

# GRAS 40HH

## 1/2" Lownoise Microphone System



Freq range: 10 Hz to 16 kHz  
Dyn range: 6.5 dB(A) to 113 dB  
Sensitivity: 800 mV/Pa

The GRAS 40HH 1/2" Lownoise Microphone System can measure sound pressure levels down to close to the threshold of human hearing; and is amply suitable for use in sound-power measurements on even very quiet products. Its very wide dynamic range permits measurements down to 6.5 dB re. 20 Pa (in 1/3-octave bands) from 20 Hz to 20 kHz.

## Typical applications and use

- Very Low Sound pressure measurements
- Low noise product measurements
- Sound power measurements at low sound pressure levels
- Measurements on hard-disk drives, computerproducts, quiet rooms etc.

The 40HH comprises:

- a special high-sensitive 1/2" GRAS 40AH Condenser Microphone
- a special 1/2" GRAS 26HH Lownoise Preamplifier

The preamplifier and microphone are an individually matched combination. To complete the system, a special single or 10-channel power module is required and is available, i.e. [GRAS 12HF](#) for single-channel measurements or [GRAS 12HM](#) for multi-channel measurements.

The chosen power module provides all necessary voltages for powering the preamplifier(s) as well as polarizing the microphone(s).

## Preamplifier

The GRAS 26HH Preamplifier has a built-in overload indicator (which is repeated on the chosen power supply) and a frequency correction facility for both pressure-microphone operation as well as free field microphone operation.

## Microphone

The GRAS 40AH Microphone is an externally polarized microphone with a specially reduced inherent noise floor in order to achieve a high dynamic range and wide frequency range. Its diaphragm is specially tuned to yield high sensitivity coupled with low internal-noise generation.

## Frequency Response and Noise Floor

The chosen power supply has a two-position switch

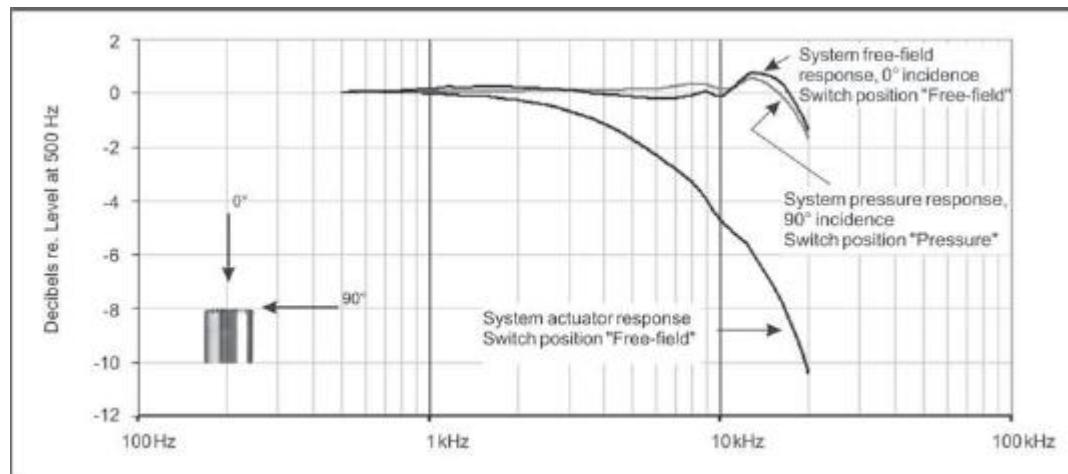
for selecting which microphone operation to use, i.e. pressure or free-field. A typical free-field response for an angle of incidence of 0° is shown in the data sheet when GRAS 40HH is switched to free-field operation. Also shown is a complete low-noise measuring system, a typical noise floor in 1/3-octave bands for both the linear and A-weighted cases.

