

# GRAS 14AA

## Electrostatic Actuator Amplifier



Freq range: 1 Hz to 200 kHz  
IEC: 61094-6

The GRAS 14AA Electrostatic Actuator Amplifier is a high-gain, high-voltage amplifier. The 14AA together with the available GRAS electrostatic actuators RA0014 and RA0015 comply with IEC 61094 -6 "Measurement microphones - Part 6: Electrostatic actuators for determination of frequency responses."

## Typical Applications and Use

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

## Design

The input to the 14AA is via a standard BNC socket on the front panel and any input signal up to 3 V 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 V DC and + 800 V DC. This amounts to three parallel signal outputs available via sockets on the front panel marked as follows:

- AC Output (BNC socket)
- AC Output + 200 V DC (BNC socket)
- AC Output + 800 V DC (banana socket)

## Driving microphone sound sources

With the AC Output superimposed on + 200 V DC and used as a modulated polarization voltage on a standard measurement microphone such as the GRAS 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 GRAS 40AD.

## Electrostatic actuator calibrations

With the AC Output superimposed on + 800 V DC, it can be used as a modulated polarization voltage for electrostatic actuators, e.g. the GRAS RA0014 or RA0015, for measuring the pressure frequency response of condenser microphones.

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

## Warranty

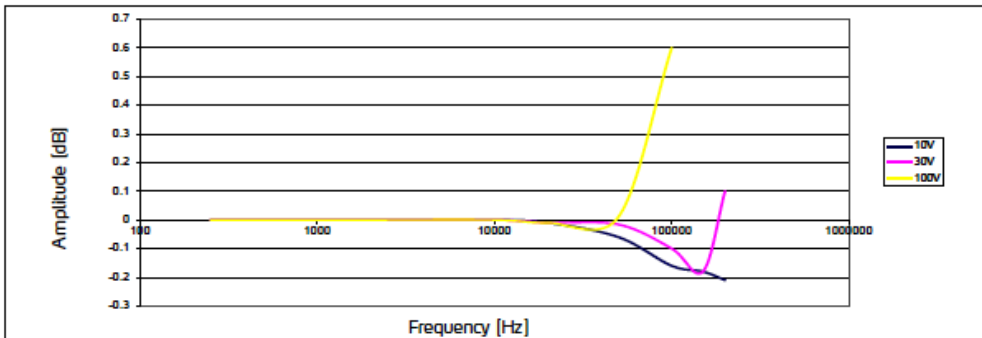
All GRAS products are made of high-quality materials that will ensure life-long stability and robustness. The 14AA is delivered with a 2-year warranty. Damaged diaphragms in microphones can be replaced. The warranty does not cover products that are damaged due to negligent use, an incorrect power supply, or an incorrect connection to the equipment.

## Service

All repairs are made at GRAS International Support Center located in Denmark. Our Support Center is equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories. If a product covered by warranty is sent for service, it is repaired free of charge, unless the damage is the result of negligent use or other violations of the warranty. All repairs are delivered with a service report.

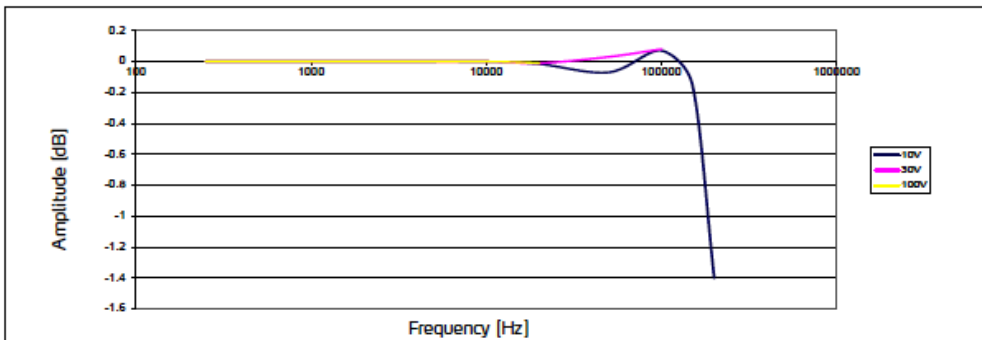
Frequency range ( $\pm 2$ dB)	Hz	1 to 200 k
Power supply, external	Vdc	110 to 240
Input signal, max.	Vrms	1
AC output	Vrms	100
Actuator output	Vdc	800
Microphone polarization output	Vdc	200
AC output impedance	k $\Omega$	1
Actuator output impedance	M $\Omega$	10
Microphone polarization output impedance	M $\Omega$	5.6
Gain	dB	40
IEC standard		61094-6
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	1400 / 49.42

