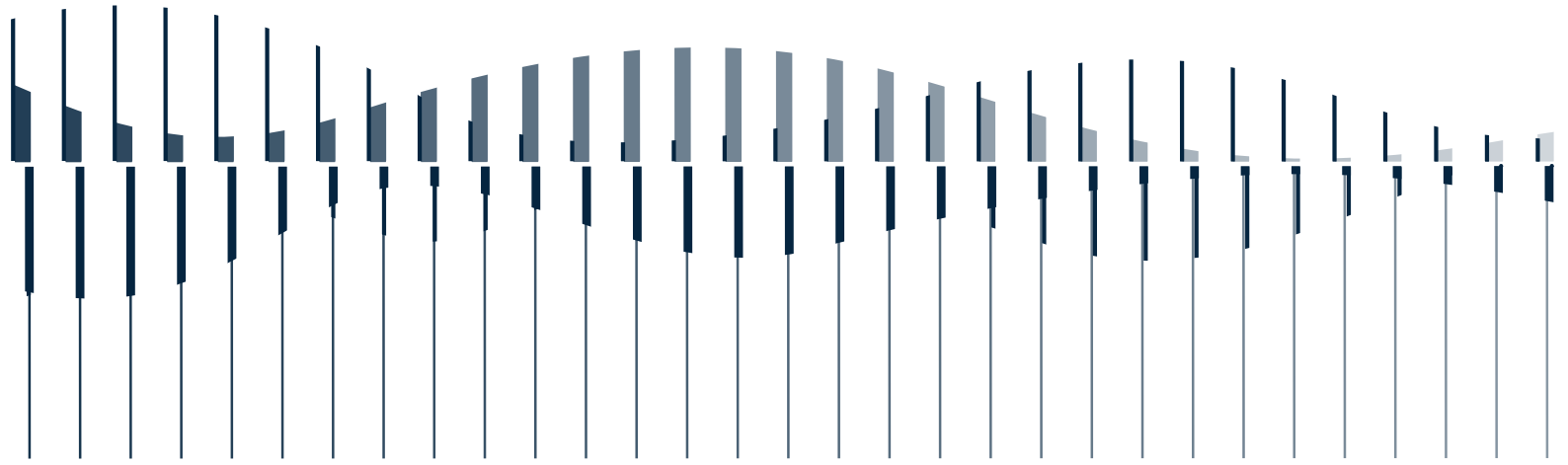
Instruction Manual

12AB 2-Channel Power Module for
GRAS Intensity Probes



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GRAS Sound & vibration

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1. Introduction and Description

The G.R.A.S. Intensity Power Module Type 12AB (Fig. 1.1) is a two-channel power supply for use with versions B, C and D of the G.R.A.S. Sound Intensity Probe Type 50AI.

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

A block diagram of its main components is shown in Fig. 1.2.

1.1 Polarization Voltage

The polarization voltage can be set to either 0 V or 200 V via an internal switch (see section 3.2). These are:

- 200V* — for use with Type 50AI, or
- 0V — for prepolarized microphones

1.2 Preamplifier Voltage Supplies

The preamplifier voltage supply can be set to either 28 V DC or 120 V DC via an internal switch (see section 3.2). These are:

- 120V* — for maximum dynamic range, or
- 28V — for minimum power consumption

1.3 Power Supplies

The Type 12AB can run on internal batteries with a battery life of approximately 10 hours using G.R.A.S. preamplifiers, or from an external power supply of 12 - 18 V DC, e.g. a G.R.A.S. mains/line adapter AB0002 (Europe)/AB0003 (USA).

