

GRAS 50AI-B

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-B 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.

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.

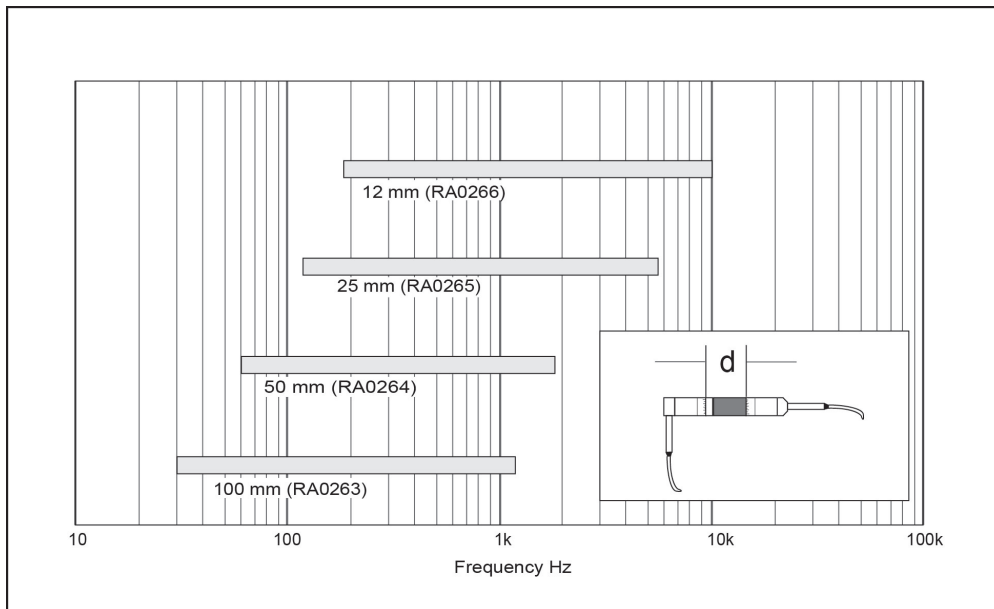
Different versions of the GRAS 50AI are available for connecting directly to a wide range of general purpose frequency analysers as well as specialised sound intensity analysers.

The 50AI-B comes with built-in remote control functions for direct connection to, and control of, sound-intensity measuring systems from a wide range of suppliers such as O1 dB, Müller-BBM and Neutrix-Cortex

The alternate C-version can be connected to any analyser with standard 7-pin LEMO microphone inputs whereas the D-version has built-in remote control functions enabled by internal batteries for direct connection to, and control of, sound-intensity measuring systems from a wide range of suppliers such as O1 dB, Müller-BBM and Neutrix-Cortex

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.

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	$^{\circ}\text{C} / ^{\circ}\text{F}$	5 to 40 / 41 to 104
Temperature coefficient @250 Hz	dB/ $^{\circ}\text{C}$ / dB/ $^{\circ}\text{F}$	-0.01
Humidity range non condensing	% RH	0 - 100
Humidity coefficient @250 Hz	dB/% RH	-0.001
Influence of axial vibration @1 m/s ²	dB re 20 μPa	66
Connector type		12-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

GRAS 12AB	2-Channel Power Module for GRAS Intensity Probes (for versions B, C, D)
GRAS 42AG	Multifunction Sound Calibrator, Class 1
GRAS 51AB	Phase Calibrator according to IEC 61043

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| We Make Microphones

Tradition

Since the establishment in 1994, GRAS has been 100% dedicated to developing and manufacturing high-quality measurement microphones and related acoustic equipment.

Innovation

We work with everybody with an interest in sound or noise within the fields of aerospace, automotive, audiology, consumer electronics, noise monitoring, building acoustics and telecommunications.

Quality

At GRAS we know that in order for you to trust your measurement results; signal quality, stability and robustness are essentials. We design and build them to perform under real life conditions – and beyond.

