

# 1/2-inch Prepolarized, Free-field Microphone Type 40AE

## Product Data and Specifications

### Typical applications

- Precision acoustic measurements
- Type 0 and 1 SPL measurements
- Free-field measurements
- Use with G.R.A.S. CCP preamplifiers (ICP®)

The G.R.A.S. Microphone Type 40AE is a 1/2-inch precision condenser microphone for general purpose measurements in open acoustic fields. It is a prepolarized free-field microphone with a large dynamic range and a wide frequency response.

As a free-field microphone, the Type 40AE is for measuring the sound pressure which existed before it was placed in the sound field pointing towards the sound source.

The disturbing effects of its presence in the sound field are minimal at low frequencies (large wavelengths compared with microphone size). At higher frequencies, the effects of reflections and diffractions generally lead to an increase in the measured sound pressure levels.

Fig. 3 shows what these are in a free-field for various angles of incidence. The Type 40AE compensates for this to provide a flat frequency response at an angle of 0° incidence in a free-field (see Fig. 2).

### Specifications

<b>Frequency response:</b>		<b>Upper limit (3% distortion):</b>	
3.15 Hz - 20 kHz	±2.0 dB		148 dB re. 20 µ Pa
5 Hz - 10 kHz	±1.0 dB	<b>Microphone thermal noise:</b>	14.5 dBA re. 20 µ Pa
<b>Nominal sensitivity:</b>	50 mV/Pa	<b>Capacitance:</b>	17 pF
<b>Polarization voltage:</b>	0V	<b>Temperature range:</b>	-40 °C to +120 °C
			...continued overleaf

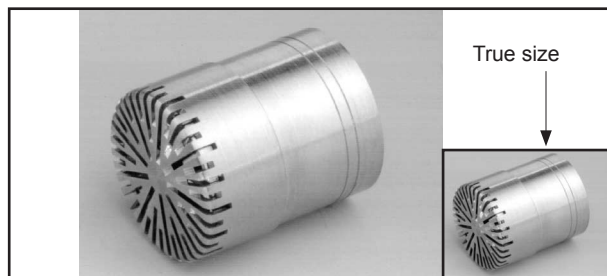


Fig. 1 1/2-inch Prepolarized Free-field Microphone Type 40AE

G.R.A.S. CCP preamplifiers (ICP®) are also available for use with the Type 40AE, these are:

- 1/2-inch Preamplifier Type 26CA
  - 1/4-inch Preamplifier Type 26CB with adaptor RA0003
- (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.

® ICP is a registered trade mark of PCB Piezotronics.

