GRAS 26TC

1/4'' Preamplifier with 3 m integrated Cable

Freq range: 2 Hz - 200 kHz
Noise: 1.8 µV
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.

The GRAS 26TC preamplifier is fully compatible with the 26AC (not to be confused with the 26AC-1), sharing the same form factor, dimensions, and integrated 3 m cable terminated with a 7-pin LEMO connector. The key distinction is that the 26TC incorporates an internal TEDS chip, enabling storage of Transducer Electronic Data Sheet (TEDS) information.

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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

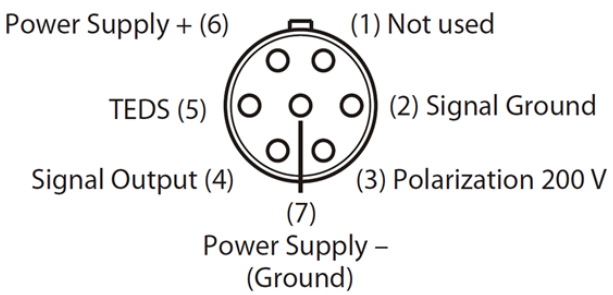
The electrical circuit in GRAS 26TC is built on a ceramic substrate using selected low-noise components to gain very low self-noise. The electrical self-noise is so low that system noise is mainly determined by the microphone capsule's thermal noise.

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 100pF/m (30pF/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 °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

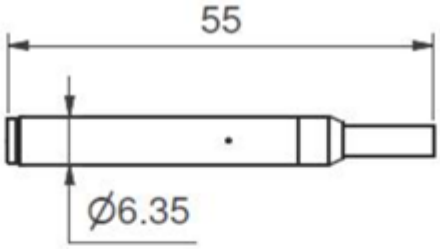
High-frequency measurements

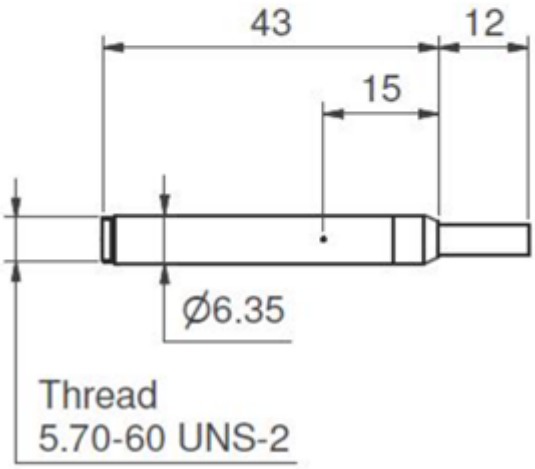
High-pressure measurements

Specifications

Frequency range (±0.2 dB) with 18 pF microphone dummy	Hz	2 to 200 k
Slew rate	V/µs	20
Input impedance	GΩ // pF	20 // 0.4
Output impedance	Ω	55
Output Voltage Swing, max. @ ±14V/+28V power supply	Vp	10
Output Voltage Swing, max. @ ±60V/+120V power supply	Vp	50
Noise (A-Weighted) max.	µV	2.5
Noise (A-Weighted) typ.	µV	1.8
Noise (Linear 20 Hz – 20 kHz) max.	µV	6
Noise (Linear 20 Hz – 20 kHz) typ.	µV	3.5
Gain	dB	-0.25
Power supply, single	V	28 to 120
Power supply, balanced	V	±14 to ±60
DC-offset, min., single suppy	V	0.5 x Vs - 1
DC-offset, max., single suppy	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

Dimensions





Ordering info

GRAS AA0008	3 m 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 RA0002	Right-angled adjustable adapter for 1/2'' mic/ 1/4'' preamp.
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
GRAS 12BC, 12BF and 12BD	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 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 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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