

**RDL**® *Radio Design Labs*™

*Specialists in Practical Precision Engineering*™



## **RACK-UP® SERIES**

### **Model RU-SM12**

### **Dual Audio Meter**

#### **ANYWHERE YOU NEED...**

- Precision Audio Level Metering
- Digital String Display Indication
- Precise Left/Right Meter Tracking
- Individual Channel Calibration Controls
- Selectable PEAK or AVERAGE Metering
- Selectable Metering of Peak L+R/L-R
- 1/3-Rack, High-Density Rack Mounting



#### ***You Need The RU-SM12!***

The RU-SM12 is part of the group of RACK-UP products from Radio Design Labs. RACK-UPs feature the advanced circuitry for which RDL products are known, combined with accessible user-friendly controls and displays. The ultra compact design permits high-density installations, with *three* products mounted in a single rack unit! Single RACK-UPs can be mounted right where they are needed using the adhesive method popularized by RDL's STICK-ON™ series of products. Optional brackets permit mounting a RACK-UP module above, below, or in front of any flat surface!

**APPLICATION:** The RU-SM12 is the ideal choice in most applications where audio level metering is to be designed into a system, or added to existing equipment. All connections are made using full-size barrier block terminals on the rear panel.

The RU-SM12 has two separate line level inputs. Each input permits the connection of either balanced or unbalanced, high or low impedance audio lines.

When a stereo source is used, one channel is connected to each of the two inputs. In this configuration, the RU-SM12 provides a separate display for each input. The level calibration reference is user adjustable from the front panel. Unlike meters that use an off-the-shelf chip, the RU-SM12 develops a single precision reference for each metering increment. Comparators are used to switch the LEDs in the string display, with the respective comparators for each channel connected to the same reference. Therefore, when the input calibration controls are set equally, each channel's LED for a given dB value will switch on at exactly the same audio signal level. The metering sample is derived from an active, precision full-wave rectification circuit. Isolation between channels is amply sufficient to use the RU-SM12 to meter two monaural signals simultaneously.

Jumpers on the rear panel allow the installer to set each meter individually for either peak or average audio level display. In stereo applications, either peak or average is typically selected. In monaural installations, it may be advantageous to feed the mono source to both meters, setting one for peak and the other for average.

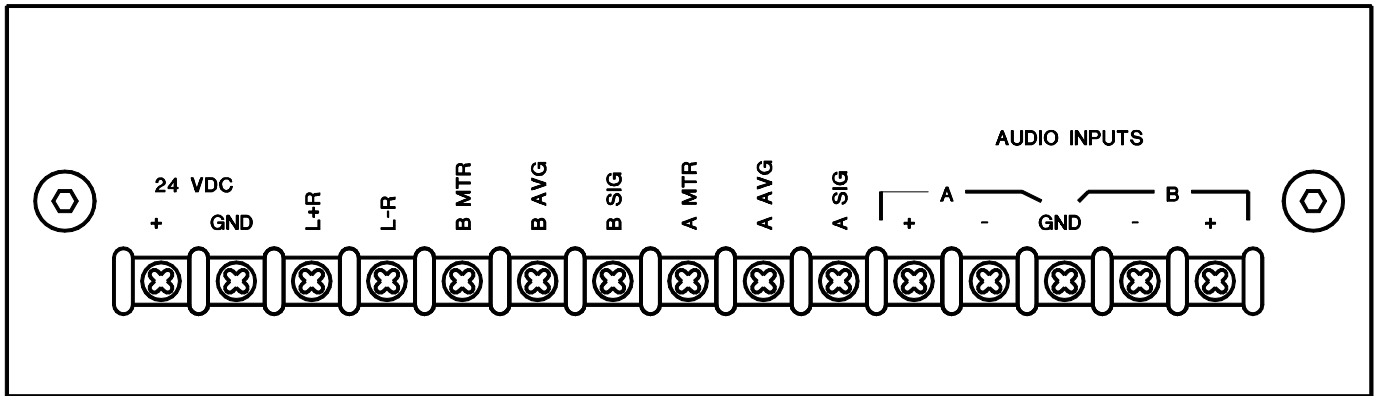
In stereo applications where it is desired to monitor the L+R and L-R components, the RU-SM12 has integral sum and difference amplifiers. Rear panel jumpers are used to strap these amplifiers to the meter inputs. This feature makes the RU-SM12 ideal for instantly visually identifying out-of-phase signal problems in stereo systems.

The RU-SM12 uses large LEDs for good visibility. Each channel input has a write-on label area for identification of the source or function being metered.

Wherever an audio meter is needed to provide superior visual clarity, precise channel tracking, user calibration, reliability, compactness and unsurpassed versatility, the RU-SM12 is the choice. Use the RU-RA3 rack-mount adapter to mount multiple RU-SM12s, or to combine related products (such as audio mixing or audio distribution) into a single rack unit!

# RU-SM12 Dual Audio Meter

## Rear Panel View



**AUDIO INPUTS:** Connect Channel A balanced audio to **A+**, **A-**, and shield to **GND**. Connect Channel A unbalanced audio to **A+** and **GND**. Connect **A-** to the **GND** terminal. If unit is being used for stereo, connect Channel B similarly to Channel A

**PEAK METERING:** Connect a jumper from **A SIG** to **A MTR**. Connect a jumper from **B SIG** to **B MTR**. Note that the **SIG** terminals are the rectified output from the audio input stage; the **MTR** terminals are the input to the metering stage.

**AVERAGE METERING:** Connect a jumper from **A SIG** to **A MTR**. Connect a jumper from **B SIG** to **B MTR**. Also connect a jumper from **A SIG** to **A AVG**. Connect a jumper from **B SIG** to **B AVG**.

**COMBINATION METERING OF MONO SIGNAL:** A mono signal can be connected to both the **A** and **B** inputs. Connect the **A SIG** terminal to the **A MTR** terminal. Jumper together the **B SIG**, **B AVG**, and **B MTR** terminals. The meter will now display the peak signals on the **A** meter string, and the average signal level on the **B** meter string.

**L+R/L-R METERING:** Connect **L+R** terminal to the **A MTR** terminal. Connect the **L-R** terminal to the **B MTR** terminal. The **A** meter will now read the sum signal; the **B** meter will read the difference signal. Prior to connecting in this mode, it is recommended to first connect the meter for normal stereo operation and set the calibration controls for precisely the same level.

**POWER CONNECTION:** Connect a single-ended 24 Vdc power source to the **+24 VDC** terminal. Connect the ground return from that supply to the adjacent ground terminal. Power supply ground and circuit ground are common.

### TYPICAL PERFORMANCE

Inputs (2):	Line Level
Input Impedance:	10 kΩ Balanced or Unbalanced
Input Range (sensitivity):	For 0 dB reading, -26 dBu to +12 dBu
Metering Frequency Response:	20 Hz - 20 kHz
Indicators (24):	12 LEDs per channel; -20, -15, -12, -9, -6, -3, -2, -1, 0, +1.5, +3, +6
Metering Response:	Normal mode Selectable PEAK or AVERAGE; Sum/Difference mode PEAK
Power Requirement:	24 to 33 Vdc @ 400 mA, Ground-referenced
Mounting:	Rack-mount using any one of several rack mount chassis accessories or other mounting accessories listed in the short form catalog or product CD-ROM.
Dimensions:	Height: 1.7 in. 4.3cm
	Length: 5.8 in. 15.0cm
	Depth: 2.0 in. 5.1cm (case only)
	2.5 in. 6.4cm (case including barrier block)

EMC:

