

1/2-inch Wide-frequency, Pressure Microphone Type 40AO

Product Data and Specifications

Typical applications

- Precision sound pressure measurements
- Very high frequency measurements
- Laboratory reference measurements
- In couplers and ear simulators
- Use with G.R.A.S. CCP preamplifiers)

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

As a pressure microphone, the Type 40AO 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 (wavelengths \gg 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:

3.15 Hz - 20 kHz ± 2.0 dB
5 Hz - 12.5 kHz ± 1.0 dB

Nominal sensitivity:

12.5 mV/Pa

Polarization voltage:

0 V

Dynamic range:

Upper limit (1 % distortion): 160 dB re. 20 μ Pa
Microphone thermal noise: 20 dBA re. 20 μ Pa

Capacitance:

20 pF

Temperature range:

-40 °C to +150 °C
...continued overleaf



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

G.R.A.S. CCP preamplifiers are also available for use with the Type 40AO, these are:

- 1/2-inch Preamplifier Type 26CA
- 1/4-inch Preamplifier Type 26CB with the included adaptor GR0010 (see separate data sheets)

All G.R.A.S. microphones comply with the specifications of IEC 1094: *Measurement Microphones, Part 4: Specifications for working 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.

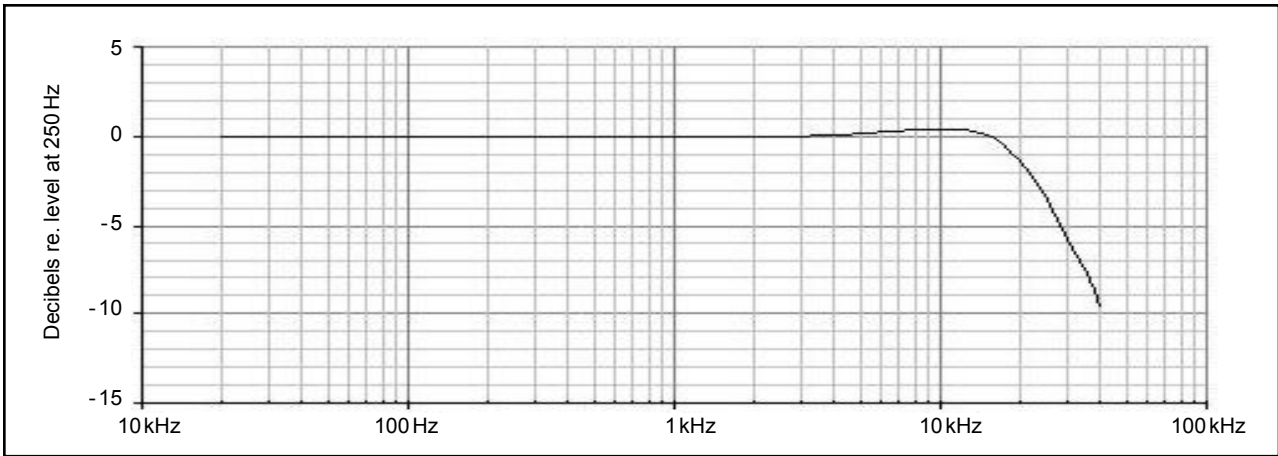


Fig. 2 Typical frequency response for Type 40AO

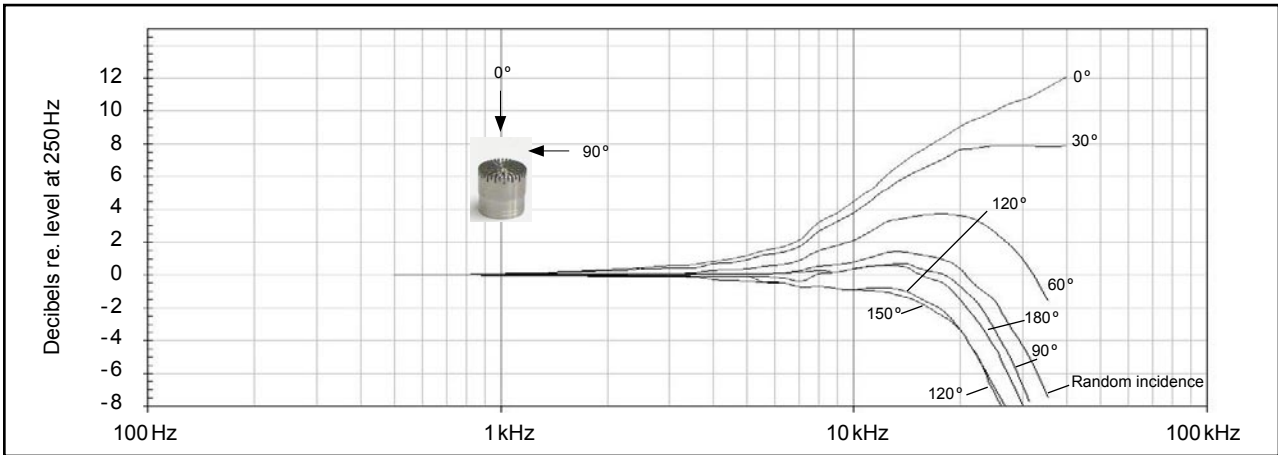


Fig. 3 Free-field corrections for various angles of incidence

Specifications (continued)

Temperature coefficient (250 Hz): -10°C to +50°C:0.002 dB/°C	Dimensions (with protection grid): Length: 12.5 mm Diameter: 13.2 mm
Static-pressure coefficient: 250 Hz at 25°C:-0.007 dB/k Pa	(without protection grid): Length: 11.6 mm Diameter: 12.7 mm
Humidity (non-condensing): Range: 0 - 100% RH Influence (250 Hz): <0.1 dB (0 - 100% RH)	Diameter (diaphragm ring): 12.1 mm
Influence of humidity (250 Hz): <0.1 dB (0 - 100% RH)	Threads: Protection Grid: 12.7 mm - 60 UNS Preamplifier Mounting: 11.7 mm - 60 UNS
Influence of axial vibration, 1 m/s²: 66 dB re. 20 µ Pa	Weight: 7 g
Venting: Rear vented	
IEC 1094-4 type designation: LS2aP	

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

G.R.A.S.
Sound & Vibration

Skovlytoften 33
2840 Holte, Denmark
Tel +45 45 66 40 46 Fax +45 45 66 40 47
e-mail: gras@gras.dk www.gras.dk