STICK-ON® SERIES
Model ST-GCA3
Audio Gain Control Amplifier

- Automatic Gain Control
- Wide Dynamic Range AGC
- Slow Inaudible Gain-Reduction
- Tight Dynamic Control
- Positive, Fast Gain Reduction
- Low-Noise and Low-Distortion AGC
- RDL SupplyFlex™ Power Input Configuration

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. STICK-ONS are designed, built and rated for continuous duty in professional A/V systems.

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 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 instantly 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 individually, or combined with other RDL products as part of a complete audio/video system.
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TYPICAL PERFORMANCE
Input: +4 dBu balanced (nominal); -45 dBu to +20 dBu for rated output
Output: +26 dBu
Noise: < -70 dB
THD + N: < 0.3% (50 Hz to 20 kHz; Typ. 0.05% @ 1 kHz)
Mute Threshold: -46 dB below maximum input; -28 dB below normal input
FAST AGC response: On Delay: 15 sec. for 50 dB

Optional Jumper
(R.png WHEN USING GROUND-REFERENCED POWER SUPPLY)

ST-GCA3 • STICK-ON
GAIN CONTROL AMPLIFIER
GAIN EXPANSION Outputs (2): +4 dBu, 150 Ω balanced
OUTPUTS LINE (nominal, +0/-3 dB); -45 dBu balanced MIC into 150 Ω
GAIN REDUCTION AGC Range: > 40 dB (Input signal range for which output level is maintained within 3 dB)
Frequency Response: 10 Hz to 20 kHz (± 0.75 dB)
Noise: No input signal, output unmuted: < -70 dB
THD + N: < 0.3% (50 Hz to 20 kHz; Typ. 0.05% @ 1 kHz)
Mute Threshold: -46 dB below maximum input; -28 dB below normal input
On Delay: 15 sec. for 50 dB

Supply Wiring
RDL PS-24 TYPE SUPPLY 24 Vdc POWER SOURCE

Supporting Information
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