FT-840

COMPACT HIGH PERFORMANCE HF TRANSCEIVER

YAESU

Performance Forward

Blending the high performance digital frequency synthesis techniques from the FT-890 with the operating convenience and affordability of the FT-747GX, the FT-840 adds a choice of two optional remote automatic antenna tuners and a wealth of convenient functions. For compact base and mobile stations, the FT-840 sets the new standard for high-performance affordable transceivers. As a first-time rig, back-up or main station transceiver, the FT-840 has the features and dependability that both beginners and seasoned operators will appreciate.

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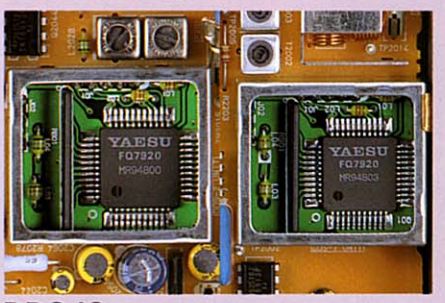
Direct Digital Frequency Synthesis

Two direct digital synthesizers (DDSs) and a magnetic rotary encoder provide silent, silky-smooth tuning, pure local signals and very fast transmit/receive switching. Frequency accuracy and stability are assured by driving both DDSs from a single master oscillator, and the optional TCXO-4 temperature-compensated crystal oscillator is available for enhanced ± 2-ppm stability from –10 to +50°C.

Two Automatic Antenna Tuners

A choice of two automatic antenna tuners is available for the FT-840, each with its own microprocessor and memories which automatically store most recent antenna matching settings for nearly instant recall while changing operating frequency. The matching FC-10 can be mounted right next to the transceiver, or the FC-800 can be installed remotely at the antenna feed point. Each antenna tuner is controlled from the FT-840 front panel.



DDS IC

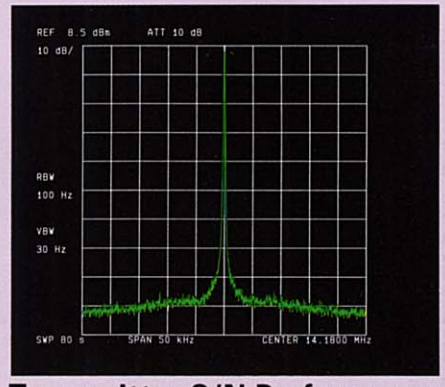
Clean Transmitter Output

The digitally synthesized local signals ensure clean, low-noise transmitter output: up to 100 watts on all HF amateur radio bands in CW, SSB and FM* modes, and up to 25 watts carrier in AM mode.

*FM operation requires optional unit.

Wide Receiver Dynamic Range

The receiver tunes all frequencies between 100 kHz and 30 MHz in 10-Hz steps. For clear weak-signal work, the low-noise, high-performance receiver front-end feeds an active FET balanced mixer. A 12-dB attenuator can be inserted in the receiver front-end for clear copy of even very strong signals.



Transmitter C/N Performance

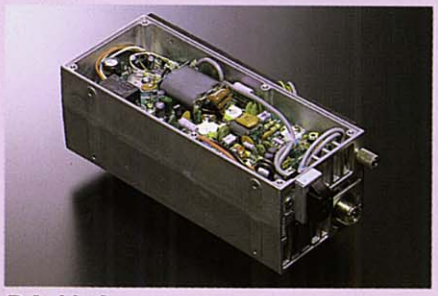
YAESU, Choice of the World's Top DX'ers

16-Bit Main CPU

The 16-bit main microprocessor is assisted by four co-processors to provide the simplest possible control interface for the operator. Two independent (A/B) VFOs for each band (20 total) hold their own frequencies and modes, as well as clarifier offsets and repeater shifts, when used. One hundred memories store all of this data for both VFOs, giving a total of 220 independent sets of frequency, mode and other selections. Of course all memories can be freely tuned and scanned, but ten special memories also let you limit the tuning/scanning range between their stored frequencies. External PC control of most functions by a serial-port-equipped external personal computer is made possible using the FIF-232C CAT Interface option connected to the CAT jack on the rear panel.

Quality Construction

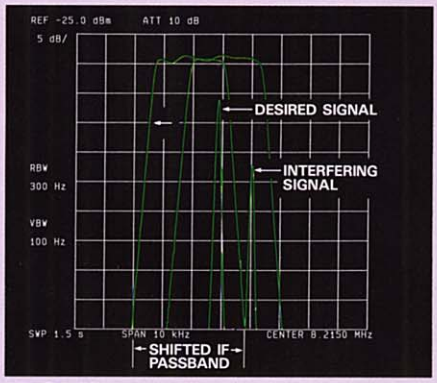
The FT-840 uses a modular die-cast RF power amplifier/heat sink with an internal thermally switched fan to allow full transmitter output without any rear panel protrusions to block access to connectors and controls. Modular circuit design employs surface-mount components on composite epoxy boards for high efficiency, reliability and serviceability. The FT-840 weighs under 5 kg, and runs cool all the time.



