GRAS 40SA

Probe Microphone

Freq range: 2 Hz to 8 kHz
Dyn range: 40 dB(A) to 166 dB
Sensitivity: 3 mV/Pa

The GRAS 40SA Probe Microphone is a small, compact unit for sound-pressure measurements in small enclosures, in harsh environments and in very close proximity to sound sources. The high acoustic input impedance at the tip of the probe minimizes its influence on the acoustic field, while the stainless-steel tube of the probe can withstand temperatures of up to 800 °C.

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Typical applications and use

- Acoustic-impedance measurements
- Exhaust-system measurements
- Near-field measurements
- Measurements at high temperatures
- Pressure-distribution measurements in smallenclosures

Design

The GRAS 40SA is constructed with detachable stainless-steel probe tubes which guide the acoustic signal to a microphone inside the housing of the 40SA. After being sensed by the microphone, the acoustic signal is passed on to an impedance matching wave guide which eliminates unwanted internal reflections. The result is a smoother frequency response with a controlled high-frequency roll-off, which can be compensated if desired. The internal microphone is connected to a low-noise preamplifier with a high dynamic range; ensuring a measurement range from approximately 40 dB to 166 dB re. 20 µPa. The data sheet shows the preamplifier's connections via its LEMO plug.

The GRAS 40SA Probe Microphone is internally compensated to equalize the internal pressure of the microphone with the static pressure at the probe's tip . The static pressure within the 40SA will therefore adjust itself to the static pressure existing at the probe's tip; which it does with a time constant of approximately 0.1 s.

The 40SA can be used with various probe lengths and is delivered with four standard probe lengths, i.e.: 20 mm, 40 mm, 80 mm and 160 mm. Intermediate lengths can be made by cutting these standard lengths. Also, the stainless steel tubes can be bent to a radius as low as 5 mm without downgrading the system's acoustics. A flexible probe tube is also provided for use in measurements where stiff stainless-steel tubes are not practical. This does, however, slightly downgrade the system's acousticperformance.

The right angled design of the 40SA makes it particularly well suited for measurements on exhaust-gas systems and other machinery in general as well as for scanning vibrating surfaces such as loudspeaker diaphragms and cabinets.

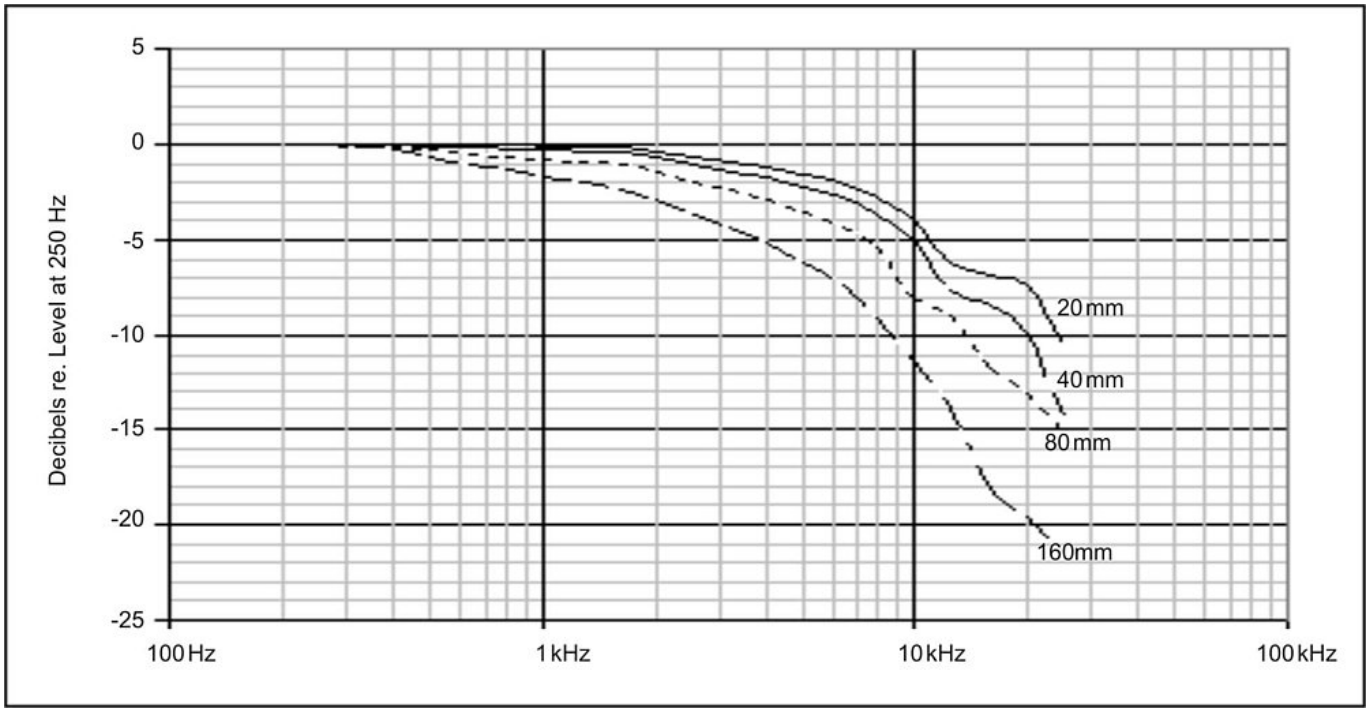
The compact size, low weight and all-stainless-steel construction of the 40SA make it robust, easy to handle and easy to mount.

