144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

FT2DR
FT2DE

AMS Automatic Mode Select

C4FM Digital Communication Clear and Crisp Voice Technology

YAESU
The radio

Advanced C4FM Technology Opens up New Vistas for Amateur Radio
The New Style Handheld Transceiver FT2D

Actual Size

C4FM DIGITAL

Powerful error correction technology ensures outstanding performance both while in motion and with weak signals

AMS function enables two-way communication between C4FM Digital and FM

C4FM Digital uses 12.5 kHz bandwidth to achieve fast data transmission

Latest audio compression algorithm achieves natural, high-quality voice communication

C4FM/FM 144/430 MHz DUAL BAND 5 W DIGITAL TRANSCEIVER

FT2DR/FT2DE

American, Asian and Australian versions

European version

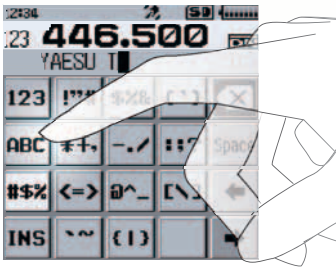
(2200 mAh Li-Ion Battery SBR-14LI, Battery Charger PA-48 / SAD-14B(USA version) /SAD-16H(Australian version), USB Cable and Belt clip SHB-13 included)

C4FM Digital Communication Clear and Crisp Voice Technology

Superb, convenient and innovative touch panel operation

Combination of separate dedicated keys and touch panel realizes snappy and smart operation

The dedicated keys provide one-touch access to major functions. A full dot matrix display with touch panel functionality always reveals the appropriate functions needed in any situation. The result is a true convenience revolution: never before has a handheld transceiver been this easy and intuitive to operate. Function keys, numeric keys and setup menu items all appear on the display as needed, allowing direct operation without guesswork.



Compact unit with large display

Dazzling high-resolution dot-matrix LCD for easy readability

A major highlight of the transceiver's sleek design is the large display measuring 1.7 × 1.7 inch (43.2 × 43.2 mm). With 160 × 160 dots with a bright white LED backlight. The display presents a wealth of information in good looking high resolution.

Snapshot image display

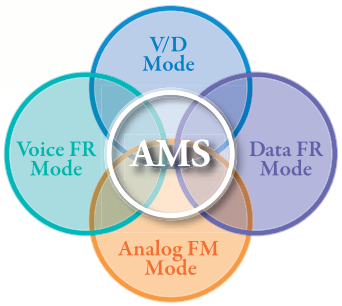
Snapshots taken with the optional speaker microphone with camera MH-85A11U are automatically displayed, letting you check the image before saving or sending it. Snapshots received from another party or downloaded from the WIRES-X news station can also be displayed.

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.

WIRES-X

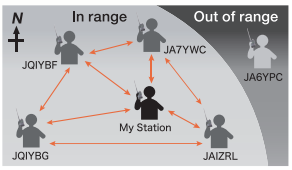
Advanced Internet communications for amateur radio
Support for versatile WIRES-X functions

Using the Internet linking for, long-range communication in the VHF and UHF bands is now within easy reach. The FT2D touch panel operation makes possible stress-free enjoyment of the latest WIRES-X capabilities. WIRES-X utilizes C4FM Digital to bring about a host of advanced functions including voice communication with outstanding audio quality, as well as simple and intuitive user ID allocation.

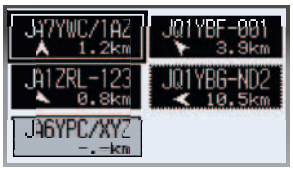
Support for Sophisticated Functions of C4FM Digital

Digital GM Function (Digital Group Monitor Function)

The digital GM function automatically makes known when members registered to a group are within communication range, and displays the distance and direction with each call sign on the screen. Simply touch to select the call sign shown on the display of the FT2D and then press the DISP key to bring up detailed information about that station.



Digital Group Monitor Image



Digital Group Monitor Screen
Direction and distance are displayed automatically

Snapshot function

When the optional speaker microphone with camera MH-85A11U is connected, you can easily take a snapshot. The captured images as well as received images can be viewed on the screen. With the FT2D, active use of the Snapshot function becomes easy and fun.

Smart Navigation Function

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

You can view the distance, direction and call sign of received signals in real time while communicating in the Yaesu C4FM digital mode. This makes it possible to confirm your position and the other station in situations while hiking or driving, where the positions are constantly changing, and providing an easy way to meet or join routes.

Smart Navigation Screen

- **Backtrack function initiates navigation**

This function allows navigation back to the departure point, or a point previously added to the memory. When hiking or camping, just register the starting point or the position of your tent and then you can constantly check the direction and distance from your current position.

