

GRAS 40PL

CCP Free-field Array
Microphone, High Pressure



Freq range: 50 to 20 kHz
Dyn range: 32 dB(A) to 150 dB
Sensitivity: 10 mV/Pa

The GRAS 40PL Array Microphone is a low-cost microphone for general purpose measurements in arrays and matrices. It has a wide useful frequency range reaching up to 20 kHz and a large dynamic range topping at around 150 dB.

Typical applications and use

- Multi-channel measurements
- Sound-field analyses
- Sound-power measurements
- Concurrent spatial and transient measurements

Design

Array microphones are designed to be mounted on large or small arrays. Such systems are typically used for measuring and locating noise sources, and here the phase match is important to get good accuracy in the measurements. An important characteristic of array microphones are precisely that the microphones are phase-matched.

40PL has a dynamic range from 32dBA to 150dB peak, the upper limit is the peak value before visible clipping

40PL has an integrated CCP preamplifier and is delivered with a built-in TEDS chip which enables it to be programmed as a complete unit. The GRAS 40PL requires a constant current power supply, e.g. the [GRAS 12AL](#) CCP Supply, or any other CCP compatible power supply.

Close manufacturing tolerances together with the advantages of the TEDS chip provide the GRAS 40PL with a high degree of interchangeability; a major advantage when used in multiples forming arrays and matrices.

The low cost of the GRAS 40PL is a key consideration when setting up measurements requiring a multiplicity of concurrent transient and spatial data.

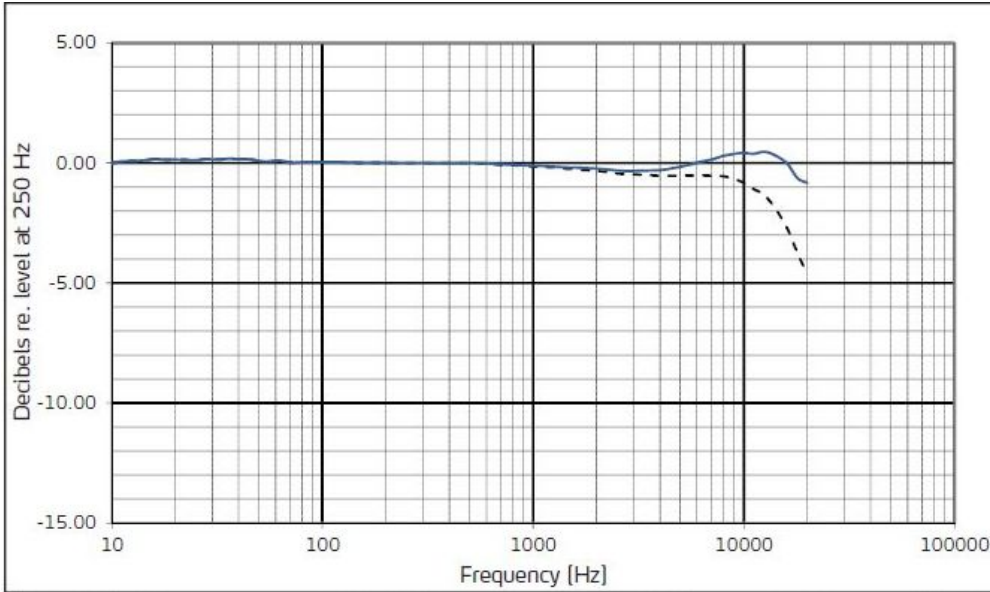
Calibrating the GRAS 40PL with a GRAS pistonphone (GRAS 42AP is recommended) is as straightforward as calibrating any other GRAS 1/4-inch microphone.

