

## Instruction Manual

# Power Module Type 12AR



---

**G.R.A.S.**  
SOUND & VIBRATION

Skovlytoften 33, 2840 Holte, Denmark  
[www.gras.dk](http://www.gras.dk) [gras@gras.dk](mailto:gras@gras.dk)

## **Power Module Type 12AR**

Revision 08 09 2006

## CONTENTS

<b>1. Introduction and Description</b> .....	<b>3</b>
1.1 Polarization Voltages .....	3
1.2 Power Supplies .....	3
1.3 Inputs/Outputs .....	3
<b>2. External Features</b> .....	<b>4</b>
2.1 Front Panel .....	4
2.2 Rear Panel .....	4
<b>3. Batteries and External Power Supply</b> .....	<b>5</b>
<b>4. Operation</b> .....	<b>6</b>
<b>5. Service and Repair</b> .....	<b>6</b>
<b>6. Specifications</b> .....	<b>7</b>

---

## 1. Introduction and Description

The G.R.A.S. Power Module Type 12AR (Fig. 1) is a portable, dual-channel power supply for use with microphone preamplifiers and condenser microphones. It provides:

- Polarization voltages for two condenser microphones
- Voltage supplies of  $\pm 15\text{V}$  DC for powering two microphone preamplifiers

### 1.1 Polarization Voltages

The polarization voltages can be set to either 0V or 200V via a switch on the rear panel (see Fig. 2.3). This switch is latched to avoid inadvertently changing its setting. Just pull the latch on the switch before changing the setting. Use:

- 0V for prepolarized microphones, and
- 200V for externally-polarized microphones

### 1.2 Power Supplies

The Type 12AR can run on batteries with a battery life of approximately 30 hours using G.R.A.S. preamplifiers, or from an external power supply of 4.5 - 24V DC (see section 3).

### 1.3 Inputs/Outputs

The Type 12AR has two 7-pin LEMO input connectors for microphone preamplifiers such as the G.R.A.S. Preamplifiers Types 26AM, 26AC and 26AK. This input connector is also compatible with a range of microphone preamplifiers from other suppliers such as Norsonic, L&D and Brüel & Kjær. The output signals of the microphone preamplifiers are available via two standard BNC sockets for direct use with analyzers, voltmeters, oscilloscopes etc. The output signals from the LEMO input connectors (pin 4 - see Fig. 2.2) are AC coupled to the BNC output connectors.



Fig. 1.1 Power Module Type 12AR

## 2. External Features

### 2.1 Front Panel

The front panel has the following features (see also Fig. 2.1):

- Two 7-pin LEMO input connectors for microphone preamplifiers. Wiring diagram shown in Fig. 2.2.
- Two BNC output sockets for the output signals of the microphone preamplifiers.
- Power switch with two LEDs: green “OK”, red “Batt. Low”.

### 2.2 Rear Panel

The rear panel has the following features (see also Fig. 2.3):

- Input socket for an external voltage supply of 4.5 - 24 V DC; centre pin is +terminal.
- Twist/release holder for 160 mA low-impedance, slow-blow fuse.
- Latched switch for selecting a polarization voltage of either 0V (for prepolarized microphones) or 200 V (for externally-polarized microphones). Applies to both channels
- Detachable battery drawer for housing 4 alkaline cells LR 6 /AA. The use of an external voltage supply automatically disables power from the batteries.

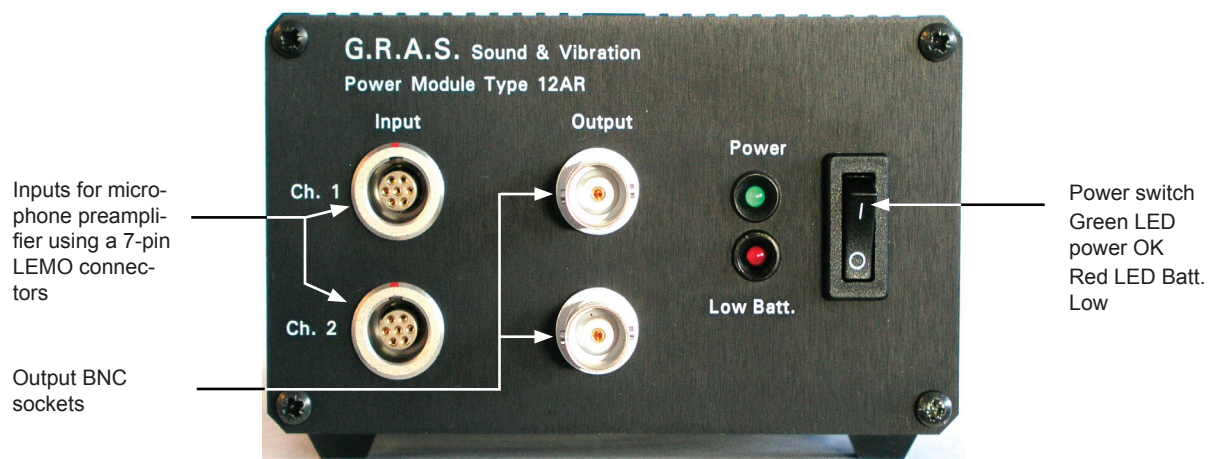


Fig. 2.1 Front panel of the Power Supply Type 12AR

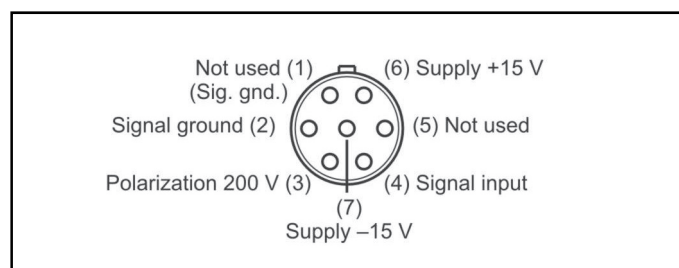


Fig. 2.2 7-pin LEMO female socket 1B (external view)



Fig. 2.3 Rear panel of Power Supply Type 12AR

### 3. Batteries and External Power

The Power Supply Type 12AR can be powered either by internal batteries or from an external power supply. If an external DC power supply is connected via the **Ext. Supply** socket on the rear panel; any batteries inside the unit will automatically be disconnected.

The external power supply should be a mains/line adapter regulated to supply 4.5 - 24 V DC with the centre pin as the + terminal. When the Type 12AR is switched on via the **I-O** switch on the front panel, the green **Power** LED will light up, and the red **Low Batt.** indicator should remain extinguished to ensure correct operation of the unit. If the **Low Batt.** LED lights up, either the external power supply voltage is too low, or the batteries need changing. To ensure valid measurements, we recommend that you change batteries whenever the **Low Batt.** LED is lit; there will be at least one hour's use left after it first warns of low batteries.

To change the batteries, squeeze and pull out the battery drawer from the battery compartment on the rear panel (see Fig. 3.1). Remove all 4 batteries and replace them with fresh ones,



Fig. 3.1 Battery drawer open: note polarity of batteries

making sure to observe the correct polarity as indicated in the battery drawer. Use alkaline batteries size AA or LR6. Replace the battery drawer in the battery compartment.

If the fuse blows, first rectify the cause then replace it with a new low-impedance slow-blow fuse rated at 160 mA.

#### 4. Operation

1. Make sure that power is available to the Type 12AR (see section 3) but don't switch it on yet.
2. Select which polarization to use (200 V for externally-polarized microphones or 0 V for pre-polarized microphone).
3. Mount the microphones on to the preamplifiers  
Note: the microphones must be compatible with the polarization voltage selected in step 2.
4. Insert the LEMO plugs of the preamplifiers into the **Input** sockets of the Type 12AR.
5. Using a suitable lead, connect the **Output** sockets of the Type 12AR to an analyzer, voltmeter, oscilloscope etc., and switch it on.
6. Switch on the Type 12AR.
7. Adjust the analyzer, voltmeter, oscilloscope etc. to gauge correctly the signal from the Type 12AR.

#### 5. Service and Repair

Repairs should be carried out only by qualified personal. The Power Module Type 12AR should not be dismantled with power on because of high-voltage circuits.

## 6. Specifications

### Inputs/Outputs:

Input: Two 7-pin LEMO 1B female connectors for microphone preamplifiers  
Output: Two BNC coaxial sockets for the output signals of microphone preamplifiers

### Output impedance:

30  $\Omega$

### Frequency response:

$\pm 0.2$  dB: 0.05 Hz - 200 kHz

### Preamplifier supply voltages:

Preamplifier:  $\pm 15$  V  
Polarization: 200 V (can be switched to 0 V when using prepolarized microphones)

### Power supplies:

4 x LR6 (AA) standard alkaline cells or  
Mains/line adapter supply regulated to 4.5 - 24 V DC

### Power consumption:

45 mA with G.R.A.S. preamplifiers

### Battery life:

Approximately 30 hours using alkaline batteries  
(Valid at 23 °C)

### Fuse:

160 mA (Slow), 250 V  
(Low-impedance fuse)

### Operating temperature range:

-10 °C to +50 °C

### Dimensions:

Height: 60 mm  
Width: 105 mm  
Depth: 130 mm

### Weight:

540 g without batteries.

### Accessories included:

EL0001: 4 x LR6 (AA) batteries

Manufactured to conform with:

CE marking directive:  
93/68/EEC



WEEE directive:  
2002/96/EC



RoHS directive:  
2002/95/EC



G.R.A.S. Sound & Vibration continually strives to improve the quality of our products for our customers; therefore, the specifications and accessories are subject to change.