



FT-990

ALL MODE HF TRANSCEIVER



FT-990

SPECIFICATIONS

GENERAL

Receiving frequency range:

100 kHz - 30 MHz

Transmitting frequency range:

160-m band, 1.8 - 2.0 MHz

80-m band, 3.5 - 4.0 MHz

40-m band, 7.0 - 7.5 MHz

30-m band, 10.0 - 10.5 MHz

20-m band, 14.0 - 14.5 MHz

17-m band, 18.0 - 18.5 MHz

15-m band, 21.0 - 21.5 MHz

12-m band, 24.5 - 25.0 MHz

10-m band, 28.0 - 29.7 MHz

Frequency stability:

< ±10 ppm from -10°C to +50°C

(except FM, < ±200 Hz)

< ±0.5 ppm from -10°C to +50°C

w/TCXO-2 option

(except FM, < ±150 Hz)

Emission mode:

LSB/USB (J3E), CW (A1A),

FSK (J1D, J2D), AM (A3E), FM (F3E)

Basic frequency steps:

10 Hz for J3E, A1A and J1D

100 Hz for A3E, F3E and J2D

Antenna impedance:

50 ohms, unbalanced

Supply voltage:

100, 110, 117, 200, 220 or 234 VAC

Power consumption (approx.):

60 VA receive, 470 VA for 100 watts trans

Dimensions:

368 (W) x 129 (H) x 335 (D) mm

Weight (approx.):

13 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

FSK Audio frequency shift keying

Maximum FM deviation:

±2.5 kHz

FSK shift frequencies:

170, 425 and 850 Hz

Harmonic radiation:

at least 50 dB below peak output

SSB carrier suppression:

at least 40 dB below peak output

Undesired sideband suppression:

at least 50 dB below peak output

Audio response (SSB):

not more than -6 dB from 400 to 2600 Hz

3rd-order IMD:

-36 dB for 14 MHz

Microphone impedance:

500 to 600 Ω

RECEIVER

Circuit type:

Triple conversion superheterodyne

Intermediate frequencies:

1st 47.21 MHz, 2nd 10.94076 MHz

and 3rd 455 kHz

Sensitivity:

With preamp on, for 10 dB S/N,

(0 dBμ = 1 μV)

| Frequency Mode (BW) | 100 - 250 kHz | 250 - 500 kHz | 0.5 - 1.6 MHz | 1.8 - 30 MHz |
|-----------------------------|---------------|---------------|---------------|--------------|
| SSB, CW (2.4 kHz) | < 4 μV | < 1 μV | < 2 μV | < 0.25 μV |
| AM (6 kHz) | < 10 μV | < 2 μV | < 4 μV | < 1 μV |
| 28 MHz FM (for 12 dB SINAD) | — | — | — | < 0.5 μV |

Selectivity (-6 / -60 dB):

| Button | Modes | Minimum -6 dB BW | Maximum -60 dB BW |
|---------|------------------|------------------|-------------------|
| 2.4 kHz | all exc. FM | 2.2 kHz | 4.0 kHz |
| 2.0 kHz | all exc. AM, FM | 1.8 kHz | 3.6 kHz |
| 500 Hz | CW, RTTY, Packet | 500 Hz | 1.8 kHz |
| 250 Hz | CW, RTTY | 240 Hz | 700 Hz |
| — | AM (wide) | 6 kHz | 15 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):

80 dB or better

Image rejection (1.8 - 30 MHz):

80 dB or better

IF shift range:

±1.2 kHz

Maximum audio power output:

2 watts into 4 Ω with < 10% THD

OPTIONS

TCXO-2 High Stability Master Reference Oscillator

For special applications and environments where extra frequency stability is essential, such as for long-term HF packet monitoring under wide temperature variations, the TCXO-2 provides 0.5-ppm stability from -10 to $+50^{\circ}\text{C}$ for the master reference oscillator.

MD-1cs Desk-Top Microphone

Designed especially to match the electrical and cosmetic features of the FT-990, the MD-1cs has $600\text{-}\Omega$ impedance, and includes up/down scanning buttons and a large PTT switch with latch.

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

Selectable audio high- and lowpass filters together with a large loudspeaker complement the superb audio characteristics of the FT-990 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 (monaural) 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-990 can be patched to the public telephone network. The LL-5 includes a hybrid transformer circuit to assure proper impedance matches, and front panel gain controls and level meter to set proper audio levels on the telephone line.

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-990, taking full advantage of the spectacular audio performance.

DVS-2 Digital Voice System

Serving as either a continuous receiver recorder for instant pushbutton playback, or microphone audio recorder for multiple on air playback, the DVS-2 applies the advantages of random-access solid-state digital memory to serious communications. All data is stored electronically, with no moving parts except your finger and the pushbutton.

FIF-232C CAT System Interface

To control the FT-990 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 RS-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.

IF Crystal Filter Options

For extra receiver selectivity in CW mode, the XF-455K-251-01 8-pole 250-Hz crystal filter may be installed in the 455-kHz 3rd IF of the FT-990, to cascade with the 500-Hz 2nd IF filter installed at the factory.

Also, for SSB reception under difficult conditions, the XF-10.9-202-01 8-pole 2-kHz crystal filter may be installed in the 10.9-MHz 2nd IF, and switched in from the front panel when more selectivity is needed.



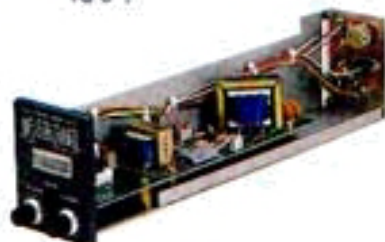
MD-1cs



DVS-2



SP-6 1100^F



LL-5



TCXO-2 845^F



YH-77ST



XF-10.9-202-01 365^F
XF-455K-251-01 700^F

FIF 232c - 805^F

930^F