

C4FM/FM 144/430MHz Dual Band Digital Mobile Transceiver

FTM-310D ASP

FTM-310D (SPU-1 is required for ASP Operation)

All New C4FM/FM Dual Band Mobile

- | | |
|---------------------|--|
| C4FM | Excellent Digital Audio Quality thanks to Outstanding C4FM BER (Bit Error Rate Characteristics) |
| Super-DX+ASP | Unparalleled Expanded FM Communication Range with Super-DX + ASP Noise Cancelling for Weak Signals |
| PMG | Up to 5 frequencies can be easily registered and monitored in real time in a bar graph |
| AESS | The Phase Modification Dual Speaker System for Clear and High-Fidelity Audio |



« Actual Size »

FTM-310DR ASP / FTM-310DR: US, Asia and Australia
FTM-310DE ASP / FTM-310DE: Europe

The FTM-310D series has not been approved by the FCC. This product may not be sold or leased, or offered for sale or lease until FCC approval has been obtained.



* BU-5 is required for Bluetooth Operation

Engineered for Clarity, Previously Unheard Voices can now be heard both in Digital and Analog Modes

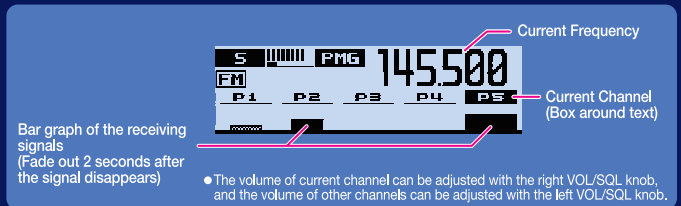
C4FM Digital with Excellent Bit Error Rate Characteristics to ensure Stable Communications

Analog FM with Super-DX + ASP (Audio Digital Signal Processor) for Comfortable Communications even for Weak Signals

[PMG: Primary Memory Group] Up to 5 frequencies can be registered and then easily monitored

The PMG function displays the receive status of registered channels in a bar graph in real time by using two different receivers. The AUTO or MANUAL mode is selectable according to user's preference, by pressing and holding the right DIAL knob.

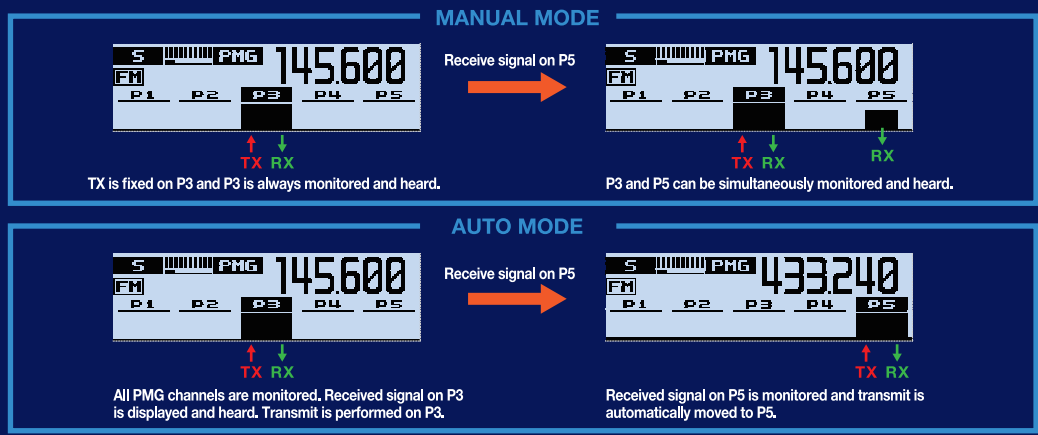
Up to 5 VFO or Memory Channel frequencies can be assigned to the PMG. Registration and cancellation of the PMG channels can be performed with one-touch operation.



In the MANUAL mode, the manually selected PMG channel is always monitored and transmit also stays on that channel. The received signal in the other PMG channel is also displayed and heard.