Great lineup of useful functions makes operation even more convenient

Simultaneous C4FM/C4FM standby

The FT2D supports simultaneous C4FM Digital monitoring for both the A Band and B Band. A digital signal received on either band takes priority of the transceiver operation. You can respond smoothly and swiftly to the digital communication. What's more, call sign and position information as well as other data can be received simultaneously on both bands.

■ Real Dual Band Operation (V+V/U+U/V+U)

With two independent receivers, you may listen to either the same or a different band simultaneously.

■ Full-fledged wide-band reception with high sensitivity

Covers 0.5 MHz - 999.99 MHz (A Band), 108 MHz - 579.99 MHz (B Band), continuous reception for short-wave, FM/AM broadcasts, aircraft, public service channels, etc.
(USA version Cellular Blocked)

■ Preset Receiver Function with an Extensive array of Major Broadcasting Stations

The FT2D has a preset receiver function with various frequencies and tags recorded in special memory banks, making it easy to call up stations in the various communication services.

■ Simultaneous broadcast radio reception and 2-channel VHF/UHF monitoring

Two independent receivers will allow you to listen to your favorite AM or FM broadcast station, and monitor two different bands (“A Band” and “B Band”) at the same time.

Loud 700 mW Audio Output

The FT2D 700 mW audio output is unprecedented for a portable, and it has been tuned for even better sound quality.

Loud and Clear
C4FM Voice Quality

■ microSD card slot

The unit accepts micro SD cards (up to 32 GB) for storage of GPS logger data. The location points and route information of your moving station, or during a hike, can be recorded and displayed later on a personal computer with mapping software. Back up frequency channel programming, transceiver configuration parameters.

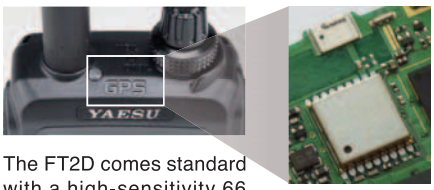
■ 1200/9600 bps APRS® Data communication

APRS® information display, received station list display, message transfer, as well as SmartBeaconing™ are also supported. You will be able to display the information, station list; and use the message, SmartBeaconing™ function.

APRS® Display
FT2D displays the positions, heading directions of the station, distances, icons (48 kinds), weather information, object, etc.

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

Built-in High Sensitivity GPS Antenna



The FT2D comes standard with a high-sensitivity 66 channel GPS antenna.

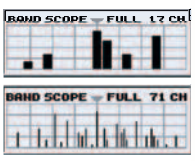
High-sensitivity GPS antenna & receiver

■ Water protection IPX5 Rating

The IPX5 equivalent rating insures the unit will withstand rain or splashes of water.

■ High-resolution band scope

The integrated band scope of the FT2D can capture and display up to 71 channels. Even during a sweep, the currently received audio will not be interrupted.



Band Scope Screen

* Within the B Band receive frequency range, in FM mode or AM mode.

■ Includes high-capacity lithium-Ion battery

The high-capacity lithium-Ion battery pack SBR-14LI (2200 mAh) comes standard with the transceiver. Thanks to advanced power saving engineering, up to 10 hours in digital mode and 12 hours in analog FM mode is possible.

* Duty Cycle based on Tx 6 sec., Rx 6 sec., Standby 48 sec.
(Tx Power 5 Watts, Rx audio output 10%THD, Battery save 1:5, Monoband receive, and GPS function off.)
* Operating times may vary depending on operating conditions.

Many additional features

• Large-capacity 1327 ch memory and twenty-four 100 ch memory banks • Illuminated keyboard that will permit easy operation in dark environments • Three types of Vibrate Alert function
• High-Intensity Color LED and illumination function • Easy to use dual-axis knob allows convenient volume control and dial operation • Memory TAG up to 16 characters
• DSQ (Digital Squelch) feature • Built-in CTCSS, DCS, new Pager function encode/decode enables Selective call features • Built-in highly accurate 24-hour Clock by GPS receiver
• DTMF Encode • DTMF Memory • Built-in On/Off Timer, Automatic Power Off (APO) and Time-out Timer (TOT) • Versatile Scanning for the Monitoring Enthusiasts
• GPS data output feature • Data Terminal for data communication • External DC input • Useful Battery saving features • Password Lock function