# Specifications

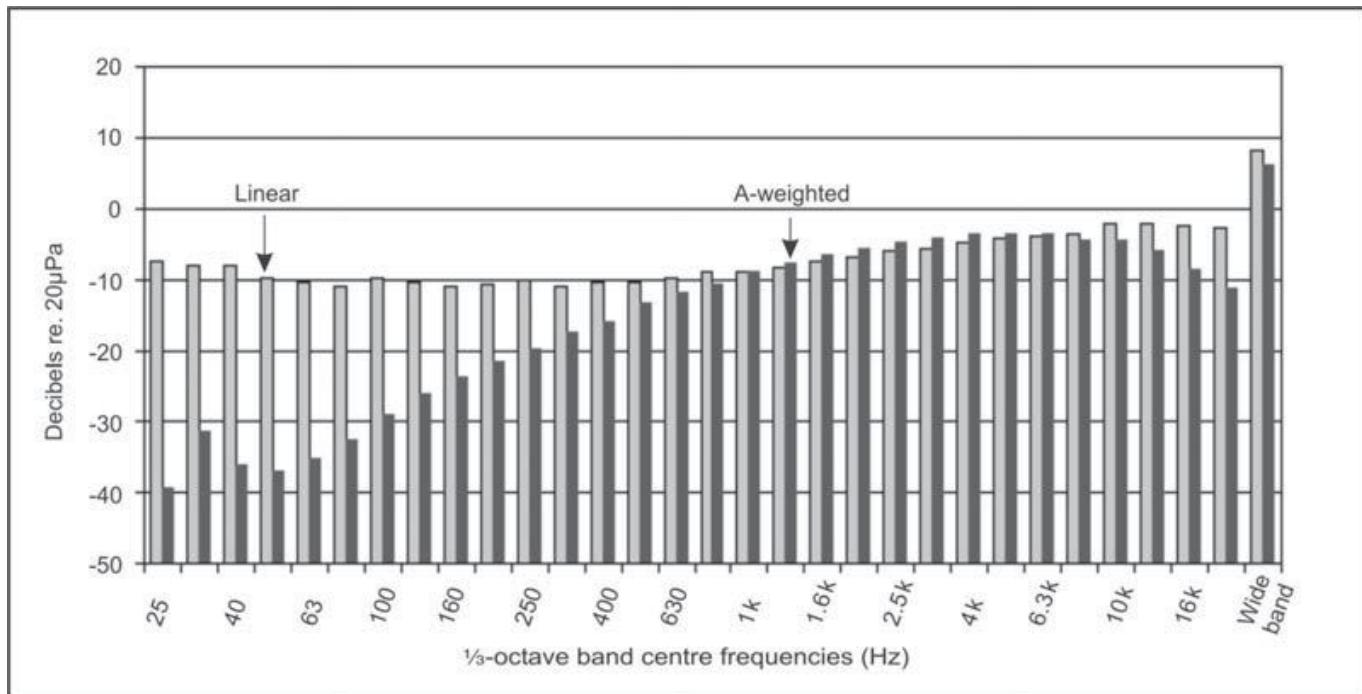
## GRAS 40HH 1/2" Lownoise Microphone System

Page: 3

Frequency range ( $\pm 1$ dB)	Hz	12.5 to 10k
Frequency range ( $\pm 2$ dB)	Hz	10 to 16k
Frequency range ( $\pm 3$ dB)	Hz	6 to 20k
Dynamic range lower limit (microphone thermal noise)	dB(A)	6.5
Dynamic range upper limit	dB	113
Set sensitivity @ 250 Hz ( $\pm 2$ dB)	mV/Pa	800
Polarization voltage	V	200 V / Traditional
Microphone venting		Rear
Output impedance	$\Omega$	47
Temperature range, operation	$^{\circ}\text{C} / ^{\circ}\text{F}$	-20 to 60 / -4 to 140
Temperature range, storage	$^{\circ}\text{C} / ^{\circ}\text{F}$	-40 to 85 / -40 to 185
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes



Typical frequency response



Typical noise floor shown in 1/3-octave bands – linear and A-weighted cases

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

## Included items

GRAS 40AH	High sensitive 1/2" microphone
GRAS 26HH	Lownoise 1/2" preamplifier

## Optional items

<a href="#">GRAS 12HF</a>	1-Channel Power Module for Lownoise Systems
<a href="#">GRAS 12HM</a>	10-Channel Power Module for Lownoise Systems
<a href="#">GRAS AM0363</a>	Windscreen for 1" Microphones
<a href="#">GRAS 42AA</a>	Pistonphone, Class 1
<a href="#">GRAS RA0090</a>	Pistonphone Coupler
<a href="#">GRAS AL0006</a>	Tripod
<a href="#">GRAS RA0093</a>	Adjustable, high quality, stainless steel tripod adapter
<a href="#">GRAS RA0095</a>	Dehumidifier for 1" microphones
<a href="#">GRAS AA0046</a>	3 m LEMO 7-pin - LEMO 7-pin Cable for Low-noise measuring system
<a href="#">GRAS AA0047</a>	10 m LEMO 7-pin - LEMO 7-pin Cable for Low-noise measuring system

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