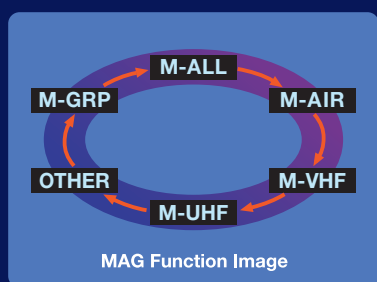
AUTO/ MANUAL modes are switchable by pressing and holding the right DIAL knob.

In the AUTO mode, all PMG channels are always monitored and up to two channels can be simultaneously heard. Transmit is automatically moved to the received channel.



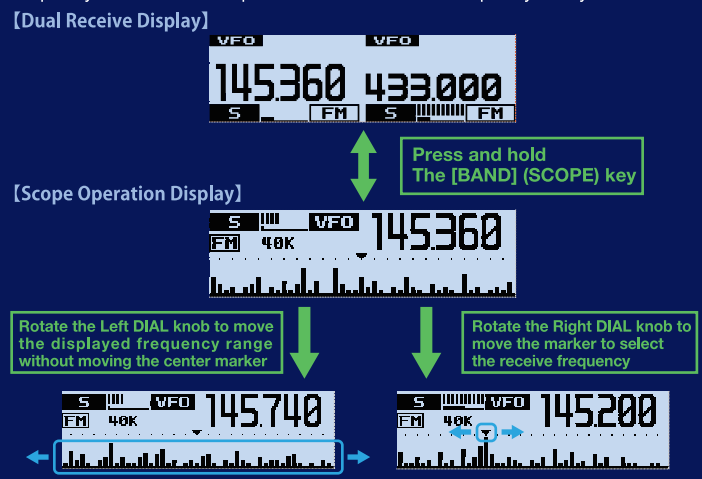
Memory Auto Grouping (MAG)

The Memory Auto Grouping (MAG) function automatically enables Memory Channels to be categorized in each band and can be quickly recalled by Band groups. By pressing the [BAND] (SCOPE) key while operating on a Memory Channel, the bands will switch in the order of each band. In "M-GRP" (My Group), memory channels can be set to M-GRP regardless of the frequencies. In "M-ALL", all memory channels can be recalled.



[Dual Receive] ↔ [High-Speed Scope Operation]

By simply pressing and holding the [BAND] (SCOPE) key, dual reception and scope operation are switchable. The scope screen shows the marker ▼ channel and displays the activity and signal strength of up to 47 channels (up to 23 channels in memory mode) in real time. Rotating the Left DIAL knob moves the center frequency. A received signal at the center frequency is heard. Rotating the Right DIAL knob moves the marker and allows user to receive the signal of the marker frequency. Transmit can be performed on the marker frequency at any time.



CFL (Customized Function List) registering Frequently Used Functions

Frequently used functions from 127 Menus can be registered. (Up to 9 Menus [M→V], [GM], [WIRES-X], [WIRES-X] are unchangeable.) A single-press of the [F] key reveals the list of priority functions and then the functions may be easily executed, or the settings can be changed.

M→V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR		

Customized Function List Screen

C4FM Digital: Outstanding Audio Quality/ Automatic Selection of Analog or C4FM Digital Communication

Excellent C4FM Digital Audio Quality

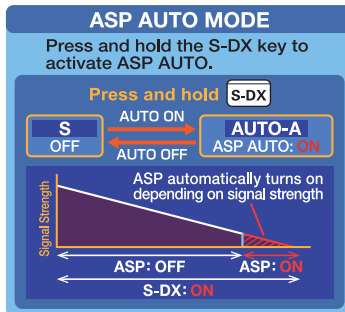
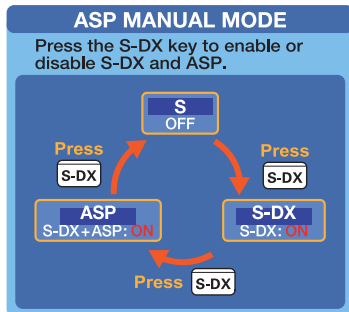
C4FM Digital is the standard mode for professional communication devices and has excellent audio quality (BER: Bit Error Rate Characteristics). By adding YAESU's original error correction technology, the FTM-310D series has achieved comprehensive high-grade communications – uninterrupted and clear-crisp audio in a wide communication range.