Fig. 1.1 Intensity Power Module Type 12AB

* Factory settings for use with GRAS Sound Intensity Probe type 50AI version B

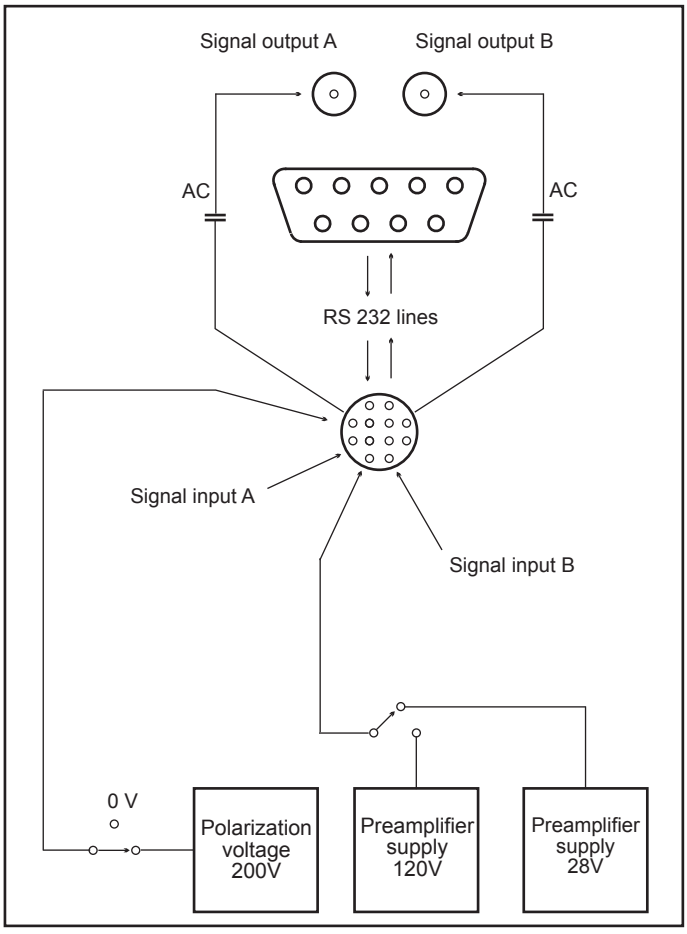

Fig. 1.2 Block diagram of the Type 12AB

1.4 Input/Output

The input is a 12-pin LEMO socket on the front panel which is wired up (see Fig. 2.3) for the G.R.A.S. Sound Intensity Probe Type 50AI versions B, C and D. This input is also connected to the 9-pin D-sub connector in order to:

a) Transmit the state (pressed/not pressed) of the two push-buttons on the handle of the Type 50AI
When pressed:
the blue button transmits DSR
the grey button transmits CTS

b) Signal the responses via the two LEDs also on the handle of the Type 50AI
When lit:
the red LED is signalling RTS
the white LED is signalling DTR

By suitably programming the computer's software, measurements and data acquisition can be controlled interactively via these push-buttons and LEDs.

Via two standard BNC connectors (A and B) on the front pannel, the probe's two output signals are available, DC-decoupled for use with analyzers, voltmeters, oscilloscopes etc.

2. External Features

2.1 Front Panel

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

- Power switch and battery-level meter.
  If the power supply is correct, the battery-level meter will point to the green zone. If it points to the red zone, either the batteries are low and should be changed (see section 3.1) or the external DC supply voltage is too low.
- Intensity-probe's Output Channels (**A OUT B**).
  BNC sockets for the intensity probe's output signals, taken directly from the **PROBE IN** connector and succeedingly DC-decoupled. See also block diagram in Fig. 1.2.
- RS 232 socket (**RS - 232**).
  9-pin D-sub connector for facilitating interactive remote control of intensity measurements. Wiring diagram shown in Fig. 2.2
- Probe input socket (**PROBE IN**).
  12-pin LEMO input connector for the two microphone preamplifiers of the intensity probe as well as the RS 232 lines for its push buttons and LEDs. Wiring diagram shown in Fig. 2.3.

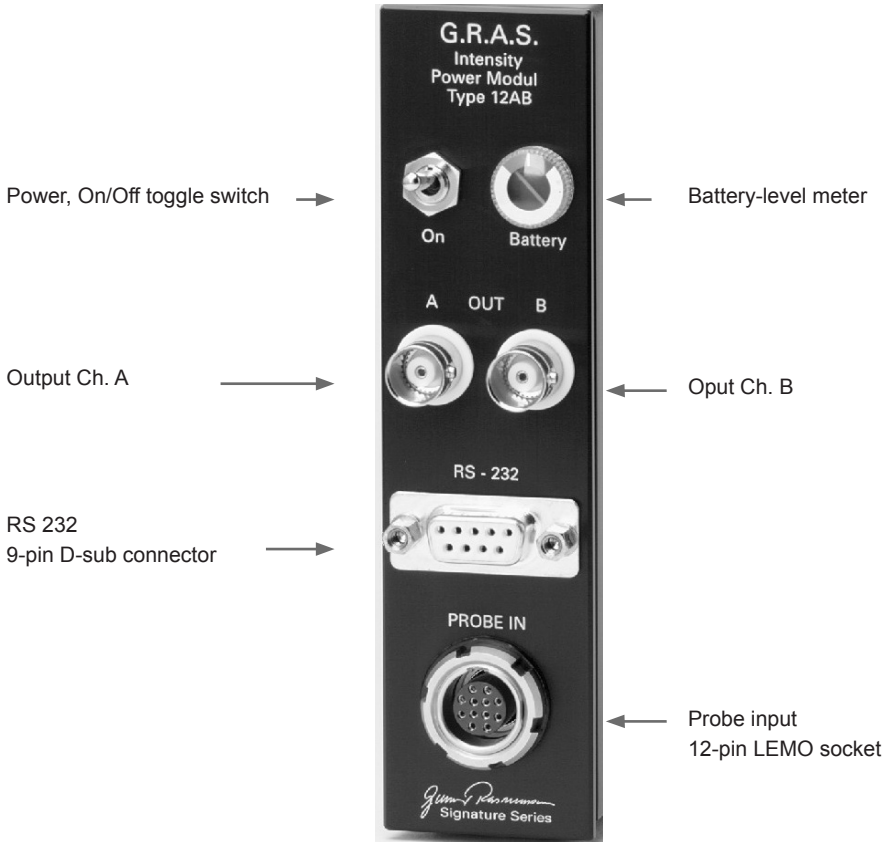

Fig. 2.1 Front panel of the Intensity Power Module Type 12AB

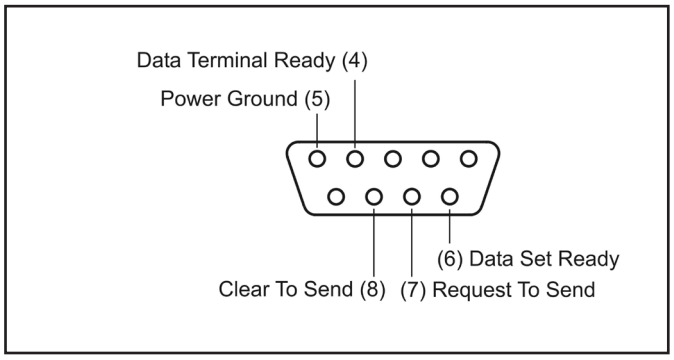

Fig. 2.2 9-pin female D-sub connector socket for connecting directly to an RS232 computer port (external view)

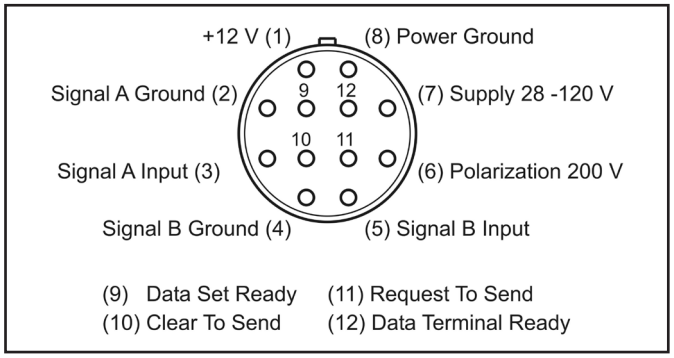

Fig. 2.3 12-pin LEMO female socket 1B (external view). The four inner pins are connected to the socket shown in Fig. 2.2

Note: **RS - 232** and **PROBE IN** are interconnected as follows:

Line	**RS - 232**	**PROBE IN**
Data Terminal Ready	Pin 4	Pin 12
Data Set Ready	Pin 6	Pin 9
Request To Send	Pin 7	Pin 11
Clear To Send	Pin 8	Pin 10

