¼″ Preamplifier Type 26AR, Short

Product Data

Typical Applications

- For use in confined spaces
- High frequency measurements
- High pressure measurements
- Sound intensity measurements
- Near-field measurements
- Anechoic boxes
- Hearing-aid measurements

Special Properties

- Wide frequency range
- Low noise level
- Very small dimensions
- 7-pin LEMO connnector

Description

The G.R.A.S. ¼″ Preamplifier Type 26AR is a small robust unit short enough (see Fig. 5) for use in confined spaces. 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 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 this preamplifier ensures reliable operation under humid conditions owing to the heat generated by internal power dissipation.

Dynamic Range

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

Noise

The electrical circuit in Type 26AR 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.

Fig. 1 ¼″ Preamplifier Type 26AR

Frequency response

The low-frequency cut-off of the Type 26AR 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, 6.4 pF and 3 pF equal the typical capacitances of ½″, ¼″ and ⅛″ 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 26AR 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

Type 26AR is supplied with a 3-m light-weight cable (AA0057). Its 4-pin LEMO plug (Fig. 2) connects to the preamplifier and its 7-pin LEMO (Fig. 2) to a power module. The cable is only 2.5 mm in diameter and will withstand temperatures from –40 °C to +150 °C. An adapter GR0010 for G.R.A.S. ½″ microphones is included.

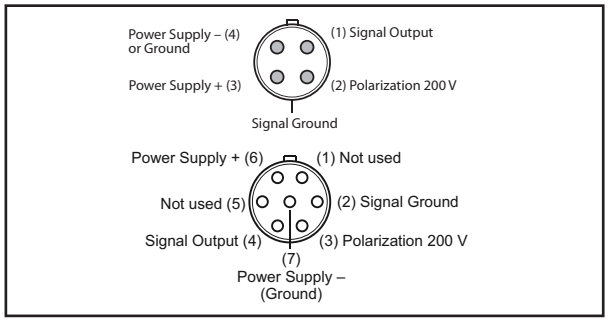

Fig. 2 Ext. view of 4-pin LEMO plug 00 male and 7-pin LEMO plug 1B male (ext. view)

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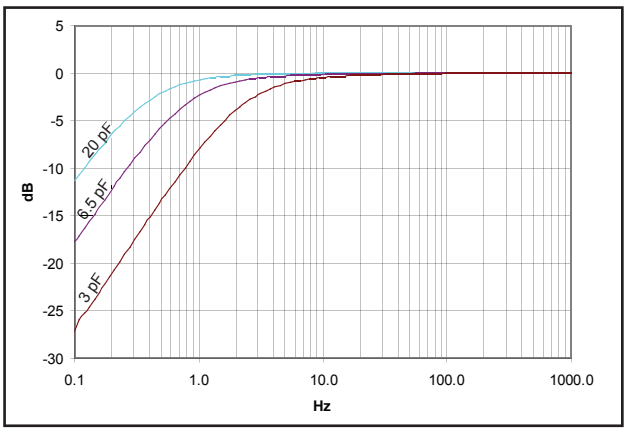

Fig. 3 Typical low-frequency response of Type 26AR for ½″ (20 pF), ¼″ (6.5 pF) and ⅛″ (3 pF) microphones

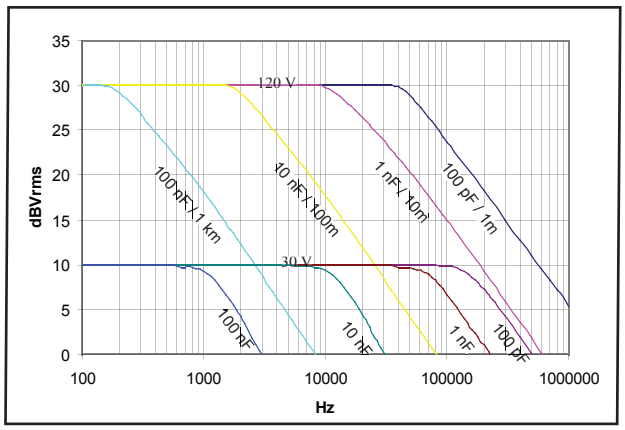

Fig. 4 Typical max. rms output signal with 120 V and 30 V supply

Specifications

Frequency response (18pF/small signal):
2 Hz - 200 kHz . . . . . ±0.2 dB

Input impedance:
20 GΩ, 0.4 pF

Output impedance (Cs = 20 pF, f=1000Hz):
Typical . . . . . 55 Ω

Noise (measured with 20 pF ½″ dummy mic.):
A-weighted: . . . . . ≤4 µV rms
Linear (20 Hz - 20 kHz): . . . . . ≤10 µV rms

Gain:
Typical: . . . . . -0.25 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:
Diameter: . . . . . See Fig. 5
Length: . . . . . See Fig. 5
Weight (without cable): . . . . . 4 g (0.14 oz)
Weight (with cable + LEMO conn.): 53 g (1.79 oz)

Fig. 5 Main dimensions given in millimetres

Accessories

Included

GR0010:	¼″ to ½″ adapter for use with G.R.A.S. ½″ microphones
AA0057:	3-m cable, 4-pin LEMO 00 male to 7-pin LEMO 1B male

Optional

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)
AA0013:	Tripod adapter for ¼″ preamplifier
RA0096:	Tripod adapter for ¼″ preamplifier with angular adjustment
Type 12AK:	1-Channel Power Module incl. SysCheck Generator
Type 12AA:	2-Channel Power Module incl. SysCheck Generator
Type 12AQ:	Computer-controlled Power Module incl. SysCheck Generator

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