LVC5050RLY Supplement

Table of Contents

Pre-Installation

This *LVC5050RLY Supplement* describes safety conventions used within this document and provides essential information about the **Model LVC 5050RLY** amplifier. Review this material before installing or operating the amplifier.

AE TECHRON is committed to continuous product improvement. Technical progress may result in minor variations between this manual and a particular unit. Any significant changes or customizations will be reflected in revisions of this manual. Customers are encouraged to promptly add any additional information about their particular unit to this manual.

Safety Conventions

The **LVC 5050RLY** amplifier is a highly sophisticated instrument. Special hazard alert instructions appear throughout this *Supplement* and the accompanying *Quick Start Guide*. Note the following examples:

DANGER

DANGER represents the most severe hazard alert. Extreme bodily harm or death will occur if these guidelines are not followed. Note the explanation of the hazard and instructions for avoiding it.

WARNING

WARNING alerts you to hazards which could result in severe injury or death. Note the explanation of the hazard and the instructions for avoiding it.

CAUTION

CAUTION indicates hazards which could result in potential personal injury or equipment or property damage. Once again, note the explanation of the hazard and the instructions for avoiding it.

NOTE: A Note represents information which needs special emphasis, but does not represent a hazard.

General Description

The ***AE TECHRON*** **Model LVC 5050RLY** is a special version of the LVC5050. The LVC5050RLY is a single-channel power supply amplifier designed for use in high power Simulation and Protection Relay test systems. It can deliver short-term power of up to 98 amps peak per channel into 1-ohm or lower impedance loads. It accomplishes this with extremely low harmonic and intermodulation distortion and low noise.

The features of the LVC5050RLY are the same as the standard LVC5050 amplifier with the following exceptions:

- **Output Block**–Loads connect to a high-current output block. Its connectors use high-current binding posts.
- **Output Block Cover**–No detachable cover is provided for the LVC5050RLY output block.

See **page 4** of the *LVC5050 Quick Start Guide* for full amplifier features summary.

In addition, the following recommended settings apply to the LVC5050RLY amplifier:

- **Output Mode Switch**–Parallel-Mono is the recommended setting for this switch.
- **Gain Switch**–Gain of 20 is the recommended setting for this switch.

Installation

Please refer to **pages 16-24** of the *LVC5050 Quick Start Guide* for full installation instructions.

Parallel-Mono Hookup

The LVC5050 RLY amplifier is set at the factory to the Parallel-Mono mode. This mode of operation is intended for driving loads with a total impedance of less than 4 ohms.

Should the amplifier be accidentally changed out of this mode, below are the instructions to allow for the LVC5050RLY to be returned to that condition.

To activate Parallel-Mono mode:

1. **Turn off the amplifier**
2. **Wait at least 10 seconds**
3. **Slide the Dual/Mono switch to the left (as you face the back panel).**
4. **Connect the input signal to channel 1, and do not use the channel 2 input**

Both outputs will now receive the signal from the channel 1 input.

> **NOTE: The channel 2 input and level control are disconnected in Parallel-Mono mode. A signal-feeding channel 2 will have no effect on the output.**

Channel 2's Green LED will be bright—this is normal.

> **NOTE: Remember to remove the jumper between the positive output terminals before changing to Bridge-Mono or Dual modes—Amplifier damage may result.**

Operation

Please refer to **pages 8-15** of the *LVC5050 Quick Start Guide* for detailed information on the LVC5050RLY front- and back-panel functions.

Output Connectors

The **LVC5050RLY** back-panel features a high-current output block, as shown below. Connections are made via high-current binding posts.

Specifications

Specifications are for units driving into an 8-ohm loads, (26 dB = 20 times voltage gain) and operating from 120 VAC, unless otherwise specified.

“Standard 1 kHz Power" refers to maximum average power in watts at 1 kHz with 0.1% THD.

“Full Bandwidth Power" refers to maximum average power in watts from 20 Hz to 20 kHz with 0.1% THD.

Performance

Input to Output Phase Delay: 0.4° at 60 Hz

Amplifier to Amplifier Phase Error: <0.1° at 60Hz

Signal to Noise Ratio: At gain of 20, better than 105 dB (A-weighted) below full output.

Total Harmonic Distortion (THD): <0.05% from 20 Hz to 1 kHz, increasing linearly to 0.1% at 10 kHz at full output.

Residual Noise (20Hz to 1kHz): <0.8mAmp.

Load Impedance: Rated for use into 2 ohms or less. Safe with all types of loads, even reactive ones.

Required AC Mains: 60 Hz, 120VAC with 30A service. Convertible to 100/ 200/208/230/240VAC at 50/60 Hz.

Maximum Current: 70Arms / 98A peak

Maximum Voltage: 120Vrms no load

Controls

Front Panel: A push "On/Off" power switch; also, a signal level control for each channel. The level controls are wired to the PIP card and may be enabled or disabled.

Back Panel: A 3-position switch selects Dual, Bridge-Mono, or Parallel-Mono mode.

NOTE: The LVC5050RLY should only be operated in Parallel-Mono mode.

Internal: Switches behind the front grill allow selection of normal VZ operation, lock to low voltage only, lock to high voltage only, and lock to low voltage under ODEP conditions.

Indicators

Amber Enable Indicator shows on/off status of low-voltage power supply.

A Green OVERLOAD indicator for each channel flashes dim green to show a signal is present at the input, and flashes brightly in the rare event distortion of any kind exceeds 0.05%, including input overload.

A bi-color (Green/Red) I_{LOAD}/I_{LIMIT} indicator for each channel flashes green with the output signal (when under a current load) and flashes red in the event of current limiting.

Input/Output

Input Impedance: Greater than 10 K ohms, balanced, and 5 K ohms, unbalanced.

Output Impedance: Less than 510 milliohms is series with less than 2 microhenries.

Connectors

Inputs: Euro-style screw terminals will accept up to 16 gauge bare wire.

Outputs: Unique output bus with high current binding post.

AC Line: “TT" style, 3 wire, 30A grounded connector (for 120 VAC units).

Construction

Black splatter-coat steel chassis with specially designed flow-through front to rear ventilation system with computer-controlled forced air-cooling.

Dimensions: 19 inch (48.3 cm) wide, 5.25 inch (13.3 cm) high, 16 inch (40.3 cm) deep behind front mounting surface, and 2.875 inches (7.3 cm) in front of the mounting surface.

NOTE: Allow 4 inches in back for adequate airflow.

Weight: 77 lbs. (35.2 kg) net, 88 lbs. (40.2 kg) shipping weight.

Mounting: Standard EIA 310 front-panel rack mount with supports for supplemental rear corner mounting.