

# ***Instruction Manual***

*G.R.A.S. 12AC 6-Channel Power Module  
for G.R.A.S. Vector-intensity Probe*





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## 1. Introduction and Description

The G.R.A.S. Power Module Type 12AC (Fig. 1) is a portable, power supply for use with a G.R.A.S. 3-D Vector Intensity Probe Type 50VI - 1. For each pair\* of intensity probes on the Type 50VI - 1, it provides:

- polarization voltages for the condenser microphones
- voltage supplies of  $\pm 15V$  DC for powering the microphone preamplifiers

### 1.1 Polarization Voltage

The polarization voltage 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 12AC can run on batteries with a battery life of approximately 20 hours using the G.R.A.S. preamplifiers supplied with the Vector Intensity Probe Type 50VI - 1, or from an external power supply of 6 - 20V DC (see section 3).

### 1.3 Input/Output

The Type 12AC has a 24-pin LEMO input connector dedicated for use with a G.R.A.S. 3-D Vector Intensity Probe Type 50VI - 1. The output signals of the three pairs of intensity probes on the Type 50VI - 1 are available via corresponding pairs of standard BNC sockets (marked accordingly X, Y and Z) for direct use with sound-intensity analyzers, voltmeters, oscilloscopes etc. Each pair of BNC sockets is AC-coupled to its respective pair of pins on the LEMO connector (see Fig. 2.2 and Table 2.1).



Fig. 1.1 Power Module Type 12AC

\* The Type 50VI - 1 has three pairs.

## 2. External Features

### 2.1 Front Panel

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

- Three pairs of BNC output sockets for the output signals of the three pairs of microphone preamplifiers representing the X, Y and Z axes of the 3-D Vector Intensity Probe Type 50VI - 1.
- 24-pin LEMO input connector for the 6 microphone preamplifiers used in the 3-D Vector Intensity Probe Type 50VI - 1. Pin numbers are shown in Fig. 2.2 and pin functions are shown in Table 2.1.
- 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 6 - 20V DC; centre pin +terminal.
- Twist/release holder for 200 mA low-impedance, slow-blow fuse.
- Latched switch for selecting a polarization voltage of either 0V (for prepolarized microphones) or 200V (for externally-polarized microphones).
- 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 12AC

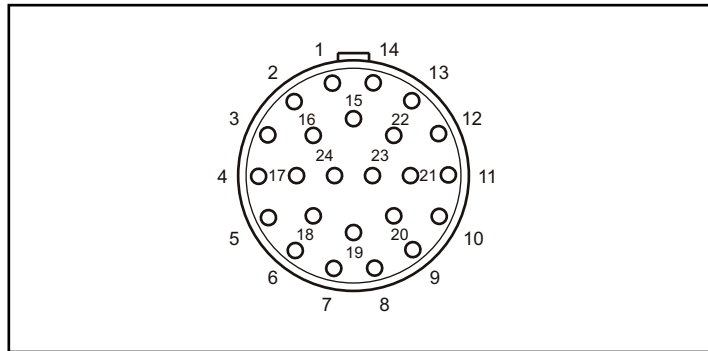


Fig. 2.2 External view of the pin numbers of the LEMO female socket ECG.3B.324 on the front panel of the Type 12AC (see also Table. 2.1)

Pin No.	Function	Pin No.	Function
1	Signal <b>A</b>	13	120V Preamp. supply <b>C + D</b>
2	Signal Gnd. <b>A</b>	14	Preamp. supply Gnd. <b>C + D</b>
3	200V Pol. Volt. <b>A + B</b>	15	Signal <b>E</b>
4	Signal <b>B</b>	16	Signal Gnd. <b>E</b>
5	Signal Gnd. <b>B</b>	17	200V Pol. Volt. <b>E + F</b>
6	120V Preamp. supply <b>A + B</b>	18	Signal <b>F</b>
7	Preamp. supply Gnd. <b>A + B</b>	19	Signal Gnd. <b>F</b>
8	Signal <b>C</b>	20	120V Preamp. supply <b>E + F</b>
9	Signal Gnd. <b>C</b>	21	Preamp. supply Gnd. <b>E + F</b>
10	200V Pol. Volt. <b>C + D</b>	22	not used
11	Signal <b>D</b>	23	not used
12	Signal Gnd. <b>D</b>	24	not used

Table. 2.1 Pin numbers (see Fig. 2.2) and their functions for the LEMO socket on the front panel of the Type 12AC



Fig. 2.3 Rear panel of Power Supply Type 12AC

### 3. Batteries and External Power

The Power Supply Type 12AC 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 6 - 20V DC with the centre pin as the + terminal. When the Type 12AC 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 approximately ½ 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, 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 200 mA.



Fig. 3.1 Battery drawer open: note polarity of batteries

#### **4. Operation**

1. Make sure that power is available to the Type 12AC (see section 3) but don't switch it on yet.
2. Select which polarization to use (200V for externally polarized microphones or 0V for pre-polarized microphones).
3. Set-up the Vector Intensity Probe Type 50VI - 1 as described in its manual  
Note: all six microphones must be compatible with the polarization voltage selected in step 2.
4. Connect the Type 12AC (**Probe Input**) to the Type 50VI - 1 (LEMO socket on base) using 10m cable AA0030 (supplied with the Type 50VI - 1).
5. Using suitable leads, connect the pairs of output sockets (**X, Y, Z**) of the Type 12AC to analyzers, voltmeters, oscilloscopes etc., and switch them on.
6. Switch on the Type 12AC.
7. Adjust the analyzers, voltmeters, oscilloscopes etc. to gauge correctly the signals from the Type 12AC.



## **5. Service and Repair**

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

## 6. Specifications

### Input/Output:

Inputs: 24-pin LEMO female socket ECG.3B.324 for the three pairs of microphone preamplifiers of the Vector Intensity Probe Type 50VI - 1

Outputs: Three pairs of BNC coaxial sockets (**X**, **Y**, **Z**) for the output signals of the Vector Intensity Probe Type 50VI - 1.

### 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 6 - 20 V DC

### Power consumption:

With external power supply 100 mA with six G.R.A.S. preamplifiers

### Battery life:

Approximately 20 hours using alkaline batteries and four G.R.A.S. preamplifiers  
(Valid at 23 °C)

### Fuse:

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

### Operating temperature range:

-10 °C to +50 °C

### Dimensions:

Height: 44 mm  
Width: 210 mm  
Depth: 194 mm

### Weight:

1.2 kg without batteries.

### Accessories included:

EL0001: 4 x LR6 (AA) batteries  
Mains/line adapter supply regulated to 15 V DC

AB0002: for 230 V AC or  
AB0003: for 120 V AC

Manufactured to conform with:

CE marking directive:  
93/68/EEC

WEEE directive:  
2002/96/EC

