GRAS 40HL

1/2'' LEMO Low-noise Microphone System

Freq range: 10 Hz to 16 kHz
Dyn range: 6.5 dB(A) to 110 dB
Sensitivity: 800 mV/Pa

The GRAS 40HL 1/2" Low-noise Microphone System measures sound pressure levels down close to the threshold of human hearing. It is thus generally suitable for sound-power measurements on even very quiet products. Its very wide dynamic range permits measurements down to 6.5 dB re. 20 µPa (in 1/3-octave bands) from 20 Hz to 20 kHz.

GRAS Sound & Vibration
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Typical applications and use

- Measurements at very low sound pressurelevels
- Measurements on hard-disk drives, computerproducts, anechoic rooms, quiet rooms, etc
- Sound-power measurements at low levels

Design

The 40HL comprises a special high-sensitive 1/2" free-field measurement microphone and an integrated 1/2" low-noise preamplifier. In combination, they connect to most high-quality input modules with LEMO 1B connector.

It complies with IEC 61672 class 1.

Preamplifier

The preamplifier, a true 1/2" low-noise amplifler with LEMO 1B connector, has a built-in compensation filter for free-field microphones.

Microphone

The 1/2" microphone is an externally-polarized free field 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.

TEDS

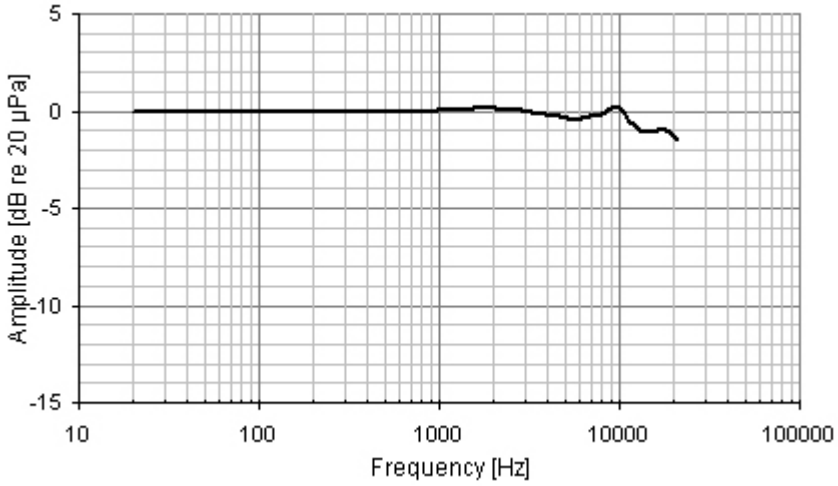
The preamplifier of the 40HL has TEDS according to IEEE 1451.4. If your measurement platform supports TEDS you can read and write data like properties and calibration data.

