

IRIS INSTRUMENTS

NEW SYSCAL Junior



RESISTIVITY METER FOR ENVIRONMENTAL APPLICATIONS

- ◆ Compact yet powerful
- ◆ 400 V - 100 W - 1.2 A
- ◆ Easy to use
- ◆ Proven reliability

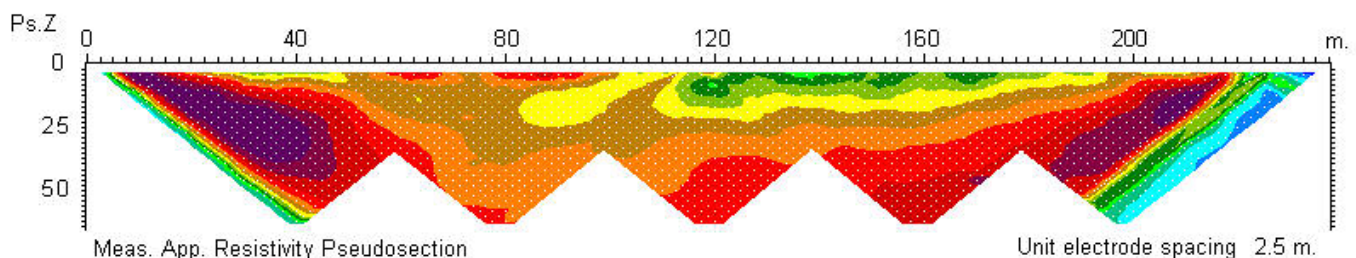
OUTSTANDING FEATURES

- Microprocessor controlled measurement of electrical **resistivity and chargeability**
- Display of voltage, intensity, SP, standard deviation
- Computation of resistivity for most electrode arrays: Schlumberger, Wenner, gradient, dipole, resistance
- Internal memory for more than 860 readings (3000 in the multi-electrode mode), and data transfer to PC through serial link
- Capability to drive automatic multi-electrode switching system (E-NODE & MULTINODE)

APPLICATIONS

Resistivity sounding and profiling for:

- Pollution monitoring and mapping
- Salinity control
- Shallow groundwater exploration
- Depth-to-rock determination
- Weathered bedrock localization
- Depth and thickness of aquifers



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SYSCAL Junior

RESISTIVITY SURVEYING

- **Aim:** imaging the underground geological structures through surface electrical measurements
- **Principle:** transmitting a current I through two electrodes and measuring a voltage V with two other electrodes
- **Apparent resistivity:** $\rho = K \cdot V/I$, K depending on the electrode separation
- **Electrical sounding:** determining the depths and thickness of layers through the variations of the electrical resistivity with depth
- **Electrical profiling:** delineating anomalous areas through the lateral variations of the resistivity
- **Applications:** environmental studies, groundwater investigation, civil engineering, archaeology...

EASE OF USE

Taking a reading with the SYSCAL Junior is very easy:

- Strike **SPACING** to input spacing $AB/2$ et $MN/2$.
- Select output voltage from 50 V (100Vp-p) to 400 V (800V p-p)
- Strike **START** :
V et I are displayed while measurement is going on
- Strike **RESULT** to read apparent resistivity and chargeability values.
- Strike **MEMORY** for data storage.

ACCURACY

- Noise monitoring before injection
- SP compensation including linear drift
- Digital stacking for noise reduction
- Standard deviation computation

RELIABILITY

- Weather proof.
- Wide operational temperature range from -20°C to $+70^{\circ}\text{C}$.
- Shock resistant fiber-glass case.

ACCESSORY : MULTI-ELECTRODE SYSTEM

The SYSCAL Junior can be connected to electrode switching nodes and drive automatic data acquisition (E-NODE or MULTINODE).

DATA INTERPRETATION SOFTWARE

- RESIX (PC), for electrical sounding interpretation (horizontally layered earth hypothesis).
- RES2DINV or RESIX-2DI (PC), for pseudo-section inversion to true resistivity 2D section.
- RES3DINV (PC), for resistivity inversion of 3D surveys.

OUTPUT CURRENT SPECIFICATIONS

- Intensity up to 1200 mA
- Voltage up to 400V (800V peak to peak)
- Power up to 100 W
- Selectable cycle time of 0.5, 1 or 2 s and also programmable from 0.25 to 10 s
- Current measurement precision: 0,5% typical.

INPUT VOLTAGE SPECIFICATIONS

- Measuring process:
automatic ranging and calibration
- Input impedance : 20 M Ω minimum.
- Input voltage protection up to 1000V, range from -10 V to $+10$ V.
- Rejection filters for 50 Hz and 60 Hz
- Voltage measurement precision: 0.5% typical
- Noise reduction: continuous stacking selectable from 1 to 255 stacks.
- SP compensation through linear drift correction.
- Resistivity accuracy: 0,5% typical
- Induced polarization (chargeability) measurement over four predefined windows.
- Chargeability accuracy: 1% of measured value for input voltage higher than 10 mV.

GENERAL SPECIFICATIONS

- Operating temperature : -20 to $+70^{\circ}\text{C}$
- Dimensions : 31 x 21 x 21 cm.
Weight: 7 kg
- Power supply:
internal rechargeable 12V, 7 Ah battery or external 12V car battery.
- Autonomy with internal battery: more than 6000 readings at 20 mA output current and 10 k Ω electrode resistance with 10 seconds injection time for each reading.

