

# HF EXCITEMENT

Blending leading-edge technologies developed on the FT-897 and MARK-V FT-1000MP transceivers, the FT-857 is the world's smallest\* HF/VHF/UHF Multimode Transceiver, and it's available now!

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# FT-857

ULTRA-COMPACT HF/VHF/UHF  
100 W\* ALL-MODE BASE STATION  
(HF/6 m 100 W, 2 m 50 W, 70 cm 20 W)



ACTUAL SIZE



# HF EXCITEMENT



## ULTRA COMPACT DESIGN

Measuring just 6.1" x 2" x 9.2" (155 x 52 x 233 mm), the FT-857 is the world's smallest full-power HF/VHF/UHF multimode transceiver! Its rugged case design is a masterpiece of ergonomic design, with often-used switches and knobs conveniently positioned for

## RUGGED, HIGH-OUTPUT TRANSMITTER DESIGN

Borrowing extensively from the FT-897 transmitter design, the FT-857's rugged power amplifier section utilizes Bipolar Transistor devices, providing low noise, low distortion, and high reliability. On HF and 6 meters, you get 100 Watts of clean power output, while on 2 meters you get 50 Watts out, and 20 Watts on 70 cm. Reliability is assured thanks to the extensive cooling system, featuring a thermostatically-controlled



## TX POWER OUTPUT (SSB, CW, FM)

HF 1.8 MHz	2	70 cm
5W - 100W	5W - 20W	2W - 20W

## HIGH-PERFORMANCE RECEIVER DESIGN

Building on the acclaimed performance of the FT-1000D, Mark-VI 1000MP, and FT-897, Yaesu's engineers have crafted the FT-857's front end for a very low noise floor, along with wide dynamic range. Utilizing an up-conversion architecture for HF with a 1.8 to 33 MHz, the FT-857 features a double-conversion superheterodyne system (single conversion on WFM), with the 2nd IF at 455 kHz. Extensive bandpass filtering in the front end, along with careful device selection and gain distribution, yield a receiver system ready for the strong-signal challenges of today's crowded bands! On VHF and UHF, the very low-noise MOS FET preamplifier is followed by an active DBM mixer, yielding the low noise figure required for weak-

## WIDE FREQUENCY COVERAGE

Providing transmitter coverage of the HF, 50 MHz, 144 MHz, and 430 MHz Amateur bands, the FT-857 also includes receive coverage on 100kHz to 56 MHz, 760 to 100 MHz, 118-164 MHz, and 420-470 MHz. Enjoy the excitement of public safety monitoring, along with weather broadcasts, AM and FM broadcasts, aviation broadcasts, as well as the action on the Hammarket!

## ENHANCED TRANSMITTER PERFORMANCE THROUGH DIGITAL SIGNAL PROCESSING

For superior interference rejection and transmitter "talk power," the FT-857's DSP circuitry enhances both sides of the communications circuit. The FT-857's 24-bit high-tech DSP signal processing

## DSP BANDPASS FILTER

Separate DSP Bandpass Filters for CW and VFO augment the analog filters for enhanced interference rejection. For Voice modes, you get 16 High-Pass Filter cutoff frequency selections, and 32 Low-Pass Filter selections, for a total of 512 combinations. And for CW, you can choose bandwidths of 240 Hz, 120 Hz, or a razor-sharp 60 Hz.

## DSP AUTO-NOTCH FILTER

To reduce interference caused by annoying carriers within the audio passband, the DSP Auto-Notch provides a significant reduction in the interference level. If multiple carriers are present, the DSP will detect and notch all the carriers present.

## DSP NOISE REDUCTION

The very effective Noise Reduction filter of the FT-857 utilizes as many as 16 noise-reduction algorithms, for use in a wide variety of noise environments, without introducing appreciable distortion on the desired signal. Operator fatigue is reduced, and signal-to-noise ratio is significantly enhanced.

## DSP MICROPHONE EQUALIZER

To match the FT-857's TX audio response to the waveform shape of your voice and the microphone in use, the DSP system includes a four-position Mic Equalizer circuit. The results are increased power, reduced distortion, and intelligible speech, all concentrated in your voice equalizer (US Version) emission modes: A1 (CW), A3 (AM), A3.1 (LSB/USB), F3 (FM), F1 (9600 bps packet), F2 (1200 bps packet) and F3 (1200 bps packet).

Antenna Impedance: 50 Ohms, Unbalanced  
Operating Temp. Range: +14° F to -140° F (-10° C to +60° C)  
Frequency Stability: ±4 ppm from 1 min. to 10 min after power on.

① 25 ± 0.5 ppm/1 hour @ 25°C  
② 25 ± 0.5 ppm/1 hour @ 25°C (with optional TCXO-9)

Supply Voltage: Nominal: 13.8 VDC ± 1.5 V, Negative Ground  
Current Consumption: Squelched: 100 mA (Approx.)