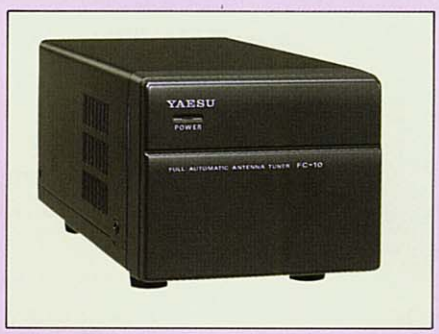
PA Unit

IF Shift, Reverse CW Sideband & Extras

Interference rejection is facilitated by the unique "up-down-up" conversion scheme, and also provides an adjustable IF shift control to vary the receiver passband. Special features for CW include the reverse CW sideband feature, which prevents having to re-tune lost signals when switching between LSB and CW modes, and helps side-step adjacent interference. The adjustable CW pitch (400-Hz~1000-Hz) lets you match that used by your TNC or multi-mode controller. The optional YF-112C 500-Hz narrow IF crystal filter can be installed for enhanced CW-narrow skirt selectivity, or the optional YF-112A AM-wide crystal filter is available for the best reception of shortwave broadcasts. Other valuable features include an effective noise blanker, all-mode squelch and multi-function front-panel meter.



IF Shift



FC-10/FC-800

FC-10 & FC-800 Remote Automatic Antenna Tuner Options

Both the FC-10 and FC-800 provide all-band transmitting capability with an end-fed random wire or long whip antenna (the FC-10 antenna tuner should be used with antennas requiring coaxial feed line, such as beams). Both tuners make use of the control circuitry built into the FT-840, which allows the operator to control and monitor automatic operation of the FC-10 or FC-800 mounted near the antenna feed point. The FC-10 provides a compact, easy-to-install unit that is styled to match the appearance of the FT-840. For more demanding applications, the FC-800 uses specially selected thermally stable components and is housed in a waterproof casing to reliably withstand severe climatic extremes.

Both the FC-10 and FC-800 match a wide variety of antennas to within a 1.5:1 SWR on any amateur band frequency in typically less than 30 seconds. Transmitter power required for matching can be as little as 10 watts, and matching settings are automatically stored in memory for instant recall when the same frequency range is reselected later.

Rear View

OPTIONS

FP-800 AC Power Supply with Loudspeaker

FP-800

MD-1C8 Desktop Microphone with UP/DOWN/FAST Tuning Buttons

MD-1C8

TCXO-4 Master Reference Oscillator

For special applications and environments where extra frequency stability is essential, the TCXO-4 temperature-compensated crystal oscillator is a 2-ppm (from –10 to +50°C) replacement for the reference oscillator.

TCXO-4

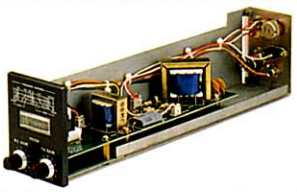
SP-6 Loudspeaker with Audio Filters and LL-5 Phone Patch Option

Selectable audio high- and lowpass filters with a large loudspeaker complement the audio characteristics of the FT-840 with your choice of 12 different audio filtering combinations. Two input terminals are provided for multiple transceivers, with a front panel switch to select between them. A phone jack is provided on the front panel to take advantage of the audio filters with headphones. With the optional LL-5 Phone Patch Unit installed in the SP-6, the FT-840 can be patched to the public telephone network. The LL-5 includes a hybrid transformer circuit to assure proper impedance matches, and gain controls and level meter to set proper audio levels on the telephone line. (VOX control not avaialble).

SP-6

YH-77ST Lightweight Headphones

Dual samarium-cobalt transducers with sensitivity of 103 dB/mW (2 dB @ 1 kHz, 35Ω) provide the perfect match for the FT-840, taking full advantage of the spectaclular audio performance.



LL-5

FIF232C CAT System Interface

To control the FT-840 from an RS-232C serial port of an external personal computer, use the FIF-232C to convert the TTL levels required by the transceiver to the SC-232C levels required by the serial port. A cable is included for connection between the transceiver and the FIF-232C (the cable to the computer must be provided separately). The FIF-232C includes its own AC power supply.

