

# GRAS 40PH-10

CCP Free-field Array Microphone



Freq range: 10 Hz to 20 kHz  
Dyn range: 33 dB(A) to 135 dB  
Sensitivity: 50 mV/Pa

The GRAS 40PH-10 Array Microphone is a low-cost microphone for general purpose measurements in arrays and matrices.

### 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 is that the microphones are phase-matched.

40PH-10 has a wide useful frequency range reaching up to 20 kHz and a large dynamic range topping at 135 dB, 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 40PH-10 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 40PH-10

with a high degree of interchangeability; a major advantage when used in multiples forming arrays and matrices.

The low cost of the 40PH-10 is a key consideration when setting up measurements requiring a multiplicity of concurrent transient and spatial data.

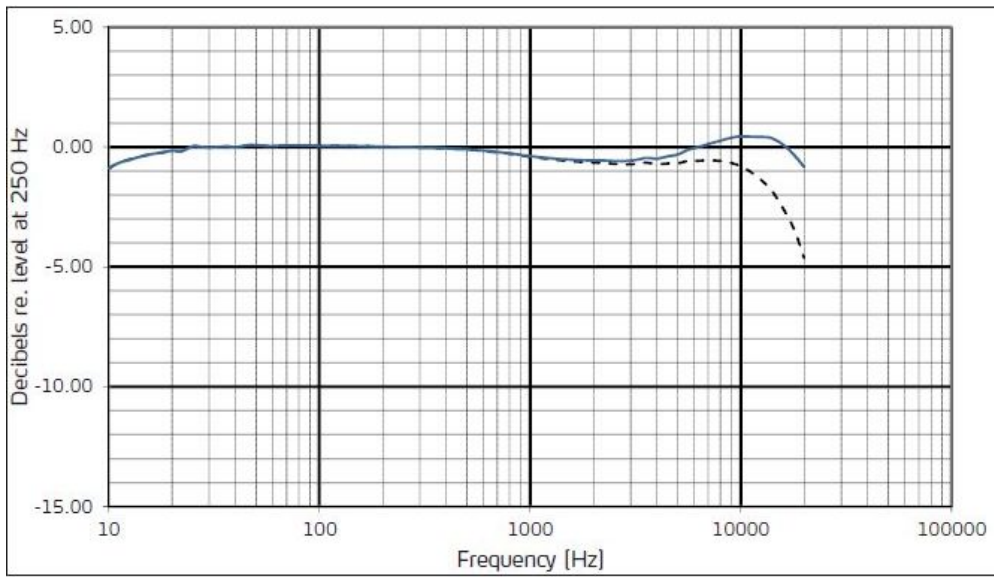
Calibrating the 40PH-10 with a GRAS pistonphone, e.g. [GRAS 42AA](#), is as straight forward as calibrating

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 ( $\pm 1.5$ 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                                    | 135                    |
| Set sensitivity @ 250 Hz ( $\pm 2$ dB)               | mV/Pa                                 | 50                     |
| 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 UTID (IEEE 1451.4)                              |                                       | 27 v. 1.0              |
| Connector type                                       |                                       | SMB                    |
| CE/RoHS compliant/WEEE registered                    |                                       | Yes / Yes / Yes        |
| Weight   | g / oz                                | 5.50 / 0.20            |
| <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 according to IEC 61672-1**

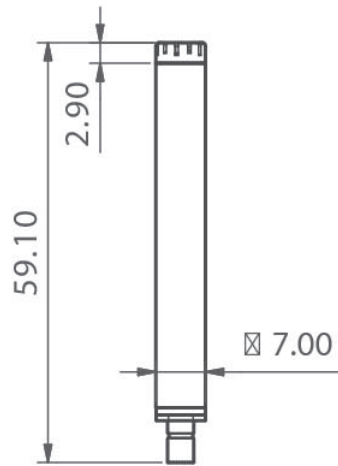


Typical frequency response

Upper curve shows free-field response at 0°, lower curve (dotted line) shows pressure response.

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

Dimensions in mm



## Optional items

|                             |  |
|-----------------------------|--|
| <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                                       |
| GRAS AM0364                 | Windscreens (set of 6)                             |
| <a href="#">GRAS RA0092</a> | Rain-protection cap                                |
| <a href="#">GRAS 42AA</a>   | Pistonphone, Class 1                               |
| <a href="#">GRAS 42AG</a>   | Multifunction Sound Calibrator, Class 1            |

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# 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 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