GRAS 40HF

1'' Lownoise Microphone System

Freq range: 10 Hz to 10 kHz
Dyn range: -2 dB(A) to 110 dB
Sensitivity: 1.1 V/Pa

The GRAS 40HF 1-inch Lownoise Microphone System 40HF can measure sound pressure levels well below 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 below – 10 dB re. 20 µPa (in 1/3-octave bands) from 20 Hz to 10 kHz.

GRAS Sound & Vibration
Skovlytoften 33, 2840 Holte, Denmark
www.grasacoustics.com

Typical applications and use

- Very Low Sound pressure measurements
- Lownoise product measurements
- Lowlevel Sound power measurements
- Measurements on hard-disk drives, computer products, quiet rooms etc.

Design

The GRAS 40HF comprises:

- a special high-sensitive 1-inch (23.77 mm) Condenser Microphone Type 40EH
- a special 1-inch (23.77 mm) Low-noise Preamplifier Type 26HF

The preamplifier and microphone are an individually-matched combination. To complete the measuring system, a special power module is required and is available from GRAS, i.e. GRAS 12HF for single-channel measurements or GRAS 12HM for multi-channel (1 to 10) measurements. The chosen power module provides all necessary voltages for powering the preamplifier(s) as well as polarizing the microphone(s).

Microphone

The GRAS 40EH 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.

Preamplifier

The GRAS 26HF 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.

Dehumidifier RA0095 (optional)

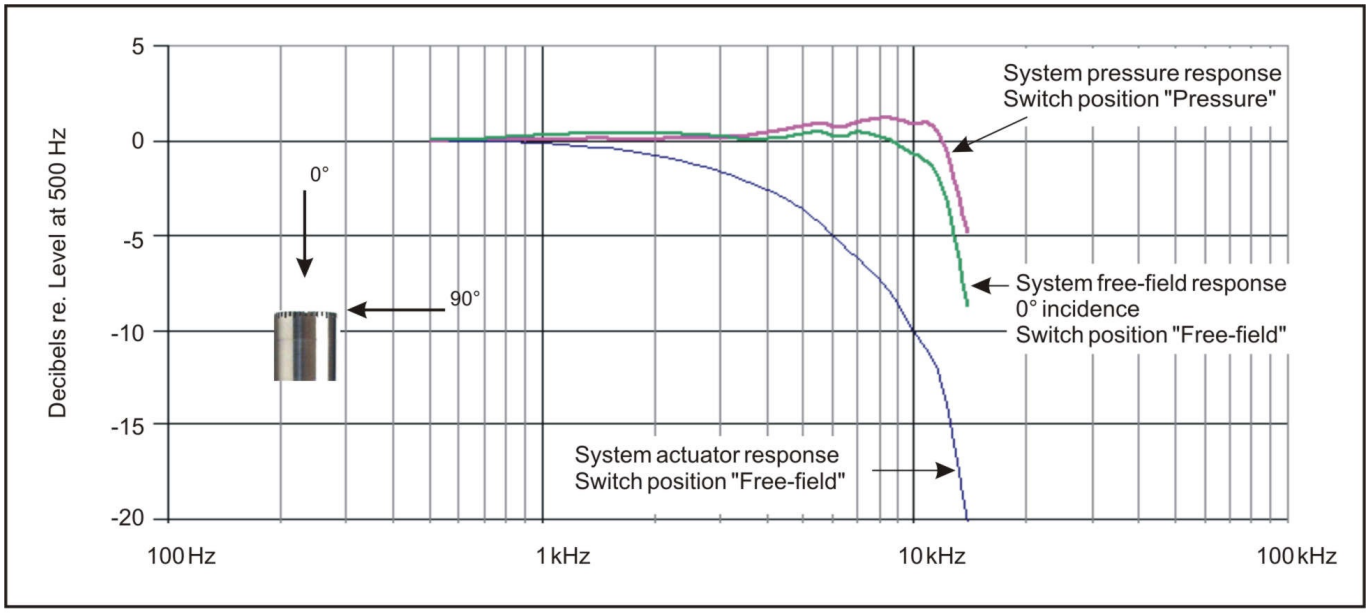
For use when humidity is high and only with a rear-vented version of the GRAS 40EH Microphone. Order only at the time of ordering a Type 40HF.

