

**WIDE-RANGE AM/FM
RECEIVERS**

R110 & R110B



- The R-110 is a light weight, low power portable receiver with exceptional sensitivity, very low noise figure and large dynamic range. The basic receiver tunes over a frequency range of 1 kHz to 1 GHz and includes 26 bandwidths.
- The R-110 has proven itself in testing and surveillance applications throughout the world.
- The R-110B receiver is an enhanced version of the R-110 with several added features. Covering the same frequency range of 1 kHz to 1 GHz, FM demodulation, 33 bandwidths from 200 Hz to 200 MHz in a 1:2:5 sequence, pulse stretch and slideback controls, and an accurate peak-reading DVM to measure video signal levels and provide encoded data via the IEEE-488.2 bus are included.
- The front panels have been engineered for clarity and ease of operation. A full complement of analog controls, push-button switches, keypad, and alphanumeric displays are provided. All of these features are easy to learn and help the R-110 and R-110B user accomplish tasks with ease and efficiency.
- Both the R-110 and R-110B receivers accept plug-in modules to enhance capabilities or to tailor the receiver for particular applications. The Low Frequency Extender option uses one slot and extends tuning range to 100 Hz, and adds 50 Hz and 100 Hz IF filters.
- The receivers can be supplied in a portable configuration which includes collapsible side handles and folding stand. Ears are available for rack mounting.
- The receivers are compatible with various accessories, including the R-1180 Microwave Downconverter, which extends the frequency range to 18 GHz, and the R-110-40 Panoramic Display.

FEATURES

Frequency Range: 1 KHz to 1 GHz (100 Hz with LFE option)

Noise Figure: 9 dB mid-range, 13 dB max

Dynamic Range: Greater than 60 dB

Tuning: Keypad input, tuning knob and tuning pushbuttons; selectable resolution; automatic scan

Input Attenuator: 0-70 dB in 10 dB steps; Manual or automatic (auto-range) operation

Gain: Single knob optimally adjusts internal gains

IF Bandwidths: 33 filters, 200 Hz to 200 MHz in modified 1:2:5 sequence (plus 500 and 100 Hz with LFE option)

Demodulation Modes: AM, CWQ and FM

Video Output Modes: Linear, Log, Aux-video (with pulse-stretch and slideback) and Z axis

Visual and Audible Alarms: Warn of incorrect operations and out-of-spec conditions

Panel Displays: Separate LED displays for Frequency, Attenuation, Gain, Bandwidth and DVM (video level)

Indicators: 30 LED mode/status lightbars, High-Low Power Line Warning: Power line condition indicated on front panel

Low Weight and Small Size for Portability: 42 lbs., 5.25" x 17" x 22", 1.1 cu. ft.

Carrying Handles: collapsible side handles facilitate carrying (rack mount kits available)

Specifications

IF Inputs:	Two, with remote/local select
Frequency Range:	1kHz – 1GHz; 100Hz – 1GHz with LFE option
Noise Figure (nominal):	100Hz (w/LFE) to 20kHz: 12dB 20kHz-600MHz: 9dB 600MHz-1GHz: 12dB
1st Order Intercept:	0dBm
Spur-free Dyn. Range:	Better than 60dB
Input Characteristics:	VSWR: Better than 2:1 Impedance: 50Ω nominal Max. RF: 1W average CW LO Leakage: Less than –90dB
Residual Responses:	Less than –120dBm
RF Rejection:	At least 80dB
Attenuator:	0-70dB in 10dB steps
Band Selection:	Automatic
Band Frequency Range:	Band 1: 1kHz – 249.99kHz Band 2: 250kHz – 14.99MHz Band 3: 15MHz – 1GHz
Tuning Resolution:	0.1Hz below 250kHz 1.0Hz from 250 kHz to 15MHz 100Hz from 15MHz –1GHz
Oscillator:	Type: Oven controlled Quartz Aging: 1PPM per year Stability: 0.05PPM, 0-60C Output: Greater than 0dBm
Receiver Frequency Stability and Accuracy: .05PPM after 30 minutes	
Sig. Mon Output:	15MHz max. BW
IF Center Frequency:	21.4MHz
Wide BW IF Center Frequency:	1450MHz
IF BW (R110):	200Hz – 10MHz (in 1-2-5 sequence) plus 15, 40, 100 and 200MHz. 50 and 100Hz with LFE Option, Additional narrow BW filters in 1.0 – 1.25 – 1.6 – 2.0 – 3.2 – 4.0 – 5.0 – 6.4 – 8.0 sequence in “Alternate BW” Mode. IF Impulse Response: Overshoot less than 2% for BW <20kHz, 12 % for BW>20kHz.
IF Filter Shape Factor:	4:1
IF Output Level:	At least 10dB into 50Ω
AGC:	Keypad Selectable
Demodulation/ Detection Modes: AM, CW, BFO, FM, (with R110B only)	
Video Outputs:	Separate AM/FM, Aux. Video and Z-axis outputs; AM has linear and log modes; Aux. Video has pulse stretch and slideback; Z-axis has adjustable level and inversion.
Video BW:	Not less than ½ selected IF BW
Video Linear Dyn. Range:	At least 35dB
Video Log Dyn. Range:	At least 70dB
Video outputs:	1V min. (50Ω)
Z-axis:	Adjustable to 2 vrms and reversible
Audio:	>1vrms (8Ω); flat 20 Hz-20kHz
Power:	Line Voltage: 117/230VAC +15% Power Dissipation 120W