

# ¼" CCP Preamp Type 26CG, Infra-sound

## Product Data

### Typical Applications

- Infra-sound measurements
- Low-level measurements
- General-purpose preamplifier
- Use with ½" Free-field Microphone, Low-frequency Type 40AZ

### Special Properties

- Wide Frequency Range
- Low Cut-off Frequency
- Low Noise Level

### Description

The G.R.A.S. ¼" CCP Preamp Type 26CG 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 wide frequency response from below 1 Hz to above 200 kHz.

Type 26CG can easily be connected to any IEPE input or to a G.R.A.S. Power Supply Type 12AQ or Type 12AL.

The Type 26CG is delivered with a built-in TEDS\*\* chip (vers. 0.9) and can be programmed as a combined unit with a microphone fitted. It can be used with all G.R.A.S. prepolarized microphones.

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

### Dynamic Range

The lower limit of the dynamic range is determined by the noise floor. The upper limit of the dynamic range is determined by the power module: Type 12AQ, sourced at 28 V DC, supplies a constant



Fig. 1 ¼" Preamp Type 26CG

current of 4 mA. This leads to a maximum output voltage of 8 V<sub>peak</sub>, the dynamic range thereby exceeding 126 dB.

### Noise

The electrical circuit in Type 26CG preamplifier 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 (Type 40AZ's) thermal noise.

### Frequency Response

The low-frequency cut-off of the Type 26CG preamplifier is mainly determined by the input impedance of the preamplifier and the capacitance of the microphone capsule (see Fig. 2). The capacities 20 pF, 6.5 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 (see Fig. 3).

Type 26CG is typically used with Type 40AZ, low-frequency microphone capsule to reach a -3-dB cut-off frequency around 0.25 Hz.

### Connectors and Adapter

Preamplifier Type 26CG (Fig. 1) is provided with a 3-m lightweight cable terminating in a BNC plug. The amplifier is connected to the cable via a Microdot connector. The cable is only 2.0 mm in diameter and withstands temperatures from - 40 °C to +150 °C. An adaptor (GR0010) for G.R.A.S. ½" microphones is included.

\*) Constant Current Power, equal to IEPE

\*\*) Transducer Electronic Data Sheet - as specified by IEEE-1451.4

## Specifications

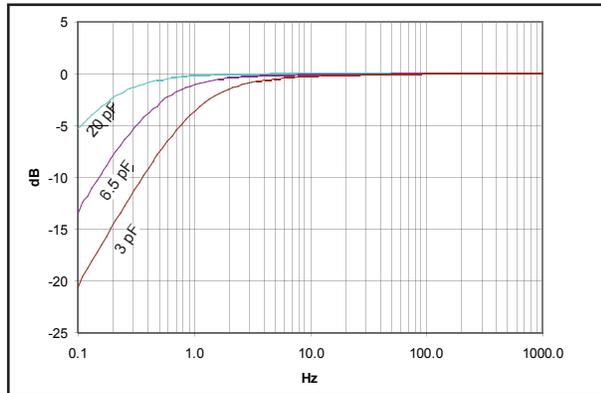


Fig. 2 Typical low-frequency response of Type 26CG for 1/2" (20 pF), 1/4" (6.5 pF) and 1/8" (3 pF) microphones

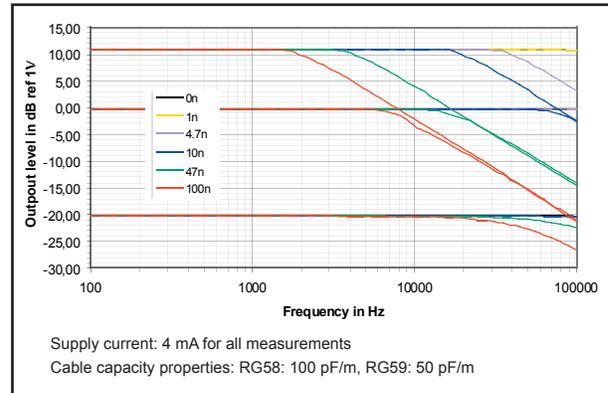


Fig. 3 Frequency response for three output levels. At each output level the frequency response is shown for the above-stated cable capacities.

## Technical Data

<b>Frequency response (18pF/small signal):</b>	1 Hz - 200kHz	±0.2 dB
<b>Slew rate:</b>		20 V/μs
<b>Input impedance:</b>		40 GΩ, 0.4 pF
<b>Output impedance (Cs = 20 pF, f = 1000Hz):</b>	Typical	55 Ω
<b>Noise (measured with 20 pF 1/2" dummy mic.):</b>	A-weighted:	≤2.3 μV rms (typically 1.5 μV rms)
	Linear (20 Hz - 20 kHz):	≤6 μV rms (typically 3.2 μV rms)
<b>Gain:</b>	Typical:	-0.25 dB
<b>Power supply:</b>		2 mA to 20 mA (typically 4 mA)
<b>DC Output level:</b>		12 V
<b>Maximum signal-output voltage (peak):</b>		8 V
	corresponding to 138 dB SPL for microphone sensitivity of 50 mV/Pa	
<b>Temperature:</b>	Operation:	-30°C to +70°C
	Storage:	-40°C to +85°C
<b>Relative humidity:</b>	Operation:	0 to 95 %
	Storage:	0 to 95 %
<b>Dimensions:</b>	Diameter:	6.35 mm (1/4")
	Length:	43 mm (1.7")
	Weight (without cable):	6 g (0.2 oz)
	Weight (with cable + Microdot conn.):	50 g (1.76 oz)
<b>Connector type:</b>		Microdot (UNF 10-32)

## Accessories

<b>Included</b>	
GR0010:	1/4" to 1/2" adapter for use with G.R.A.S. 1/2" microphones
AA0018:	Extension cable, Microdot (UNF 10-32) to BNC, 3 metres
<b>Optional</b>	
RA0001:	Right-angled (90°) Adapter for 1/2" microphone and 1/4" preamplifier
RA0003:	Adapter for 1/2" microphone and 1/4" preamplifier
RA0006:	Angled (90°) Adapter 1/4" to 1/4"
AA0060:	Extension cable, Microdot (UNF 10-32) to BNC, 1 meter
AA0061:	Extension cable, Microdot (UNF 10-32) to BNC, 5 metres
AA0062:	Extension cable, Microdot (UNF 10-32) to BNC, 10 metres
AE1038	Microdot (UNF 10-32) Adapter (Female-Female)
AA0013:	Tripod adapter for 1/4" preamplifier
RA0096:	Tripod adapter for 1/4" preamplifier with angular adjustment

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