Frequency response and noise floor

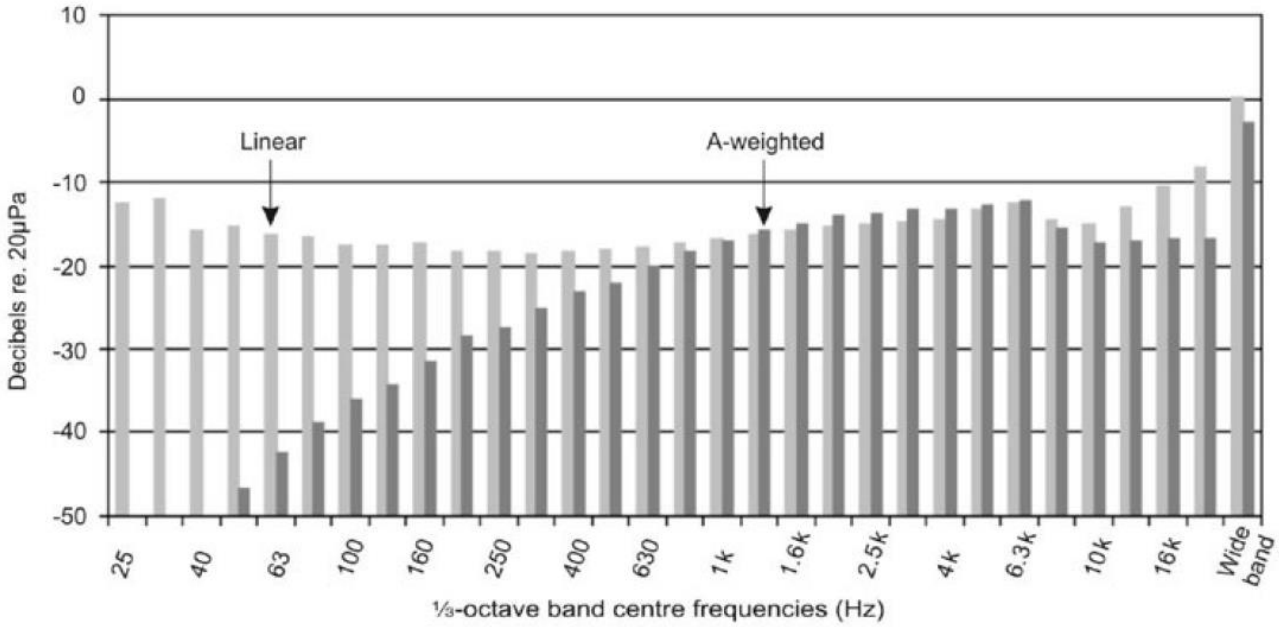
The chosen power supply has a two-position switch for selecting which microphone operation to use, i.e. pressure or free-field. A typical free-field response for an angle of incidence of 0 ° is shown in the data sheet when the GRAS 40HF is switched to free-field operation. Also shown in the data sheet 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

Polarization/Connection		200 V / Traditional
Frequency range (±1 dB)	Hz	12.5 to 4k
Frequency range (±2 dB)	Hz	10 to 10k
Frequency range (±3 dB)	Hz	6 to 12,5k
Dynamic range lower limit (microphone thermal noise)	dB(A)	-2
Dynamic range upper limit	dB	110
Set sensitivity @ 250 Hz (±2 dB)	mV/Pa	1100
Polarization voltage	V	200 V / Traditional
Microphone venting		Rear
Output impedance	Ω	47
Temperature range, operation	°C / °F	−20 to 60 / -4 to 140
Temperature range, storage	°C / °F	-40 to 85 / -40 to 185
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	620 / 22



Typical frequency response



Typical noise floor shown in ⅓-octave bands for both the linear and A-weighted cases

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

Ordering info

Included items

	High sensitive 1" microphone
	Lownoise 1" preamplifier

Optional items

GRAS 12HF	1-Channel Power Module for Lownoise Systems
GRAS 12HM	10-Channel Power Module for Lownoise Systems
GRAS AM0363	Windscreen for 1" Microphones
GRAS 42AA	Pistonphone, Class 1
GRAS RA0090	Pistonphone Coupler
GRAS AL0006	Tripod
GRAS RA0093	Adjustable, high quality, stainless steel tripod adapter
GRAS RA0095	Dehumidifier for 1” microphones
GRAS AA0046	3 m LEMO 7-pin - LEMO 7-pin Cable for Low-noise measuring system
GRAS AA0047	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
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
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
sales-uk@grasacoustics.com

CHINA
GRAS SOUND & VIBRATION
Room 502, Building T1,
No.1398 Ali Center
Shenchang Road,
Minhang District,
Shanghai, China, 201107
Tel: +86 21 400-888-9826
www.GRASacoustics.cn
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 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 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

www.GRASacoustics.com

GRAS

An Axiometrix Solutions Brand