

CR-1: Active Subwoofer Crossover

The lucky few who have heard a well-integrated subwoofer in a great audio system know that the subwoofer's effect is profound. While everyone expects the bass extension to improve, most are shocked at the transformation that occurs in the main speakers. They simply open up, delivering improved dynamics, superior imaging and more low-level detail. Many describe it as the greatest speaker upgrade they have ever made.

Over the years, we have calibrated many subwoofer systems in highly critical listening environments, and we have been frustrated by the limitations of active crossovers we have worked with. Tired of struggling with "blunt instruments", we felt that a higher precision tool was needed, so we decided to build it and call it "CR-1". When properly set up, CR-1 creates a listening experience in which the subwoofers and main speakers become one, delivering a cohesive and compelling sonic presentation.

The CR-1 Active Subwoofer Crossover has been designed by audiophiles, for audiophiles. We believe it has no equal, offering a powerful combination of subwoofer/satellite tuning features, and a complete commitment to analog signal purity.

CR-1 is built around two banks of precision Linkwitz-Riley low-pass and high-pass filters. Multiplying DACs with monolithic ratio matching are employed to adjust

the analog circuit's filter frequencies. This offers superior tracking behavior and far more precise left/right channel balance, compared to conventional approaches.

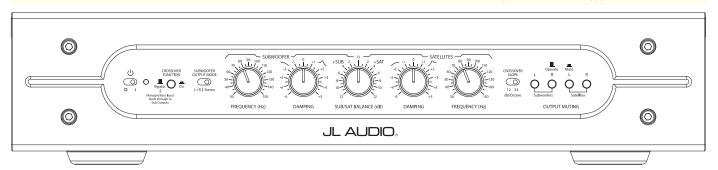
Another of CR-1's unique and powerful features is a pair of rotary controls that control the damping of each filter bank. These damping controls dramatically improve the acoustic summing through the crossover region, by compensating for each speaker system's frequency response. At the center of the front panel, a single intuitive, rotary control permits quick adjustment of the relative level between the subwoofer(s) and main speakers.

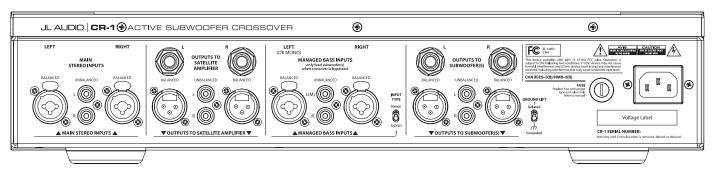
To minimize distortion and noise, CR-1 employs top-grade component parts in its all-analog audio circuitry: 1% precision resistors, JFET-input audio-grade op-amps, polypropylene film-and-foil capacitors and metallized-polypropylene film capacitors, to name just a few.

CR-1's input-output design makes it equally adaptable to studio, mastering suite or audiophile two-channel playback environments. To accommodate dual-mode systems, we also include a bypass feature that engages a pass-through from a dedicated "Managed Bass Input" on the rear panel, to the CR-1's subwoofer outputs. This makes it convenient to switch from two-channel to multi-channel mode.

CR-1 is the ultimate tool for subwoofer integration.

CR-1 Features: **CR-1** Specifications: **Main Stereo Inputs: Power Modes: Maximum Input Voltage:** Unbalanced L/R: (2 RCA jacks) Off/On, selectable via front panel switch 8 Vrms (+18 dBv) Balanced L/R (2 XLR/TRS combo jacks) **Managed Bass Inputs: Input Impedance: Crossover Function:** Unbalanced L/R: (2 RCA jacks) Unbalanced: 50 kΩ Bypass or On, selectable via front panel switch Balanced L/R (2 XLR/TRS combo jacks) Balanced: $20 \text{ k}\Omega$ ($10 \text{ k}\Omega$ per leg) **Satellite Line Outputs: Subwoofer Output Modes: Maximum Output Voltage:** Unbalanced (2 RCA jacks) Mono L+R or Stereo, selectable via front panel switch 8 Vrms (+18 dBv) Balanced (2 TRS jacks, 2 XLR jacks) **Subwoofer Line Outputs: Output Impedance: Crossover Frequency Range:** 30 Hz – 150 Hz, variable with independent high-pass Unbalanced L/R: (2 RCA jacks) Unbalanced: 150 Ω and low-pass filter frequency controls on front panel Balanced L/R: (2 TRS jacks, 2 XLR jacks) Balanced: 300Ω (150 Ω per leg) THD + Noise: **Subwoofer/Satellite Balance Control:** < 0.002% at 8 Vrms/10 $k\Omega$ +/- 12 dB, fully variable via front panel knob 20 Hz - 20 kHz, 90 kHz bandwidth **Filter Damping Controls:** Q: 0.3 - 1.4 @ 12 dB/octave, via front panel knob **Channel Separation:** Q: 0.16 - 4.0 @ 24 dB/octave, via front panel knob >80 dB at 1 kHz For either slope, Q = 0.5 at top dead center "0" mark **Crossover Slopes: Low Pass Frequency Response:** 12 dB/octave or 24 dB/octave, Linkwitz-Riley +0, -1 dB from 5 Hz to 1/4 of filter frequency selectable via front panel switch **Output Muting: High Pass Frequency Response:** independent for each output, via front panel +0, -1 dB from 4x filter frequency to 80 kHz push-button switches **Ground Lift: Power Consumption:** Isolated/Grounded, via rear panel switch 30 Watts (typical, with or without signal) Mains Voltage (Frequency): 120V (60 Hz) or 230/240V (50 Hz or 60 Hz). factory-set for destination country **Dimensions (HxWxD):** 3.80 in. x 17.40 in. x 15.67 in. 97 mm x 441 mm x 398 mm







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