

1/4" Preamplifier Type 26AB

Product Data

Typical Applications

- Precision measurements
- Low-pressure measurements
- General-purpose preamplifiers

Special Features

- Wide frequency range
- Wide dynamic range

Description

The G.R.A.S. 1/4" Preamplifiers Type 26AB 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 2Hz to above 200 kHz.

Design

All G.R.A.S. 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 1/2" microphones as defined in international standard IEC 1094 *Measurement Microphones, Part 4: Specifications for working standard microphones*. The mounting thread (11.7mm - 60 UNS-2) is compatible with other available makes of similar microphone preamplifiers.

Dynamic Range

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



Fig. 1 1/4" Preamplifier Type 26AB incl. adapter for 1/2" microphones

Noise

The electrical circuit in Type 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 Type 26AB preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance of the microphone capsule (see Fig. 3). 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 (slew rate), 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 Type 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 Type 26AB (Fig. 1) is provided with an integrated 7-pin LEMO connector. For use with G.R.A.S. 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.

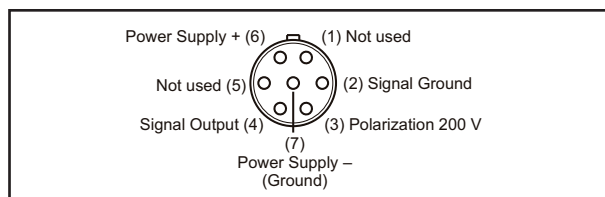


Fig. 2 7-pin LEMO plug 1B male (ext. view)

¼" Preamplifier Type 26AB

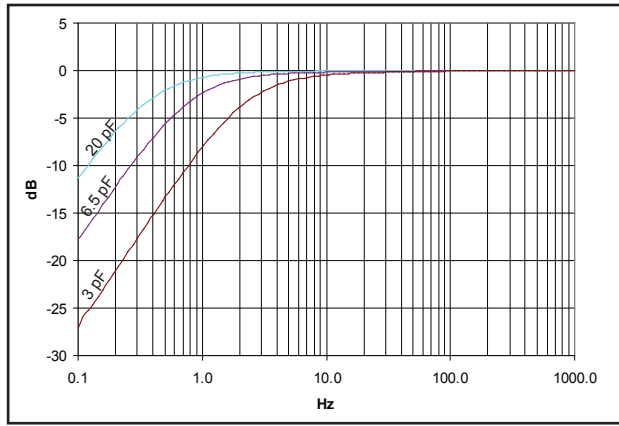


Fig. 3 Typical low-frequency response of Type 26AB for ½" (20 pF), ¼" (6.5 pF) and ⅛" (3 pF) microphones

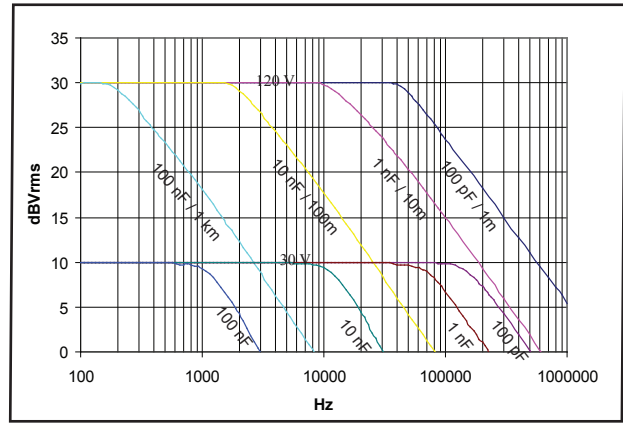


Fig. 4 Typical max. rms output signal with 120 V and 30 V supply

Technical Data

Frequency response*:

2.5 Hz - 200 kHz ±0.2 dB

Input impedance:

20 GΩ, 0.5 pF

Output impedance (Cs = 20 pF, f=1000Hz):

Typical 75 Ω

Noise*:

A-weighted: ≤2.5 μV rms
(typically 1.8 μV rms)

Linear (20 Hz - 20 kHz): ≤6 μV rms
(typically 3.5 μV rms)

Gain*:

Typical: -0.27 dB

Power supply:

Single: 28 V (0.7 mA) to 120 V (2.5 mA)

Dual: ±14 V (0.7 mA) to ±60 V (2.5 mA)

Maximum signal-output voltage (peak):

from ±10 V to ±50 V

Temperature:

Operation: -30°C to +70°C

Storage: -40°C to +85°C

Relative humidity:

Operation: 0 to 95%

Storage: 0 to 95%

Dimensions (ex. cable):

Diameter: 12 mm (¼")

Length: 67.5 mm (3.05")

Weight: 21 g (1.1 oz)

* Measured with 20 pF ½" dummy microphone

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice.

Accessories

Included

AF0008 ¼" to ½" Adapter for use with G.R.A.S. ½" microphones

Optional

RA0017: 1" to ½" adaptor for use with G.R.A.S. 1" microphones

RA0019: ¼" to ½" adaptor for use with G.R.A.S. ¼" microphones

RA0001: Right-angled (90°) Adapter for ½" microphone and ¼" preamplifier

RA0003: Adapter for ½" microphone and ¼" preamplifier

RA0006: Angled (90°) Adapter ¼" to ¼".

AA0008: Extension cable, 3 metres

AA0009: Extension cable, 10 metres

AA0012: Extension cable, 30 metres

AA0014: Extension cable, 100 metres

AA0020_XX: Extension cable, XX metres (customer-specified length)

AL0013: Tripod adapter for ¼" preamplifier

RA0096: Tripod adapter for ¼" preamplifier with angular adjustment