



G.R.A.S. 46BP 1/4" LEMO Pressure Standard Microphone Set

Freq range: 4 Hz to 70 kHz
Dyn range: 39 dB(A) to 184 dB
Sensitivity: 1.5 mV/Pa

The 46BP is a 1/4" LEMO microphone set for pressure measurements.

Technology

Introduction

The 46BP is a 1/4" LEMO microphone set for pressure measurements. Read about the CCP equivalent [46BD].

The set consists of the 1/4" random-incidence microphone 40BP and the 1/4" preamplifier 26TC with a 3 m integrated cable with a 7-pin LEMO connector.

This combination was chosen to save you time and give you the best possible properties and reliability in the microphone and preamplifier match. Your workflow is optimized and typical handling errors are minimized.

Not only have we made a set of the best possible combination of microphone and preamplifier, we have also included TEDS, the Transducer Electronic Data Sheet standard according to IEEE-1451.4. Multi-channel users appreciate having an intelligent transducer, like 46BP, that can supply properties, types, and calibration

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data directly to measurement platforms that support TEDS.

46BP is individually factory-calibrated and delivered with a calibration chart stating its specific open-circuit sensitivity and pressure frequency response.

Typical applications and use

46BP is typically used for sound pressure, high frequency, and high level pressure measurements. It is suitable for general purpose acoustic measurements in couplers and at boundaries.

The microphone in the 46BP is very versatile when connected to the RA0086 Transmitter Adapter for 1/4" Microphones. The 46BP becomes a high-impedance sound source when the RA0086 takes a calibration signal directly from the signal generator and makes the microphone behave like an electrostatic loudspeaker. When used for calibrating an acoustic coupler, this gives a frequency response that is as good as when the 46BP behaves like a microphone.

Compatibility

The 46BP uses a 7-pin LEMO connector, which requires an input module that supports this technology.

For more information, see System Setup.

System verification

For daily verification and check of your measurement setup, we recommend using a calibrator like G.R.A.S. Sound Level Calibrator 42AB

For proper sensitivity calibration, we recommend using a pistonphone like G.R.A.S. Intelligent Pistonphone 42AP

Quality and warranty

All G.R.A.S. microphone sets are made of high-quality materials that will ensure life-long stability and robustness. The microphone sets are all assembled in verified clean-room environments by skilled and dedicated operators with many years of expertise in this field.

The microphone diaphragm, body, and improved protection grid are made of high-grade stainless steel, which makes the microphone resistant to physical damage, as well as corrosion caused by aggressive air or gasses.

This, combined with the reinforced gold-plated microphone terminal which guarantees a highly reliable connection, enables G.R.A.S. to offer 5 years warranty against defective materials and workmanship.

Learn more about G.R.A.S.' unique warranty policies.

Service

If you accidentally damage the diaphragm on a G.R.A.S. microphone, we can—in most cases—replace it at a very reasonable cost and with a short turn-around time. This not only protects your investment, but also

pleases your quality assurance department because you don't have to worry about new serial numbers, etc.

Learn more about G.R.A.S.' service program.

Calibration

Before leaving the factory, all G.R.A.S. microphone sets are calibrated as a unit in a controlled laboratory environment using traceable calibration equipment. The sets are delivered with calibration charts including sensitivity values and frequency response graphs for the complete set. You can use the sensitivity value directly in your system setup.

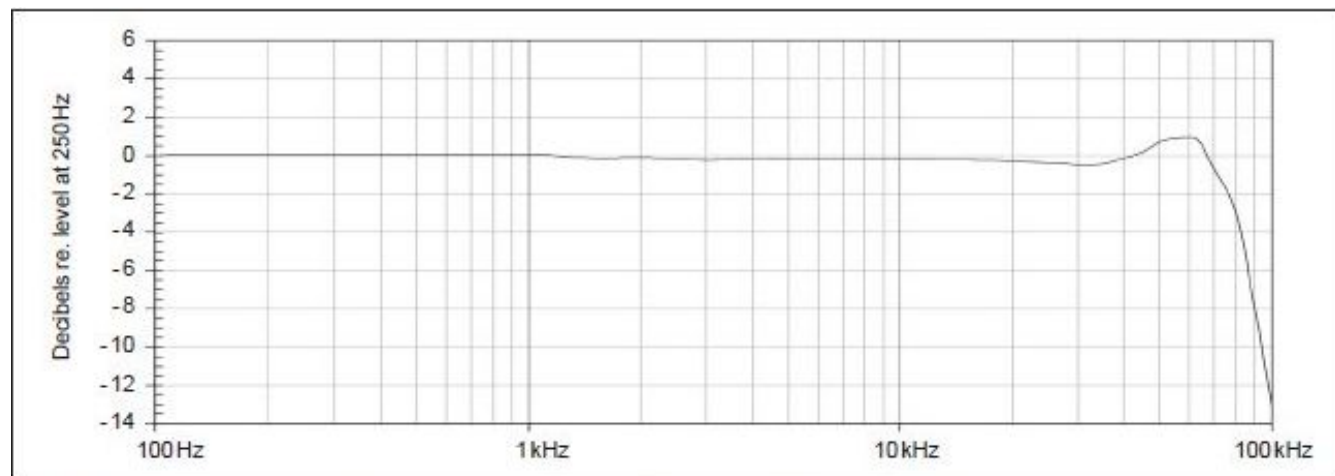
Depending on the use, measurement environment, and internal quality control programs, we recommend recalibrating the microphone set at least every second year.