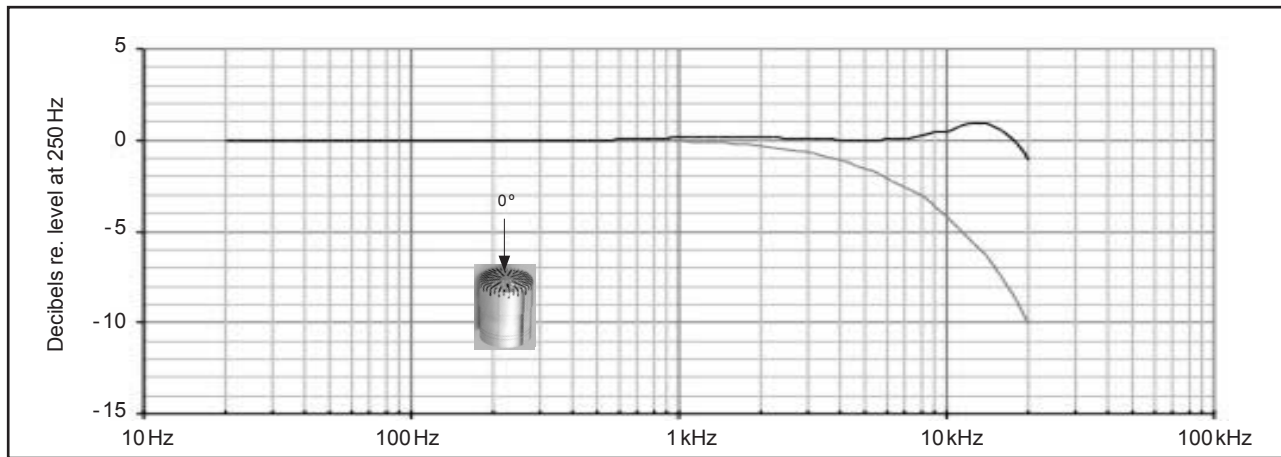


Fig. 2 Typical frequency response of Type 40AE. Upper curve shows free-field response for 0°, lower curve shows pressure response

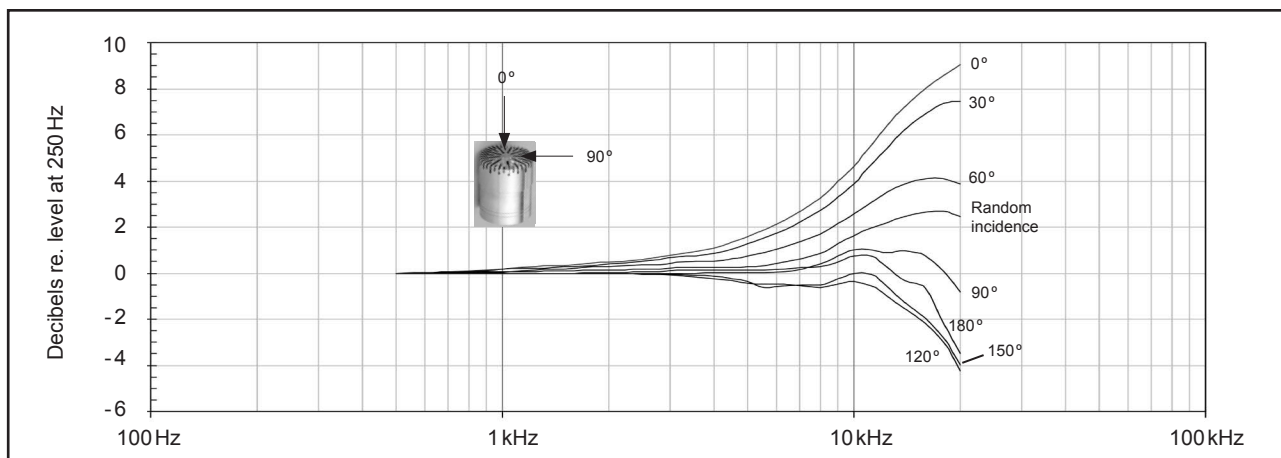


Fig. 3 Free-field corrections for various angles of incidence

### Specifications (continued)

<b>Temperature coefficient (250 Hz):</b>	-0.007 dB/°C	<b>Dimensions (with protection grid):</b>	
<b>Static-pressure coefficient:</b>	-0.01 dB/k Pa	Length: .....	16.2 mm
<b>Humidity range:</b>	0 - 100% (non-condensing)	Diameter: .....	13.2 mm
<b>Influence of humidity (250 Hz):</b>	<0.1 dB (0 - 100% RH)	<b>(without protection grid):</b>	
<b>Influence of axial vibration, 1 m/s<sup>2</sup>:</b>	63 dB re. 20 µ Pa	Length: .....	15.3 mm
<b>Venting:</b>	Rear vented	Diameter: .....	12.7 mm
<b>IEC 1094-4 designation:</b>	WS2F	<b>Diameter (diaphragm ring):</b>	12.1 mm
		<b>Threads:</b>	
		Protection Grid: .....	12.7 mm - 60 UNS
		Preamplifier Mounting: .....	11.7 mm - 60 UNS
		<b>Weight:</b>	7 gm

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

**G.R.A.S.**  
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