

GRAS 50AI-LP

1/2" CCP Rugged Intensity
Probe



Freq range: IEC 61043 Class 1
Dyn range: 25 dB(A) to 152 dB
Sensitivity: 12.5 mV/Pa

The GRAS 50AI-LP 1/2" CCP Rugged Intensity Probe is an industrial sound intensity probe in a very robust design that makes it suitable for use in heavy industrial environment. The probe has remote control and direct connection to LMS data acquisition modules with ICP inputs.

Typical applications

- Sound-power measurements
- Sound-source location and ranking
- Sound Intensity mapping

Design

The GRAS 50AI-LP 1/2" CCP Rugged Intensity Probe is a sound intensity probe for direct connection to LMS data acquisition modules with ICP inputs.

The probe includes a pair of phase matched prepolarized measurement microphones that meet the requirements of IEC standard 61043 for a class-1 intensity probe. The small rugged 1/4" CCP preamplifiers ensure minimum disturbances to the sound field for accurate measurements in the full frequency range.

The probe set includes solid interchangeable spacers for microphone separation. These spacers can be easily interchanged without dismantling the probe.

The 50AI-LP comes with spacers from 12 mm to 50 mm so that the probe can cover the frequency range from 80 Hz to 10 kHz.

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

The microphone is a 1/2" free-field prepolarized microphone with a uniquely designed pressure equalisation system that ensures extremely well

defined phase characteristics.

The microphone and preamplifier are mounted on a swivel head on the telescopic arm of the handle. This flexible solution allows measurements very close to the sound source.

The very robust probe head of the 50AI-LP is optimized for heavy use in the field.

The 50AI-LP is assembled and tested by GRAS before leaving the factory. An individual test certificate is included.

Calibration

Before leaving the factory, all GRAS products are calibrated in a controlled laboratory environment using traceable calibration equipment. We recommend a yearly recalibration at minimum, depending on the use, measurement environment, and internal quality control programs. We recommend calibration prior to each use to ensure the accuracy of your measurements.

Warranty

All GRAS products are made of high-quality materials that will ensure life-long stability and robustness. The 50AI-LP is delivered with a 5-year warranty.

Damaged diaphragms in microphones can be replaced. The warranty does not cover products that are damaged due to negligent use, an incorrect power supply, or an incorrect connection to the equipment.

For more information, contact your GRAS representative.

Service and Repair

All repairs are made at GRAS International Support Center located in Denmark. Our Support Center is

equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories.

If a product covered by warranty is sent for service, it is repaired free of charge, unless the damage is the result of negligent use or other violations of the warranty. All repairs are delivered with a service report, as well as an updated calibration chart.

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	12.5
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

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

Included

GRAS RA0213	Rugged Probe Head
GRAS 40GK	1/2" Intensity Microphone Set
GRAS RA0001	Right-angled (90°) Adapter for 1/2" microphone and 1/4" preamplifier
GRAS GR0040	Holder for spacer
GRAS RA0264	Spacer, 50 mm
GRAS RA0265	Spacer, 25 mm
GRAS RA0266	Spacer, 12 mm
GRAS 26CC Set	1/4" CCP Preamplifier set
GRAS AA0021	5 m Extension Cable, 5 m, 12 pin LEMO male - male
GRAS AC0022	Adapter cable, 12-pin LEMO to 2 x BNC + USB Adapter
GRAS AA0068	2 x SMB to Microdot cable, 25 cm (male-male)
GRAS AI0048S	Probe handle
GRAS AM0376	Windscreen

Optional

GRAS AA0010-S1	3 m LEMO 12-pin - Lemo 12-pin, Cable for Intensity Probe
GRAS AA0010	10 m LEMO 12-pin - Lemo 12-pin, Cable for Intensity Probe
GRAS 51AB	Intensity Calibrator
GRAS 42AP	Pistonphone with built-in barometer and thermometer (recommended)
GRAS 42AA	Pistonphone
GRAS RA0024	Two-port Calibration Coupler (for GRAS 42AP or 42AA Pistonphones)
GRAS 51AC	Sound Intensity Calibration Kit for 50AI-LP

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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.

