an Internet communication system for Amateur radio. In addition to high quality voice communication based on C4FM digital technology, WIRES-X incorporates user-friendly internet linking features, such as the node ID display and the room activity monitor display. Advanced features

include Internet News Station and image data transmission. The FTM-100D may be connected to the optional HRI-200 WIRES-X Internet Linking Kit to easily establish a WIRES-X node station. The FTM-100D is ideally suited for use in a node station; also the display backlight can be turned off.

**WIRES-X**



**HRI-200**

## Support for Sophisticated C4FM Digital Functions

### Digital GM Function (Digital Group Monitor Function)

The digital GM function automatically makes known when members registered to a GM are within communication range. The distance, direction and call sign are shown on the screen. The GM function facilitates the exchange of location data, messages and images between active GM group members.



Group Monitor Screen

### Image Data Transmission

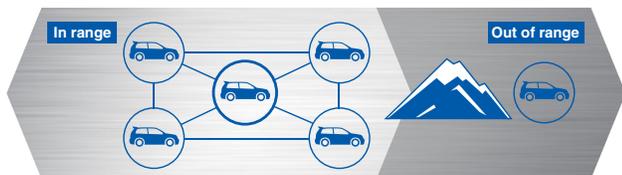
Snapshots received from other stations or images downloaded from the WIRES-X News Station are stored on a microSD card. Image data can be viewed and edited using a personal computer.

\* The MH-85A11U Camera Speaker Microphone cannot be connected.

### Smart Navigation Function

#### Real-time navigation function enables location checking at any time

Digital V/D Mode communicates the location data simultaneously with the digitized voice signal, allowing you to view the distance, direction, and call sign of the received station in real time while communicating. This makes it possible to confirm your position and the other station in situations while hiking and driving, where the positions are constantly changing, providing an easy way to meet or join routes.



## A variety of features that ensures ease of use

### Large front panel LED indicator

The FTM-100D has a large BUSY/TX indicator that shows the Transmit/Receive status and the communication mode at the same time. You can see the current communication mode at a glance.



### High sensitivity wideband reception

The FTM-100D provides continuous receiver coverage from 108 to 999.99 MHz with high sensitivity reception. Excellent receiver performance for AM/FM and shortwave broadcasts, etc.

### Dual Watch Function

The FTM-100D is capable of periodically briefly monitoring the Home channel and, when a signal is detected, automatically stopping to receive it.

### microSD card slot

The microSD card slot on the front of the transceiver accepts microSD cards (up to 32 GB). Large amounts of data, such frequency memory channels, received image data can be stored on the card.

### 50 W high power output

Yaesu's unique transmitter circuit design supports the high performance operation. Powerful 50 W RF output (VHF/UHF Amateur bands) ensures stable long-distance communications.

### Front panel separation

The front panel can be separated from the main body for custom installation. You can also join the front panel to the main unit.

\*10 feet (3 m) control cable is included as standard. An optional 20 feet (6 m) control cable is available.

### 1200/9600 bps APRS® Data communication

APRS® information display, received station list display, message transfer, as well as SmartBeaconing™ are also supported. You will be able to track your APRS® movement on the Internet websites.

### APRS® Display

FTM-100D displays the positions, heading directions of the station, distances, etc.



APRS® Information Screen

### APRS® List

The station List function stores up to 60 stations with the individual APRS® data



APRS® List Screen

### High sensitivity GPS antenna

A high sensitivity 66 channel GPS antenna is provided as a standard feature.

### GPS logging capability

With the built-in GPS antenna, your own location information can be recorded on a microSD card and plotted later by map software on a PC.

### Powerful audio output

The built-in speaker supports 3 W of output and the optional MLS-200-M10 external speaker supports 8 W of audio output.

### Frequency announcement and message recording/playback functions

The optional FVS-2 Voice Guide Unit is supported. The FVS-2 announces the operating frequency. You can record and play back a received message.

### The optional SMB-201 Desktop Cooling Fan can be installed on the FTM-100D

The SMB-201 efficiently cools the heat generated from the FTM-100D when transmission continues for long periods of time. For instance: when the transceiver is used as a WIRES-X node station, or when operating packet communications.

\*Simultaneous reception on A bands and B bands is not supported.

## Other useful features

- ⊙ Large-capacity 500 channel memory for each of VFO-A and VFO-B
- ⊙ Detachable front panel may be mounted in a convenient operating location using the optional MMB-98 multi-angle vacuum cup mounting bracket.
- ⊙ AMS TX mode that allows the user to set the fixed transmission mode when using the AMS function
- ⊙ ARS (Auto Repeater Shift) Function
- ⊙ Key lock function prevents inadvertent operations of the transceiver
- ⊙ Automatic Power-Off (APO) feature automatically turns the transceiver off when there have been no operations carried out within a preset period of time
- ⊙ Time-Out-Timer (TOT)
- ⊙ Versatile scanning capabilities including VFO scan and memory scan
- ⊙ Hands-free operation is enabled via the BU-2 Bluetooth® unit (optional)
- ⊙ GPS data input and output capability
- ⊙ Highly accurate 24-hour Clock by GPS receiver
- ⊙ Voltage display

## MH-48A6JA multifunctional microphone with a DTMF (that provides the user with quick access to major functions (Supplied accessory))



- [ 1 ] to [ 0 ] Enters the numbers and letters
  - [\*] Changes the VFO/Memory operating mode of the operating band
  - [ # ] Activates the GM (Group Monitor) functions
  - [ A ] Switches the operating band to Band A
  - [ B ] Switches the operating band to Band B
  - [ C ] Adjusts the squelch level
  - [ D ] Switches the display
  - [P1] Turns off the squelch (T.CALL: European version)
  - [P2] Recalls the receiver home channel
  - [P3] Changes the communication mode
  - [P4] Changes the transmit power
- \*Functions to be assigned to [P1] through [P4] can be selected from among 16 functions.

