

# 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

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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, but 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

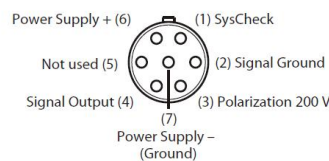
The low-frequency cut-off of the GRAS 26AL preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance of the microphone capsule. The capacities 20 pF, 6.5 pF and 3 pF equal the typical capacitances of 1/2", 1/4" and 1/8" microphone capsules respectively.

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.

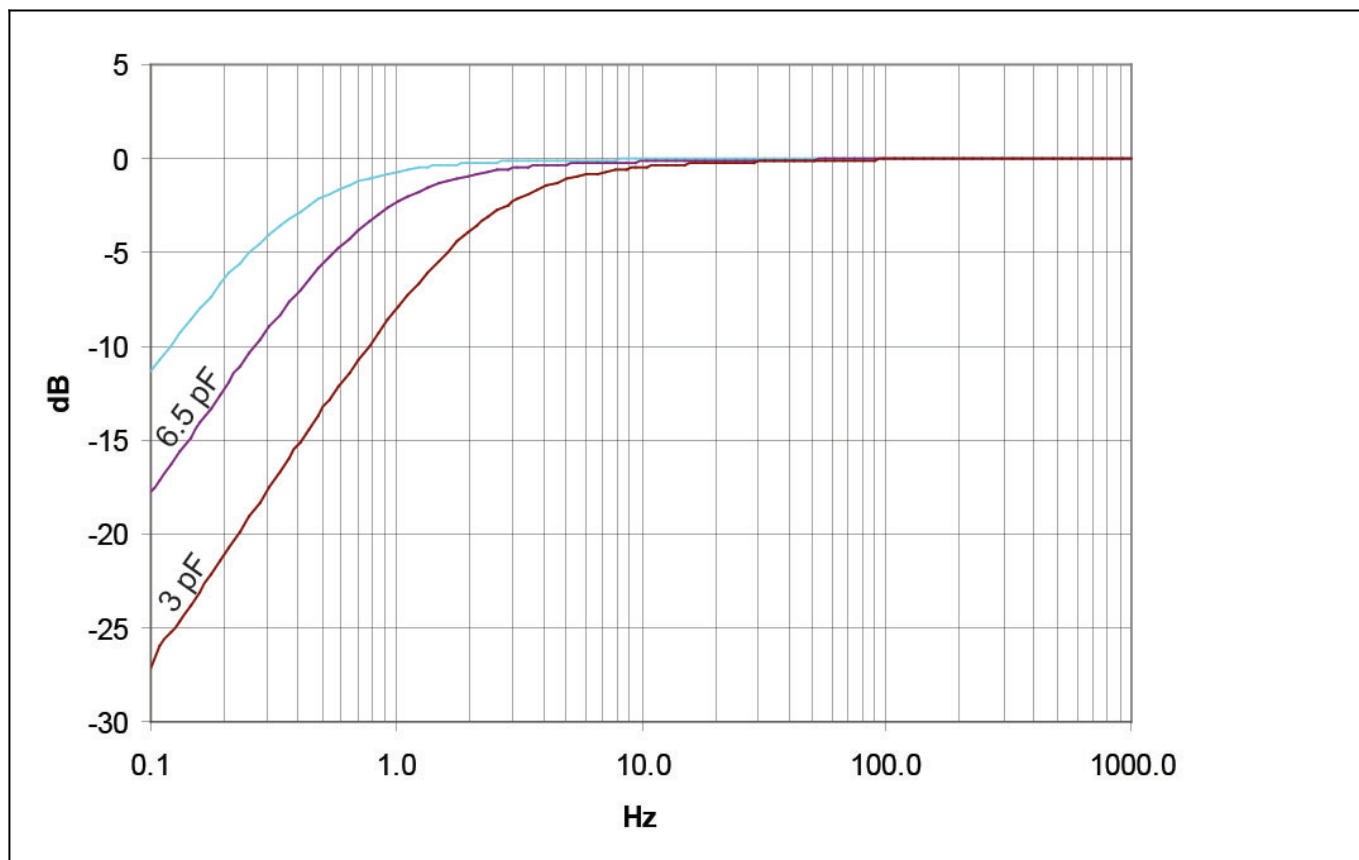


*7-pin LEMO plug 1B male (ext. view)*

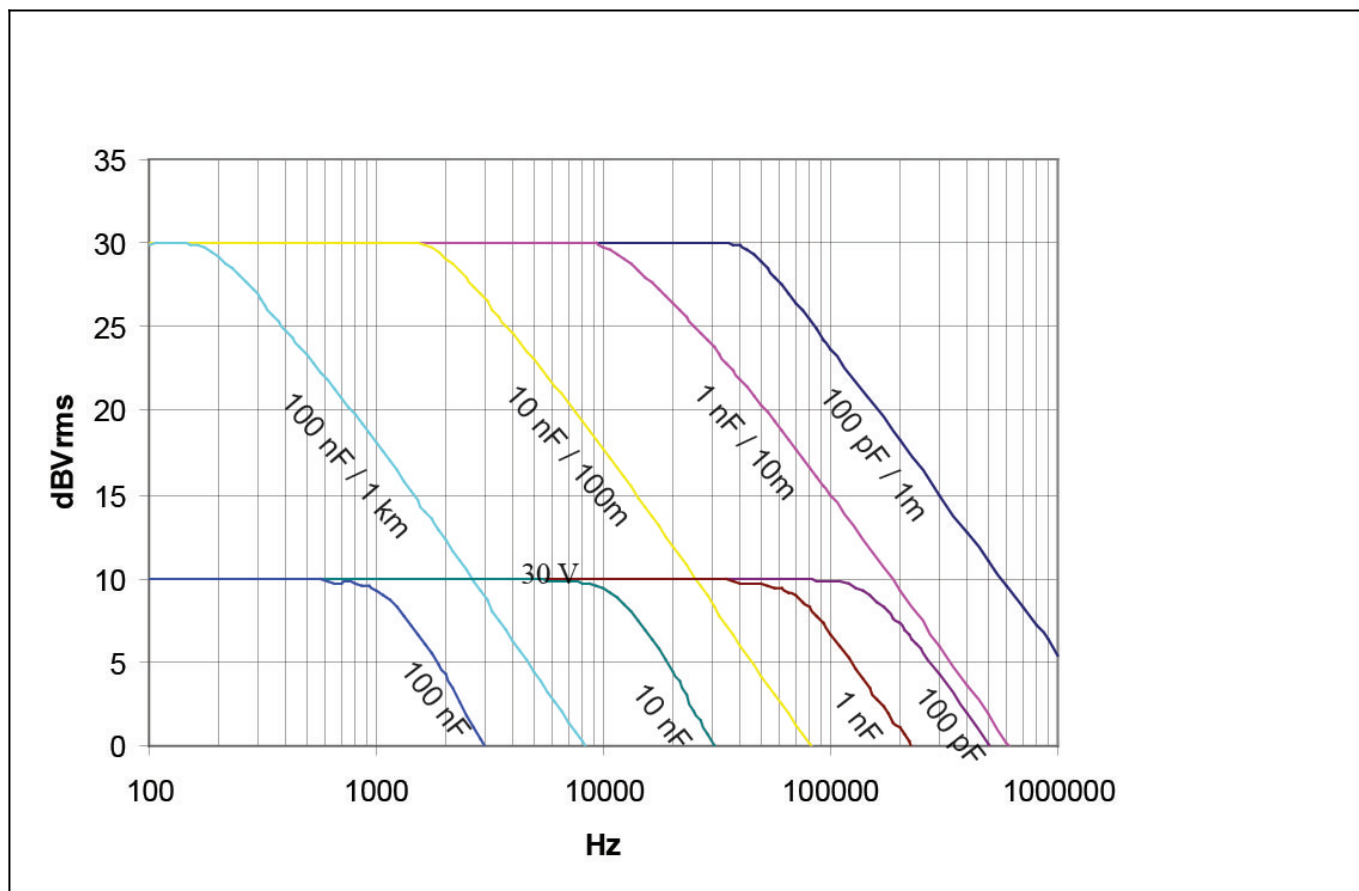
Frequency range ( $\pm 0.2$ dB) with 18 pF microphone dummy	Hz	2.5 to 200 k
Slew rate	V/ $\mu$ s	20
Input impedance	G // pF	20 // 0.4
Output impedance		75
Output Voltage Swing, max. @ $\pm 14$ V/+28V power supply	Vp	12
Output Voltage Swing, max. @ $\pm 60$ V/+120V power supply	Vp	50