## RG58 Cable, 1 Meter



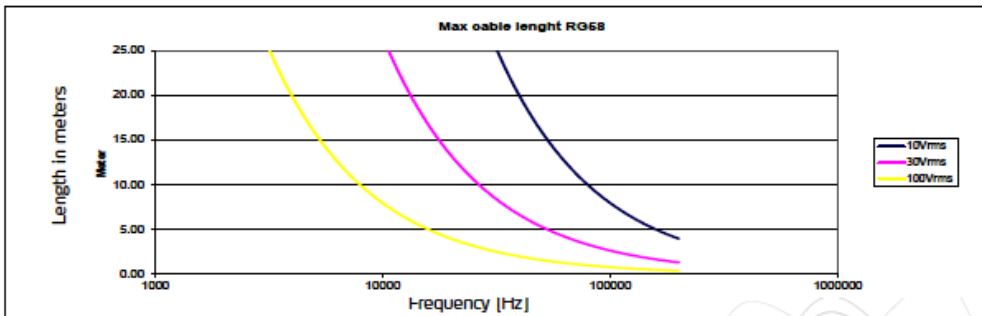
The Frequency response for the 0 VDC and 200 VDC outputs, 1 meter RG58 cable, 10, 30 and 100 V RMS.

## RG58 Cable, 3 Meters



The Frequency response for the 0 VDC and 200 VDC outputs, 3 meter RG-58 cable, 10, 30 and 100 V RMS.

## RG58, Maximum Cable Lengths



Typical frequency response for the AC outputs, 0 VDC and +200 VDC

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

Optional accessories

<a href="#">GRAS RA0014</a>	12" Electrostatic Actuator
<a href="#">GRAS RA0015</a>	1" Electrostatic Actuator
<a href="#">GRAS RA0067</a>	1/2" Microphone Output Adapter

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

# GRAS Worldwide

Subsidiaries and distributors in more  
than 40 countries

## HEAD OFFICE, DENMARK

### GRAS SOUND & VIBRATION

Skovlytoften 33  
2840 Holte  
Denmark  
Tel: +45 4566 4046  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[gras@grasacoustics.com](mailto:gras@grasacoustics.com)

## USA

### GRAS SOUND & VIBRATION

9290 SW Nimbus Avenue  
Beaverton, OR 97008  
Tel: 503-627-0832  
Toll Free: 800-231-7350  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[sales-usa@grasacoustics.com](mailto:sales-usa@grasacoustics.com)

## UK

### GRAS SOUND & VIBRATION

Unit 115, Gibson House,  
Ermine Business Park, Huntingdon,  
Cambridgeshire, PE29 6XU  
Tel: +44 (0) 7762 584 202  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[sales-uk@grasacoustics.com](mailto:sales-uk@grasacoustics.com)

## CHINA

### GRAS SOUND & VIBRATION

Room 315, RuiBo Center(T1)  
Lane683, Shenhong Rd,  
Minhang District,  
Shanghai, China, 201107  
Tel: +86 21 64203370  
[www.GRASacoustics.cn](http://www.GRASacoustics.cn)  
[cnsales@grasacoustics.com](mailto:cnsales@grasacoustics.com)



## About GRAS Sound & Vibration

GRAS is a worldwide leader in the sound and vibration industry. We develop and manufacture state-of-the-art measurement microphones and related equipment for industries where acoustic measuring accuracy and repeatability are of the utmost importance. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, consumer electronics and other highly demanding industries. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect, trust and require.

GRAS Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands. Read more at [www.grasacoustics.com](http://www.grasacoustics.com)

[grasacoustics.com](http://grasacoustics.com)

**GRAS**  
An Axiometrix Solutions Brand