

1/2-inch Low-frequency, Free-field Microphone Type 40AN

Product Data and Specifications

Typical applications

- Precision acoustic measurements
- Type 0 and 1 SPL measurements
- Free-field measurements
- Low-frequency measurements
- Infra-sound measurements

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

As a free-field microphone, the Type 40AN 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 40AN 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:

0.5 Hz - 20 kHz: ± 2.0 dB
1 Hz - 10 kHz: ± 1.0 dB

Resonant frequency:

90° phase shift: 14 kHz

Nominal sensitivity:

at 250 Hz: 50 mV/Pa



Fig. 1 1/2-inch Free-field Microphone Type 40AN (inset shows true size)

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 40AN. The mounting thread (11.7 mm - 60 UNS-2) is compatible with other available makes of similar microphone preamplifiers.

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.

Polarization voltage:

200 V

Dynamic range:

Upper limit (3% distortion): 146 dB re. 20 µ Pa
Microphone thermal noise: 14 dBA re. 20 µ Pa

Capacitance:

Polarized: 16.5 pF

...continued overleaf

G.R.A.S.
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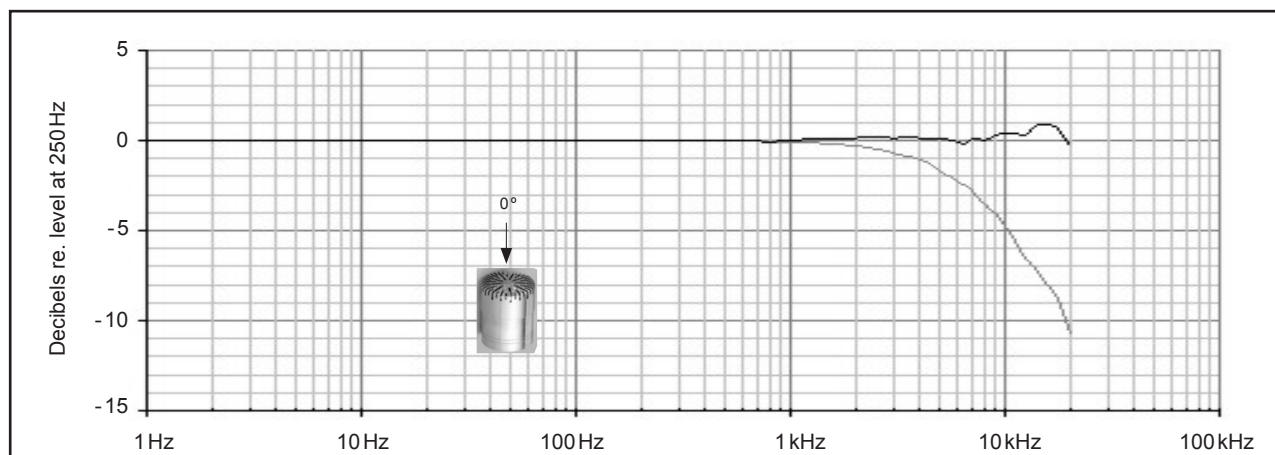


Fig. 2 Typical frequency response of Type 40AN. Upper curve shows free-field response for 0°, lower curve shows pressure response

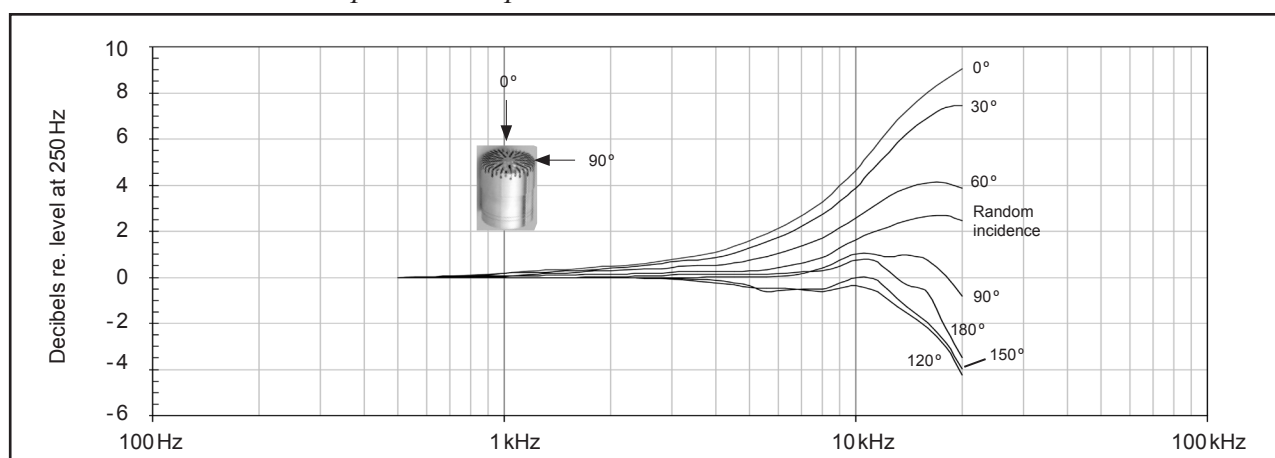


Fig. 3 Free-field corrections for various angles of incidence

Specifications (continued)

Effective front volume:

Nominal at 250 Hz: 50 mm³

Temperature range:

–40 °C to +150 °C

Temperature coefficient (250 Hz):

–10 °C to +50 °C: –0.01 dB/°C

Static-pressure coefficient:

250 Hz/25 °C: –0.011 dB/k Pa

Humidity (non-condensing):

Range: 0 - 100 % RH

Influence (250 Hz): <0.1 dB (0 - 100 % RH)

Influence of axial vibration, 1 m/s²:

62 dB re. 20 µ Pa

Venting:

Rear vented

IEC 1094-4 type designation:

WS2F

Dimensions (with protection grid):

Length: 16.2 mm

Diameter: 13.2 mm

(without protection grid):

Length: 15.3 mm

Diameter: 12.7 mm

Diameter (diaphragm ring):

12.1 mm

Threads:

Protection Grid: 12.7 mm - 60 UNS

Preamplifier Mounting: 11.7 mm - 60 UNS

Weight:

6.5 gm

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

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