



RDL[®]
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

STICK-ON[®] SERIES

Model ST-LEQ1

Loudness Equalizer

- Loudness Contour to Follow Volume
- Improved Aural Flatness at Low Levels
- Installer-Adjusted Loudness Equalization
- Automatic Loudness Equalization when Used with any RDL VCA/Remote



The ST-LEQ1 is part of a group of products in the STICK-ON series from Radio Design Labs. The durable adhesives provided with the ST-LEQ1 permit permanent or removable mounting. Numerous available mounting accessories, brackets and rack-mount chassis are optionally available to facilitate any system design. STICK-ONS are designed, built and rated for continuous duty in professional A/V systems.

Whenever audio levels are changed, there is an apparent frequency response change to the ear. This is particularly noticeable in background music systems where economical speakers and low listening levels are typical. The ST-LEQ1 is an inexpensive tool to make a significant improvement in the sound quality of such systems.

APPLICATION: The ST-LEQ1 has 2 line-level audio inputs and a single line-level audio output. The audio signal to be equalized connects to the **EQ INPUT**. If it is desired to mix an unprocessed source with the output signal, this second source is connected to the **DIRECT INPUT**. Loudness equalization is applied to the **EQ INPUT** signal as the **CONTROL** voltage is varied. The equalized input is normally used for music; the direct input is typically used for paging.

The ST-LEQ1 may be operated together with any equipment which provides a 0 to 10 Vdc control. It is specifically designed to operate with other RDL equipment using 0 to 10 Vdc for level control. Because the ST-LEQ1 works with any RDL VCA module, all RDL remote level controls are suited for use with the ST-LEQ1. RDL digitally controlled attenuators provide an output terminal **EQ RAMP** to control the ST-LEQ1.

The line-level audio source is normally fed through the RDL VCA product first, then through the ST-LEQ1. The audio output from the ST-LEQ1 feeds the system amplifier or other equipment. The **CONTROL** terminals to the ST-LEQ1 are wired in parallel with the 0 to 10 Vdc terminals on the RDL VCA or from the **EQ RAMP** terminals on RDL digitally controlled attenuators. The remote volume control associated with the VCA/ST-LEQ1 combination is adjusted to produce a normal low listening level, then the installer sets the desired loudness equalization on the multi-turn trimming potentiometer on the ST-LEQ1. As the listening level is increased by the remote control, the loudness equalization is progressively decreased until the audio is flat at higher listening levels. With the audio first routed through the VCA, then through the LEQ1, the **DIRECT INPUT** of the ST-LEQ1 is both unequalized and unattenuated. The **DIRECT INPUT** is typically intended for a paging signal input which will always be the same level regardless of the setting on the remote volume control. If it is desired to mix in a paging signal while allowing its level to be adjusted by the remote volume control, the audio may be routed first through the ST-LEQ1, then through the VCA.

Wherever a loudness equalizer is needed, the ST-LEQ1 is the ideal choice. Use the ST-LEQ1 individually, or combine it with other RDL products as part of a complete audio/video system.



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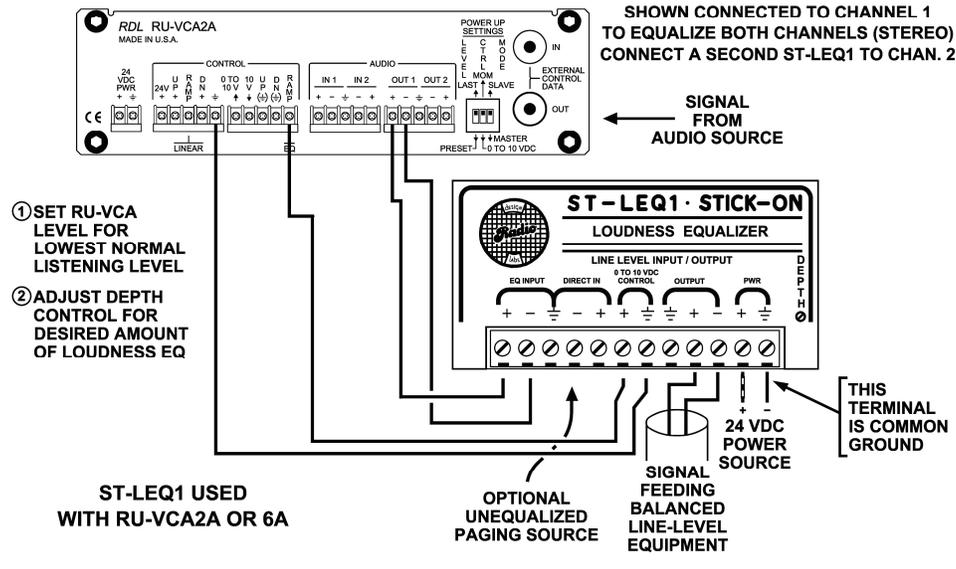
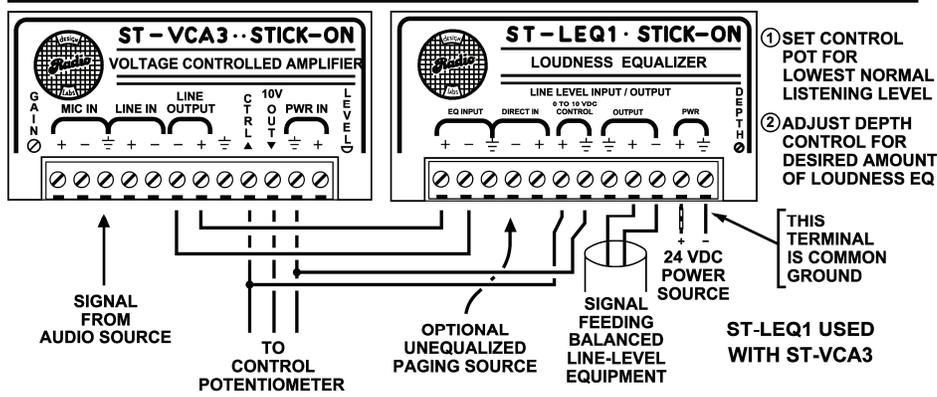
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Loudness Equalizer

Installation/Operation



EN55103-1 E1-E5; EN55103-2 E1-E4
 Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.



TYPICAL PERFORMANCE

- Inputs (2): Line level (+4 dBu nominal)
- Input Impedance: > 30 kΩ (balanced or unbalanced)
- Gain: Unity nominal (into 600 Ω)
- Output Impedance: 150 Ω (balanced or unbalanced)
- Headroom: > 16 dB (above +4 dBu)
- THD+N: < 0.005% (flat response)
- CMRR: > 50 dB (Either input, 50 Hz to 120 Hz)
- Noise: < -90 dB below +4 dBu (flat response)
- Frequency Response: 10 Hz to 40 kHz (± 1 dB)
- Control Input: 0 to 10 Vdc
- Equalization: Flat to -15 dB max @ 1 kHz (effective boost of low and high frequencies)
- Ambient Operating Environment: 0° C to 55° C
- Power: GROUND-REFERENCED, 24 Vdc @ 35 mA

