

1/2-inch Laboratory STD., Pressure Microphone Type 40AU

Product Data and Specifications

Typical applications

- *LS2aP Reference microphone*
- *Precision sound pressure measurements*
- *Calibrations at high frequencies*
- *Laboratory reference measurements*
- *In couplers and ear simulators*

The G.R.A.S. Microphone Type 40AU (Fig. 1) is a 1/2-inch laboratory-standard microphone, e.g. for use in couplers, ear simulators, enclosures and at boundaries. It is an externally polarized pressure microphone with a large dynamic range and an extended frequency response.

As a pressure microphone, the Type 40AU measures the sound pressure at the location of its diaphragm. It has a flat pressure-frequency response over its entire working frequency range (see Fig. 2).

In an open sound field, a pressure microphone will also include the disturbing effects of its presence in the sound field. These are minimal at low frequencies (large wavelengths compared with microphone size).

At higher frequencies the effects of reflections and diffractions must be accounted for. Generally, they lead to an increase in the measured sound pressure and corrections have to be made. Fig. 3 shows what these corrections are in a free field for various angles of incidence.

Specifications

Frequency response:		Dynamic range:	
3.15 Hz - 20 kHz	± 1.5 dB	Upper limit (3 % distortion):	160 dB re. 20 µ Pa
5 Hz - 12.5 kHz	± 1.0 dB	Microphone thermal noise:	20 dBA re. 20 µ Pa
Nominal sensitivity:	12.5 mV/Pa	Capacitance:	20 pF
Polarization voltage:	200 V	Temperature range:	-40 °C to +150 °C
			...continued overleaf

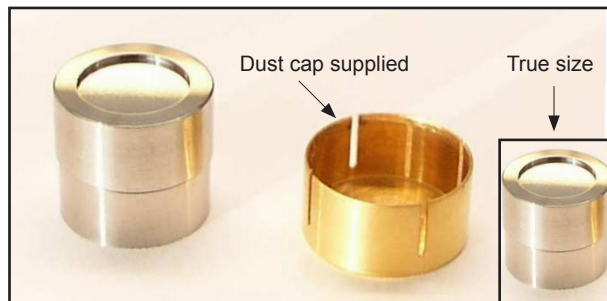


Fig. 1 1/2-inch Wide-frequency, Pressure Microphone Type 40AU

G.R.A.S. 1/2-inch preamplifiers (see data sheets for Types 26AG, 26AH, 26AJ, 26AK and 26AM) are also available for use with the Type 40AU. The mounting thread (11.7 mm - 60 UNS-2) is compatible with other available makes of similar microphone preamplifiers.

The Type 40AU complies with the specifications of IEC 61094: *Measurement Microphones, Part 1: Specifications for laboratory standard microphones*.

Non-corrosive, stainless materials are used in manufacturing these microphones to enable them to withstand rough handling and corrosive environments.

All G.R.A.S. microphones are guaranteed for 5 years and are individually checked and calibrated before leaving the factory. An individual calibration chart is supplied with each microphone. The Type 40AU is also supplied with a protective dust cap.