Operating 40HL

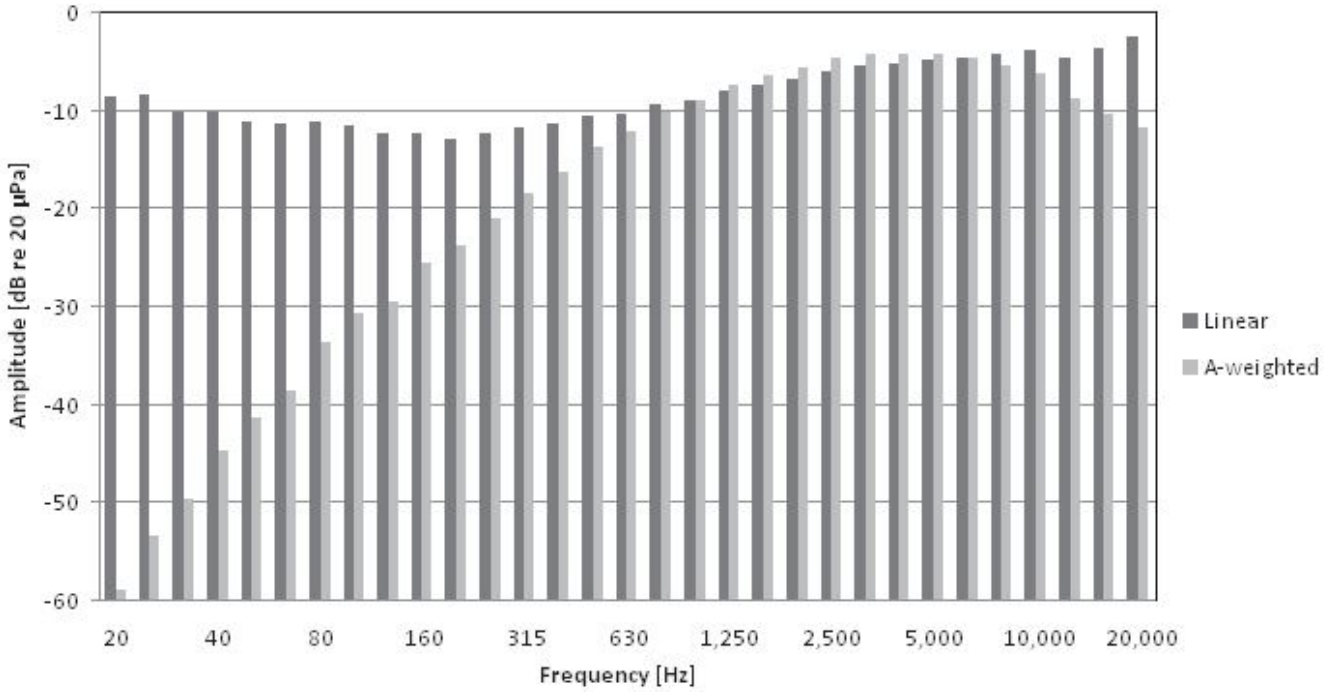
For holding the microphone, you can order tripods and for level calibration of you need a pistonphone and Calibration Adapter attenuating the pistonphone signal to 94 dB re. 20 µPa. See the tab Ordering info.

Specifications

Frequency range (±1 dB)	Hz	12.5 to 10k
Frequency range (±2 dB)	Hz	10 to 16 k
Frequency range (±3 dB)	Hz	6 to 20k
Dynamic range lower limit (microphone thermal noise)	dB(A)	6.5
Dynamic range upper limit	dB	110
Set sensitivity @ 250 Hz (±2 dB)	mV/Pa	800
Polarization voltage	V	200 V / Traditional
POWER SUPPLY		+/- 15V to +/- 60V or 30 - 120V
Power consumption	mA	max. 5.5 mA
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
Temperature coefficient @250 Hz	dB/°C / dB/°F	-0,007 / -0,004
Static pressure coefficient @250 Hz	dB/kPa	-0.01
Humidity range non condensing	% RH	0 to 95
Humidity coefficient @250 Hz	dB/% RH	0,001
Influence of axial vibration @1 m/s²	dB re 20 µPa	63
TEDS (IEEE 1451.4)		27 v. 1.0
Connector type		7-pin LEMO (FGG.1B.307)
CE/RoHS compliant/WEEE registered		Yes / Yes / Yes



Typical frequency response



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

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

Optional items

GRAS AA0008	3 m LEMO-to-LEMO cable*
GRAS AA0009	10 m LEMO-to-LEMO cable*
GRAS 12AD	1-Channel Power Module
GRAS 12AR	2-Channel Power Module
GRAS 12AA	2-Channel LEMO Power Module with gain, filters and Syscheck generator
GRAS 12AK	1-Channel Power Module with gain, filters and SysCheck generator
GRAS 12AQ	2-Channel Universal Power Module with signal conditioning and PC interface
GRAS AL0006	Tripod
GRAS RA0093	Adjustable, high quality, stainless steel tripod adapter
GRAS AM0069	Windscreen for 1/2" Microphones
GRAS 42AP	Intelligent Pistonphone, Class 0
GRAS 42AA	Pistonphone, Class 1
GRAS RA0090	94 dB Pistonphone Coupler

*The cables also function as connection cables (to connect 40HL to a power module).

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GRAS Worldwide

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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 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

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