



DATA

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Technical Data

TYPE 357 RECEIVER



The 357 is the latest in the line of CEI VLF receivers which started with the popular 351. Its advanced features further enhances CEI's position of leadership in the design and production of general-purpose VLF receiving equipment. The 357 tunes from 1 kHz to 600 kHz in a single band. Four IF bandwidths are provided: 150 Hz, 1 kHz, 3 kHz, and 6 kHz. Crystal bandpass filters are used to determine all IF bandwidths. A four-digit Nixie display is used to indicate the frequency to which the receiver is tuned. By using the display's decimal shift feature, the indicated frequency is within 10 Hz of the received frequency throughout the tuning range.

A digital automatic frequency control (DAFC) circuit in the 357 permits locking the receiver's local oscillator to the counter for the frequency display. In addition to counteracting local oscillator drift, the DAFC circuit, in effect, acts as a frequency synthesizer to provide the equivalent of 60,000 crystal-controlled frequencies, each separated by 10 Hz, when used in the decimal shift mode. Thus the 357 can be locked to a particular frequency whether or not a signal is present.

Also new on the 357 is an extremely effective and fast acting noise canceller circuit which, when used, eliminates all types of impulse noise, such as lightning and ignition, from the receiver's output. The canceller is tunnel-diode triggered to gate off the output for the duration of a noise spike above a preset threshold level. A front-panel control is provided to set the threshold level.

The low incidental FM of the local oscillator and extremely versatile BFO section makes the 357 Receiver suitable for FSK and SSB, as well as AM and CW reception. There are five separate beat frequency oscillators. One has a variable frequency which may be shifted 7 kHz each side of the receiver's 2-MHz IF center frequency. The other four oscillators are crystal controlled and provide outputs which zero beat with the IF frequency, give a 5.5-kHz beat note, and give upper or lower sideband reception of SSB signals (depending on the sideband transmitted) when used with the 3-kHz IF bandwidth.

This extremely versatile receiver has been designed using solid-state devices exclusively except for the frequency display Nixie tubes. It, therefore, exhibits high reliability and low power requirements.

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SPECIFICATIONS

Frequency Range	1 kHz to 600 kHz (Lower Band limit 500 Hz)
Types of Reception	AM, SSB, CW, MCW, and FSK
Noise Figure	Less than 5 dB
Sensitivity (at 50-ohm input impedance and 1-kHz IF bandwidth)	CW and FSK, 1 kHz to 10 kHz: 5 microvolts for 20 dB (s plus n)/n CW and FSK, 10 kHz to 600 kHz: 0.5 microvolt for 20 dB (s plus n)/n MCW and AM, 50 kHz to 600 kHz: 1 microvolt for 10 dB (s plus n)/n
Input Impedance	50 ohms or 1000 ohms, selectable by rear-panel switch
Input Attenuator	0 dB, -20 dB, -40 dB, or -60 dB, selectable by front- panel switch
Maximum Input Level	1 volt, rms, with input attenuator in -60 dB position
IF Bandwidths	150 Hz, 1 kHz, 3 kHz, or 6 kHz selectable by front- panel switch
Image Rejection	70 dB, minimum
IF Rejection	60 dB, minimum
Dynamic Range	AGC or Manual: 55 dB, minimum
Digital AFC	Holds receiver tuning within ± 100 Hz of the indicated frequency in the normal AFC mode, and within ± 10 Hz in the decimal shift AFC mode.
Noise Canceller	Attenuates receiver output approximately 40 dB for duration of impulse-type noise spikes. Threshold of canceller adjustable by front-panel control.
BFO	Five separate BFO's: One variable ± 7 kHz by front- panel control and four crystal controlled: (1) to provide zero beat with IF frequency; (2) a 5.5-kHz beat note; and (3) upper or (4) lower sideband reception of SSB signals.
Incidental FM	Less than 10 Hz peak deviation
Outputs	Six: front-panel phone jack (2000 ohms, nominal); rear-apron audio, 6 milliwatts (600 ohms, balanced); local oscillator output; IF output; AM detector output; and signal monitor output
Audio Bandwidths	Normal (100 Hz to 7 kHz) or narrow (825 Hz to 1175 Hz), selectable by front-panel switch
Power	115/230 vac, 50-400 Hz, approximately 25 watts
Size	19-inches wide, 3.5-inches high, and 19.5-inches deep
Weight	20 lbs., approximately

PRICE: \$4,200.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.