

# GRAS 40PL-10

CCP Free-field Array Microphone, High Pressure



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

The GRAS 40PL-10 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 147 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 is that the microphones are phase-matched.

40PL-10 has a dynamic range from 33 dB(A) to 147 dB peak, the upper limit is the peak value before visible clipping

40PL-10 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-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 GRAS 40PL-10 with a high degree of interchangeability; a major advantage when used in multiples forming arrays and matrices.

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

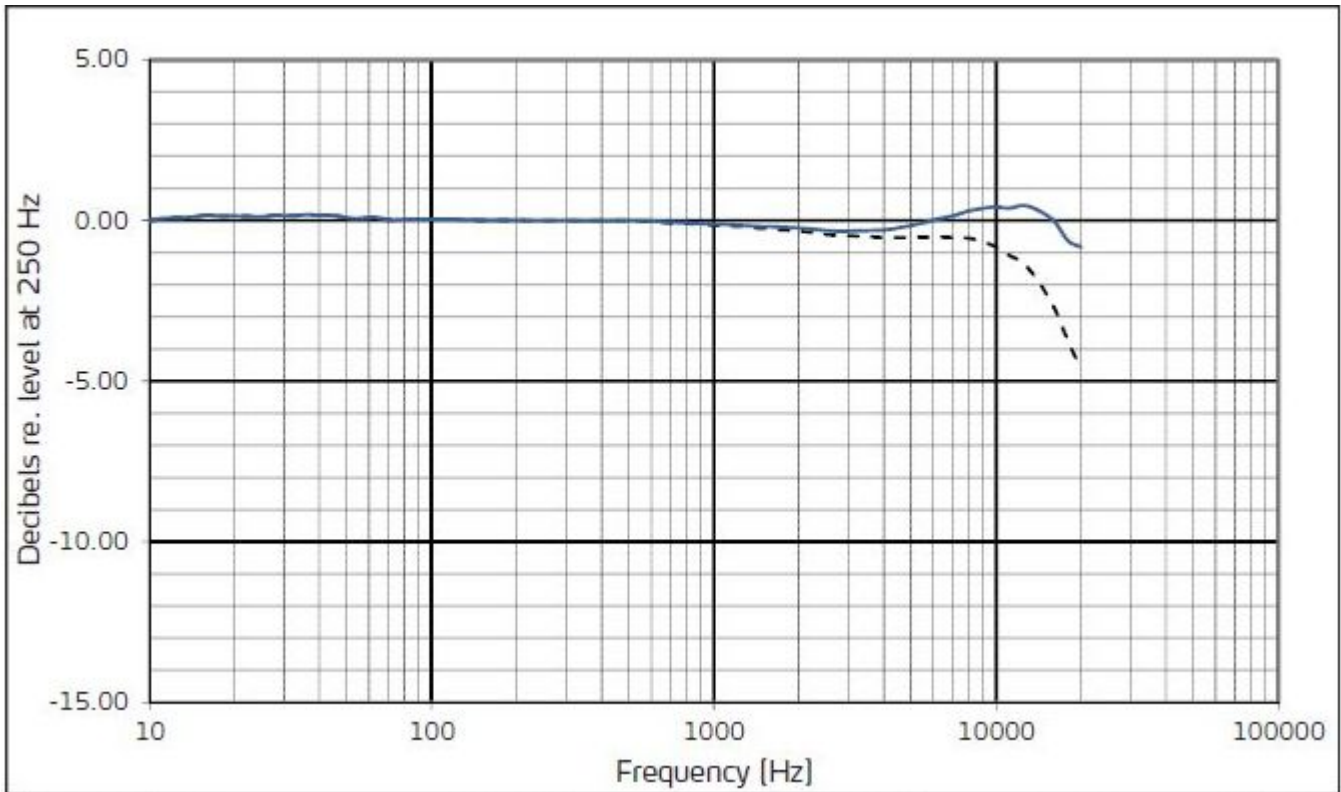
Calibrating the GRAS 40PL-10 with a GRAS pistonphone (GRAS 42AP is recommended) is as straightforward as calibrating any other GRAS 1/4-

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 ( $\pm 1.5$ 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 ( $\pm 2$ dB)	mV/Pa	9
Power supply (Constant Current Power)	mA	2 to 20
Microphone venting		Front
Output impedance		< 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	5.5 / 0.2
<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



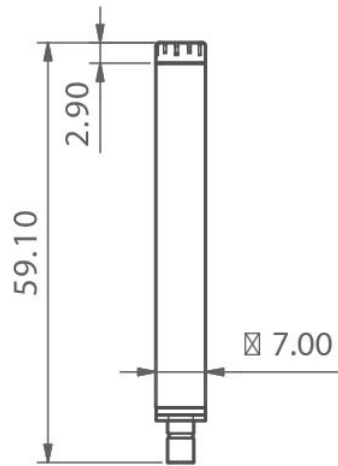
Typical frequency response

Free-field response

--- Pressure response

GRAS Sound & Vibration 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
<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 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**  
9290 SW Nimbus Avenue  
Beaverton, OR 97008  
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 315, RuiBo Center(T1)  
Lane683, Shenhong Rd,  
Minhang District,  
Shanghai, China, 201107  
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