

# 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.

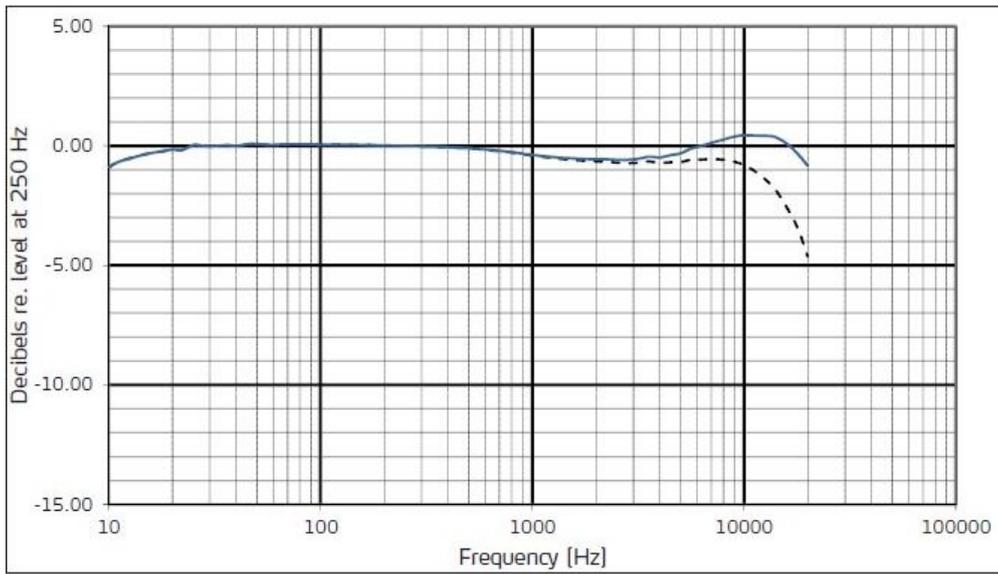
Calibrating the 40PH-10 with a GRAS pistonphone, e.g. [GRAS 42AA](#), is as straight forward as calibrating

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**

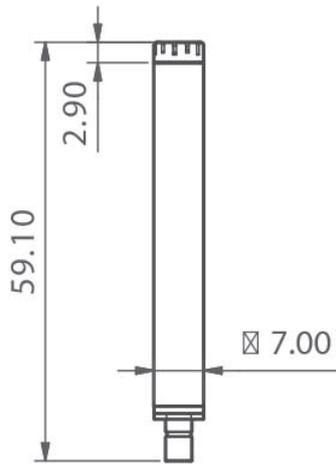


Typical frequency response

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

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

# GRAS Worldwide

Subsidiaries and distributors in more  
than 40 countries

**HEAD OFFICE, DENMARK**  
**GRAS SOUND & VIBRATION**  
Skovlytoften 33  
2840 Holte  
Denmark  
Tel: +45 4566 4046  
[www.grasacoustics.com](http://www.grasacoustics.com)  
[gras@grasacoustics.com](mailto:gras@grasacoustics.com)

**USA**  
**GRAS SOUND & VIBRATION**  
5750 S.W. Arctic Drive  
Beaverton, OR 97005  
Tel: 503-627-0832  
Toll Free: 800-231-7350  
[www.grasacoustics.com](http://www.grasacoustics.com)  
[sales-usa@grasacoustics.com](mailto:sales-usa@grasacoustics.com)

**UK**  
**GRAS SOUND & VIBRATION**  
Unit 115, Gibson House,  
Ermine Business Park, Huntingdon,  
Cambridgeshire, PE29 6XU  
Tel: +44 (0) 7762 584 202  
[www.grasacoustics.com](http://www.grasacoustics.com)  
[sales-uk@grasacoustics.com](mailto:sales-uk@grasacoustics.com)

**CHINA**  
**GRAS SOUND & VIBRATION**  
Room 303, Building T6  
Hongqiaohui, 990, Shenchang Road  
Minhang District, Shanghai  
China. 201106  
Tel: +86 21 64203370  
[www.grasacoustics.cn](http://www.grasacoustics.cn)  
[cnsales@grasacoustics.com](mailto:cnsales@grasacoustics.com)



## 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)

[grasacoustics.com](http://grasacoustics.com)

**GRAS**  
An Axiometrix Solutions Brand