Product Data and Specifications

Typical applications

- Microphone measurements
- Driving microphone sound sources
- Electrostatic-actuator calibrations
- IEC 61094-6 Compliance

The G.R.A.S. Electrostatic Actuator Amplifier 14AA (Fig. 1) is a high-gain, high-voltage amplifier. The Type 14AA together with the available G.R.A.S. electrostatic actuators (Fig. 2) comply with IEC 61094 -6 “Measurement microphones - Part 6: Electrostatic actuators for determination of frequency responses.”

The input to the Type 14AA is via a standard BNC socket on the front panel and any input signal up to 3V peak-to-peak can be applied. This is then amplified by 40 dB to produce an AC output signal of up to 300 V peak-to-peak maximum. This AC output signal is also made available superimposed on +200 VDC and +800 VDC.

This amounts to three parallel signal outputs available via sockets on the front panel marked as follows:

- AC Output (BNC socket)
- AC Output + 200 VDC (BNC socket)
- AC Output + 800 VDC (banana socket)

Driving microphone sound sources: With the AC Output superimposed on +200 VDC and used as a modulated polarization voltage on a standard measurement microphone such as the G.R.A.S. Type 40BP, the microphone becomes a precision sound source for generating high frequency acoustic signals.

Alternatively, the AC Output alone can be similarly used with a prepolarized microphone such as the G.R.A.S. Type 40AD.

Fig. 3 shows an example of a set up using this technique for calibrating a G.R.A.S. IEC 711 Coupler.

Electrostatic actuator calibrations: With the AC Output superimposed on +800 VDC, it can be used as a modulated polarization voltage for electrostatic

Fig. 1 Actuator Supply Type 14AA
RA0045.

Fig. 2 Available G.R.A.S. Electrostatic Actuators for ½-inch (left) and 1-inch microphones
Fig. 3 Example of the AC + 200 V DC output of the Type 14AA used in a set up for calibrating a G.R.A.S. IEC 711 Coupler RA0045

Fig. 4 Example of the AC + 800 V DC output of the Type 14AA used in a set up (with an AL0010) for measuring the pressure frequency response of a condenser microphone

Fig. 4 shows an example of a set up using this technique for accurately measuring the pressure frequency response of a condenser microphone in the range 100 Hz to 200 kHz.

Care should be taken when calibrating below 200 Hz because of the influence of pressure equalisation in the rear volume of the microphone.

Specifications

<table>
<thead>
<tr>
<th>AC Input:</th>
<th>Power supply: 110 - 130 VAC or 220 - 240 VAC</th>
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<tbody>
<tr>
<td>Peak-to-peak: 3 V (max.)</td>
<td>Weight: 1400 gm</td>
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<td>RMS: 1 V (max.)</td>
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<td>Gain: 40 dB</td>
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<tr>
<td>AC Output: Peak-to-peak: 300 V (max.)</td>
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<tr>
<td>Polarized outputs: Electrostatic actuators: AC Output + 800 V DC</td>
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<tr>
<td>Condenser microphones: AC Output + 200 V DC</td>
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<tr>
<td>Frequency response (AC Output, AC Output + 200 V DC): 1 Hz - 200 kHz: ± 1 dB</td>
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<tr>
<td>Output impedance: 1 kΩ</td>
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Electrostatic Actuator Supply 14AA

- Actuator Supply Type 14AA
- From AC Output + 200 V DC to sound-source microphone via Transmitter Adapter Type RA0086
- From AC Output + 800 V DC to electrostatic actuator

actuators, e.g. the G.R.A.S. RA0014 or RA0015 (Fig. 2), for measuring the pressure frequency response of condenser microphones.

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice.