GRAS 41AM

Permanent Outdoor Microphone System for airport noise

Dyn range: 20 dB(A) to 156 dB
Sensitivity: 50 mV/Pa
0° incidence (airport noise)

The GRAS 41AM Outdoor Microphone System is for outdoor use whenever trouble-free acoustic measurements and, in particular, noise monitoring around airports are required.

GRAS Sound & Vibration
Skovlytoften 33, 2840 Holte, Denmark
www.grasacoustics.com

Typical applications and use

- Permanent outdoor-noise monitoring
- Airport-noise monitoring
- IEC 60651 Type 1 noise measurements

Design

It complies with IEC 651 Type 1 and ANSI S1.41983 Type 1 requirements and can be used with any suitable electronic sound or vibration measurement system. It is PTB approved as part of an IEC 651 Type 1 system.

A 1⁄2-inch precision condenser microphone and thick-film preamplifier ensure maximum stability and performance. Both microphone and casing are made of stainless steel.

Precise in-situ calibration checks at 1000 Hz are enabled any time via a built-in electrostatic actuator and test oscillator.

The 41AM is fitted with anti-bird spikes, a windscreen, and a rain cap which do not impair its acoustic omni directional characteristics. The rain cap, which contains the electrostatic actuator, remains in position while calibrating the microphone with a pistonphone.

The large dynamic range of the 41AM is obtained via a twin circuit board with a DC converter for supplying 200 V for microphone polarization as well as a 120 V supply for the preamplifier. The sensitivity of the amplifier can be adjusted by 12 dB and the gain set to -20 dB, 0 dB or +20 dB (via a pair of circuit-board jumpers) to give optimum signal-to noise ratios on long cables. The gain is normally set to 0 dB when leaving the factory.

An A-weighting flter for increased dynamic capability is included in the 41AM. A circuit-board jumper is used to select either the A-weighting or linear frequency response. A-weighting or linear response can be specfied when ordering, otherwise Lin-weighting will be active on delivery.

The built-in calibration oscillator can be switched on or off by short-circuiting a pin to ground in the output socket of the 41AM. The electrostatic actuator is factory set to a calibration level of 90 dBre. 20 µ Pa at 1000 Hz. A calibration level of 94 dB can be specfied when ordering.

The electrostatic actuator and microphone assembly is electrically isolated from the casing of the 41AM; thus eliminating EMC and ground loops.

A silica-gel desiccator is located inside the lower half of the casing and a humidity-indicator window for checking the condition of a second desiccator islocated in the top half.

The internal venting of the 41AM is via a capillary tube which terminates under the rain cap, it also carries the calibration-signal connection to the electrostatic actuator. By removing the rain cap (left-hand thread), the connection to the actuator is accessible.

With the windscreen removed, the unit can be readily re-calibrated using a pistonphone (fitted with Adaptor RA0009); though rarely necessary since actuator calibration is normally done on a regular basis.

The Pole Adapter has a G 1 1⁄2-inch thread (ISO228/1). The Tripod Adapter can be screwed directly to the Pole Adapter. The output socket of the 41AM is located under the Pole Adapter and both plug and cable are well protected.

Among the available accessories is a Calibration Control Box AC0001. This has a lead which plugs directly into the output socket of the 41AM. The AC0001 has sockets for signal output, remote-control calibration and external power (12 –18 V DC,

e.g. from a GRAS Mains/line Adapter AB0002/AB0003 *). It also has an on/off switch for local calibration control.

* AB0002 for 230 V AC; AB0003 for 120 V AC

Specifications

Polarization/Connection		200 V / Traditional
Dynamic range lower limit with GRAS preamplifier	dB(A)	< 20
Dynamic range upper limit	dB	> 156
Set sensitivity @ 250 Hz (±2 dB)	mV/Pa	50
Power supply, single	V	12 to 18
Power consumption	mA	120 at 15 V / 180 at 15 V calibrator ON
Output impedance	Ω	< 50
Temperature range, operation	°C / °F	- 40 to 50 / - 40 to 122
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	1300 / 45.856

Frequency response according to IEC 651 Type 1 and ANSI S1.4-1983 Type 1

Frequency response, 0° incidence, re. 1000Hz:

20 Hz - 80 Hz: . . . . . ± 1.0 dB

80 Hz - 4 kHz: . . . . . ± 0.7 dB

4 kHz - 8 kHz: . . . . . ± 1.0 dB

8 kHz - 12 kHz: . . . . . ±1.5 dB

12 kHz - 20 kHz: . . . . . + 1.5 dB, – 5 dB

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

Ordering info

Included items

GRAS AM0052	Complete Windscreen for 41AM/CN
GRAS AM0038	Multi spanner/wrench (tool for dismantling the microphone assembly)
GRAS AM0037	Transport protection cap
GRAS AM0033	Tripod adapter
GRAS AM0029	Pole adapter
GRAS AE0001	Cable plug

Optional items

GRAS AC0001	Calibration Control Box for 41AM/CN
GRAS AB0002	Mains/line power supply (230 VAC/EU connector)
GRAS AB0006	Mains/line power supply (230 VAC/UK connector)
GRAS AB0003	Mains/line power supply (120 VAC/US connector)
GRAS AA0003	3 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS AA0002	10 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS AA0001	20 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS AA0004	50 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS AA0015	100 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS AA0016	200 m LEMO 6-pin - LEMO 6-pin Cable for outdoor microphone
GRAS 42AP	Intelligent Pistonphone, Class 0
GRAS 42AG	Multifunction Sound Calibrator, Class 1
GRAS RA0009	Adapter for Pistonphone calibration
GRAS RA0087	Special key (tool for dismantling the microphone assembly)
GRAS AM0009	Windscreen for 41AM/CN (5 pcs, foam only, as spare for AM0052)

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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
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
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
sales-uk@grasacoustics.com

CHINA
GRAS SOUND & VIBRATION
Room 502, Building T1,
No.1398 Ali Center
Shenchang Road,
Minhang District,
Shanghai, China, 201107
Tel: +86 21 400-888-9826
www.GRASacoustics.cn
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 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 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

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