Learn more about G.R.A.S.' calibration services.

Specifications

Frequency range (± 1 dB)	Hz	10 to 25 k
Frequency range (± 2 dB)	Hz	4 to 70 k
Dynamic range lower limit with G.R.A.S. preamplifier	dB(A)	39
Dynamic range upper limit with G.R.A.S. preamplifier @ +28 V / ± 14 V power supply	dB	172
Dynamic range upper limit with G.R.A.S. preamplifier @ +120 V / ± 60 V power supply	dB	184
Set sensitivity @ 250 Hz (± 3 dB)	mV/Pa	1.5
Set sensitivity @ 250 Hz (± 3 dB)	dB re 1V/Pa	-56.5
Output impedance	Ω	< 55
Power supply min. to max. (single/balanced)	V	28 to 120 / ± 14 to ± 60
Microphone venting		Rear
IEC 61094 Compliance		WS3P
Temperature range, operation	$^{\circ}\text{C}$ / $^{\circ}\text{F}$	-30 to 60 / -22 to 140
Temperature range, storage	$^{\circ}\text{C}$ / $^{\circ}\text{F}$	-40 to 85 / -40 to 185
Temperature coefficient @250 Hz	dB/ $^{\circ}\text{C}$ / dB/ $^{\circ}\text{F}$	-0.01

Static pressure coefficient @250 Hz	dB/kPa	-0.008
Humidity range non condensing	% RH	0 to 100
Humidity coefficient @250 Hz	dB/% RH	-0.0013
Influence of axial vibration @1 m/s ²	dB re 20 µPa	55
TEDS UTID (IEEE 1451.4)		27 v. 1.0
Connector type		7-pin LEMO (FGG.1B.307)
CE/RoHS compliant/WEEE registered		Yes / Yes/Yes
Weight	g / oz	10 / 0.353



Typical frequency response (without protection grid).

Ordering info

Pistonphone	42A
Intelligent pistonphone	42A
2-Channel Power Module with gain, filters and Syscheck generator	12A
1-Channel Power Module with gain, filters and SysCheck generator	12A
2-Channel Universal Power Module with signal conditioning and PC interface	12A
3 m LEMO-to-LEMO cable	AA0
10 m LEMO-to-LEMO cable	AA0



We make Microphones

Tradition

Since the establishment in 1994, G.R.A.S. have been 100% dedicated to developing and manufacturing high-quality measurement microphones and related acoustic equipment. Founded by the Danish acoustics pioneer Gunnar Rasmussen who for more than 60 years has contributed to the world of sound and vibration with his unique ideas and designs. From the first reproducible 1" condenser measurement microphone that enabled quality measurements and instrumentation for acoustic calibration, Mr. Rasmussen's ingenuity and foresight led to the world's most popular acoustic sensor: The 1/2" measurement microphone. Then the 1/4" and 1/8" microphones followed with outstanding dynamic and high-frequency capability that brought higher definition and transparency into impulse noise diagnostics. Many variants have been made available over the years; all based on Gunnar Rasmussen's original 1" pressure microphone design.

Innovation

At G.R.A.S., we and our customers benefit daily from Mr. Rasmussen's exceptional understanding of acoustics, physics, electronics and measurement needs. Not only in R&D but throughout the organisation, we are proud to develop, produce and offer the broadest range of high-quality measurement microphones and accessories in the industry. And as a family company, now owned and managed by the two sons, Per Rasmussen and Peter Wulf-Andersen, we safeguard our heritage and knowledge to help create new opportunities with our customers. We work with everybody with an interest in sound or noise within the fields of aerospace, automotive, audiology, consumer electronics, noise monitoring, building acoustics and telecommunications, metrology, education, consultancy, legislation and system integration.

Quality

All our microphones are solely produced in stainless steel and in a quality that allows for a 5 year warranty. Should you by mistake damage the diaphragm on a G.R.A.S. microphone, our special technique enables repair at very reasonable price.

Partners

G.R.A.S. is represented worldwide in more than 40 countries by subsidiaries and distributors. Whether you are searching for a multi-channel solution or just a replacement microphone for your sound level meter G.R.A.S. will help solve your needs. Visit gras.dk for your local G.R.A.S. partner.