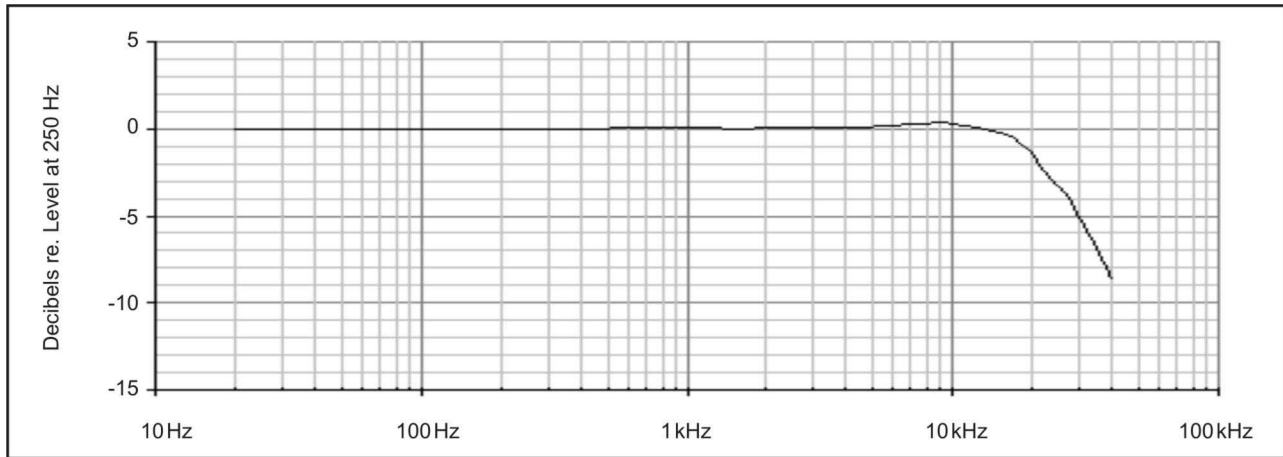


Fig. 2 Typical frequency response for Type 40AU

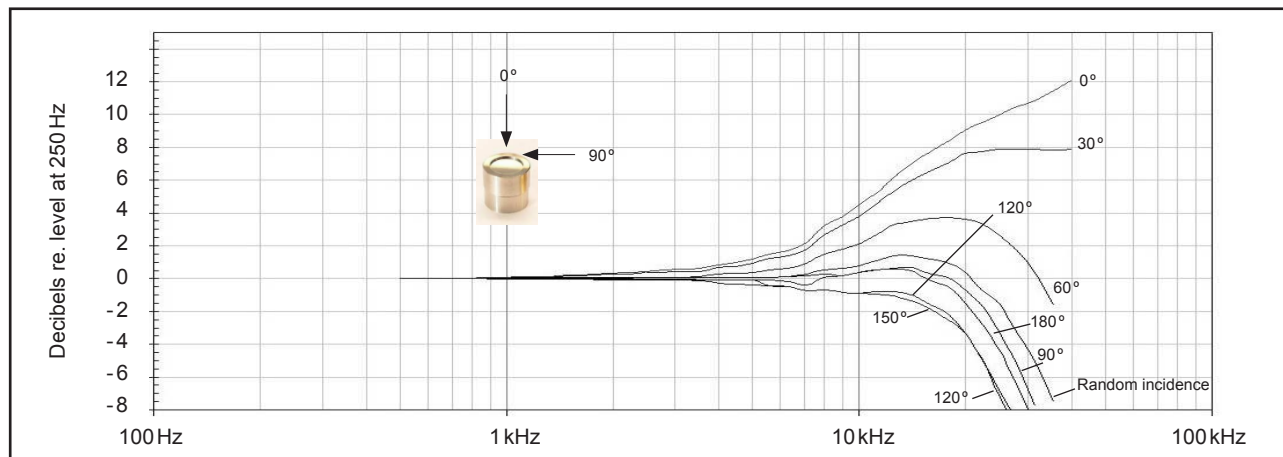


Fig. 3 Free-field corrections for various angles of incidence

Specifications (continued)

Temperature coefficient (250 Hz):	-0.002 dB/°C	IEC 61094-1 type designation:	LS2aP
Static-pressure coefficient:	-0.008 dB/kPa	Dimensions:	
Humidity range:	0 - 100% (non-condensing)	Length:	12.0 mm
Influence of humidity (250 Hz):	<0.1 dB (0 - 100% RH)	Diameter (front):	13.2 mm
Influence of axial vibration, 1 m/s²:	66 dB re. 20 μPa	Diameter (back):	12.7 mm
Venting:	Rear vented	Front cavity diameter:	9.30 ¹ mm
		Front cavity height:	0.50 ¹ mm
		Threads:	
		Preamplifier Mounting:	11.7 mm - 60 UNS
		Weight:	7 g
		¹	Individually specified on the calibration chart

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice

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