

# GRAS RA0014

1/2" Electrostatic Actuator



The GRAS RA0014 1/2" Electrostatic Actuator is an electrostatic actuator for testing the frequency response of standard 1/2", 1/4" and 1/8" microphones; adapters are included for testing 1/4" and 1/8" microphones. The GRAS RA0014 can be connected directly to the [GRAS 14AA Actuator Supply](#).

## Introduction

Electrostatic actuators are used to simulate the pressure response of condenser microphones. This is done by exerting an oscillating electrostatic force in front of the diaphragm of the microphone and measuring the consequent response of the microphone. These electrostatic oscillations must not reverse polarity if frequency doubling is to be avoided. This is overcome by applying an electrostatic force comprising a sufficiently high polarisation voltage (800 V) upon which a smaller alternating voltage is superimposed.

By applying such an oscillating electrostatic force which sweeps over a range of frequencies from 100 Hz to 200 kHz, the pressure response of the microphone can be tested. To this must be added corrections to determine the microphone's response in a free sound field for various angles of incidence as well its response in a diffuse sound field for random angles of incidence.

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

With the [GRAS 14AA](#) Actuator Supply it complies with IEC 61094-6 "Measurement microphones - Part 6: Electrostatic actuators for determination of frequency responses."

## Typical Applications and use

The RA0014 is used for electrostatic actuator calibration.

With the AC test signal superimposed on the 800V DC polarization voltage, the [GRAS 12AA](#) makes it possible to measure the pressure frequency response of the microphone under test.

Its wide frequency range makes it possible to determine the pressure frequency response of

condenser microphones from 100 Hz to 200 kHz.

## Compatibility

The RA0014 can be connected directly to the [GRAS 14AA](#) Actuator Supply. 1/2" microphones can be tested directly, adapters for testing of 1/4" and 1/8" microphones are included.

**Notice:** for the 1/2" microphone 40AU you must use RA0014-S1.

## Service

Before leaving the factory, all GRAS products are tested. Should a power module become defective, it can be sent to GRAS for repair.

## Calibration

For calibration of condenser microphones under 100 Hz, the [GRAS 42AE](#) low frequency calibrator is recommended.

A maximum test signal output of 300 V peak to peak allows testing at realistic sound pressure levels.

## Performance and warranty

The RA0014 is built to high-quality standards which enables GRAS to offer 3 years warranty against defective materials and workmanship.

|               |        |         |
|---------------|--------|---------|
| ANSI standard |        | S1.10   |
| IEC standard  |        | 61094-6 |
| Weight        | g / oz |         |

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

|                             |                                  |
|-----------------------------|----------------------------------|
| <a href="#">GRAS 14AA</a>   | Electrostatic Actuator Amplifier |
| <a href="#">GRAS AL0010</a> | Actuator Calibration Stand       |
| <a href="#">GRAS RA0067</a> | 1/2-inch Transmitter Adapter     |
| <a href="#">GRAS RA0086</a> | 1/4-inch Transmitter Adapter     |

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# GRAS Worldwide

Subsidiaries and distributors in more  
than 40 countries

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## 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 to industries where acoustic measuring accuracy and repeatability is of utmost importance in R&D, QA and production. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, and consumer electronics. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect and trust.

**GRAS** Sound & Vibration