

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. CCP¹ preamplifiers

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

Frequency response:		Microphone thermal noise:	15 dBA re. 20 µPa
3.15 Hz - 20 kHz	±2.0 dB	Capacitance:	14.1 pF
5 Hz - 10 kHz	±1.0 dB	Effective front volume:	Nominal at 250 Hz: 50 mm ³
Nominal sensitivity:	50 mV/Pa	Temperature range:	-40 °C to +150 °C
Polarization voltage:	0 V		...continued overleaf
Upper limit (3 % distortion):	146 dB re. 20 µPa		

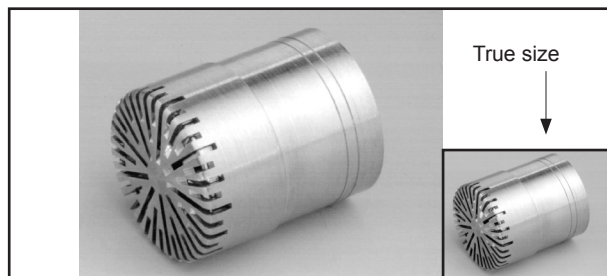


Fig. 1 1/2-inch Prepolarized Free-field Microphone Type 40AE

G.R.A.S. CCP¹ preamplifiers 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 61094: *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.

¹ Constant Current Power

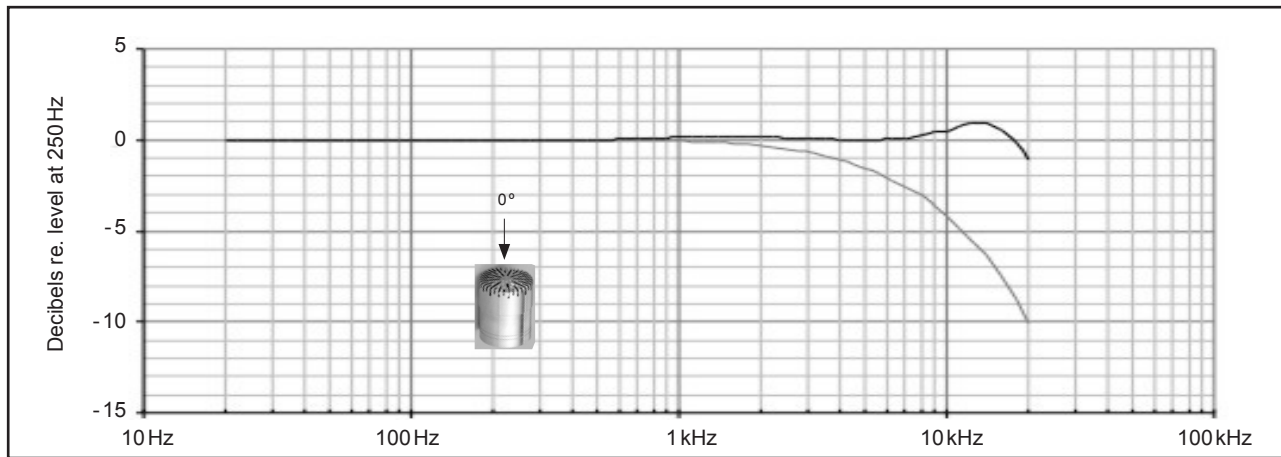


Fig. 2 Typical frequency response of Type 40AE. Upper curve shows free-field response for 0°, lower curve shows pressure response

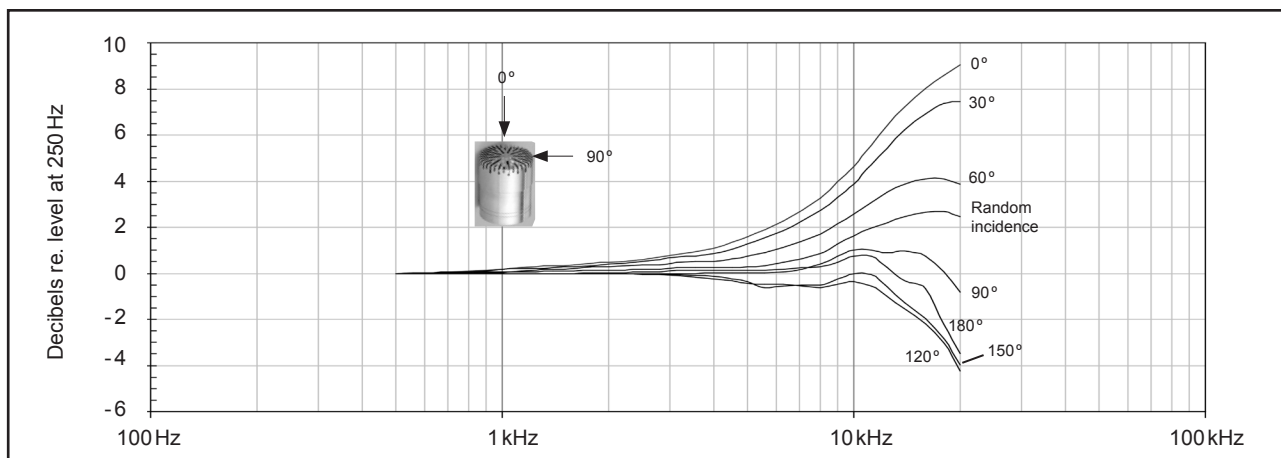


Fig. 3 Free-field corrections for various angles of incidence

Specifications (continued)

Temperature coefficient (250 Hz):	-0.01 dB/°C	Dimensions (with protection grid):	Length: 16.2 mm
Static-pressure coefficient:	-0.014 dB/kPa		Diameter: 13.2 mm
Humidity range:	0 - 100% (non-condensing)	(without protection grid):	Length: 15.3 mm
Influence of humidity (250 Hz):	<0.1 dB (0 - 100% RH)		Diameter: 12.7 mm
Influence of axial vibration, 1 m/s²:	62 dB re. 20 µPa	Diameter (diaphragm ring):	12.1 mm
Venting:	Rear vented	Threads:	
IEC 61094-4 designation:	WS2F	Protection Grid: 12.7 mm - 60 UNS	
		Preamplifier Mounting: 11.7 mm - 60 UNS	
		Weight:	6.5 g

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

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