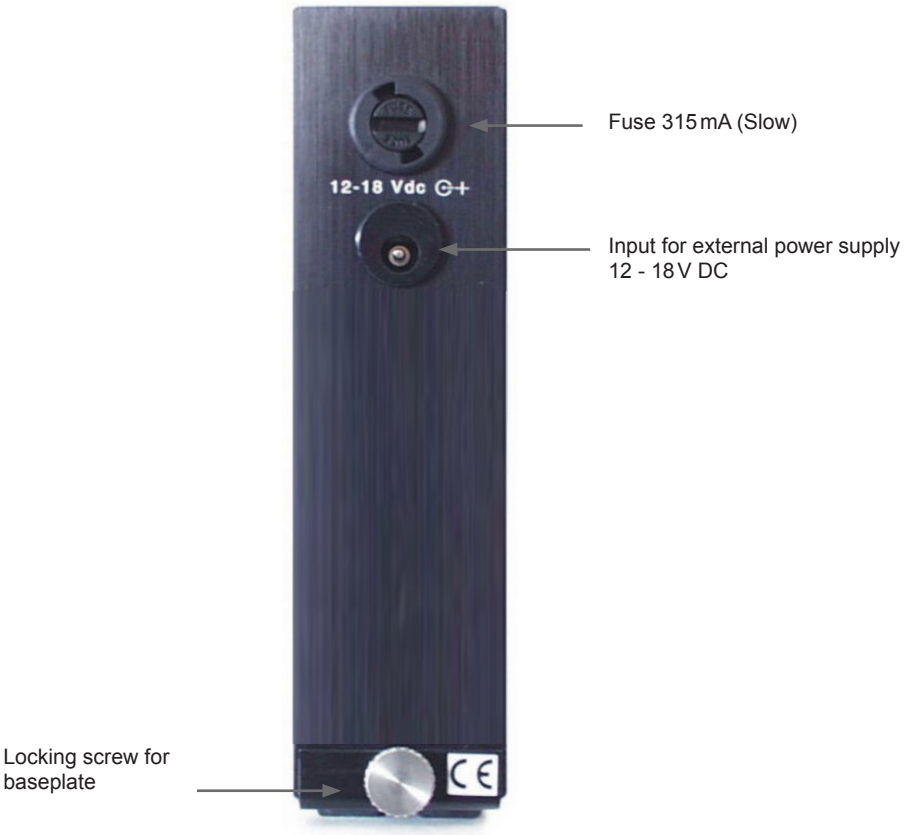

Fig. 2.4 Rear panel of the Intensity Power Module Type 12AB

2.2 Rear Panel

The rear panel has the following features (see Fig. 2.4)

- Twist/release holder for 315 mA (Slow).
- Input socket for an external power supply of **12 - 18 V DC**; centre pin +terminal. The use of an external power supply automatically disables power from the batteries.
- Locking screw
  Unscrew to remove baseplate and gain access to internal setting switches.

3. Internal Features

Note: switch the Type 12AB off and disconnect it from any external power supply before removing the baseplate for any reason. Afterwards replace the baseplate.

The battery pack and user-servicable switches are contained within the cabinet of the Type 12AB. To gain access to these, first remove the knurled locking screw (see Fig. 2.4) and slide the baseplate off.

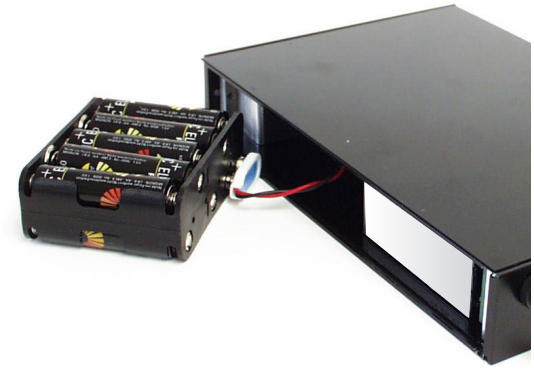

Fig. 3.1 Showing the battery pack of the Intensity Power Module Type 12AB

3.1 Battery Pack

Take out the battery tray (Fig. 3.1) and replace all the batteries (10 x LR6 (AA) standard alkaline cells), making sure that the polarity is as indicated on the battery tray.

