

# GRAS 26AL

1/4" SysCheck Preamplifier with 3 m integrated cable



Freq range: 2.5 Hz to 200 kHz  
Noise: 1.8  $\mu$ V Gain: -0.29 dB  
Special feature: In-situ sensitivity calibration  
of 1/4" microphone/preamplifier set

The GRAS 1/4" Preamplifier Type 26AL is a small robust unit optimised for acoustic measurements using condenser microphones. Type 26AL has a very low inherent noise level, a wide dynamic range and a frequency response from below 2 Hz to above 200 kHz. It is similar to Type 26AC, both as a built-in SysCheck capability. This enables in-situ checks of the complete measurement chain from microphone to analyser. The SysCheck technique works by modulating the microphone polarisation voltage.

- Typical Applications and use
- General-purpose preamplifier
- High-frequency measurements
- High-pressure measurements
- In-situ check of complete measurement chains

## Design

All GRAS microphone preamplifiers are based on a small ceramic thick-film substrate with a very high input impedance. The ceramic substrate is shielded by a guard ring to minimise the influence of stray capacitance and microphonic interference. The casing is made of stainless steel for maximum strength and durability. The small dimensions of this preamplifier ensure reliable operation under humid conditions owing to the heat generated by internal power dissipation. A 1/2" version is available (GRAS 26AJ).

## Dynamic Range

GRAS- 26AL can handle both single and dual-sided power supplies. The supply can vary between 28 VDC and 120 VDC single-sided or  $\pm 14$ VDC and  $\pm 60$  VDC dual-sided. When using the high supply voltage (120VDC or  $\pm 60$ VDC), the dynamic range exceeds 140 dB.

## Noise

The electrical circuit in GRAS 26AL is built on a ceramic substrate using selected low-noise components to gain very low self-noise. The electrical self-noise is so low that system noise is mainly determined by the microphone capsule's thermal noise.

## Frequency response

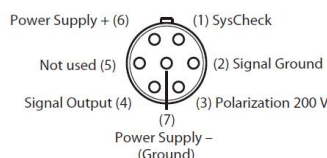
The low-frequency cut-off of the GRAS 26AL preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance of the microphone capsule. The capacities 20 pF, 6.5 pF and 3 pF equal the typical capacitances of 1/2", 1/4"

and 1/8" microphone capsules respectively.

The high-frequency cut-off is determined by the preamplifier's ability to drive capacitive loads (slewrate), caused by the cable. For large-signals, the effects of these parameters must be accounted for when measurements are performed. The large-signal response for Type 26AL for various capacitive loads corresponding to different cable lengths is shown in the data sheet. The output level is in decibels relative to 1 Volt. Typical capacitance for the cable is 100pF/m(30pF/foot).

