



**RDL**<sup>®</sup>  
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

## STICK-ON<sup>®</sup> SERIES

### Model ST-SSR1

### Solid-State Audio Relay

- Switch Line Level Sources
- Select Between Two Balanced Lines
- Silent Audio Switching (Soft Mode)
- Switching Without Mechanical Relay Contacts
- Fast Switching for Audio Muting
- Switching by Open Collector Logic



The ST-SSR1 is part of a group of products in the STICK-ON series from Radio Design Labs. The durable bottom adhesive permits quick, permanent or removable mounting nearly anywhere or it may be used with RDL racking accessories.

**APPLICATION:** The ST-SSR1 has two line-level audio inputs and a single, line-level audio output. In the absence of a control input, the **NORMAL** audio input feeds the module output. When the **TRIG** control terminal is pulled to ground, the **SELECT** input is switched to the output and the **NORMAL** input is switched off. Releasing the **TRIG** terminal turns the **SELECT** input off and switches the **NORMAL** input to the output. The module contains no mechanical relays or switching devices. The audio inputs are applied to a low-noise preamplifier. The control circuits utilize solid-state switching to feed one of the input signals to the balanced output line driver. The other input is switched off with attenuation greater than 80 dB at all audio frequencies and better than 90 dB at 1 kHz.

The ST-SSR1 has three user-selectable switching rates. The module can be used in muting applications where audio must be switched off extremely fast. The fastest switching mode is selected by connecting a jumper between the **SOFT** terminal and **POWER +** (24 Vdc). This mode could be required to prevent feedback in automatic microphone mixing installations. For muting, the audio source is connected to the **NORMAL** input, and the ST-SSR1 is used to turn this line off. In this mode, the audio off-time switching may be accomplished in less than 200 microseconds. Although necessary in some circumstances, this fast switching transition can sound harsh to the ear and would be undesirable where the module is being used to select inputs to a high power amplifier or in high quality studio applications. The **SOFT** terminal is left disconnected for fast switching times that are less abrupt. In this mode, the **NORMAL** input would mute in approximately 1.5 milliseconds. Installation of a jumper between the **SOFT** terminal and **GROUND** slows the switching transition by implementing soft knee ramping of the audio to the on or off condition. This still sounds instant to the ear, but is slowed sufficiently to remove any unpleasant edge from the switch transition. For most applications, the module is used in the **SOFT** mode.

The control current required at the **TRIG** terminal is so minimal (< 0.25 mA) that the ST-SSR1 can be controlled from nearly any source, from switches to logic circuits. The **TRIG** input feeds a comparator, which switches at a threshold of 2 volts, permitting open-collector switching, or switching directly from circuits operating from a 3.3 or 5 volt supply.

The exceptional low noise and low distortion performance of the ST-SSR1 makes it the ideal choice for noiseless line-level audio switching (soft mode) in both sound systems and recording installations. Use the ST-SSR1 individually, or combine it with other RDL products as part of a complete audio/video system.

# STICK-ON<sup>®</sup> SERIES

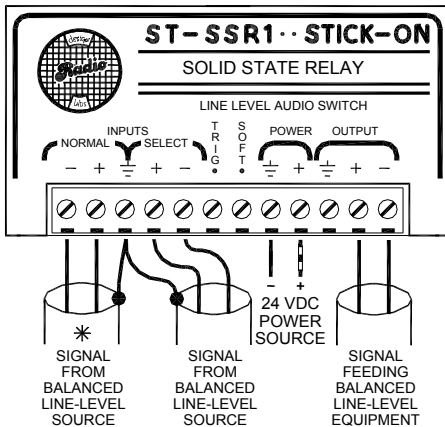
## Model ST-SSR1

### Solid State Relay

## Installation/Operation

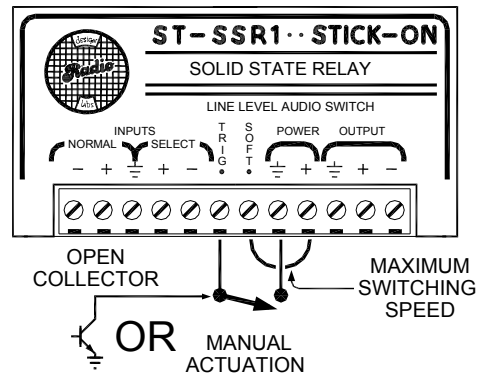
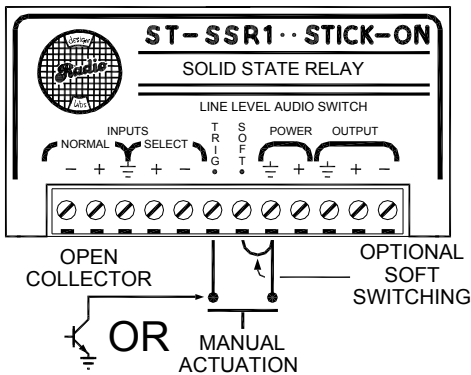
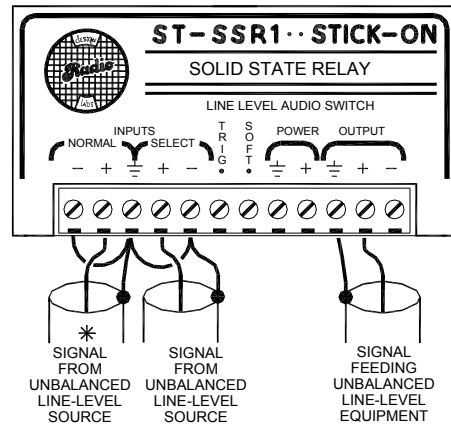


EN55103-1 E1-E5; EN55103-2 E1-E4  
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.



### AUDIO WIRING

\* FEEDS OUTPUT WHEN UNIT IS NOT TRIGGERED



### TYPICAL PERFORMANCE

#### Switching Speed (nominal):

Time required for *Normal* input to turn off:  
Time required for *Normal* input to turn on:  
Time required for *Select* input to turn off:  
Time required for *Select* input to turn on:

	Soft	Fast	Max
Time required for <i>Normal</i> input to turn off:	30 ms	1.5 ms	175 $\mu$ s
Time required for <i>Normal</i> input to turn on:	50 ms	1.2 ms	1 ms
Time required for <i>Select</i> input to turn off:	30 ms	600 $\mu$ s	500 $\mu$ s
Time required for <i>Select</i> input to turn on:	50 ms	2 ms	230 $\mu$ s

#### Control Signal:

#### Control Current:

#### Switching Speed Selection:

**TRIG** terminal must be externally pulled to ground (switch or open-collector)

0.25 mA

Soft: SOFT terminal grounded; Fast: SOFT terminal open;

Max: SOFT terminal tied to +24 Vdc

#### Headroom:

#### THD+N:

#### CMRR:

#### Freq. Response:

#### Noise:

#### ON Gain:

#### OFF Attenuation:

#### Power:

> 20 dB above +4 dBu

< 0.003% (1 kHz)

> 60 dB (either input, 20 Hz to 600 Hz)

10 Hz to 20 kHz (+/- 0.2 dB)

< -90 dB below +4 dBu (-95 dB typical)

Unity (nominal, either input)

> 90 dB (1 kHz, either input); > 80 dB (10 Hz to 20 kHz)

24 Vdc @ 40 mA, Ground-referenced

Radio Design Labs Technical Support Centers

U.S.A. (800) 933-1780, (928) 778-3554; Fax: (928) 778-3506

Europe [NH Amsterdam] (+31) 20-6238 983; Fax: (+31) 20-6225-287