

GRAS 40PS-1

CCP Surface Microphone



Freq range: 10 Hz to 12 kHz
Dyn range: 27 dB(A) to 145 dB
Sensitivity: 15 mV/Pa

The GRAS Surface Microphone 40PS-1 is a low-profile, light surface microphone for general purpose measurements on planar and curved surfaces exposed to slipstreams.

Typical applications and use

Aeroacoustics
Wind-tunnel applications
Large arrays

Design

The GRAS 40PS-1 is a low-profile, light surface microphone for general purpose measurements on planar and curved surfaces within aeroacoustics, wind tunnel applications and large arrays.

Its frequency range extends from 10 Hz to 12 kHz and its dynamic range is from below 27 dBA to 145 dB.

It has an integrated CCP preamplifier with TEDS according to IEEE 1451.4 for remote identification and reading of calibrated sensitivity.

It requires a constant-current power supply such as the GRAS 12AL 1-Channel CCP Power Module with A-weighting filter, or any other compatible constant-current power supply.

Pressure equalisation is via a vent placed at the front of the microphone just by the side of its diaphragm. This makes it suitable for use in conditions with rapid static pressure changes, for example on aircraft or on road vehicles in mountainous country.

40PS-1 has an integrated 1,5 m coaxial cable with a Microdot connector. An adapter to BNC is included. It is delivered with a supple detachable silicon-rubber fairing and adhesive mounting pads. Because of its lightness, it contributes very little mass to thin plates.

Together with any of the GRAS mountings, the profile of the surface microphone will not exceed

3 mm.

Mounting Methods

Depending on ambient wind-speeds, there are several methods of securing the Surface Microphone to its mounting point.

When there is no wind, the microphone need only be secured in place using the double-sided adhesive pad (possibly trimmed to match the size of the microphone alone). For low wind speeds, e.g. on the side of a car include the Fairing. At moderate wind speeds, e.g. a wind tunnel, include the single-sided adhesive pad. At high wind speeds, e.g. on the fuselage of a low-speed test aeroplane, use the aluminium fairing/mounting plate and four screws.

Pistonphone Calibration

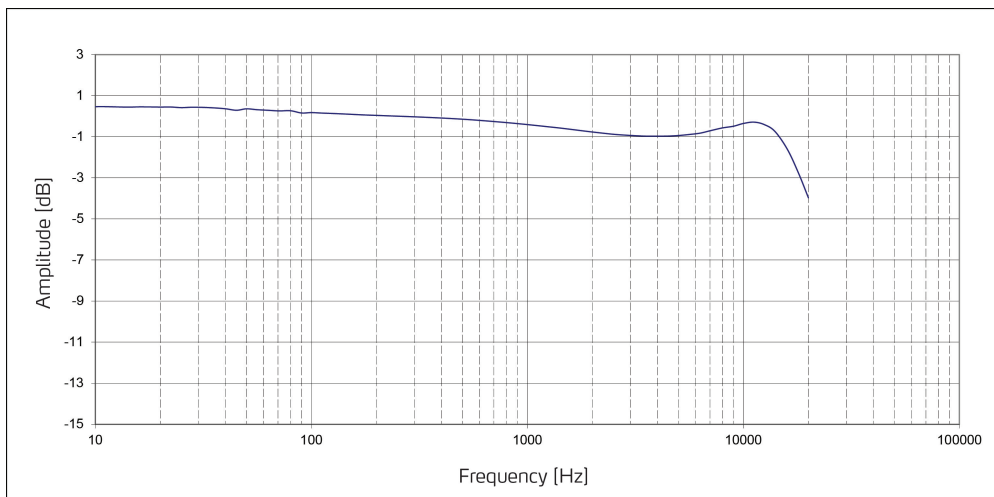
The GRAS 40PS-1 can be easily calibrated using a GRAS Pistonphone and the RA0145 Calibration Adapter.

Individual Calibration

All GRAS Surface Microphones are individually checked and calibrated before leaving the factory.

An individual calibration chart is supplied with each microphone and also includes an individual pressure frequency response.

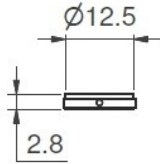
Polarization/Connection		430
Frequency range (+1, -2 dB)	Hz	10 to 12 k
Frequency range (+1, -6 dB)	Hz	10 to 20 k
Dynamic range lower limit (microphone thermal noise)	dB(A)	<27
Dynamic range upper limit with GRAS CCP preamplifier	dB	145
Set sensitivity @ 250 Hz (± 2 dB)	mV/Pa	15
Power supply (Constant Current Power)	mA	2 to 10
Microphone venting		Front
IEC 61094-4 Compliance		15
Output impedance	Ω	<50
Temperature range, operation	$^{\circ}\text{C} / ^{\circ}\text{F}$	-10 to 50 / 14 to 122
TEDS UTID (IEEE 1451.4)		27 v. 1.0
Connector type		Microdot 10/32
CE/RoHS compliant/WEEE registered		Yes / Yes / Yes
Weight	g / oz	1.5 / 0.035 w/o cable // 4.8 / 0.14 with cable



Typical pressure frequency response

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

Dimensions in mm



Included items

GRAS GR0815	Silicon rubber fairing
GRAS GR0933	Top adhesive pad 0.5 mm (pre-cut, single-sided)
GRAS GR0934	Base adhesive pad 0.13 mm (pre-cut, double sided)
GRAS MI0031	Cleaning tissue
GRAS AE0046	Adapter BNC male to Microdot female

Optional items

GRAS 12AL	1-Channel CCP Power Module with A-weighting filter
GRAS 12AQ	2-Channel Universal Power Module with signal conditioning and PC interface
GRAS 42AP	Intelligent Pistonphone, Class 0
GRAS 42AA	Pistonphone, Class 1
GRAS RA0147	Aluminum fairing/mounting plate
GRAS RA0145	Calibration Adapter

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GRAS Worldwide

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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