Receive: 1 A  
Transmit: 22 A  
Case Size: 6.1" x 2" x 9.2" (155 x 52 x 233 mm)  
Weight (Approx.): 4.6 lb. (2.1 kg)



## HIGH-PERFORMANCE PLL DESIGN

The quiet, fast-acting local oscillator system of the FT-857 borrows extensively from the FT-847 and FT-897, using a Direct Digital Synthesizer (DDS) to achieve fast lock times and silky-smooth tuning in steps as fine as 10 Hz. The excellent carrier-to-noise ratio helps preserve spurious-free dynamic range in a crowded band, and the smooth tuning leaves you with

## UNMATCHED EASE OF ACCESS TO FEATURES

Despite its compact size, the FT-857 is without peer in ease of access to the features and functions you need most!

## BIG-RADIO TUNING DIAL AND OUTSTANDING ERGONOMICS

Ease of operation of the FT-857 is enhanced by the large diameter 1.7" (Ø43 mm) Main Tuning Dial (10 Hz steps minimum), similar in size to the tuning knob of many base station rigs. What's more, the SELECT knob allows "channelized" tuning in minimum steps of 1 kHz on SSB/CW, or 5 kHz on FM, for quick and easy tuning around the band. All important keys are strategically placed around the front panel for quick access.

## EASY-TO-USE "SCROLLING FRONT PANEL" KEYS

The compactness of the FT-857 is made possible by the easy-to-use "multi-function" keys, which allow adjustment of a number of transceiver operating functions during operation. Pressing the [FUNC] key allows selection of the operating function row, using the Selector knob, and you may then press the [A], [B], or [C] key, as needed, to change the

## MULTI FUNCTION KEYS

	A key	B key	C key
MFA	(VFO A/B Selection)	(VFO A/B Selection)	(Split Operation)
MFB	(Write to Memory)	(Skip Search On/Off)	(TAG Memory Search Tag)
MFC	(STO Store)	(RCL Recall)	(PROC Process On/Off)
MFD	(Repeat/Scan On/Off)	(RPT Repeat/Scan On/Off)	(LOCK Lock On/Off)
MFE	(CTCSS On/Off)	(CTCSS On/Off)	(TOCH Tone Ch. Selection)
MFG	(ENC Encode)	(DEC Decode)	(TOCH Tone Ch. Search)
MFF	(ARTS ARTS On/Off)	(SRCH Search On/Off)	(PMS Power Save Mode)
MFG	(Scan Start)	(Priority Ch. Watch)	(Dual Watch)
MFH	(SCG Squelch)	(Scope Monitor)	(STEP Step On/Off)
MFI	(MTR Meter)	(PWR Power)	(DISP Display Size)
MFO	(SPOT Spot On/Off)	(BK Break On/Off)	(CW Keyer On/Off)
MFK	(TUNE Tune On/Off)	(DOWN Down On/Off)	(UP Up On/Off)
MFL	(NE Noise On/Off)	(AGC AGC On/Off)	(AUTO Auto On/Off)
MFM	(IPQ Inhibit On/Off)	(ATT Attenuator On/Off)	(NAR Narrow Dev.)
MFN	(CPL Call On/Off)	(NA Narrow Band)	(Optional Pr. 2)
MFO	(PLV PLV On/Off)	(PLV PLV On/Off)	(Optional Pr. 3)
MFP	(DNR Dist. On/Off)	(DNF Dist. On/Off)	(DBF Dist. On/Off)
MFQ	(MONI Monitor On/Off)	(OSPL On/Off)	(TSD Tone Test)

\*This row of functions is user-programmable (defaults shown)

## SPECIFICATIONS

Transmitter	SSB/CW/FM	AM Carrier
RF Power Output (at 1.8 VDC)	100 W	25 W
160-6 Meters:	100 W	25 W
2 Meters:	50 W	12.5 W
70 Centimeters:	20 W	5 W
Modulation Types:	SSB, Balanced Modulation (AM, Early Stage Low Level), FM, Variable Reactance	SSB/CW/FM
FM Maximum Deviation:	±25 kHz (FM-Hi: 22.5 kHz)	SSB/CW/FM
Spurious Radiation:	-50 dB (1.8-29.7 MHz)	SSB/CW/FM
Carrier Suppression:	-60 dB (50/144/430 MHz)	SSB/CW/FM
Dist. Sideband Suppression:	< -50 dB	SSB/CW/FM
Microphone Impedance:	200-10k Ohms (Nominal: 600 Ohms)	SSB/CW/FM
Circuit Type:	Double-Conversion Superheterodyne (SSB/CW/FM/FM)	SSB/CW/FM
Intermediate Frequencies:	1.8-33 MHz (SSB/CW/FM/FM), 10.1 MHz (WFM)	SSB/CW/FM
	2nd: 455 kHz	SSB/CW/FM

## ADVANCED FEATURES FOR ACTIVE DXers

**\*IF Shift:** Use the IF SHIFT feature to vary the center frequency of the IF passband, so as to eliminate interference above or below the current operating frequency.

**\*Noise Blanker:** Optimized for use in the mobile environment, the FT-857 includes a highly-effective IF Noise Blanker specifically designed for suppression of ignition and other pulse-type noises. The Noise Blanker's threshold is adjustable via the Menu.