## Connector

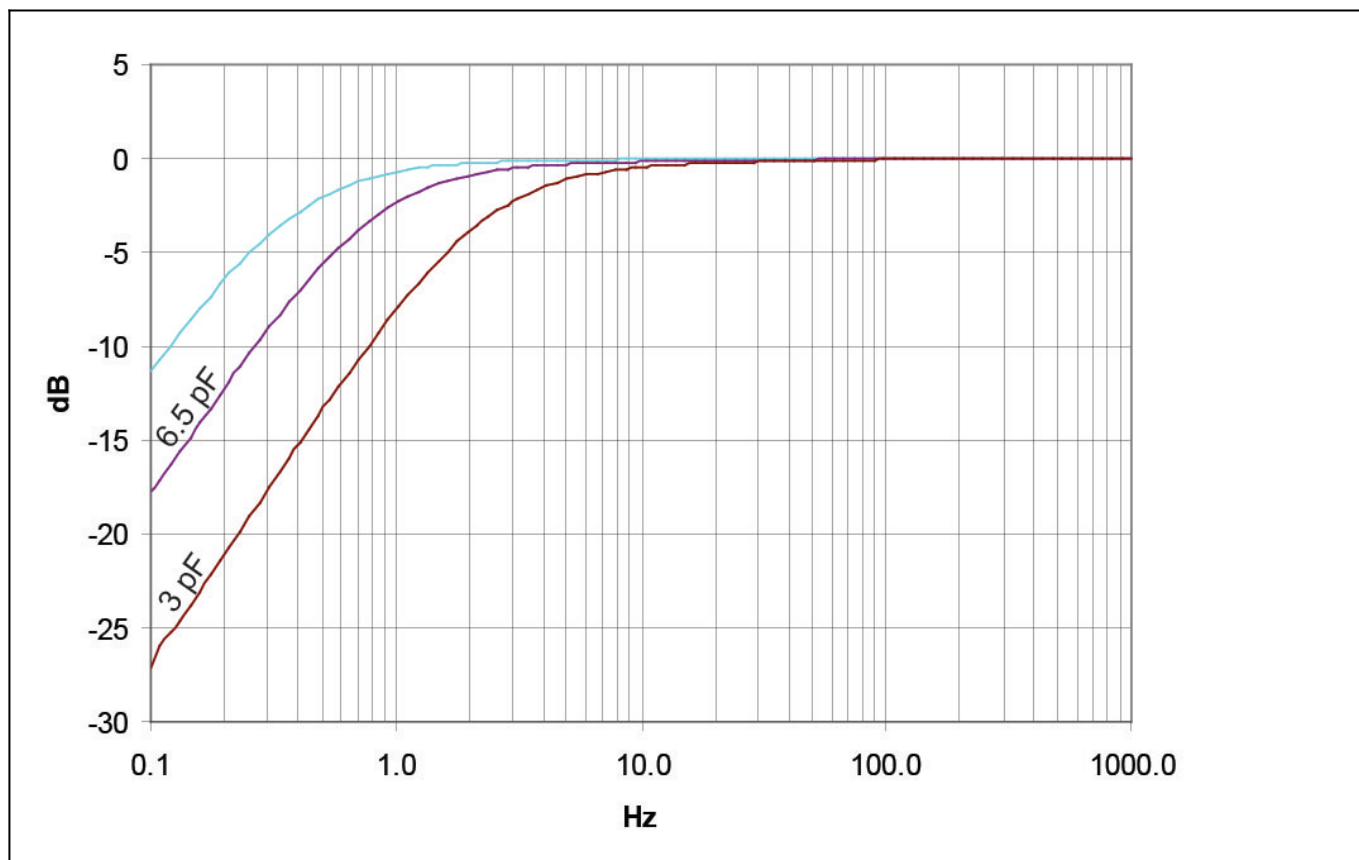
Preamplifier GRAS 26AL (Fig. 1) is provided with a 3-m light weight cable terminating in a 7-pin LEMO series 1B plug. The cable is only 2.5 mm in diameter and will withstand temperatures from -40 °C to +150 °C. An adapter (GR0010) for GRAS 1/2" microphones is included.



