

PASI

Instruction Manual



P-200 ENERGIZER

P.A.S.I srl – via Galliari 5/E – 10125 TORINO – Italy
Tel. +39 011 650.70.33 – Fax +39 011 658.646 - E-mail sales@pasisrl.it
www.pasisrl.it

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1.Important Notice

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This guide refers to “P200” a device designed and built as an energizer to be used exclusively for geoelectric measurements.

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Warranty and Safety Instructions

WARNING

The instrument has been designed and built to be used exclusively as an energizer for geoelectric measurements.

Since the instrument produces potentially lethal voltages, it must be handled with extreme care and only by adequately trained and informed personnel who must observe the electrical safety standards, all connections must be made with the energizer switched off. The instrument must never be left unattended and improper use can cause serious damage to people and / or animals that may be nearby.

This instrument is part of a set of devices used to make electrical resistivity measurements of the ground, induced polarization (IP) and measurements and spontaneous potential measurements (SP).

Please read the instructions carefully before using the product:

- The Warranty will be void if the product is used in any way that is in contradiction with the instructions given in this manual;
- The warranty will be void if the appliance has been altered or tampered with;
- The device must only be used according to the instructions described in this manual. The perfect and safe functioning of the device can be guaranteed only if the transport, storage, treatment and handling of the device is appropriate;
- To avoid damage, use only original accessories or those approved by PASI srl;
- The box is waterproof only if closed. When storing the device, please ensure that water cannot enter the device in any condition. Direct sunlight is also to be avoided for long periods. It is not advisable to place the instrument on strongly vibrating surfaces.

2.Introduction

The P-200 energizer is a device produced and assembled by P.A.S.I. srl, leading company in Italy in the production of instruments for geology and geophysics.

This guide lists the technical specifications and how to use the device.

Please follow these guidelines carefully.

Contents

- Chapter 4, How to use, describes how to use the energizer focusing on the control panel;
- Chapter 5, provides the technical specifications of the energizer;
- Chapter 6, describes how to use the energizers in series

3.How to Use

Equipment

Notice: the content of the package depends on what you ordered, in case of doubt, contact our after sales service.

Each supply contains the following parts:

1. Energizer;
2. Cables for connecting it to the external battery;
3. Instruction Manual;
4. Purchase registration form.

Control Panel



FIGURE 1: CONTROL PANEL

- 1) ON/OFF switch
- 2) Output voltage regulation
- 3) Battery Entry bushings/sockets (12V)
- 4) Battery polarity inversion LED
- 5) Battery level indicator and error indicator
- 6) Output bushes/sockets

Setting the ON / OFF switch (1) to ON allows the energizer to be put into operation mode, while positioning it to OFF switches the energizer off.

The output voltage is adjusted using the knob (2): turn it to go from a minimum of 20V to a maximum of 200V (the position of the index is proportional to the output voltage).

The operator must connect a charged battery to the two input sockets (3) using the cables supplied.

It is advisable to use a 12 V battery with a capacity of at least 17 Ah, since batteries with a lower capacity do not guarantee duration longer than ten minutes.

It is possible to check the correct connection by checking the status of the light indicator "BATTERY REVERSE" (4): if the polarities have been inverted the red LED will flash, if the polarities have been positioned correctly the LED will be switched off.

The device indicates the battery charge level thanks to the lighting of three lights "EXTERNAL BATTERY LEVEL" (5) that are: when all 3 LEDs are lit this means that you have full charge, when 2 are lit it indicates that you have 50% charged battery and finally 1 LED indicates a level of charge of about 10% and therefore charging or replacing the battery is recommended.

The "FAULT" light (5) indicates any anomalies of the device including if its overheating.

In order to exclude this possibility, it is advisable to switch the device off, wait for about 15 minutes and restart the device. If the warning light remains on after this attempt, it will be necessary to send the energizer to our facilities so we will be able to carry out the all the necessary checks and repair.

