



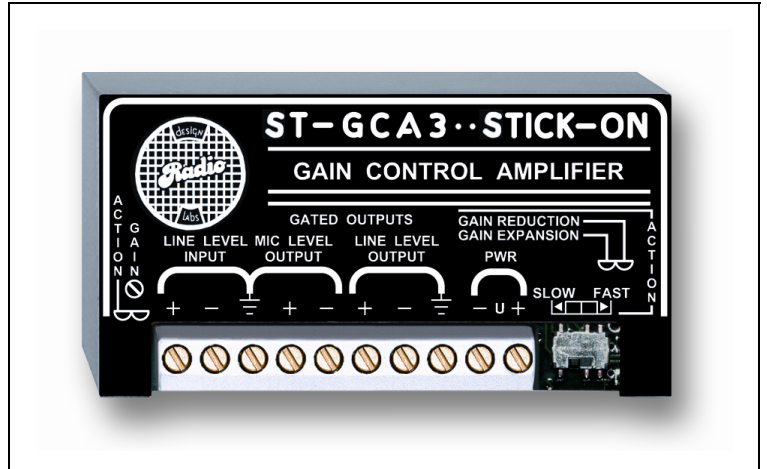
**RDL**<sup>®</sup>  
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

## STICK-ON<sup>®</sup> SERIES Model ST-GCA3 Audio Gain Control Amplifier

### ANYWHERE YOU NEED...

- Automatic Gain Control
- Wide Dynamic Range AGC
- Slow or Fast Gain Adjustment
- Low Noise, Low Distortion AGC
- RDL SupplyFlex™ Power Input



### You Need The ST-GCA3!

The ST-GCA3 Gain Control Amplifier is part of the group of STICK-ON products from Radio Design Labs. The durable adhesives provided with the ST-GCA3 permit permanent or removable mounting. Numerous available mounting accessories, brackets and rack-mount chassis are optionally available to facilitate any system design. The ST-GCA3 is a unique, high-performance electronic module offering constant, automatic level control of audio signals.

**APPLICATION:** The ST-GCA3 is a high performance automatic gain control amplifier designed to maintain a constant average output level over a wide range of input levels. It automatically adjusts for changes in input levels, bringing up low levels and reducing high levels. The adjustment rate is switch-selectable to either **SLOW** or **FAST**. The **SLOW** setting on the ST-GCA3 is the ideal choice anywhere slowly varying audio levels such as music need to be maintained at a constant level. The slow gain-riding maintains the desired average operating levels without introducing any audible compression artifacts. The **FAST** setting of the ST-GCA3 makes it ideal for use in systems prone to loud bursts of audio, and inconsistent levels which must be constantly and quickly corrected, such as voice. The gain of the ST-GCA3 automatically adjusts to deliver a nominal +4 dBu line level output. The **MIC** level output is 50 dB below the **LINE** level output. The regular AGC action is supplemented by a circuit which detects the amount of peak material present and speeds up the AGC correspondingly. When audio is not present on the input, AGC searching is limited to about 5 seconds. During a sustained period without audio input, the ST-GCA3 outputs fade to a muted condition. When audio is next applied, the output quickly ramps up to the correct level.

Two LED indicators are provided to make setup accurate and simple. A green LED varies in intensity to show the amount of expansion. An adjacent yellow LED varies in intensity indicating gain reduction. For most installations, a normal audio level is applied and the gain trimmer is adjusted for minimum indication on both LEDs, producing equal available expansion and gain reduction.

The ST-GCA3 features RDL SupplyFlex. The power supply input may be fed from a floating (not ground-referenced) 24 Vdc power source, from a bipolar power supply (+/-12 Vdc or +/-15 Vdc), or from a ground-referenced 24 Vdc power supply. A jumper on the terminal block is used to select the ground-referenced power configuration.

Some examples where levels are not consistent, but often need to be:

- Production studio outputs feeding recording machines
- Mic mixer output where people speak at inconsistent levels
- Audio feeds from telephone systems
- Line-level feeds in an audio system where users can set controls too high or too low
- Pre-conditioning levels into an audio limiter
- Paging, intercom, and interconnect systems

Making audio levels uniform and consistent improves the performance of nearly any type of audio system in broadcast, paging, or sound reinforcement. With its unique combination of features, exceptional audio performance, and convenient installation, the ST-GCA3 provides the solution! Use the ST-GCA3 with other RDL RACK-UP<sup>®</sup>, STICK-ON, TX™, or FLAT-PAK™ series products as part of a complete audio/video system.