3.2 User-servicable Switches

The (internal) user-servicable slide switches are shown in Fig. 3.2.

- **Preamplifier supply select** pair of switches:
  - **Polarization voltage** 2-position switch (applicable to both channels) selects:
    0 V for prepolarized (electret) microphones
    or **200 V** for externally-polarized microphones
  - **Supply voltage** 2-position switch (applicable to both channels) selects:
    120 V for maximum dynamic range
    or **28 V** for minimum power consumption

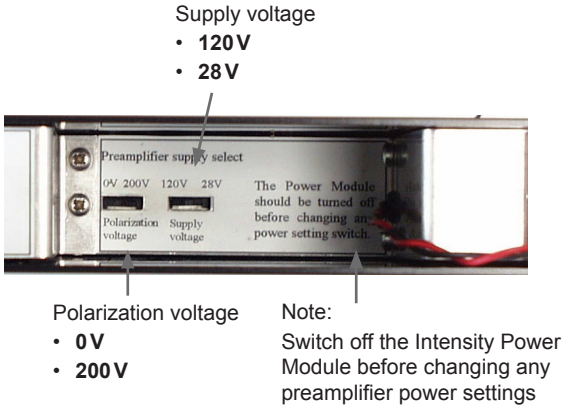

Fig. 3.2 Showing the internal switches of the Intensity Power Module Type 12AB

4. Operation

4.1 Batteries and External Power

The Type 12AB can be powered either by internal batteries (Fig. 3.1) or from an external power supply via the DC input on the rear panel (Fig. 2.4). If an external power supply is used, the batteries within the unit will be automatically disconnected. External power should be 12 - 18 V DC, e.g. from a G.R.A.S. mains/line adapter AB0002 (Europe)/AB0003 (USA).

Whenever the Type 12AB is switched on, the battery-level meter on the front panel (Fig. 2.1) should always point to the green zone to ensure correct operation. If it points to the red zone, either the batteries are low and should be changed (see section 3.1) or the external DC supply voltage is too low.

4.2 Polarization Voltage and Preamplifier Supply Voltage

Polarization voltage can be switched from 200 V to 0 V (see section 3.2). Use 200 V for standard externally-polarized condenser microphones, and 0 V for prepolarized (electret) microphones.

Preamplifier supply voltage can be switched from 28 V or 120 V. Use 28 V for minimising power consumption, it is also sufficient for most applications but limits the dynamic range of the microphone preamplifiers used with the Type 12AB. Use 120 V to utilise the full dynamic range of the microphone preamplifier. In this case the dynamic range will be determined by the Type 12AB.

5. Service and Repair

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

6. Specifications

Input/Output sockets:

2-channel input:	12-pin LEMO 1B female
Outputs:	2 BNC coaxial

RS232:

9-pin female D-sub connector

Output-voltages:

Preamplifier supply:	28 V or 120 V
Polarization voltage:	0 V or 200 V

Frequency response:

1 Hz - 200 kHz:	± 0.2 dB

Output impedance:

30 Ω

Power supply:

10 x LR6 (AA) standard alkaline cells, or

DC line adapter supply:	12 V - 18 V

Power consumption:

With a G.R.A.S preamplifier using:-

120 V:	210 mA
28 V:	180 mA

Fuse:

315 mA (Slow)

Battery life (valid for 23 °C and alkaline cells) for:-

120 V supply:	≈ 9 hours
28 V supply:	≈ 11 hours

Operating temperature range:

-10 °C to +50 °C

Dimensions:

($^1/_{12}$ of a standard 19-inch rack)

Height:	132.6 mm (5¼ in)
Width:	34.6 mm (1.3 in)
Depth:	196.0 mm (7.7 in)

Weight:

770 gm (1.69 lbs)

Accessories available:

Intensity Probe:	Type 50AI (versions B, C and D)
Mains/line adapter:	
Europe:	AB0002
USA:	AB0003
19-inch Rack-mounting System:	AK0040

Manufactured to conform with:

CE marking directive: 93/68/EEC

WEEE directive: 2002/96/EC

RoHS directive: 2002/95/EC