¼-inch Prepolarized Free-field Microphone Type 40BE

Product Data and Specifications

Typical applications

- ***High frequency measurements***
- ***High level measurements***
- ***Acoustic transient measurements***
- ***Use with G.R.A.S. CCP* preamplifiers***

Fig. 1 ¼-inch Prepolarized Free-field Microphone Type 40BE

The G.R.A.S. Microphone Type 40BE is a ¼-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 40BE 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 for most of its frequency range because of its small dimensions (see Fig. 1 inset). 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 40BE compensates for this to provide a flat frequency response at an angle of 0° incidence in a free field (see Fig. 2).

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

¼-inch Preamplifier Type 26CB
½-inch Preamplifier Type 26CA with adaptor RA0019
(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.

* Constant Current Power.

Specifications

Frequency response:
10 Hz - 40 kHz: . . . . . ± 1 dB
4 Hz - 80 kHz: . . . . . ± 2 dB
4 Hz - 100 kHz: . . . . . ± 3 dB
Nominal open circuit sensitivity:
at 250 Hz: . . . . . 4 mV/Pa
Polarization voltage:
0 V

Upper limit (3 % distortion):
166 dB re. 20 µ Pa
Microphone thermal noise:
30 dBA re. 20 µ Pa
Nominal cartridge capacitance:
Polarized: . . . . . 5.2 pF

...continued overleaf

Vers.04.02.10

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

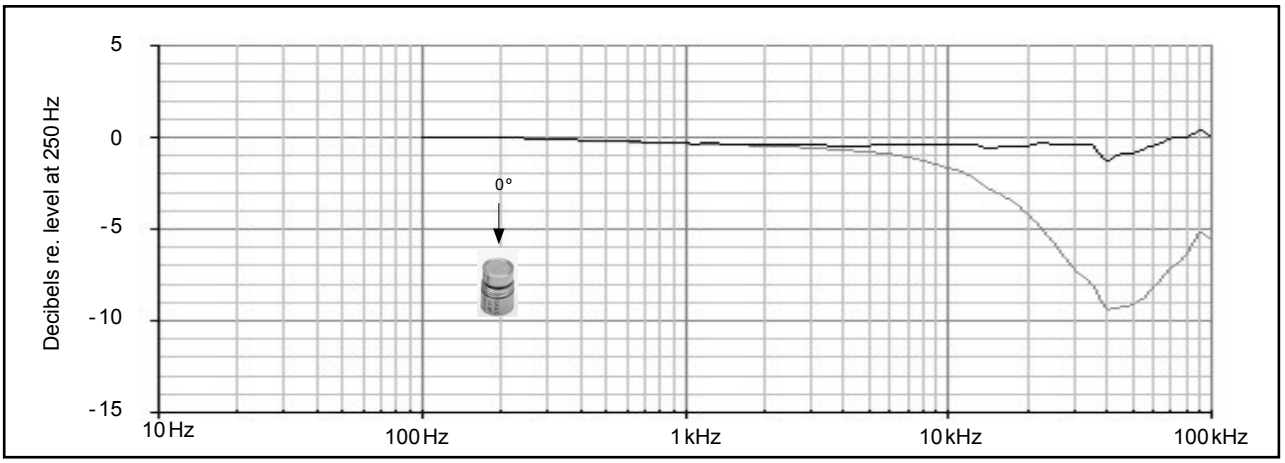

Fig. 2 Typical frequency response of Type 40BE (without protection grid). Upper curve shows free-field response for 0°, lower curve shows pressure response

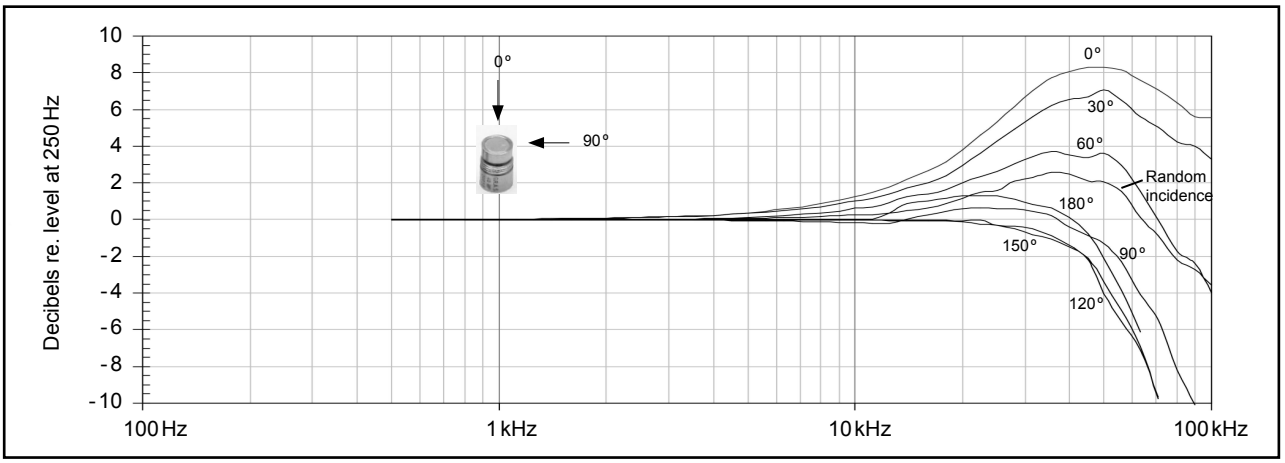

Fig. 3 Free-field corrections for various angles of incidence (without protection grid)

Specifications (continued)

Resonant frequency:
90° Phase shift:. . . . . 100 kHz
Effective front volume:
Nominal at 250 Hz:. . . . . 0.6 mm³
Static-pressure coefficient:
250 Hz at 25 °C. . . . . –0.014 dB/kPa
Influence of axial vibration, 1 m/s²:
60 dB re. 20 µ Pa
Temperature:
Range:. . . . . –40 °C to +150 °C
Mean coeff. (–10 °C to +50 °C):. . . . . –0.01dB/ °C
Venting:
Rear vented
Note: for most applications, rear venting is more advantageous particularly where phase response is critical. If front venting is preferred, please add "front venting" to the Type number of the microphone when ordering.
IEC 1094-4 Type Designation:
WS3F
Dimensions (with protection grid):
Length/Diameter: . . . . . 10.5 mm/6.9 mm
(without protection grid):
Length/Diameter: . . . . . 9.1 mm/6.3 mm
Diameter (diaphragm ring):
6.0 mm
Threads:
Protection Grid: . . . . . 6.35 mm - 60 UNS
Preamplifier Mounting: . . . . . 5.7 mm - 60 UNS
Weight:
1.75 g

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