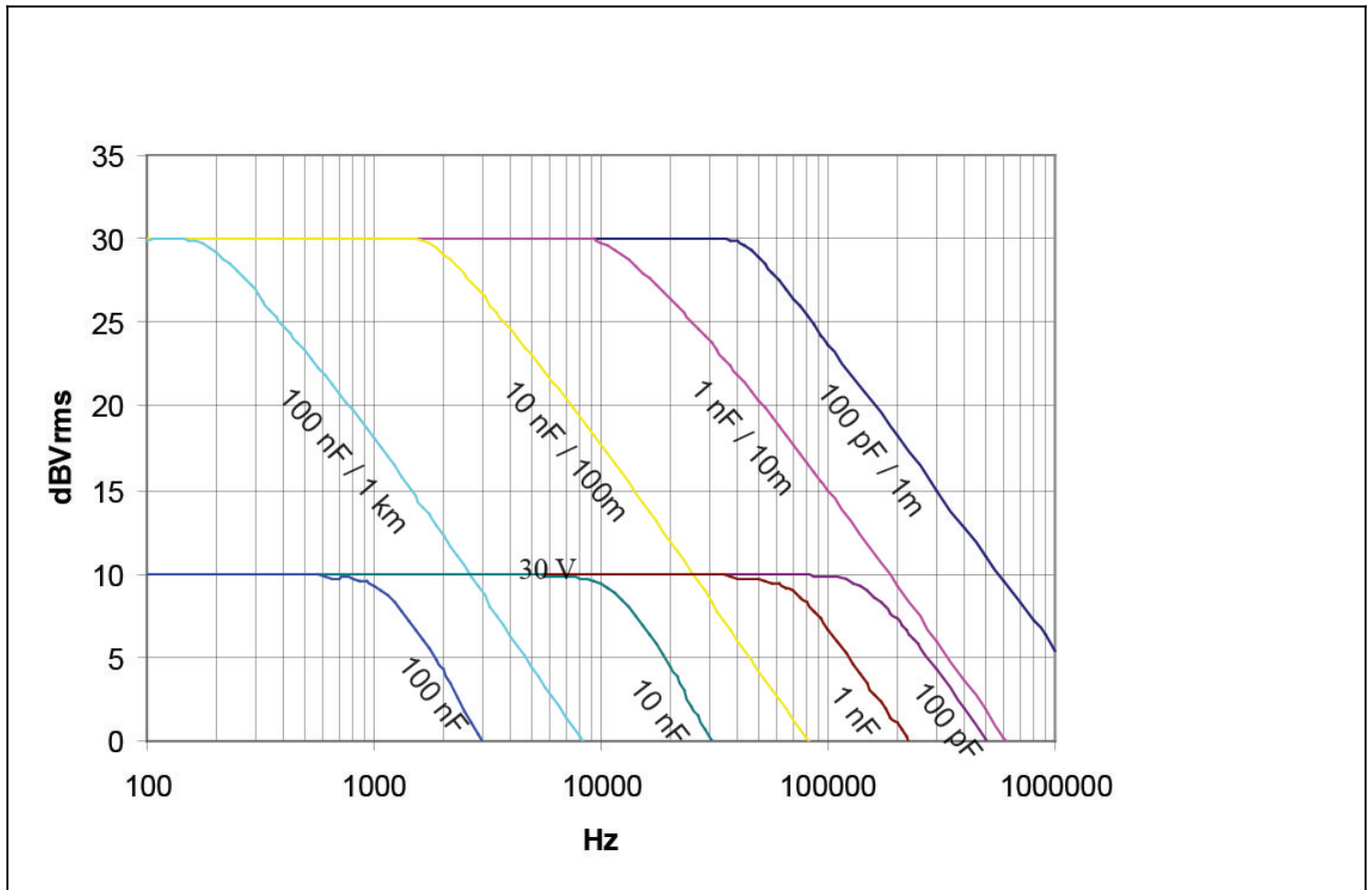
*7-pin LEMO plug 1B male (ext. view)*

Frequency range ( $\pm 0.2$ dB) with 18 pF microphone dummy	Hz	2.5 to 200 k
Slew rate	V/ $\mu$ s	20
Input impedance	G $\Omega$ // pF	20 // 0.4
Output impedance	$\Omega$	75
Output Voltage Swing, max. @ $\pm 14$ V/ $\pm 28$ V power supply	V <sub>p</sub>	12
Output Voltage Swing, max. @ $\pm 60$ V/ $\pm 120$ V power supply	V <sub>p</sub>	50
Noise (A-Weighted) max.	$\mu$ V	2.5
Noise (A-Weighted) typ.	$\mu$ V	1.8
Noise (Linear 20 Hz – 20 kHz) max.	$\mu$ V	6
Noise (Linear 20 Hz – 20 kHz) typ.	$\mu$ V	3.5
High-pass filter @3dB cut-off	Hz	TBD
Gain	dB	-0.29
Power supply, single	V	28 to 120
Power supply, balanced	V	$\pm 14$ to $\pm 60$
DC-offset, min., single supply	V	$0.5 \times V_s - 1$
DC-offset, max., single supply	V	$0.5 \times V_s + 4$
DC-offset, balanced supply	V	-1 to 4
Temperature range, operation	$^{\circ}$ C / $^{\circ}$ F	-30 to 70 / -22 to 158
Temperature range, storage	$^{\circ}$ C / $^{\circ}$ F	-40 to 85 / -40 to 185
Humidity range non condensing	% RH	0 to 95
Connector type		7-pin LEMO (FGG.1B.307)
CE/RoHS compliant/WEEE registered		Yes / Yes, Yes
Weight	g / oz	8.0 / 0.28