FM Friendly Digital Communications using AMS (Automatic Mode Select)

AMS automatically determines if the received signal is C4FM Digital or conventional FM and sets the receiver to appropriate mode. The AMS function enables FM compatible digital operation by removing the need for users to manually switch between digital and analog modes.

Unparalleled Expanded FM Communication Range with Super-DX + ASP (Audio Digital Signal Processor)

The Super-DX function can increase the RF amplifier gain to improve reception sensitivity when the received signal is weak. In addition to Super-DX, ASP (Audio Digital Signal Processor) can be activated, which permits digitally processes the received FM analog signal in the AF to separate and remove noise. The weak signals that were previously buried in noise and inaudible can be heard with clear audio quality. By pressing and holding [S-DX] key, ASP AUTO mode is turned on and ASP automatically activates when the transceiver detects the weak signals in FM analog modes. * The ASP function works with analog FM mode and AM mode.



DG-ID (Digital Group ID)/ Group Monitor (GM)

DG-ID function allows using the two-digit ID numbers (00-99) to communicate only with specific group members who set the same DG-ID number in advance. When the DG-ID number is set to "00", the audio of all stations can be received. The Digital Group Monitor (GM) function automatically confirms whether the stations with the same DG-ID are operating within communication range and displays the distance and direction for each call sign (up to 4 stations). Specifically selected station can be displayed in real time on the compass screen.



Group Monitor Screen

Loud Front Speaker + AESS Dual Speaker System

3W Loud Front Speaker

The 3W front speaker inside the control-head ensures clear and powerful audio output. The front speaker is positioned downwards within the control-head, with slits at the rear to improve sound escape, and the wide tapered grille at the bottom of the head is designed to efficiently go the sounds to the front. Even in separate operation where the main-unit is installed under the seat, comfortable operation is possible without adding an external speaker.

AESS Dual Speaker System produces for High-Fidelity Audio

The total audio output is 6W, which is generated by AESS consists of the front speaker and main-unit speaker. By varying the phase, output balance and frequency characteristics of front and main-unit speaker output, AESS achieves clear and high-fidelity audio and ensures reliable communications even in outdoor or noisy environment.



AESS Dual Speaker System Image

* AESS: Acoustic Enhanced Speaker System
* The main-unit speaker will not sound when the ASP function is in use.

Versatile Functions that ensure Enjoyable Ham Operation

Wide-Band Reception

The FTM-310D series provides continuous wide-range receive coverage from 108MHz to 550MHz in the C4FM digital, analog FM and AM modes.

True Dual Band Operation with C4FM/C4FM Simultaneous Receive, Independent knobs and LED indicators for each band

Two independent receiver circuits provide true dual-band operation, whether in the same band or in different bands (V+V/ U+U/ V+U/ U+V). In addition, the FTM-310D series supports C4FM/C4FM simultaneous receive. Call signs and location data of C4FM digital can also be received simultaneously on both bands. The dial knobs, VOL/SQL knobs, LED indicators for each band are placed independently on the left and right sides of the control head, making it easy to see the status of each band and allowing intuitive operation.



Dial knobs and LED Indicators for each band are placed independently on the left and right side

Control-Head with Microphone jack

The FTM-310D series provides microphone connections to either the control-head or the front of the main-unit. Comfortable mobile operation is provided either when the control-head is attached to main-unit and detached.

Angle variable Swing-head ensures Excellent Visibility

By attaching the optional Swing-head kit (SJKM-500) to the control-head, flexible angle adjustment is possible. Even when the installation space is limited, operation from the best angle can be achieved.

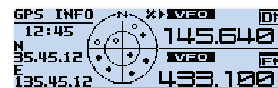


Swing-Head Kit: SJKM-500 Installation Image

*Extension cable (SCU-62/ CT-132) is not required when installing the Control-head with SJKM-500.

