Earth Resistivity Meter: RM1

RM1 is a compact versatile earth resistivity meter with 24 bit data acquisition. All parameters in “stand alone” mode can easily be set using the console keyboard, even in harsh environmental conditions; connect the RM1 to your laptop via the dedicated acquisition software, and use the taylor-made measuring session (VES/ERT) to organize your in-field sessions quickly and efficiently.

Main features

- 24-bit Sigma-Delta ADC + oversampling for noise reduction
- High resolution: 2nV - 1nA
- A.I. (Artificial Intelligence) function with automatic setting of all acquisition parameters (V, I, Te, T0, Tl, etc.)
- Standard deviation setting (σ) to optimize measurement accuracy and acquisition times
- Internal > 5000 measurements (standard version)
- Electrical Resistivity Tomography function (ERT) - 32 el. (optional)
- USB data transfer
- Internal battery autonomy: > 1300 continuous measurements (electrical tomography); more than 40h works in SEV mode
- Power supply from external power bank (optional) or PC (via USB)
- Automatic Filtering – oversampling – 50/60 Hz noise removal
- Noise reduction with stacking and average of the acquired values
- Autocalibration at start-up
- Connects to any external energy source - max.1000V-1A (5A opt.)
- Light compact PELI IP 67 case - 270x246x123mm - 2.9kg

Applications

- water surveys of the subsoil to shallow, medium and great depths
- geological stratigraphy, landslide studies, etc.
- groundwater contamination by salt water and/or pollutants
- subsoil cavities detection
- mining (sulphides, etc.)
- archaeology

Methodology

- Vertical Electrical Soundings (VES)
- Electrical Profiling (EP)
- Self Potential (SP)
- Induce Polarization (IP)
- Electrical Resistivity Tomography (ERT, Electrical Imaging)

PASI S.R.L. — Via Galliari 5/E — 10125 Torino
tel. +39 011 6507033—e-mail: sales@pasisrl.it
www.pasisrl.it
Technical specifications

A-B (C₁-C₂) Current Circuit

SWITCHING SECTION
Insulation: 2500 V galvanic insulation from M-N Unit and USB
Max. Switching Voltage: 1000 V (2000 Vpp)
Max. Switching Current: Autoranging 1 A (2000 mApp), optional 5 A
Fully protected with Diagnostic:
- Input Overvoltage (Power Unit supplies more than 1000 V)
- Bad Polarity (Power Unit wrong connection)
- Internal Fuse blown
- Output Overcurrent (short on A-B electrodes or similar)

CURRENT MEASURING SECTION
Technology: High Resolution 24 bit SigmaDelta ADC
Oversampling for noise reduction
High rejection for 50 and 60 Hz noise
Maximum Measurable Current: 5A (10000 mApp)
Theoretical Resolution: 1 nA

M-N (P1-P2) Potential Circuit

Insulation: 2500 V galvanic isolation from A-B Unit and USB
Technology: High Resolution 24 bit SigmaDelta ADC
Oversampling for noise reduction
High rejection for 50 and 60 Hz noise
Automatic ranging
Maximum Applicable Voltage: +/-1500 V
Maximum Measurable Voltage: +/-250 V (500 Vpp)
Theoretical Resolution: 2 nV
Input Impedance: 10 MOhm

System

Technology: Solid State (no moving parts)
Display: High Performance 32 bit Microprocessor
Graphical Transflective LCD with white Led backlight
Work mode: Stand-alone or PC connected on USB
Artificial Intelligence for the best setting of all measurement parameters
Power Supply: Internal lithium battery rechargeable via USB connector
Dynamic Automatic set of all Parameters:
Input Ranges, Current Pulse Length, Integration Intervals,
Number of Stackings, Power Unit Voltage Output (only if connected to a compatible PASI device)
Precision:
- Better than 0.5%
- Better than 0.1% in the range 1 – 1000 Ohm
Case: Shock resistant PELI case IP 67 (270x246x123 mm - 2.9 kg)
Ambient Working Temperature Range: from -10°C to 50°C
Storage Temperature Range: from -20°C to +80°C

Specifications may be modified without notice

In addition to stand alone mode, RM1 can be connected to an external laptop PC thanks to its bundle software for Windows 7 (or later version), allowing you to prepare VES tables (Wenner, Schlumberger, Dipole-Dipole soundings, etc.) and also customized measuring sessions (VES/ERT).
The P200 energizer is the perfect energy source for vertical sounding. Connect to an external 12V battery (not supplied), for a 20V to 200V supply, max 1A, in continuous current. Up to 5 units can be connected in series to the same external battery of appropriate capacity. Designed to complete the RM1 earth resistivity meter, the P200 is compatible with all P.A.S.I. geoelectrical instruments.

Technical specifications
- Output voltage from 20-200 V
- Output current guaranteed 1000 mA
- Indication of battery charge on three levels
- Resettable electronic protection from current overload
- Resettable electronic protection from short circuit
- LED warning light and electronic block
- Battery charger connector protected against polarity inversions
- PELI box dimensions: 27x24x10,5 cm
- Weight: 2,7 kg

How to serialize your Energizers
3xP200 for a total of 600V/1000mA
Recommended Configurations and accessories

EARTH RESISTIVITY METER PASI Mod. RM1

**Configuration 01:** complete system with 2xP200 energizers, AB distance 600m

<table>
<thead>
<tr>
<th>QTY</th>
<th>CODE</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td>GEO-600-000</td>
<td>EARTH RESISTIVITY METER MOD. RM-1 - requires external PC, not included</td>
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<td>GEO-004-000</td>
<td>CABLE REEL WITH 300 m CABLE (section 1mm) - AB cable</td>
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<td>2</td>
<td>GEO-005-000</td>
<td>CABLE REEL WITH 100 m CABLE (section 1mm) - MN cable</td>
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<td>2</td>
<td>GEO-434-000</td>
<td>RECHARGEABLE ACCUMULATOR P200(200V, 1000mA)</td>
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<td>2</td>
<td>GEO-010-000</td>
<td>INOX STEEL ELECTRODE</td>
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<td>GEO-011-000</td>
<td>COPPER ELECTRODE</td>
</tr>
<tr>
<td>2</td>
<td>GEO-012-000</td>
<td>1.25 kg MALLET</td>
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**Configuration 02:** complete system with 3xP200 energizers, AB distance 1000m

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<td>CABLE REEL WITH 500 m CABLE (section 1mm) - AB cable</td>
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<td>GEO-014-000</td>
<td>CABLE REEL WITH 200 m CABLE (section 1mm) - MN cable</td>
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**Configuration 03:** complete system with 4xP200 energizers, AB distance 2000m

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<td>CABLE REEL WITH 300 m CABLE (section 1mm) - MN cable</td>
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<td>2</td>
<td>GEO-012-000</td>
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**Configuration 04:** complete system with 2xP200 energizers, AB distance 3000m

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<td>GEO-006-000</td>
<td>CABLE REEL WITH 500 m CABLE (section 1mm) - 6xAB cables + 2xMN cables</td>
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<td>5</td>
<td>GEO-434-000</td>
<td>RECHARGEABLE ACCUMULATOR P200(200V, 1000mA)</td>
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<td>INOX STEEL ELECTRODE</td>
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<tr>
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Ves Data Inversion Software available on request

For technical or commercial information contact sales@pasisrl.it