

# GRAS 40PL-11

CCP



Freq range: 10 Hz to 20 kHz  
Dyn range: 33 dB(A) to 142 dB  
Sensitivity: 9 mV/Pa

GRAS 40PL-11  
147 dB

20 kHz

## Typical applications and use

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

inch microphone.

All GRAS microphones are individually checked and calibrated before leaving the factory. An individual calibration chart is supplied with each microphone.

## 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 is that the microphones are phase-matched.

40PL-11 has a dynamic range from 33 dB(A) to 147dB peak, the upper limit is the peak value before visible clipping.

It 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-11 requires a constant current power supply, e.g. the [GRAS 12AL](#) CCP Supply, or any other CCP compatible power supply.

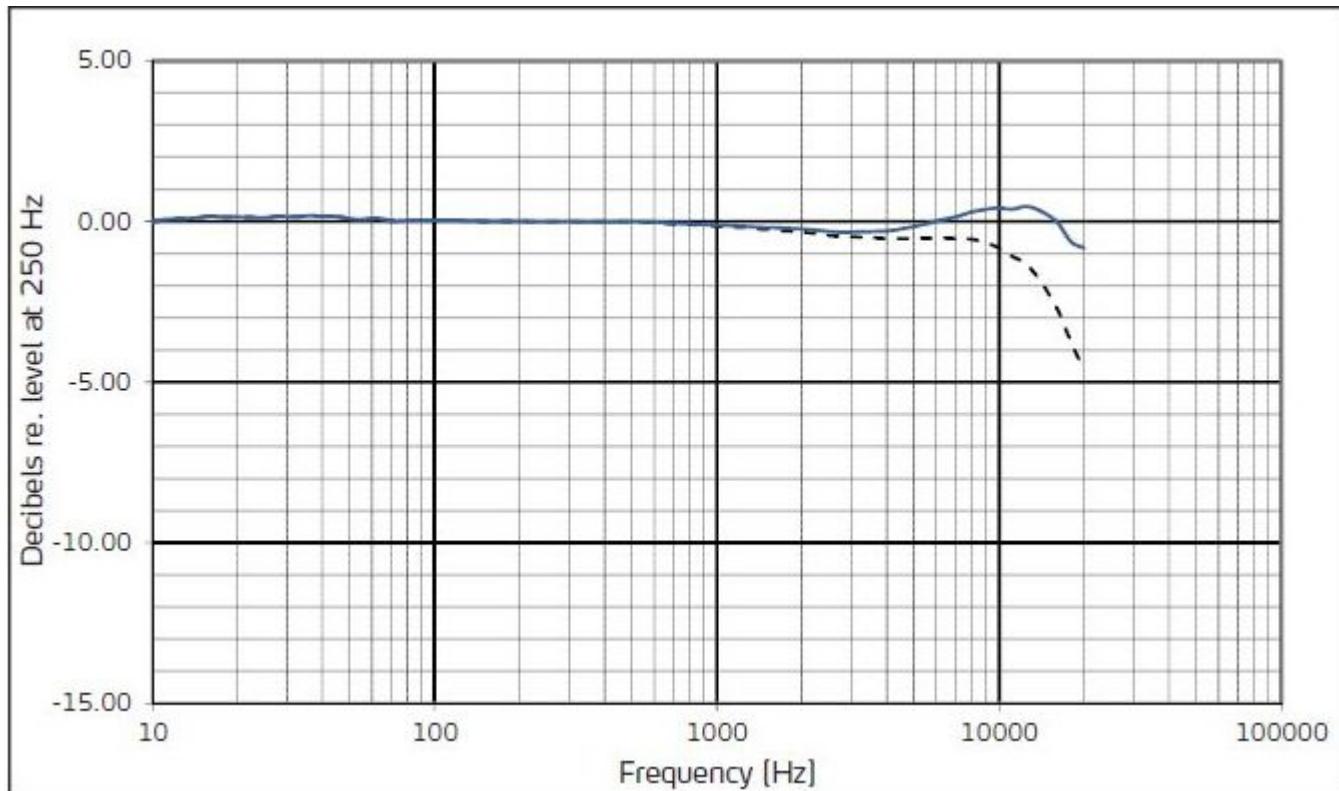
Close manufacturing tolerances together with the advantages of the TEDS chip provide the GRAS 40PL-11 with a high degree of interchangeability; a major advantage when used in multiples forming arrays and matrices.

The low cost of the GRAS 40PL-11 is a key consideration when setting up measurements requiring a multiplicity of concurrent transient and spatial data.

Calibrating the GRAS 40PL-11 with a GRAS pistonphone (GRAS 42AP is recommended) is as straightforward as calibrating any other GRAS 1/4-

|  |                                       |                        |
|--|---------------------------------------|------------------------|
| Polarization/Connection                              |                                       | 0 V / CCP              |
| Frequency range ( $\pm 1.5$ dB)                      | Hz                                    | 50 to 5 k              |
| Frequency range ( $\pm 2$ dB)                        | Hz                                    | 10 to 20 k             |
| Dynamic range lower limit (microphone thermal noise) | dB(A)                                 | < 33                   |
| Dynamic range upper limit                            | dB                                    | 142                    |
| Set sensitivity @ 250 Hz ( $\pm 3$ dB)               | mV/Pa                                 | 9                      |
| Power supply (Constant Current Power)                | mA                                    | 2 to 20                |
| Microphone venting                                   |                                       | Front                  |
| Output impedance                                     | $\Omega$                              | < 50                   |
| Temperature range, operation                         | $^{\circ}\text{C} / ^{\circ}\text{F}$ | -10 to 50 / -50 to 122 |
| Temperature range, storage                           | $^{\circ}\text{C} / ^{\circ}\text{F}$ | -20 to 60 / -4 to 140  |
| Influence of axial vibration @1 m/s <sup>2</sup>     | dB re 20 $\mu\text{Pa}$               | 55                     |
| TEDS (IEEE 1451.4)                                   |                                       | 27 v. 1.0              |
| Connector type                                       |                                       | SMB                    |
| CE/RoHS compliant/WEEE registered                    |                                       | Yes / Yes / Yes        |
| Weight   | g / oz                                | 3.5 / 0.12             |
| <b>Phase Match</b>                                   |                                       |                        |
| 50Hz - 100Hz   |                                       | $\pm 5^{\circ}$        |
| 100Hz - 3kHz   |                                       | $\pm 3^{\circ}$        |
| 3kHz - 5kHz  |                                       | $\pm 5^{\circ}$        |
| 5kHz - 10kHz   |                                       | $\pm 10^{\circ}$       |

## Frequency response



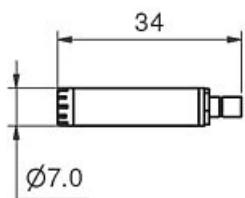
Typical frequency response

Free-field response

--- Pressure response

GRAS Sound & Vibration

Dimensions in mm



GS0773  
40PL-1



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

GRAS Sound & Vibration

# GRAS Worldwide

Subsidiaries and distributors in more than 40 countries

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## 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 and related equipment for industries where acoustic measuring accuracy and repeatability are of the utmost importance. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, consumer electronics and other highly demanding industries. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect, trust and require. GRAS Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands. Read more at [www.grasacoustics.com](http://www.grasacoustics.com)

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