All GRAS microphones are individually checked and

calibrated before leaving the factory. An individual calibration chart is supplied with each microphone.

| | | |
|--|---------------------------------------|------------------------|
| Polarization/Connection | | 0 V / CCP |
| Frequency range (± 1 dB) | Hz | 50 to 5 k |
| Frequency range (± 2 dB) | Hz | 5 k to 20 k |
| Frequency range (± 3 dB) | Hz | 10 to 50 k |
| Dynamic range lower limit (microphone thermal noise) | dB(A) | < 32 |
| Dynamic range upper limit | dB | 150 |
| Set sensitivity @ 250 Hz (± 3 dB) | mV/Pa | 10 |
| Power supply (Constant Current Power) | mA | 2 to 20 |
| Power consumption | mA | 2 to 20 |
| Microphone venting | | Front |
| Output impedance | Ω | < 50 |
| Temperature range, operation | $^{\circ}\text{C} / ^{\circ}\text{F}$ | -10 to 50 / -50 to 122 |
| Temperature range, storage | $^{\circ}\text{C} / ^{\circ}\text{F}$ | -40 to 85 / -40 to 185 |
| Influence of axial vibration @1 m/s ² | dB re 20 μPa | 50 |
| TEDS UTID (IEEE 1451.4) | | 27 v. 1.0 |
| Connector type | | SMB |
| CE/RoHS compliant/WEEE registered | | Yes / Yes / Yes |
| Weight | g / oz | 5.5 / 0.2 |
| Phase Match | | |
| 50Hz - 100Hz | | $\pm 5^{\circ}$ |
| 100Hz - 3kHz | | $\pm 3^{\circ}$ |
| 3kHz - 5kHz | | $\pm 5^{\circ}$ |
| 5kHz - 10kHz | | $\pm 10^{\circ}$ |

Frequency response



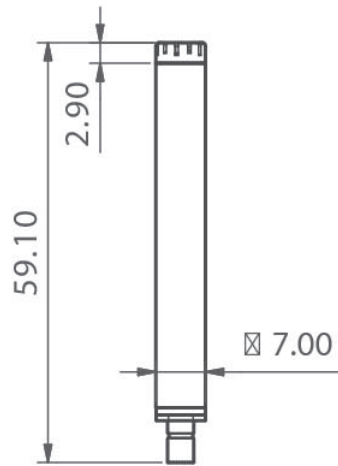
Typical frequency response

— Free-field response

--- Pressure response

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

Dimensions in mm



Optional items

| | |
|-----------------------------|--|
| GRAS AA0027 | 3 m SMB - BNC Cable |
| GRAS 12AL | 1-Channel CCP Power Module with A-weighting filter |
| GRAS PR0002 | Array Module |
| GRAS AM0364 | Windscreens (set of 6) |
| GRAS RA0092 | Rain-protection cap |
| GRAS 42AA | Pistonphone |
| GRAS 42AG | Multifunction Sound Calibrator, Class 1 |

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

GRAS Worldwide

Subsidiaries and distributors in more
than 40 countries

GRAS SOUND & VIBRATION A/S
Skovlytoften 33
2840 Holte
Denmark
Tel: +45 4566 4046
gras@gras.dk

GRAS SOUND & VIBRATION USA
2234 East Enterprise Parkway
Twinsburg, OH 44087
United States
Tel: +1 330 425 1201
sales@gras.us

GRAS SOUND & VIBRATION UK
Building 115
Bedford Technology Park Thurleigh,
MK44 2YA Bedford
United Kingdom
Tel: +44 1234 639552
sales@gras.co.uk

GRAS SOUND & VIBRATION CHINA LTD.
Rm 1606, Kodak House II
No. 39 Healthy Street East North Point
Hong Kong
China
Tel: +852 2833 9987
sales@gras.com.cn



About GRAS Sound & Vibration

GRAS is a worldwide leader in the sound and vibration industry. We develop and manufacture state-of-the-art measurement microphones to industries where acoustic measuring accuracy and repeatability is of utmost importance in R&D, QA and production. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, and consumer electronics. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect and trust.

GRAS Sound
& Vibration