

# GRAS 26AB

1/4"-1/2" Universal Preamplifier with Integrated Connector



Freq range: 2.5 Hz - 200 kHz  
Noise: 1.8  $\mu$ V Gain: -0.29 dB  
Special feature: For both 1/2" and 1/4"  
microphone cartridges

The GRAS 26AB 1/4" Preamplifier is a small robust unit optimised for acoustic measurements using condenser microphones. It has a very low inherent noise level, a wide dynamic range and a frequency response from below 2 Hz to above 200 kHz.

## 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 these preamplifiers ensure reliable operation under humid conditions owing to the heat generated by internal power dissipation.

These preamplifiers are compatible with ½ microphones as defined in international standard IEC1094 Measurement Microphones, Part 4: Specifications for working standard microphones. The mounting thread (11.7 mm - 60 UNS-2) is compatible with other available makes of similar microphone preamplifiers.

## Dynamic Range

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

## Noise

The electrical circuit in GRAS 26AB 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

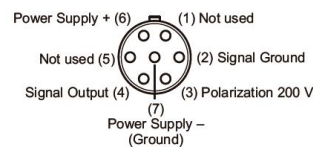
The low-frequency cut-off of the GRAS 26AB preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance

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. Fig. 4 shows the large-signal response for GRAS 26AB for various capacitive loads corresponding to different cable lengths. The output level is in decibels relative to 1 Volt. Typical capacitance for the cable is 100pF/m(30pF/foot).

## Connector

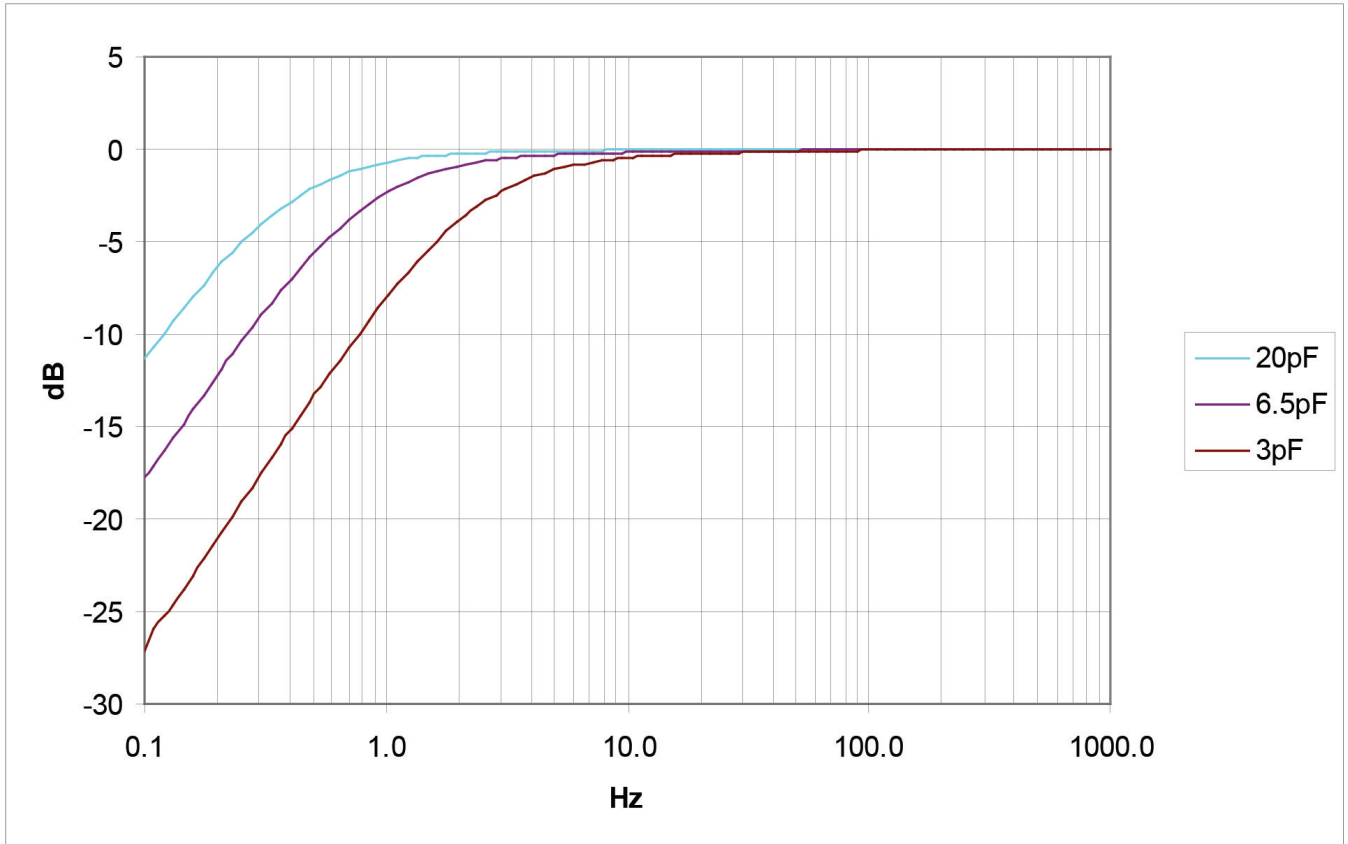
Preamplifier GRAS 26AB is provided with an integrated 7-pin LEMO connector. For use with GRAS 1/2" microphones, 1/4"-to-1/2" Adapter AF0008 is supplied. AF0008 is an inline barrel adapter ensuring minimum influence on the sound field.