Noise (A-Weighted) 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/+120V power supply, 18 pF dummy microphone, 3 m output cable.

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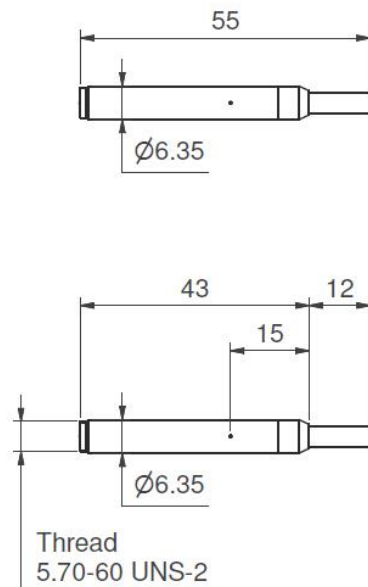
*Typical low-frequency response for 1/2 (20 pF), 1/4 (6.5 pF) and 1/8 (3 pF) microphones*



*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

GR0010	Adapter for 1/4" preamplifier and 1/2" microphone
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## Optional items

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

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# We Make Microphones

## Tradition

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

## Innovation

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.

## Quality

At GRAS we know that in order for you to trust your measurement results; signal quality, stability and robustness are essentials. We design and build them to perform under real life conditions – and beyond.