# STICK-ON<sup>®</sup> SERIES

## Model ST-GCA3

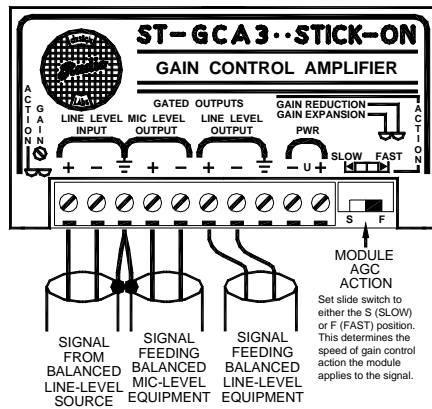
### Audio Gain Control Amplifier

## Installation/Operation



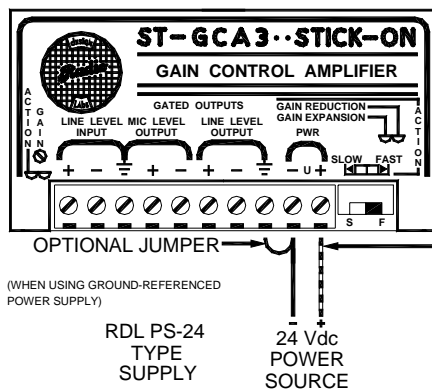
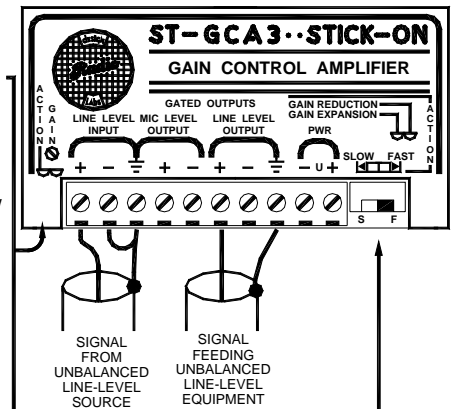
EN55103-1 E1-E5; EN55103-2 E1-E4  
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.

**NOTE:** The **GAIN** control adjusts *only* the input level in the ST-GCA3. A *specific* output level can *not* be set manually; the output level is self-adjusting. Set the correct operating level exclusively using the LED indicators as described in the diagram below. For dynamic music signals both LEDs will be equally illuminated for the optimum control range (equal available expansion and gain reduction); for static signals (audio tones), both LEDs will appear almost off when the **GAIN** is set for the optimum control range.



### AUDIO WIRING

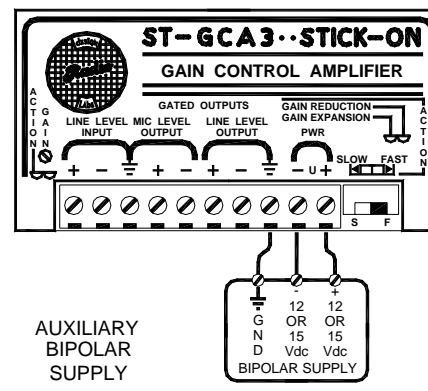
**SETTING 25-TURN INPUT GAIN CONTROL**  
For most installations, adjust gain with a "normal" input level applied. The LEDs show the amount of expansion (green LED) or gain reduction (yellow LED). Turn up the gain until the green LED becomes dimmer and the yellow LED is not flashing frequently. This setting provides equal available gain reduction and expansion. If less gain reduction and more expansion is desired, then adjust for greater activity of the yellow LED. If less expansion is desired, adjust for a brighter green LED and no yellow flashing. The intensity of each LED indicates approximately 18 dB of activity (expansion or gain reduction).



### SUPPLY WIRING

DO NOT GROUND NEGATIVE FOR FLOATING OR BIPOLAR POWER INSTALLATION

OR  
ADD GROUND JUMPER TO SUPPLY "-" FOR GROUND-REFERENCED POWER INSTALLATION



**NOTE:** If this ST-GCA3 is replacing an RDL ST-GCA1 in a system, set the ACTION switch to SLOW.

If this ST-GCA3 is replacing an RDL ST-GCA2 in a system, set the ACTION switch to FAST.

### TYPICAL PERFORMANCE

Input:  
Maximum Input Level:  
Outputs (2):  
AGC Range:  
Frequency Response:  
Noise:  
No input signal, output un-muted:  
No input signal, output muted:  
Input signal present, output muted:  
THD + N:  
Mute Threshold:  
Muting Response:  
SLOW AGC response:  
FAST AGC response:  
On Delay:  
Indicators (2):

+4 dBu balanced (nominal); -45 dBu to +20 dBu for rated output  
+26 dBu  
+4 dBu, 150 Ω balanced **LINE** (nominal, +0/-3 dB); -45 dBu balanced MIC into 150 Ω  
>40 dB (Input signal range for which output level is maintained within 3 dB)  
10 Hz to 20 kHz (+/- 0.75 dB)

<-70 dB  
<-80 dB  
<-50 dB  
<0.3% (50 Hz to 20 kHz; Typ. 0.05% @ 1 kHz)  
-46 dB below maximum input; -28 dB below normal input  
15 sec. for 50 dB  
8 sec. for 20 dB average level adjustment  
3 sec. for 20 dB average level adjustment  
50 ms to ramp from muted to fully on condition  
LED, green variable intensity to indicate audio expansion  
LED, yellow variable intensity to indicate audio gain reduction

Note: Both LEDs display equal intensity for normal input level (equal available expansion and gain reduction).  
24 to 33 Vdc @ 40 mA, Ground-referenced or Floating

Power Requirement: