

# GRAS 12AK

1-Channel Power Module with gain, filters and SysCheck generator



Connection: Traditional 200 V  
Channel(s): 1

The GRAS 12AK is a single-channel power module with a 7-pin LEMO 1B connector for power and polarization of an externally polarized microphone set. It features SysCheck, instantaneous and latched overload indication, adjustable gain settings, A-weighting, and Lin and HP filters. These features make the 12AK the ideal choice for a wide range of applications such as monitoring, laboratory use, and sound level meter measurements.

### Typical applications and use

- General-purpose measurements
- Precision measurements
- Acoustic monitoring
- Microphone calibration

### Design

It has the following signal-conditioning settings:

- linear-response
- A-weighting
- high-pass filtering

The 12AK can be powered either by internal standard batteries or an external DC supply (12 V - 18 V), e.g. a mains/line adapter. It is built into a sturdy anodized aluminium cabinet.

The polarization voltage for the microphone fitted to the preamplifier can be set to 0 V – for prepolarized microphones, or 200 V – for externally polarized microphones. The voltage supply for the preamplifier can be set to 120 V – for maximum dynamic range, or 28 V – for minimum power consumption.

The 12AK will run for approximately 11 hours on fresh standard alkaline batteries. A Low Batt LED indicates the condition of the batteries.

The input is a 7-pin LEMO socket on the front panel which is wired up for GRAS microphone preamplifiers, e.g. 26AB, 26AC, 26AJ and 26AK, but is also compatible with other available makes of similar microphone preamplifiers.

The output is a standard BNC connector also on the front panel.

There are two overload indicators; one instantaneous, and one latched which can be reset. The gain can be set from 0 dB to + 50 dB in steps of 10 dB.

The standard A-weighting filter complies with IEC Standard 60651: Sound level meters Type 0. The high-pass filter is a 3-pole Butterworth filter with a -1 dB cut-off at a frequency of 20 Hz. This filter is for reducing unwanted low-frequency signals, e.g. caused by wind-induced noise on the microphone.

The preamplifier signal can be coupled directly to the output of the 12AK by selecting direct output. This makes the output of the preamplifier available free of any signal conditioning.

A built-in precision 1 kHz oscillator enables a complete check of the measuring channel when used with GRAS preamplifiers 26AJ, 26AH or 26AL. The oscillator can be activated directly via a push-button on the rear panel or remotely via a minijack connector also placed on the rear panel. The output level of the oscillator can be adjusted using a small screw driver on a potentiometer accessible via a hole in the front panel.

The cabinet of the 12AK is 1/12 of a standard 19-inch rack; meaning that up to 12 of these Power Modules can be mounted in a standard 19-inch rack using the AK0040 Rack-mounting System.

### Warranty

All GRAS products are made of high-quality materials that will ensure life-long stability and robustness. The 12AK is delivered with a 2-year warranty. The warranty does not cover products that are damaged due to negligent use.

### Service and Repairs

All repairs are made at GRAS International Support Center located in Denmark. Our Support Center is equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories. If a product covered by warranty is sent for service, it is repaired free of

charge, unless the damage is the result of negligent use or other violations of the warranty.

|   |                  |                                   |
|---|------------------|-----------------------------------|
| <b>CONDITIONING</b>   |                  |                                   |
| Frequency response ( $\pm 1.0$ dB) @ Gain $\leq 40$ dB                | Hz               | 2 to 200 k                        |
| Frequency response ( $\pm 1.0$ dB) @ Gain 50 dB                       | Hz               | 2 to 100 k                        |
| Output channel(s)   |                  | 1                                 |
| Output impedance  | $\Omega$         | 30                                |
| Direct coupling input to output                                       |                  | Yes                               |
| Inherent noise, LIN (20 Hz to 20 kHz), grounded input                 | $\mu\text{Vrms}$ | <4                                |
| Inherent noise, A-weighted, (20 Hz to 20 kHz), grounded input         | $\mu\text{Vrms}$ | <2.8                              |
| Inherent noise, A-weighted with dummy preamplifier (20 Hz to 20 kHz), | $\mu\text{Vrms}$ | <4                                |
| Inherent noise, LIN with dummy microphone (20 Hz to 20 kHz)           | $\mu\text{Vrms}$ | <5.6                              |
| Gain settings, 10 dB steps  | dB               | 0 to + 50                         |
| Gain error  | dB               | < 0.2                             |
| A-weighting filter according to                                       |                  | IEC 60651 Type 0                  |
| High-pass filter  |                  | 3-pole Butterworth, -1 dB @ 20 Hz |
| Linear mode   |                  | Yes                               |
| SysCheck level @ 1 kHz  | Vrms             | 1                                 |
| Type  |                  | Traditional power supply (LEMO)   |
| Input channel(s), traditional power supply                            |                  | 1                                 |
| Preamplifier supply   | V                | 28 / 120                          |
| Polarization voltage  | V                | 0 / 200                           |
| Overload indication   |                  | Yes                               |
| PC controlable  |                  | No                                |
| External filter option  |                  | No                                |
| Power amplifier overload detection                                    |                  | No                                |
| <b>POWER SUPPLY</b>   |                  |                                   |
| Power supply, battery   |                  | 10 x LR6 (AA)                     |

|                                    |        |             |
|------------------------------------|--------|-------------|
| Power supply, external             | Vdc    | 12 to 18    |
| Power consumption                  | mA     | 180 to 210  |
| Battery life, 28 V preamp. supply  | h      | 11          |
| Battery life, 120 V preamp. supply | h      | 9           |
| Battery low indication             |        | Yes         |
| Fuse                               | mA     | 250 (slow)  |
| Weight                             | g / oz | 770 / 27.16 |

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

## Included

|             |                               |
|-------------|-------------------------------|
| GRAS EL0001 | 10 x LR6 (AA) alkaline cells  |
| GRAS AB0002 | DC mains/line adapter, Europe |
| GRAS AB0003 | DC mains/line adapter, USA    |

## Optional

|             |                          |
|-------------|--------------------------|
| GRAS AK0040 | 19" Rack mounting System |
|-------------|--------------------------|

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# GRAS Worldwide

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than 40 countries

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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