G.R.A.S. 40SC CCP Probe Microphone

Freq range: 2 Hz to 8 kHz Dyn range: 40 dB to 160 dB Sensitivity: 3 mV/Pa The CCP Probe Microphone 40SC is a small, constant-current powered, compact unit for sound-pressure measurements in small enclosures, in harsh environments and in very close proximity to sound sources. The high acoustic input impedance at the tip of the probe minimizes its influence on the acoustic field, while the stainless-steel tube of the probe can withstand temperatures of up to 800 °C.

Technology

Typical applications and use

- Acoustic-impedance measurements
- Exhaust-system measurements
- Near-field measurements
- Measurements at high temperatures
- Pressure-distribution measurements in small enclosures

Design

The G.R.A.S. 40SC is constructed with detachable stainless-steel probes tubes which guide the acoustic signal to a prepolarised microphone inside the housing of the 40SC. After being sensed by the microphone, the acoustic signal is passed on to an impedance-matching wave guide which eliminates unwanted internal reflections. The result is a smooth frequency-response ranging from 2 Hz up to 20 kHz. The internal microphone is connected to an CCP preamplifier with a high dynamic range; ensuring a measurement range from approximately 40 dB to 160 dB re. 20 μ Pa.

The integrated BNC socket is for drawing power from, and delivering the signal to, a constant-current power supply, e.g. the G.R.A.S. 12AL CCP Supply, or any other compatible constant-current power supply.

The CCP Probe Microphone 40SC is internally compensated to equalize the internal pressure of the microphone with the static pressure at the probe's tip. The static pressure within the 40SC will therefore adjust itself to the static pressure existing at the probe's tip; which it does with a time constant of approximately 0.1 s.

The 40SC can be used with various probe lengths and is delivered with four standard probe lengths, i.e.: 20 mm, 40 mm, 80 mm and 160 mm. Intermediate lengths can be made by cutting these standard lengths. Also, the stainless steel tubes can be bent to a radius as low as 5 mm without downgrading the system's acoustics. A flexible probe tube is also provided for use in measurements where stiff stainless-steel tubes are not practical. This does, however, slightly downgrade the system's acoustic performance.

The right angled design of the 40SC makes it particularly well suited for measurements on exhaust-gas systems



G.R.A.S. 40SC CCP Probe Microphone Date 03-07-2017. Page 2 of 5

and other machinery in general as well as for scanning vibrating surfaces such as loudspeaker diaphragms and cabinets.

The compact size, low weight and all-stainless-steel construction of the 40SC make it robust, easy to handle and easy to mount.

Specifications

Frequency range (±3 dB)	Hz	2 to 8 k
Dynamic range lower limit (microphone thermal noise)	dB(A)	40
Dynamic range upper limit	dB	>160
Set sensitivity @ 250 Hz (±2 dB)	mV/Pa	3
Polarization voltage	V	0 V / CCP
Power supply (Constant Current Power)	mA	2 to 20
Output impedance	Ω	< 50
Temperature range, operation	°C/°F	-25 to 700 / -13 to 1292
Temperature range, storage	°C/°F	-40 to 85 / -40 to 185
Temperature range with G.R.A.S. preamplifier, operation	°C/°F	-25 to 70 / -13 to 158
Connector type		BNC
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	40 / 1.4110

Pressure-equalization time constant: Internal to tip static pressure: typically 0.1 s



G.R.A.S. 40SC CCP Probe Microphone Date 03-07-2017. Page 3 of 5



Typical frequency response

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice.

Dimensions

Where not specified, measures are in mm.

Length (housing)	83.80
Diameter	12.7
Probe tube outside diameter	1.25
Probe tube inside diameter	1
Cable diameter	2.5
Cable length	3 metres



G.R.A.S. 40SC CCP Probe Microphone Date 03-07-2017. Page 4 of 5



We make Microphones

Tradition

Since the establishment in 1994, G.R.A.S. has been 100% dedicated to developing and manufacturing high-quality measurement microphones and related acoustic equipment. G.R.A.S. was 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

At G.R.A.S. we know that in order for you to trust your measurement results; signal quality, stability and robustness are essentials. And because we also know how you handle and use the microphones in your daily work, we design and build them to perform under real life conditions – and beyond.

When developing measurement microphones, our R&D team uses a series of highly accelerated life tests (HALT) to ensure that our microphones live up to the high quality and precision our customers have come to expect and trust. Thus to simulate the handling and use a microphone is exposed to when working outside the lab – in real life situations - we bake it, we humidify it, we shake it and we try to break it - all to make sure that you can trust your measurement results - every time.



G.R.A.S. 40SC CCP Probe Microphone Date 03-07-2017. Page 5 of 5

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.