YH-77ST

IF Crystal Filter Options

For extra CW receiver selectivity, install the 500-Hz YF-112C. Also, for enhanced AM-wide receiver fidelity, the YF-112A 6-kHz crystal filter may be installed in addition to the standard 2.7 kHz filter (also used for SSB).

FC-10 Matching External Antenna Tuner

This compact antenna tuner requires only two plug-in cable connections to the FT-840, and allows convenient automatic antenna matching. The FC-10's size and appearance is styled to match the FT-840 and is an attractive addition to your Yaesu station line-up.

IF Xtal Filter

FC-800 External Remote Antenna Tuner

For more demanding applications, the FC-800 is a weather-resistant automatic antenna matching unit that can be installed outdoors at the antenna feedpoint, or at the antenna whip for mobile operation.

FM Unit-747

Installing this unit permits narrow-band FM reception and transmission, as used with 29.0-MHz Amateur 10-meter simplex and repeater operation.

FM Unit-747

MMB-20 Mobile Mounting Bracket

SPECIFICATIONS

GENERAL

Receiving Frequency Range: 100 kHz~30 MHz
Transmitting Frequency Range:
160 ~10 meter Amateur Bands
Frequency Stability: ±10 ppm (or ±500 Hz FM*),
from 0 ~+40°C and ±2 ppm (or ±300 Hz FM*),
from 0 ~+50°C (w/TCXO-4 option)
Emission Modes:
USB, LSB (J3E), CW (A1A),
AM (A3E), FM* (F3E)
Frequency Tuning Steps:
10 Hz/100 Hz (CW, SSB)
100 Hz/1 kHz (AM, FM*)
Antenna Impedance: 50Ω nominal
Operating Temp. Range: –10 ~+50°C
Supply Voltage:
13.5-V DC ±10% negative ground
Power Consumption (approx.):
1.2 A rx (no signal)
20 A tx (100 watts)
Dimensions (WHD): 238 x 93 x 243 mm
Weight (approx.): 4.5 kg

TRANSMITTER

Power Output: Adjustable up to 100 watts
(25 watts AM carrier)
Modulation types:
SSB: Balanced, filtered carrier
AM: Low-level (early stage)
FM*: Variable reactance
Maximum FM Deviation: ±2.5 kHz
Harmonic Radiation: > 50 dB below peak output
45 dB (10, 18 MHz)
Spurious Radiation: > 40 dB below peak output
SSB Carrier Suppression:
> 40 dB below peak output
Undesired Sideband Suppression: at least 50 dB
below peak output at 1.5 kHz modulation
Audio Response (SSB): not more than –6 dB
from 400 ~2600 Hz
3rd-order IMD: –25 dB @100 watts PEP, 14.2 MHz
Microphone Impedance: 500 to 600Ω

RECEIVER

Circuit Type: dual-conversion superheterodyne
Intermediate Frequencies: 1st 47.055 MHz
2nd 8.215 MHz
3rd 455 kHz (FM*)
Sensitivity:
(for 10 dB S/N, 0 dBμ = 1 μV FM* 12 dB SINAD)

Frequency ⇒ Mode (BW) ⇓	150~250 kHz	250~500 kHz	0.5~1.8 MHz	1.8~30 MHz
SSB, CW (2.4 kHz)	< 5 μV	< 2 μV	< 1 μV	< 0.25 μV
AM (6 kHz)	< 40 μV	< 16 μV	< 8 μV	< 1 μV
FM*(28~30 MHz) (8 kHz)	—	—	—	< 0.5 μV

Selectivity: (–6/–60 dB) ripple 3 dB or better

Modes	Minimum 6 dB BW	Maximum 60 dB BW
CW narrow (optional)	500 Hz	1.8 kHz
SSB, CW, AM narrow	2.2 kHz	5.0 kHz
AM-wide (optional)	6 kHz	14 kHz (–50 dB)
FM*(optional)	8 kHz	19 kHz

Squelch Sensitivity:
1.8~30 MHz (CW, SSB, AM): < 2.0 μV
28~30 MHz (FM*): < 0.32 μV
IF Rejection (1.8~30 MHz):
60 dB or better
Image Rejection (1.8~30 MHz):
70 dB or better
IF Shift Range: ±1.2 kHz
Clarifier Tuning Range/Steps: ±1.25 kHz/20 Hz
±2.50 kHz/10 Hz
Maximum Audio Power Output:
at least 1.5 watts into 4Ω with < 10% THD
Audio Output Impedance: 4 to 8Ω

*FM operation requires optional unit.

Specifications are subject to change, in the interest of technical improvement, without notice or obligation.

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