



G.R.A.S. 41AC Outdoor Kit  
Serial No. 214062

## G.R.A.S. 41AC-3 CCP Outdoor Microphone for Community & Airport Noise

Standard: IEC 61672-1

TEDS

Special features:

Configurable for 90 or 0 degrees of incidence

IP55 proof

The 41AC-3 is an outdoor microphone for unattended use for prolonged periods of time. It can be used for community noise applications or for monitoring of overhead aircraft noise.

### Technology

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#### Introduction

The 41AC-3 is a small precision outdoor microphone according to IEC 61672-1 for monitoring of community noise and the noise of overhead aircraft.

#### Typical Applications and Use

With state of the art weather protection and extensive use of high-grade stainless steel, the 41AC-3 is ideal for long-term unattended monitoring of community noise and noise from overhead aircraft.

It can easily be configured for measurement of noise with 90 degrees of incidence, typically community noise, or – with the proper correction data – for measurement of noise with 0 degrees of incidence, typically overhead aircraft. A USB flash drive with the necessary 1/12 octave correction data is part of the delivery.

**G.R.A.S.**  
SOUND & VIBRATION

## **Design**

The 41AC-3 has been designed to meet the need for a precise and reliable outdoor microphone that can be part of a permanent installation. It is weather proof, easy to configure and calibrate.

It uses a 40AE-S2 1/2" Prepolarized Free-Field Microphone, High Sensitivity and a 26CA 1/2" CCP Preamplifier with BNC Connector.

Microphone and preamplifier are mounted inside a high-grade stainless steel housing. The top cone – also made of stainless steel – has been perfected for best acoustical response with the 40AE-S2 microphone. In addition to its acoustical function, the top cone acts as a bird spike.

The 40AE-S2 microphone has been modified for optimal response with respect to the sound field and the top cone's internal cavity. The protection grid is a special design that offers added water protection.

The wind screen eliminates the effects of air flow and also serves as part of the 41AC-3's water protection. It is glued to a detachable tube that ensures correct positioning. A locking system eliminates the risk of accidental dislocation. The 41AC-3 is waterproof and fulfils the requirements of IP-55. It is designed to withstand a wide range of weather conditions and temperatures for a very long period, i.e. easily a year or longer.

It comes with an adapter for pipe mounting. An adapter for tripod mounting is also part of the delivery.

It has TEDS according to IEEE1451.4 template UDID 127-0-0-0U.

## **Compability**

The 41AC-3 uses a prepolarized microphone and a standard CCP preamplifier that requires a BNC to BNC cable and an input module compatible with this technology.

## **Verification**

For verification of the microphone's sensitivity, we recommend using a pistonphone like the G.R.A.S. 42AP Intelligent Pistonphone.

## **Calibration**

Before leaving the factory, all G.R.A.S. products are calibrated in a controlled laboratory environment using traceable calibration equipment.

An individual test certificate stating the sensitivity and frequency response is included with each product.

## **Performance and Warranty**

G.R.A.S. outdoor microphones are made of components from our proven standard portfolio and are all manufactured of high-quality material and branded parts that were chosen and processed to ensure life-long stability and robustness.

All parts are manufactured and assembled at the factory in Denmark by skilled and dedicated operators in a verified clean-room environment. The microphone diaphragm, body and unique protection grid are made of

high-grade stainless steel and make the microphone set resistant to physical damage as well as corrosion caused by aggressive air or gasses.

This, together with the enforced gold-plated microphone terminal which guarantees a highly reliable connection, enables us to offer 5 years warranty against defective materials and workmanship. The windscreen comes with a 6-month warranty.

The warranty does not cover products that are damaged due to negligent use, an incorrect power supply, or an incorrect connection to the equipment.

## Service and Repairs

All repairs are made at G.R.A.S. International Support Center located in Denmark. Our Support Center is equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories.

If a product covered by warranty is sent for service, it is repaired free of charge, unless the damage is the result of negligent use or other violations of the warranty. All repairs are delivered with a service report, as well as an updated calibration chart.

## Specifications

Frequency range ( $\pm 1$ dB)	Hz	5 to 10 k
Frequency range ( $\pm 2$ dB)	Hz	3.15 to 20 k
Dynamic range lower limit (microphone thermal noise)	dB(A)	17
Dynamic range upper limit	dB	138
Set sensitivity @ 250 Hz ( $\pm 3$ dB)	mV/Pa	50
Polarization voltage	V	0
Power supply (Constant Current Power)	mA	2 - 20 mA
Temperature range, operation	°C / °F	-30 to 70 / -22 to 158
Temperature range, storage	°C / °F	-40 to 85 / -40 to 185
Temperature coefficient @250 Hz	dB/°C / dB/°F	-0.01 / -0.006
Static pressure coefficient @250 Hz	dB/kPa	-0.014
Humidity range non condensing	% RH	0 to 95

Influence of axial vibration @1 m/s <sup>2</sup>	dB re 20 µPa	62
TEDS UTID (IEEE 1451.4)		27 v. 1.0
Connector type		BNC
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes

## Dimensions

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When mounted on a pipe: 343 mm/ 13 1/2 in above the top of the pipe.



## **We make Microphones**

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### **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.

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](http://gras.dk) for your local G.R.A.S. partner.