The 40SA is provided with a 3 m integrated cable with a 7-pin LEMO connector. Extensions cables are available.

Specifications

Polarization/Connection		200 V / Traditional
Frequency range (±3 dB)	Hz	2 to 8 k
Dynamic range lower limit (microphone thermal noise)	dB(A)	40
Dynamic range upper limit	dB	166
Set sensitivity @ 250 Hz (±3 dB)	mV/Pa	3
Polarization voltage	V	200 V
Power supply, single	V	120 to 28
IEC 61094-4 Compliance		WS3P
Output impedance	Ω	55
Temperature range, operation	°C / °F	-25 to 700 / -13 to 1292
Temperature range, storage	°C / °F	-40 to 85 / -40 to 185
Temperature range with GRAS preamplifier, operation	°C / °F	-25 to 70 / -13 to 158
Connector type		3 m 7-pin LEMO
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	40 / 1.4110

Specifications



Typical frequency response for various lengths of stainless-steel probes

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

Dimensions

Length (housing): 83.8 mm

Diameter: 12.7 mm

Probe tube outside diameter: 1.25 mm

Probe tube inside diameter: 1 mm

Ordering info

Included items

GRAS GR0265	Pistonphone adapter for stainless steel probe
GRAS GR0266	Pistonphone adapter for flexible probe
GRAS GR0267	Heat sink and tool
GRAS RA0326	Calibration coupler
GRAS GR0263	1.3 mm insert pin for calibration coupler
GRAS GR0266	1.6 mm insert pin for calibration coupler
GRAS YY0004	Pair of pliers
GRAS YY0005	File
GRAS MI0016	Silicon grease
GRAS EK0018	Teflon tubing (L=0.5 m, Dia.: 1.6 mm)
GRAS GR0258	20 mm probe tube
GRAS GR0259	40 mm probe tube
GRAS GR0260	80 mm probe tube
GRAS GR0261	160 mm probe tube
GRAS GR0401	Flexible probe tube
GRAS SK5546	Needle for cleaning

Optional items

GRAS AA0008	3 m LEMO 7-pin - LEMO 7-pin Cable
GRAS 12AA	2-Channel Power Module with gain, filters and SysCheck generator
GRAS 12AQ	2-Channel Universal Power Module with signal conditioning and PC interface
GRAS 42AA	Pistonphone, Class 1
GRAS 42AP	Intelligent Pistonphone, Class 0

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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 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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