

GRAS 26TC

1/4" Preamplifier with 3 m integrated Cable



Freq range: 2 Hz - 200 kHz

Noise: 1.8 μ V

Gain: -0.25 dB

Special feature: General purpose

The GRAS 26TC 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 this preamplifier ensure reliable operation under humid conditions owing to the heat generated by internal power dissipation.

The 26TC is delivered with a built-in TEDS chip and can be programmed as a single unit with a microphone fitted. An adaptor (GRAS GR0010) for GRAS 1/2" microphone cartridges is included.

Dynamic range

GRAS 26TC 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 (120 VDC or ± 60 VDC), the dynamic range exceeds 140 dB.

Noise

The electrical circuit in GRAS 26TC 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.

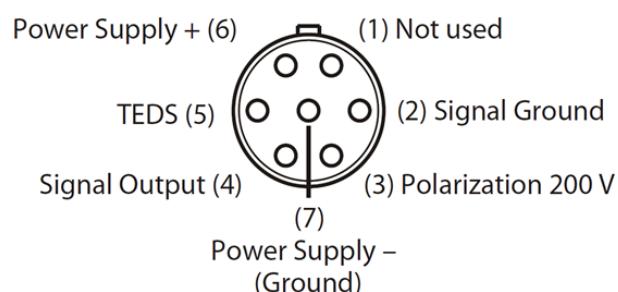
Frequency Response

The low-frequency cut-off of the GRAS 26TC preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance of the microphone cartridge (see the graph in the Specifications). The capacities 20 pF, 6.5 pF and 3 pF

equal the typical capacitances of 1/2", 1/4" and 1/8" microphone cartridges 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. A graph in the Specifications shows the large-signal response for GRAS 26TC 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 100 pF/m (30 pF/foot).

Connector

Preamplifier Type 26TC is provided with a 3-m lightweight 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 $+150^{\circ}\text{C}$. An adaptor (GR0010) for GRAS 1/2" microphones is included.



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

Typical applications and use

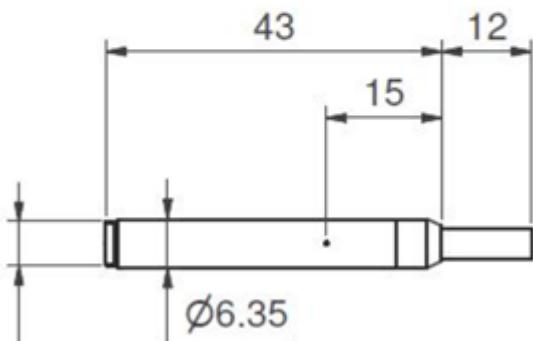
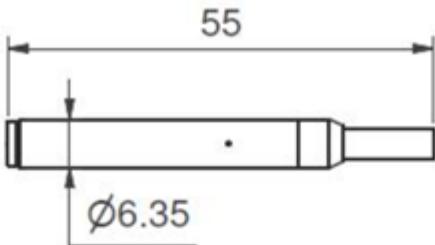
General-purpose preamplifier

High-frequency measurements

High-pressure measurements

Specifications

| | | |
|-------------------------------------------------------------|------------------|------------------------|
| Frequency range (± 0.2 dB) with 18 pF microphone dummy | Hz | 2 to 200 k |
| Slew rate | V/ μ s | 20 |
| Input impedance | G Ω // pF | 20 // 0.4 |
| Output impedance | Ω | 55 |
| Output Voltage Swing, max. @ $\pm 14V/+28V$ power supply | Vp | 10 |
| Output Voltage Swing, max. @ $\pm 60V/+120V$ power supply | Vp | 50 |
| Noise (A-Weighted) max. | μ V | 2.5 |
| Noise (A-Weighted) typ. | μ V | 1.8 |
| Noise (Linear 20 Hz – 20 kHz) max. | μ V | 6 |
| Noise (Linear 20 Hz – 20 kHz) typ. | μ V | 3.5 |
| Gain | dB | -0.25 |
| Power supply, single | V | 28 to 120 |
| Power supply, balanced | V | ± 14 to ± 60 |
| DC-offset, min., single supply | V | 0.5 x Vs - 1 |
| DC-offset, max., single supply | V | 0.5 x Vs + 4 |
| DC-offset, balanced supply | V | -1 to 4 |
| Temperature range, operation | °C / °F | -30 to 70 / -22 to 158 |
| Temperature range, storage | °C / °F | -40 to 85 / -40 to 185 |
| Humidity range non condensing | % RH | 0 to 95 |
| TEDS (IEEE 1451.4) | | 27 v. 1.0 |
| Connector type | | 7-pin LEMO 1B |
| CE/RoHS compliant/WEEE registered | | Yes / Yes / Yes |
| Weight (without cable) | g / oz | 6 / 0.2 |
| Weight (with cable + LEMO connector) | g / oz | 50 / 1.8 |



Thread
5.70-60 UNS-2

| | |
|-----------------------------------------------------|----------------------------------------------------------------------------|
| <u>GRAS AA0008</u> | 3 m LEMO 7-pin - LEMO 7-pin Cable |
| <u>GRAS AL0029</u> | 1/4" Microphone Holder, POM |
| <u>GRAS AL0013</u> | 1/4" Microphone Holder, Stainless Steel |
| <u>GRAS AL0005</u> | Swivel head |
| <u>GRAS AL0006</u> | Tripod |
| <u>GRAS RA0063</u> | Adapter for 1/8" microphone and 1/4" preamplifier |
| <u>GRAS RA0006</u> | Right-angled (90°) Adapter for 1/4" Microphone and 1/4" Preamplifier |
| <u>GRAS RA0002</u> | Right-angled adjustable adapter for 1/2" mic/ 1/4" preamp. |
| <u>GRAS RA0080</u> | 6pF Preamplifier-input adapter for 1/4" microphones |
| <u>GRAS 12AA</u> | 2-Channel Power Module with gain, filters and SysCheck generator |
| <u>GRAS 12AQ</u> | 2-Channel Universal Power Module with signal conditioning and PC interface |
| <u>GRAS 12BC, 12BF and 12BD</u> | LEMO Power Modules with TEDS Support |

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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 and related equipment for industries where acoustic measuring accuracy and repeatability are of the utmost importance. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, consumer electronics and other highly demanding industries. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect, trust and require. GRAS Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands. Read more at www.grasacoustics.com

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