



# Technical Data

## TYPE 903B VHF RECEIVER



The CEI type 903B Receiver is a highly compact unit which tunes the frequency range of 30 to 300 mc in two bands: 30 to 60 mc and 60 to 300 mc. Small size, low temperature rise, and high performance have been obtained by the use of solid-state devices for those functions for which they are best suited and the use of Nuvistors where high gain and stability at high frequencies are required. Particular attention to over-all size in the design of the receiver has resulted in a unit which requires 3.5-inches of vertical rack space and projects only about 13-inches back into the rack.

The receiver provides for the reception of AM, FM, and CW signals through IF bandwidths of 300 kc and 50 kc; the bandwidth in operation is controlled by a switch on the front panel of the unit. A built-in BFO operates with either IF bandwidth when the receiver is placed in the CW mode.

An automatic noise limiter (ANL) and a carrier operated relay (COR) are included in the receiver. The noise limiter removes noise peaks present on AM signals; this feature can be disabled with a front-panel switch. The COR provides for the operation of remote devices as a function of the received carrier level. Both the COR operating sensitivity and the COR release time can be adjusted by controls on the unit.

### SPECIFICATIONS

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|---|---|
| Type of Reception .....                     | AM, FM, and CW  |
| Frequency Range .....                       | 30 to 300 mc in two bands: Band A, 30-60 mc; Band B, 60-300 mc    |
| Dial Accuracy .....                         | ± 1%  |
| Input Impedance .....                       | 50 ohms, type BNC connector                                       |
| Noise Figure .....                          | Band A, 4 db maximum; Band B, 6.5 db maximum                      |
| Image Rejection .....                       | Band A, 60 db minimum; Band B, 50 db minimum                      |
| IF Rejection .....                          | 54 db minimum at 30 mc; 80 db minimum above 50 mc                 |
| Oscillator Radiation at Antenna Input ..... | 15 $\mu$ v maximum, 30 to 260 mc; 25 $\mu$ v maximum, 260-300 mc. |
| Local Oscillator Frequency .....            | Incoming signal plus 21.4 mc                                      |
| Intermediate Frequency .....                | 21.4 mc   |
| IF Bandwidths .....                         | 50 kc or 300 kc, selectably by front-panel switch                 |

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|                                 |  |
|---------------------------------|--|
| Sensitivity                     |  |
| 300-kc Bandwidth .....          | AM: 4 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 6 $\mu$ v input, modulated at 1 kc with 100 kc deviation, produces 21 db (s plus n)/n, minimum    |
| 50-kc Bandwidth .....           | AM: 1.75 $\mu$ v input, modulated 50% at 1 kc rate, produces 10 db (s plus n)/n, minimum<br>FM: 2 $\mu$ v input, modulated at 1 kc with 18 kc deviation, produces 21 db (s plus n)/n, minimum. |
| Output Stability .....          | AM: Output varies less than 2 db for input level range of 2 $\mu$ v to 10 mv<br>FM: Output varies less than 2 db for input levels above 1.5 $\mu$ v  |
| Manual Gain Control Range ..... | Greater than 100 db  |
| Noise Limiter .....             | Automatically clips noise peaks of AM signals. Can be disabled by front-panel control  |
| Video Output .....              | 1 volt rms into 100 ohms. Amplifier response: less than 3 db variation from 100 cps to 150 kc  |
| Audio Output .....              | 100 mw into 600 ohms. Amplifier response: 100 cps to 40 kc at 3 db points  |
| FM Deviation Sensitivity .....  | Approximately 0.012 volts/kc deviation for 300 kc BW; 0.07 volts/kc deviation for 50 kc BW   |
| Discriminator Linearity .....   | 1%   |
| BFO .....                       | Crystal controlled at 21.4 mc; adjustable $\pm$ 20 kc by front-panel control   |
| SM Output .....                 | Output at 21.4 mc center frequency provided to operate CEI Signal Monitors   |
| IF Output .....                 | 50 mv minimum into a 50-ohm load   |
| Meters .....                    | Tuning and Signal Strength   |
| Carrier Operated Relay          |  |
| Sensitivity .....               | Less than 1 $\mu$ v  |
| Range .....                     | Adjustable to operate over an input signal level range of at least 1 $\mu$ v to 500 $\mu$ v  |
| Delay .....                     | Adjustable for 0, 3, 5, or 10 second delay   |
| Output .....                    | One set of SPDT contacts and two sets of SPST contacts   |
| Front-Panel Controls .....      | BANDWIDTH: 50-KC-300 KC; ANL-ON; BFO TUNING; VIDEO GAIN; AUDIO GAIN/PWR-OFF; Bandswitch; RF-IF GAIN; COR SENSITIVITY   |
| Power Input .....               | 105-125 volts, 50-400 cps  |
| Power Consumption .....         | 30 watts, approximately  |
| Weight .....                    | 20 lbs, approximately  |
| Over-all Size .....             | 19-inches wide, 3.5-inches high, and 15-inches deep  |

PRICE: \$2,400.00

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