

IRIS INSTRUMENTS

SYSCAL Junior



RESISTIVITY METER

FOR ENVIRONMENTAL

APPLICATIONS

- ◆ Compact, easy to use
- ◆ Measurement of electrical resistivity & chargeability (IP)
- ◆ 2 simultaneous reception channels
- ◆ Outputs: **400 V – 100 W – 1.25 A**

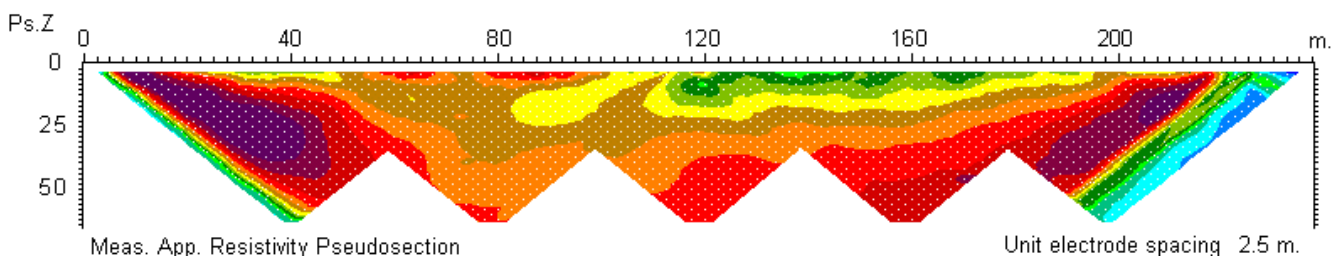
OUTSTANDING FEATURES

- Microprocessor controlled measurement of electrical resistivity and chargeability
- LCD display with 4 lines of 20 characters
- Display of voltage, intensity, SP, standard deviation
- Computation of resistivity for most electrode arrays: Schlumberger, Wenner, Gradient, Dipole-Dipole, Pole-Dipole, Pole-Pole...
- Internal memory for more than 44 800 readings, and data transfer to PC through USB or serial link
- Capability to drive automatic multi-electrode switching system (Switch Plus and Switch Pro)

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 chosen electrode array and 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
- Press **START** :
V et I are displayed while measurement is going on
- Press **RESULT** to read apparent resistivity and chargeability values
- Press **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 an external switching box (Switch Plus or Switch Pro (up to 192 nodes driving)) for multi-electrode imaging

DATA INTERPRETATION SOFTWARE

- IX1D or WINSEV (PC), for electrical sounding interpretation (horizontally layered earth hypothesis)
- TOMOLab, RES2DINV or X2IPI, for pseudo-section inversion to true resistivity 2D section
- ERTLab or RES3DINV (PC), for resistivity inversion of 3D surveys

OUTPUT CURRENT SPECIFICATIONS

- Intensity up to 1250 mA
- Voltage up to 400V (800V peak to peak)
- Power up to 100 W
- Selectable cycle time of 0.25, 0.5, 1, 2, 4 or 8s and Current measurement precision: 0,5% typical

INPUT VOLTAGE SPECIFICATIONS

- 2 simultaneous reception channels
- Measuring process: automatic ranging and calibration
- Input impedance: 100 M Ω
- Input voltage protection up to 1000V, range from -15 V to $+15$ 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 20 predefined windows
- Chargeability accuracy: 1% of measured value for input voltage higher than 10 mV

GENERAL SPECIFICATIONS

- Dimensions: 31 x 21 x 21 cm
- Weight: 10 kg
- Operating temperature: -20 to $+70^{\circ}\text{C}$
- Data flash memory: more than 44 800 readings
- USB and serial link RS-232 for data download
- Possibility of data storage on external SD card: 7 000 000 readings (option)
- 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
- Emergency push button for security