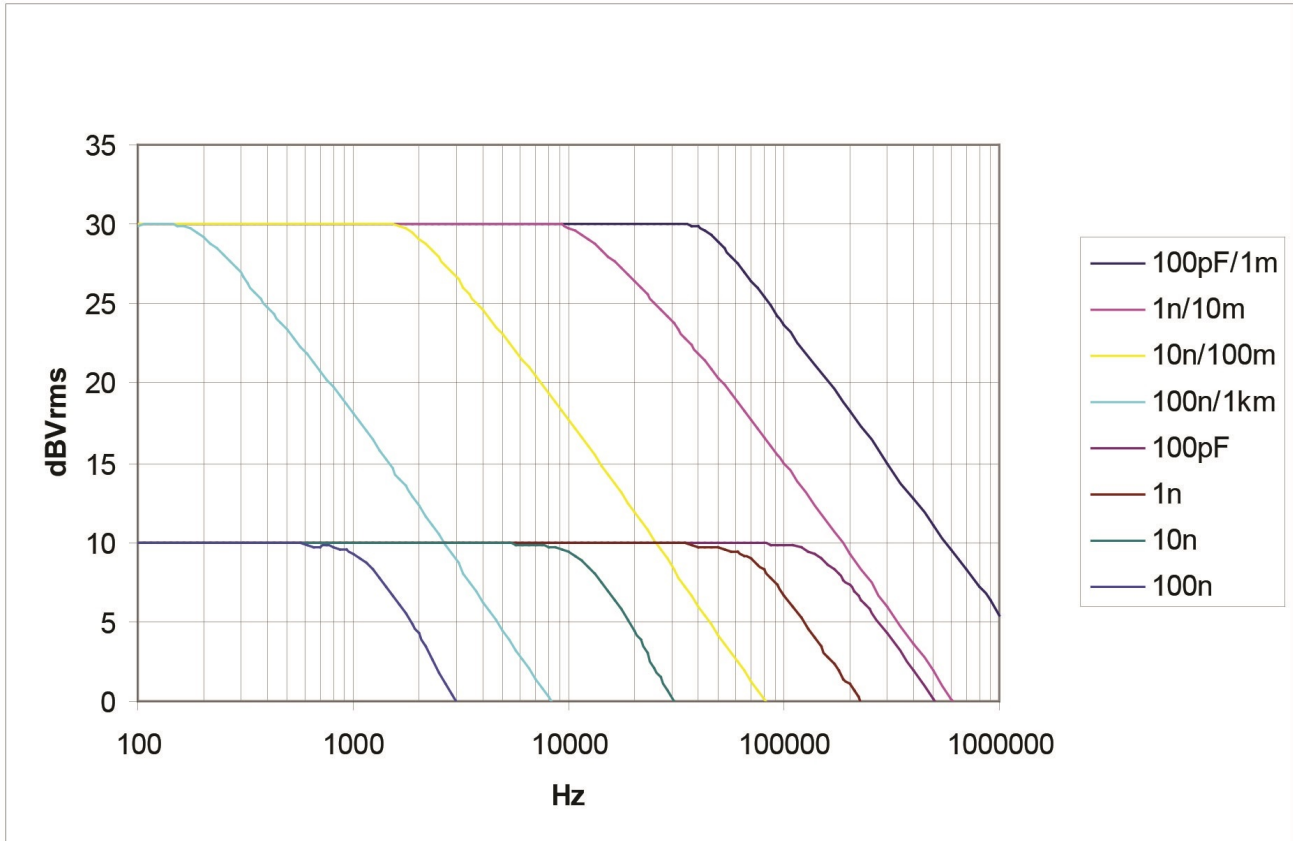
*7-pin LEMO plug 1B male (ext. view)*

|   |                             |                         |
|---|-----------------------------|-------------------------|
| 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/+28V power supply   | V <sub>p</sub>              | 12                      |
| Output Voltage Swing, max. @ $\pm 60$ V/+120V 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                           | $0.5 \times V_s + 4$    |
| 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                      | 22.0 / 0.78             |

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



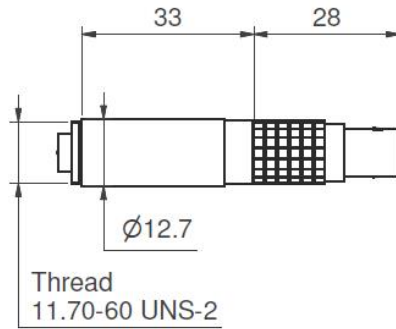
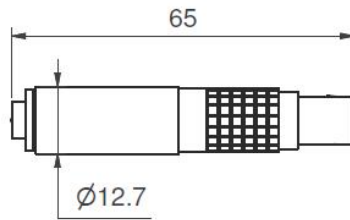
*Typical frequency response for 1/2" (20 pF), 1/4" (6.5 pF) and 1/8" (3 pF) microphones*



*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 AF0008</a> | Adapter for 1/4" preamplifier and 1/2" microphone |
|-----------------------------|---|

## 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 (for use when AF0008 is not mounted)             |
| <a href="#">GRAS AL0013</a>    | 1/4" Microphone Holder, Stainless Steel (for use when AF0008 is not mounted) |
| <a href="#">GRAS AL0008</a>    | 1/2" Microphone Holder, POM (for use when AF0008 is mounted)                 |
| <a href="#">GRAS AL0012</a>    | 1/2" Microphone Holder, Stainless Steel (for use when AF0008 is mounted)     |
| <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