**\*Intercept Point Optimization (IPO):** For reception of the lower HF bands, where low Noise Figure is not required, the IPO feature causes the RF preamplifier to be bypassed, allowing direct signal input to the first mixer. An input attenuator is also provided, for very noisy conditions.

**\*Adjustable AGC:** The Automatic Gain Control (AGC) circuitry of the FT-857's receiver may be adjusted, by the operator, for Slow or Fast recovery times. A convenient "Auto" feature programs "Fast" AGC for CW, and "Slow" for voice modes. And the AGC may also be turned off, if desired, allowing manual gain control from the front panel.

**\*Clarifier (RLT):** For split-frequency pile-ups or to follow drifting signals, the Clarifier control provides up to ±9.99 kHz of adjustment of the receiver's frequency, without changing the transmit frequency. For wider-split pileups, the "Split" mode allows you to use VFO-A and VFO-B separately, too.

**\*RF Gain Control:** For noise reduction and/or variation of the AGC system threshold, the Menu allows the front panel's "Squelch" control to operate as an "RF Gain" control.

**\*VOX:** For hands-free voice operation, the VOX

## CW OPERATING FLEXIBILITY

The FT-857 is without peer in its array of most-asked-for features for the CW operator! **\*Built-In Electronic Keyer:** The FT-857's built-in Electronic Keyer includes a weight control, as well as Menu capability to reverse the "Dot" and "Dash" contacts on your connector. **\*CW Message Memory with Beacon Mode:** For repetitive "CQ TEST" and contest exchange messages, the FT-857 includes a three-message memory capability. The "Beacon" mode may be used to send a 100/700/600 Hz tone "beacon" with the meter using 0.5X-peditions.

**\*CW Pitch/Sidetone Control:** The CW Pitch control allows the transmitted signal to be offset 400 Hz to 700 Hz from the "beacon" pitch to the receive frequency. This adjustment simultaneously varies the center frequency of the RX passband (including the DSP BPF), as well as the CW Sidetone pitch. The Sidetone therefore serves as a "Spot" signal during tuning.

**\*CW Trainer:** A popular feature of the FT-857 is the CW Trainer, which will send five-character

**EASY DATA-MODE SETUP**  
For operation on a wide variety of digital modes, including 1200/9600 bps FM packet, RTTY, SSTV, or PSK31, the rear-panel 6-pin mini-DIN connector provides easy Data I/O lines, plus PIT and Ground. For PSK-31 and other AFSK modes, the injection sidetone (USB/LSB) is selectable, along with BFO and Display Shift and

## ADVANCED CONVENIENCE FEATURES FOR VHF/UHF OPERATION

The FT-857 is a VHF/UHF operator's dream come true!

**\*Variable Tone Control Selections:** Both CTCSS and DCS Encoder/Decoders are built in! For easy access to repeaters, a 50-tone CTCSS system works along with a 104-code Digital Code Squelch (DCS) in the FT-857. For applications requiring split CTCSS/DCS access, a convenient "Split Tone" feature is also provided, along with the ability to encode (only) CTCSS or DCS, if desired.

**\*Automatic Repeater Shift:** On the 144 MHz and 430 MHz bands, the FT-857 will automatically activate the repeater shift appropriate for the part of the band in which you are operating.

**\*Smart Search™:** When visiting a new city, use the Smart Search system to scan the F/MAM Mode for activity. When busy channels are found, they will be automatically loaded into a special Smart Search™ memory bank, for easy recall.

**\*Spectrum Scope™:** If you have to be away from your radio for a few minutes, turn on the Spectrum Scope to keep watch on band activity. The Spectrum Scope will create a bar-graph display of activity on channels above and below your current operating frequency.

**\*ARTS™ (Auto-Range Transponder System):** During Search-and-Rescue operations, the ARTS™

## ACCESSORIES & OPTIONS

Deluxe Ultra-High Quality DTMF Microphone MD-200AUX	Remote Control DTMF Microphone MH-59AUX	DTMF Microphone MH-38AUX	Lightweight Stereo Headphone YH-778TA	0.5 ppm High-Stability Reference Oscillator TCXO-9	Collin® SSB Filter (500 Hz/2 kHz; ±8 dB/-20 dB) YF-122S	Collin® CW Filter (300 Hz/2 kHz; ±8 dB/-20 dB) YF-122C	Collin® CW Filter (400 Hz/2 kHz; ±8 dB/-20 dB) YF-122CN	VHF/UHF Antenna Base Mounting Kit for AT-145/150 ATBK-100	COSTCO ONLY
External AC Power Supply Unit DSP-2	Digital Signal Processor Unit YSK-857	Separation Kit YSK-857	External Automatic Antenna Tuner FC-30	CAT Interface Cable CT-82	Packet Cable CT-39A	BAND DATA Cable CT-58	HF/50 MHz 1 kW Linear Amplifier VL-1000 - VP-1000	Motor Drive Auto-Tuning System ATAS-120	

Supplied Accessories: Hand Microphone MH-31AUX, Mobile Mounting Bracket MMB-82, DC Power Cord

About this brochure: We have made this brochure as comprehensive and practical as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. 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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