The operator must connect the output bushings/sockets (6) to the georesistivimeter; when the red LED light between the two bushings/sockets (near the OUT button) turns on, this will indicate the presence of output voltage, these values can be between 20 and 200 V depending on the position of the knob (2).

4.P200 Technical Specifications

Input Voltage (from external battery) nominal 12 Vdc
Minimum battery voltage 11.8 Vdc
Max voltage of the battery 14.5 Vdc
Max Consumption 18 A
External battery charge level: Led (10%, 50%, 100%)
Adjustable 20-200 V output voltage
Guaranteed output current 1 A Max
Efficiency up to 85% depending on the supply
ON / OFF switch
Delayed internal protection fuse Type 20x38 25A
Signaling LED 6
Reverse polarity input protection: LED signalling and automatic reconditioning
Presence of output voltage: LED between the output sockets
Overload protection: self-resetting electronic
Protection against short-circuit: self-resetting electronic
Output overvoltage protection: electronic for values > 230 Vdc
Inrush current limiting input: 15 A max @ 14.5 Vdc
Fault condition (Vin, Vout anomaly) Led and electronic lock
Input connection: with leash cord (supplied)
Output connection: safety bushings/sokets (supplied)
Cooling: natural convection
Overheating protection: Internal - power off with automatic reset
Electronic protection reaction time: <200 ms
Functioning: intermittent service
Technology: high frequency switching
Input / output isolation: on the 2kV rms electronic board for 1 minute
Connection of several modules in output (serialization): in series, always with adjustment independent
Connection of several input modules: in parallel taking care of uniform and equal distribution of 12 V (use only the supplied cable)

5. Serialization

In order to increase the available voltage, it is possible to connect several energizers in series up to a maximum of 1000V-1A.

The possible configurations are shown below.

- $2 \times P200 = \text{min } 40V - \text{max } 400V$ 1000 mA (1A)
- $3 \times P200 = \text{min } 60V - \text{max } 600V$ 1000 mA (1A)
- $4 \times P200 = \text{min } 80V - \text{max } 800V$ 1000 mA (1A)
- $5 \times P200 = \text{min } 100V - \text{max } 1000V$ 1000 mA (1A)

Below is a serialization scheme achieved with 3 energizers.

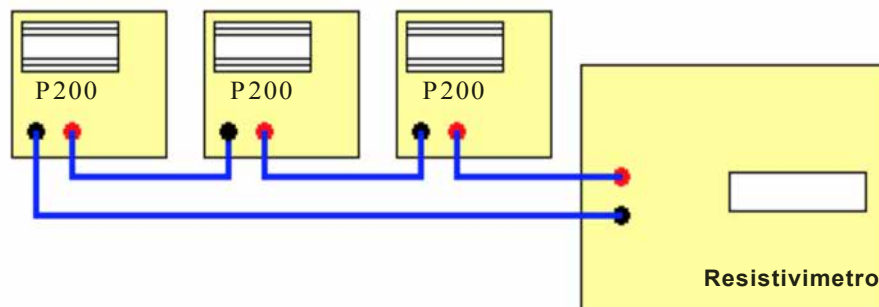


FIGURE 2: EXAMPLE OF ENERGIZING SERIALIZATION

In order to optimize the battery consumption and the power supplied during the measurement, voltage variations must be performed progressively and gradually for each instrument.

For example, referring to the above configuration, if a voltage of 300V is required, it will be necessary to adjust the output voltage by turning the knob (2) shown in [Figure 1](#) in order to have a voltage of 100V for each device P -200.

Suggestions

- Never start an acquisition with maximum voltage!
Start gradually, connecting one energizer at a time and with medium regulation; assess the reliability of the recorded data. If not plausible, add another energizer;
- If you are serializing, it is a good idea to adjust the voltage so that it is the same voltage on each P200;
- For the connections use only cables in good condition or even better the original ones supplied with the appliance;
- **the voltages produced by the energizer are potentially lethal!**