

IRIS INSTRUMENTS



SYSCAL R1 Plus

RESISTIVITY METER

FOR MEDIUM-DEPTH

EXPLORATION

- Compact, easy to use
- Measurement of electrical resistivity & chargeability (IP)

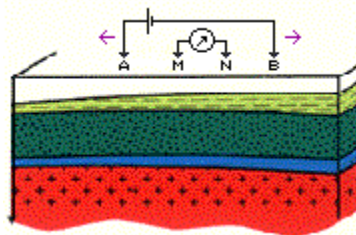
- More powerful:

600 V, 200 W, 2.5 A

APPLICATIONS

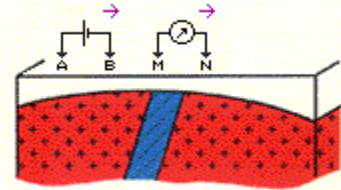
- Geological mapping (depth-to-bedrock determination, localization of weathered zones clay/gravel determination...)
- Civil engineering
- Groundwater exploration and environmental studies (pollution monitoring, salinity control...)

Resistivity sounding



Variation of resistivity with depth

Resistivity profiling



Lateral variation of resistivity

MAIN FEATURES

- Power source, transmitter and receiver in a single unit
- Fully automatic measurement controlled by a micro-processor: automatic self-potential correction, automatic ranging, digital stacking, error display in case of procedure troubles
- Display of noise level before measurement
- Measurement and display of ground resistance, current, voltage, self potential and standard deviation
- Computation of the apparent resistivity for the various electrode arrays: Schlumberger & Wenner (sounding or profiling), Dipole-Dipole, Gradient...
- Measurement and display of the chargeability (IP) through up to 4 predefined windows
- Multi-electrode mode for use with the automatic switching system
- Storage of data in the internal memory (800 readings in the standard mode and 2700 in the multi-electrode mode)
- Serial port for data transfer to PC



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SYSCAL R1 Plus

● COMPACTNESS

- Total weight of the unit including the internal battery : less than 10 kg
- Data storage in the instrument (no need for a computer in the field)
- 7 Ah internal battery with several field days autonomy, allowing at least 1000 readings of 10 s each for 200 V voltage and 2 k Ω resistance.

● ACCURACY

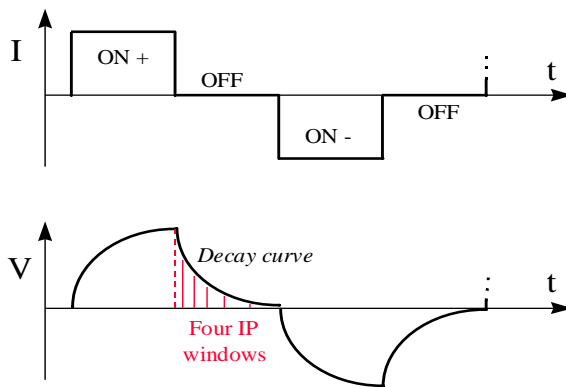
- Noise monitoring before injection
- SP compensation including linear drift
- Digital stacking for noise reduction
- 1 μ V resolution after stacking
- Standard deviation computation

● RELIABILITY

- Weather proof
- Wide operational temperature range from -20°C to +70°C
- Shock resistant fiber-glass case

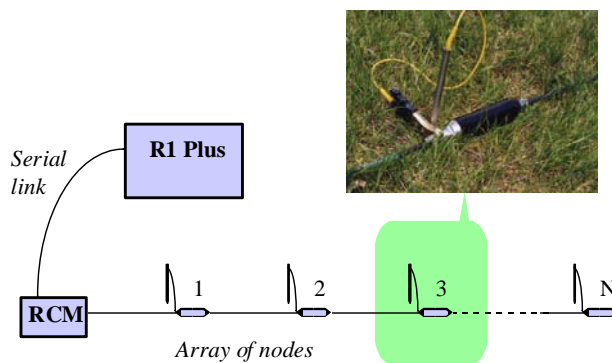
IP MODE

This mode allows to measure the chargeability of the ground:



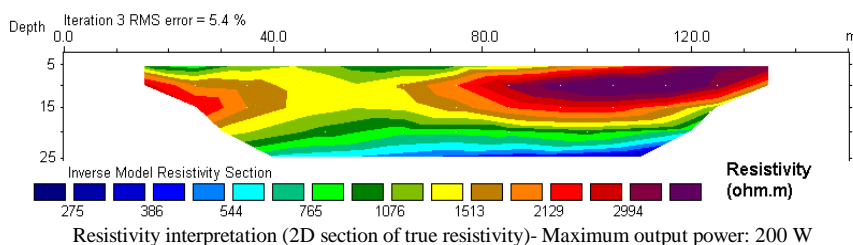
MULTI-ELECTRODE MODE

The SYSCAL R1 Plus can be connected to an array of intelligent electrode nodes (up to 255) and drive automatic switching operations:



INTERPRETATION SOFTWARE

- For 1D Vertical Electrical Soundings (sounding curve): WINSEV or RESIX for resistivity, RESIXIP for resistivity and IP
- For 2D data acquisition (pseudo-section): RESIX-2DI for resistivity, RESIXIP-2DI or RES2DINV for resistivity and IP
- For 3D data acquisition: RES3DINV for resistivity and IP



SPECIFICATIONS

TRANSMITTER

- Automatic fitting of the current and voltage output values:
Maximum output voltage: 600 V
Maximum output current: 2500 mA
- Output current specifications
Resolution: 10 μ A
Accuracy: Standard 0.3%
Max 1% from -20°C to 70°C
- Waveforms: choice of [ON+, ON-] or [ON+, OFF, ON-, OFF] (for IP measurements), with a selectable pulse duration (0.25, 0.5, 1 or 2 s)

RECEIVER

- Input impedance: 10 M Ω
- Input overvoltage protection
- Input voltage range: -10 V to +10 V
- Automatic SP bucking (\pm 10 V) with linear drift correction
- 50/60 Hz power line rejection
- Voltage measurement specifications:
Resolution: 1 μ V after stacking
Accuracy: Standard 0.3%
Max 1% from -20°C to 70°C
- Continuous digital stacking up to 255 stacks
- Chargeability accuracy: 1% of value for input voltage higher than 10 mV

GENERAL

- LCD display with 2 lines of 20 characters
- Power supply (battery):
Internal 12 V / 7 Ah rechargeable
External 12 V
- Operating temperature range: -20°C to 70°C
- Storage temperature: -40°C to 80°C
- Dimensions: 31x31x21 cm
- Weight: 9.5 kg (including battery)

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