SPECIFICATIONS

General

Frequency Range A (Main) Band RX: 0.5 - 1.8 MHz (AM Radio)
1.8 - 30 MHz (SW Radio)
30 - 76*1 (88*2) MHz (50 MHz HAM)
76*1 (88*2) - 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 - 999.99 MHz (GEN2)
USA Version 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 - 579.99 MHz (UHF Band)
TX: 144 - 146 MHz or 144 - 148 MHz
430 - 440 MHz or 430 - 450 MHz
Channel Steps: 5, 6.25, 8.33, 9, 10, 12.5, 15, 20, 25, 50, 100 kHz
(8.33 kHz : only for Air band, 9 kHz : only for AM Radio)
Frequency Stability: ±2.5 ppm -4°F to +140°F (-20°C to +60°C)
Emission Type: F1D, F2D, F3E, F7W
Supply Voltage: Nominal: 7.2 V DC, Negative Ground SBR-14LI
Nominal: 7.4 V DC, Negative Ground FNB-101LI
Operating: 4 - 14 V, Negative Ground (EXT DC JACK)
11 - 16 V, Negative Ground (EXT DC JACK with SDD-13)

Current Consumption: 120 mA (Mono band Receive)
180 mA (Dual band Receive)
80 mA (Mono band Receive, Standby)
110 mA (Dual band Receive, Standby)
50 mA (Mono band Receive, Standby, Saver On "Save Ratio 1:5")
50 mA (Dual band Receive, Standby, Saver On "Save Ratio 1:5")
+20 mA (GPS On)
+20 mA (Digital)
90 mA (Mono band Receive AM/FM Radio)
400 µA (Auto Power Off)
1.6 A (5 W TX, 144 MHz 7.2 V DC)
1.8 A (5 W TX, 430 MHz 7.2 V DC)
Operating Temperature: -4° F to +140° F (-20°C to +60°C)
Case Size: 2.4"(W) × 4.3"(H) × 1.3"(D) (62 × 110 × 32.5 mm)
(w/SBR-14LI, w/o knob, antenna, & belt clip)
2.4"(W) × 4.3"(H) × 1.1"(D) (62 × 110 × 27 mm)
(w/o SBR-14LI, knob, antenna, & belt clip)
Weight (Approx.): 10.93 oz (310 g) w/SBR-14LI, antenna

Transmitter

RF Power Output: 5 W (@ 7.2 V or EXT DC)
Modulation Type: F1D, F2D, F3E: Variable Reactance modulation
F7W: 4FSK (C4FM)
Spurious Emission: At least 60 dB below (@TX Power Hi, L3)
At least 50 dB below (@TX Power L2, L1)

Receiver

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

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*1 (88*2) MHz, @NFM)
1.5 µV TYP for 12 dB SINAD (76*1 (88*2) - 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, Cellular Blocked)
0.19 µV TYP for BER 1% (Digital Mode)
Selectivity: NFM, AM 12 kHz / 35 kHz (-6 dB / -60 dB)
AF Output: 700 mW (8 Ω for 10 % THD) Internal Speaker
300 mW (8 Ω for 10 % THD) External Speaker Jack

*1 American Version *2 Asian, Australian and European Versions

*APRS® is a registereted trademark of Bob Bruninga, WB4APR. SmartBeaconing™ from HamHUD Nichetronix.

OPTIONS

Speaker Microphone with Snapshot camera
MH-85A11U

Speaker / Microphone
MH-34B4B

Earpiece Microphone
SSM-57A

VOX Headset
SSM-63A

Microphone Adapter
CT-44

Belt Clip
SHB-13*3

Lithium Ion Battery Packs (1100 mAh)
FNB-101LI
(The belt clip differs from the SHB-13 supplied with the unit.)

Lithium Ion Battery Packs (2200 mAh)
SBR-14LI*3
(The belt clip differs from the SHB-13 supplied with the unit.)

Battery Charger*3
SAD-14B*4, PA-48B/C/F/U*5
SAD-16H*5

Rapid Charger
CD-41

3x "AA" Cell Battery Tray
FBA-39

PC Connection Cable (Dsub9)
CT-169

PC Connection Cable (USB)
SCU-19

Data Cable
CT-170

Data Cable (2.5φ)
CT-176

Cloning Cable
CT-168

DC Cable
E-DC-6

Soft Case
SHC-24

DC Cable with Cigarette-Lighter Plug
SDD-13

BNC-to-SMA Adapter
CN-3

*3 The same as the supplied accessory *4 USA Version only *5 SAD-14B for USA version / PA-48B for 120VAC / PA-48C for 220-240 VAC / PA-48F for 220 VAC / PA-48U for 220-240 VAC w/UK Plug / SAD-16H for 220-240 VAC w/Australian Plug

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.

YAESU
The radio

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VEGETABLE OIL INK

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