## SPECIFICATIONS

### General

#### Frequency Range:

- Band RX: 108 - 137 MHz (Air Band)
- 137 - 174 MHz (144 MHz HAM)
- 174 - 400 MHz (GEN1)
- 400 - 480 MHz (430 MHz HAM)
- 480 - 999.99 MHz (GEN2) Cellular Blocked (USA only)
- TX: 144 - 146 MHz or 144 - 148 MHz
- 430 - 440 MHz or 430 - 450 MHz

Channel Steps : 5, 6.25, 8.33, 10, 12.5, 15, 20, 25, 50, 100 kHz  
(8.33 kHz : Only for Air band)

Frequency Stability : ±2.5 ppm —4°F to +140°F (—20°C to +60°C)

Emission Type : F1D, F2D, F3E, F7W

Supply Voltage : Nominal 13.8 V DC, Negative Ground

Operating 11.7 - 15.8 V DC, Negative Ground

Current Consumption : 0.5 A (Receive)

11 A (50 W TX, 144 MHz)

12 A (50 W TX, 430 MHz)

Operating Temperature : —4°F to +140°F (—20°C to +60°C)

Case Size : 5.5" x 1.8" x 6.5" (140 x 45 x 164mm) with Front panel, w/o Fan, knob & connectors

(WxHxD) Front panel 5.5" x 1.8" x 1.2" (140 x 45 x 29mm) w/o Knob

Weight (Approx) : 2.43 lbs (1.1 kg) with Radio Unit, Front panel

### Transmitter

RF Power Output : 50 W / 20 W / 5 W

Modulation Type : F1D, F2D, F3E : Variable Reactance Modulation

F7W : 4FSK (C4FM)

Spurious Emission : At least 60 dB below

### Receiver

Circuit Type : Double-Conversion Super heterodyne

Intermediate Frequencies : 1st: 47.25 MHz 2nd: 450 kHz

Sensitivity : 0.8 μV TYP for 10 dB SN (108 - 137 MHz, AM)

0.2 μV for 12 dB SINAD (137 - 140 MHz, FM)

0.2 μV for 12 dB SINAD (140 - 150 MHz, FM)

0.19 μV TYP for BER1% (140 - 150 MHz Digital)

0.25 μV for 12 dB SINAD (150 - 174 MHz, FM)

0.3 μV TYP for 12 dB SINAD (174 - 222 MHz, FM)

0.25 μV TYP for 12 dB SINAD (222 - 300 MHz, FM)

0.8 μV TYP for 10 dB SN (300 - 336 MHz, AM)

0.25 μV for 12 dB SINAD (336 - 420 MHz, FM)

0.2 μV for 12 dB SINAD (420 - 470 MHz, FM)

0.19 μV TYP for BER1% (420 - 470 MHz Digital)

0.2 μV for 12 dB SINAD (470 - 520 MHz, FM)

0.4 μV TYP for 12 dB SINAD (800 - 900 MHz, FM)

0.8 μV TYP for 12 dB SINAD (900 - 999.99 MHz, FM)

Cellular Blocked (USA only)

Selectivity : NFM, AM 12 kHz / 30 kHz (—6 dB / —60 dB)

AF Output : 3 W (8Ω, THD10 %, 13.8 V) Internal Speaker

8 W (4Ω, THD10 %, 13.8 V) External Speaker

## OPTIONS

DTMF Microphone <b>MH-48A6JA</b>	Normal Microphone <b>MH-42C6J</b>	Bluetooth® Adapter Unit <b>BU-2</b>	Bluetooth® Headset <b>BH-2A</b>	Charger Cradle (3 hours) for BH-2A Bluetooth® Headset <b>CD-40</b>	AC Adapter for CD-40 <b>PA-46B/C/U/H*1</b>	AC Power Supply (25 A) <b>FP-1030A*2</b>	AC Power Supply (23 A) <b>FP-1023*3</b>	High-Power External Speaker <b>MLS-200-M10</b>
								Data Cable <b>CT-163</b> MDIN10 pin to MDIN6 pin + Dsub9 <b>CT-164</b> MDIN10 pin to MDIN6 pin <b>CT-165</b> MDIN10 pin to Dsub9 <b>CT-167</b> MDIN10 pin to Open
Voice Guide Unit <b>FVS-2</b>	Desktop Cooling Fan <b>SMB-201</b>	AC Adapter for SMB-201 <b>SAD-11B/C/U/H*1</b>	Vacuum Cup Mount Bracket for Front Panel <b>MMB-98</b>	PC Connection Cable (USB) <b>SCU-20</b>	Mic Extension Kit <b>MEK-2</b>	Separation Cable 20 ft (6m) <b>CT-162</b>	Cloning Cable <b>CT-166</b>	Data Cable <b>CT-163</b> MDIN10 pin to MDIN6 pin + Dsub9 <b>CT-164</b> MDIN10 pin to MDIN6 pin <b>CT-165</b> MDIN10 pin to Dsub9 <b>CT-167</b> MDIN10 pin to Open

\*1 "B": for 120 VAC, "C": for 220-240 VAC, "U": for 220-240 VAC w/UK plug, "H": for 220-240 VAC w/Australian plug. \*2 American and Asian versions only \*3 USA version only

About this brochure: We have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. Precise frequency range may be different in some countries. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.

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The radio

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