High Precision GPS Receiver

High-sensitivity 66 channel GPS receiver is equipped in the Control-head. With the C4FM Digital Group Monitor operation, the position and direction of the contact stations can be displayed in real time.



GPS Compass Display

1200/9600bps APRS® Data Communication

An APRS® received station information list is displayed. Message exchange as well as Smart Beaconing® are supported. The location information between your station and other stations can be exchanged and displayed on the compass display to view the positional relationship. In addition, APRS® movement trajectory can be confirmed on the internet websites.



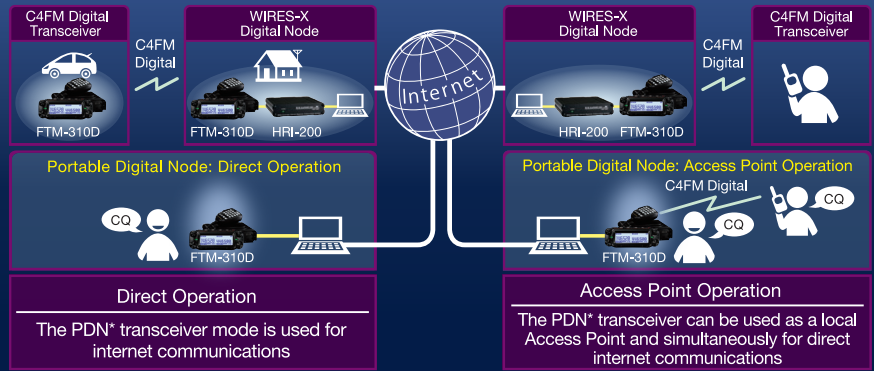
APRS Display

Portable Digital Node Function

Worldwide communications are enabled with the Digital node station connected to the internet. With the Wires-X Portable Digital Node function, the FTM-310D series can connect to the Wires-X network through an internet connected PC, from any location.

Operate digital node stations even when you are away from home using the Internet online

Easily enjoy Internet communications using the FTM-310D and a PC, no need to connect to a Wires-X node station



Simpler and Highly-mobile, Portable Digital Node Function

*PDN: Portable Digital Node station

Other Practical Features

- FACC* cooling system ensures Stable 55W(VHF)/50W(UHF) High-Power Output
* FACC: Funnel Air-Convection Conductor
- Large 1103 Memory channels
- Recording function
- DTMF Memory
- Hands-free Bluetooth® Operation*
* BU-5 is required.
- VFO Band Skip function
- Memory Data Transfer to the VFO Register
- microSD Card Slot
- Split Memory function
- VOX (Voice Activated Transmit) Operation
- Voice Recorder/ Voice Guide of the current frequency
* Optional FVS-2 is required
- Amber and white selectable backlight color
- Illuminated keyboard to assist operation in dark or poor lighting
- Sub-band Off Function that displays frequency in large size numbers
- DTMF Encode/ Memory functions
- Versatile Rear panel DATA terminal (GPS data output; Waypoint data output; Packet; HRI-200 or WIRES-X Portable Digital Node connection)
- Built-in: CTCSS; DCS; and Pager (EPCS) encode/decode functions, enable the Selective Call features
- Automatic Power Off (APO)
- ARS (Automatic Repeater Shift)
- Time-out Timer (TOT)
- NOAA Weather alert: when available in-service area*
* Check local regulations for availability in your region.

SSM-85D multifunctional microphone with a DTMF provides the user with quick access to major functions (Supplied accessory)



- [MUTE] Audio Mute
- [1] to [0] Enters the numbers and letters
- [*] Changes the VFO/Memory operating modes of the operating band
- [#] Changes the operating band
- [A] No function assigned
- [B] Switches between Main-band and Sub-band
- [C] Adjusts the squelch level
- [D] Switches to the scope display
- [P1] Second PTT function (Default setting)*
- [P1] to [P4] Assignable from 18 functions*

*Functions to be assigned to [P1] through [P4] can be selected from among 18 functions. (e.g.: Change the transmit power; Switch WIRES-X mode; Change the Mode Digital/Analog)