Conditions: 23  $^{\circ}$ C Ambient temperature,  $\pm 60$ V/ $\pm 120$ V power supply, 18 pF dummy microphone, 3 m output cable.



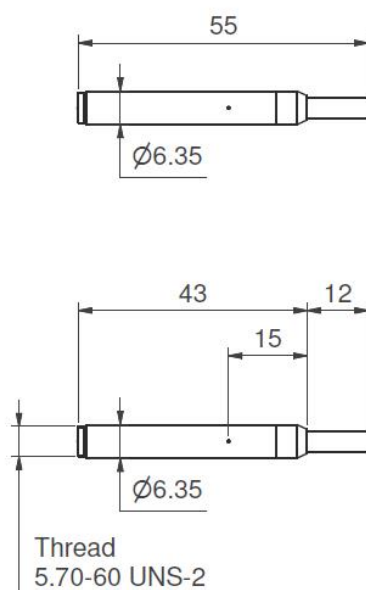
*Typical low-frequency response for 1/2 (20 pF), 1/4 (6.5 pF) and 1/8 (3 pF) microphones*



*Typical max. rms output signal with 120 V and 30 V supply*

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

Dimensions in mm



## Included items

<a href="#">GRAS GR0010</a>	Adapter for 1/4" preamplifier and 1/2" microphone
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## Optional items

<a href="#">GRAS AA0008</a>	3 m LEMO 7-pin - LEMO 7-pin Cable
<a href="#">GRAS AA0020-CL</a>	Customized Length LEMO 7-pin - LEMO 7-pin Cable
<a href="#">GRAS AL0029</a>	1/4" Microphone Holder, POM
<a href="#">GRAS AL0013</a>	1/4" Microphone Holder, Stainless Steel
<a href="#">GRAS AL0005</a>	Swivel head
<a href="#">GRAS AL0006</a>	Tripod
<a href="#">GRAS RA0063</a>	Adapter for 1/8" microphone and 1/4" preamplifier
<a href="#">GRAS RA0006</a>	Right-angled (90°) Adapter for 1/4" Microphone and 1/4" Preamplifier
<a href="#">GRAS RA0080</a>	6pF Preamplifier-input adapter for 1/4" microphones
<a href="#">GRAS 12AA</a>	2-Channel Power Module with gain, filters and SysCheck generator
<a href="#">GRAS 12AQ</a>	2-Channel Universal Power Module with signal conditioning and PC interface

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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](http://www.grasacoustics.com)  
[gras@grasacoustics.com](mailto:gras@grasacoustics.com)

## USA GRAS SOUND & VIBRATION

5750 S.W. Arctic Drive  
Beaverton, OR 97005  
Tel: 503-627-0832  
Toll Free: 800-231-7350  
[www.grasacoustics.com](http://www.grasacoustics.com)  
[sales-usa@grasacoustics.com](mailto:sales-usa@grasacoustics.com)

## CHINA GRAS SOUND & VIBRATION

Room 303, Building T6  
Hongqiaohui, 990, Shenchang Road  
Minhang District, Shanghai  
China, 201106  
Tel: +86 21 64203370  
[www.gras.com.cn](http://www.gras.com.cn)  
[cnsales@grasacoustics.com](mailto: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