IRIS INSTRUMENTS

SYSCAL R1 Plus
RESISTIVITY METER
FOR MEDIUM-DEPTH EXPLORATION

• Compact, easy to use
• Measurement of electrical resistivity & chargeability (IP)
• 2 simultaneous reception channels
• Outputs: 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…)

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 20 predefined windows
• Multi-electrode mode for use with the automatic switching system
• Storage of data in the internal memory (44 800 readings)
• Possibility of data storage on external SD card: 7 000 000 readings (option)
• Communication port for serial or USB data transfer
• Emergency Push button for security

Resistivity sounding

Variation of resistivity with depth

Resistivity profiling

Lateral variation of resistivity

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**SYSCAL R1 Plus**

- **COMPACTNESS**
  - Total weight of the unit including the internal battery: 11 kg
  - Data storage in the instrument (no need for a computer in the field)
  - 7.2 Ah internal battery with several field days autonomy, allowing at least 1000 readings of 10 s each for 200 V voltage and 2 kΩ resistance.

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

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

### SPECIFICATIONS

**TRANSMITTER**
- Maximum output power: 200 W
- Automatic fitting of the current and voltage output values:
  - Maximum output voltage: 600 V
  - Maximum output current: 2500 mA
- Output current specifications
  - Resolution: 10 µA
  - Accuracy: Standard 0.2%
  - 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, 2, 4 or 8s)

**RECEIVER**
- 2 simultaneous reception channels
- Input impedance: 100 MΩ
- Input overvoltage protection
- Input voltage range: -15 V to +15 V
- Automatic SP bucking (±10 V) with linear drift correction
- 50/60 Hz power line rejection
- Voltage measurement specifications:
  - Resolution: 1 µV after stacking
  - Accuracy: Standard 0.2%
  - 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

**INTERPRETATION SOFTWARE**
- For 1D Vertical Electrical Soundings (sounding curve): IX1D or WINSEV for resistivity and IP
- For 2D data acquisition (pseudo-section): TOMOLab, RES2DINV or X2IPI for resistivity and IP
- For 3D data acquisition: ERTLab or RES3DINV for resistivity and IP