Specifications

General	Transmitter	Receiver
Frequency Range: RX: 108 - 137MHz (AIR Band) 137 - 174MHz (144MHz HAM / VHF Band) 174 - 400MHz 400 - 480MHz (430MHz HAM / UHF Band) 480 - 550MHz *1 TX: 144 - 148MHz or 144 - 146MHz 430 - 450MHz or 430 - 440MHz (Depends on the transceiver version) Channel Steps: 5, 6.25, (8.33), 10, 12.5, 15, 20, 25, 50, 100kHz (8.33kHz: Only for Air band) Frequency Stability: ±2.5ppm -4°F to +140°F (-20°C to +60°C) Emission Type: F1D, F2D, F3E, F7W Supply Voltage: Nominal 13.8V DC, Negative Ground Current Consumption: 0.5A (Receive) 11A (55W TX, 144MHz) 10A (50W TX, 430MHz) Operating Temperature: -4°F to +140°F (-20°C to +60°C) Case Size: Radio Unit 5.47"(W) x 1.66"(H) x 5.2"(D) (139 x 42 x 132mm) w/o Fan Controller 6.14"(W) x 2.52"(H) x 2.31"(D) (156 x 64 x 58.6mm) w/o Knobs Weight (Approx.): 3.09 lbs. (1.4kg) Transceiver Unit with Control-head	RF Power Output: 55W (144MHz), 50W (430MHz)/25W/5W Modulation Type: F1D, F2D, F3E: Variable Reactance Modulation F7W: 4FSK (C4FM) Maximum Deviation: ±5kHz Spurious Emission: At least 60dB below Microphone Impedance: 2kΩ Data Jack Impedance: 10kΩ	Circuit Type: Double-Conversion Superheterodyne Intermediate Frequencies: 1st: MAIN 56.75MHz SUB 55.85MHz 2nd: 450kHz 0.8μV TYP for 10dB SN (108 - 137MHz, AM) 0.2μV for 12dB SINAD (137 - 150MHz, FM) 0.25μV for 12dB SINAD (150 - 174MHz, FM) 0.3μV TYP for 12dB SINAD (174 - 222MHz, FM) 0.25μV TYP for 12dB SINAD (222 - 300MHz, FM) 0.8μV TYP for 10dB SN (300 - 336MHz, AM) 0.25μV for 12dB SINAD (336 - 420 MHz, FM) 0.2μV for 12dB SINAD (420 - 470 MHz, FM) 0.2μV for 12dB SINAD (470 - 550MHz, FM) 0.19μV TYP for BER 1% (Digital Mode) Selectivity: NFM, AM 12kHz / 30kHz (-6dB / -60dB) AF Output: 3W (8Ω, THD 10%, 13.8V) Front Speaker 3W (8Ω, THD 10%, 13.8V) Internal Speaker 3W (8Ω, THD 10%, 13.8V) External Speaker 8Ω AF Output Impedance: 8Ω Strength of secondary radio waves: 4nW and below

■ Specifications are subject to change without notice, and are guaranteed within the amateur bands only. Frequency ranges and functions will vary according to transceiver version; check with your dealer.

Options

*Optional extension cable "SCU-62" or "CT-132" is not required. SJMK-500 Swing-head kit		Control-head Extension Cable SCU-62 10ft (3m) CT-132 20ft (6m)		* For FTM-310DR/FTM-310DE only SPU-1 Audio Digital Signal Processing Unit			
FP-1030A *2 AC Power Supply (25A)	FP-1023 *3 AC Power Supply (23A)	SSM-85D *4 DTMF Microphone		*BU-5 is required. SSM-BT20 Bluetooth® Headset		SCU-67 8-pin to 6-pin Microphone Connector Conversion Cable	

(Supplied Accessories) ● DTMF Microphone SSM-85D ● Mounting Bracket ● DC Power Cable *2 US and Asian versions only *3 US version only *4 The same as the supplied accessory
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● Bluetooth® name and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such trademarks by Yaesu Co., Ltd. is under license. Other trademarks and trade names are those of their respective owners.

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