GRAS 50AI-D

1/2" LEMO Intensity Probe

Freq range: Ref. IEC 61043 Class 1
Dyn range: 25 dB(A) to 152 dB
Sensitivity: 25 mV/Pa

The GRAS 50AI-D Sound-intensity Probe builds on more than 20 years of theory and practical experience in sound-intensity measurements. It is adjustable, durable and fully complies with the requirements in IEC 61043, Electroacoustics- Instruments for the Measurement of Sound Intensity- Measurements with Pairs of Pressure Sensing Microphones, 1993 for Class 1 Sound-intensity probes.

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Typical applications

- Sound-intensity measurements
- Sound-source location
- Sound-power measurements
- IEC 61043 standard measurements
- Sound-source ranking
- Sound-intensity mapping

Design

All components are made specifically for sound intensity applications. Each small 1/4-inch diameter by 40 mm long microphone preamplifier is housed in a robust stainless steel casing, which enables novel probe designs for reducing disturbances to the soundfield otherwise brought about by the effects of shadows and diffraction, and a symmetry which enables reliable calibrations as described in the proposed standard (ISO/DIS 9614-2) for sound power measurements using sound-intensity measurements.

The Sound-intensity Probe Type 50AI comprises GRAS 40AK Intensity Microphone Kit, two GRAS 26AA Microphone Preamplifiers, four solid spacers of various lengths and remote-control handle.

The microphones are high sensitivity, free-field 1/2-inch condenser microphones with a uniquely designed pressure equalisation system which ensures extremely well defined phase characteristics. The microphones and preamplifiers are mounted on a swivel head on the telescopic arm of the Remote control handle. To cover the full frequency range from 50 Hz to 10 kHz, the 50AI probes are delivered with four solid spacers for spacing the microphones at 12 mm, 25 mm, 50 mm and 100 mm. These spacers can be easily interchanged without dismantling the probe.

The 50AI can alternatively be supplied with a pair of phase-matched GRAS 40BI 1/4" microphones for measuring very high intensity levels which lie above the dynamic range of the 40AK or in situations where the smaller size of the 40BI is necessary.

Different versions of the Type 50AI are available for connecting directly to a wide range of general purpose frequency analysers as well as specialised sound intensity analysers.

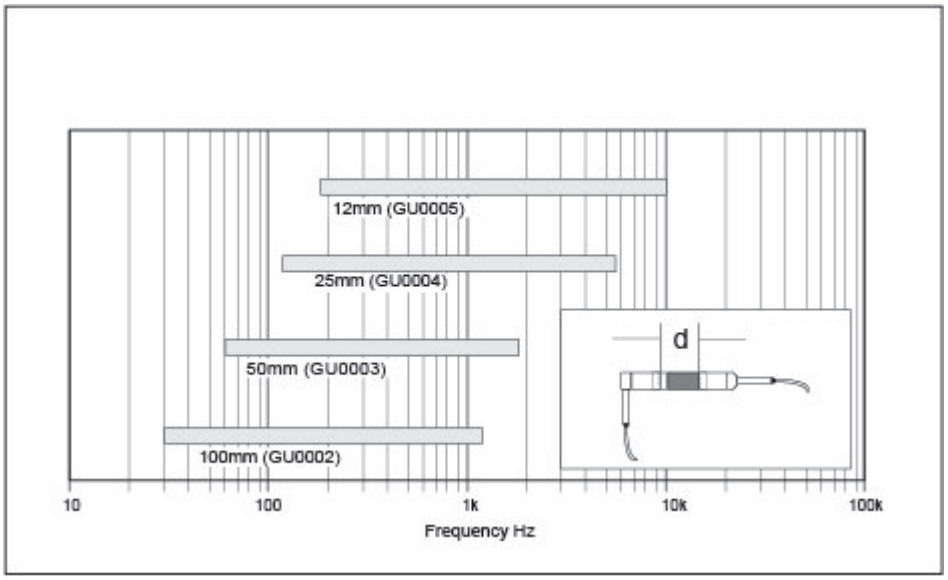
Version B
has built-in remote control functions for direct connection to, and control of, sound-intensity measuring systems from a wide range of suppliers such as 01 dB, Müller-BBM and Neutrix-Cortex

Version C
can be connected to any analyser with standard 7-pin LEMO microphone inputs

All versions are delivered in a carrying case, complete with microphones, preamplifiers, mechanical parts, windscreen and remote control handle. Special configurations can also be made to order.

Specifications

Frequency range (±2 dB)	Hz	Ref. IEC 61043 Class 1
Dynamic range lower limit (microphone thermal noise)	dB(A)	25
Dynamic range upper limit	dB	152
Set sensitivity @ 250 Hz (±2 dB)	mV/Pa	25
Polarization voltage	V	200V
Microphone venting		Rear
Temperature range, operation	°C / °F	5 to 40 / 41 to 104
Temperature coefficient @250 Hz	dB/°C / dB/°F	-0.01
Humidity range non condensing	% RH	0 - 100
Humidity coefficient @250 Hz	dB/% RH	-0.001
Influence of axial vibration @1 m/s²	dB re 20 µPa	66
Connector type		3 m 7-pin LEMO
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	400 / 14.110



Frequency ranges for different microphone spacers

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

Included items

GRAS AI0001	Windscreen for Intensity Probes
	Carrying case

Optional accessories

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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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