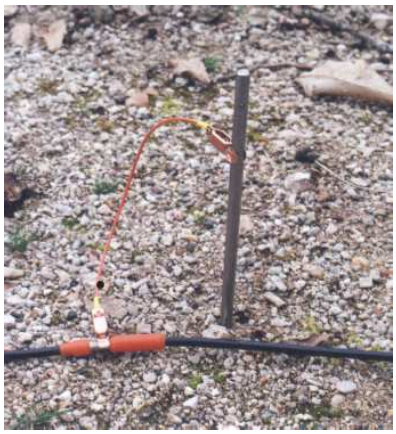
IRIS INSTRUMENTS

SYSCAL JUNIOR *Switch-48*

RESISTIVITY IMAGING FOR ENVIRONMENTAL APPLICATIONS

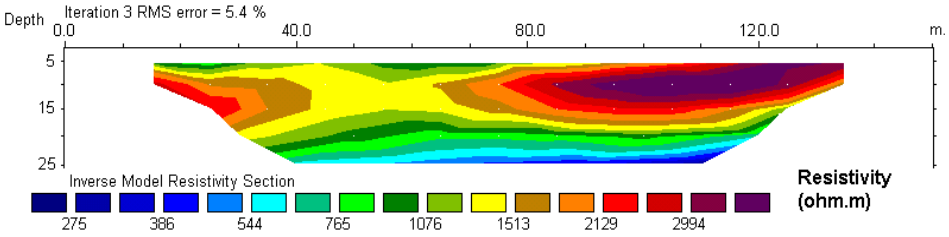
- **Compact, easy to use**
- **Automatic ranging**
- **Automatic switching**
- **2 measuring channels**
- **Outputs: 400 V- 100 W- 1.25 A**



The **SYSCAL JUNIOR Switch-48** is an **all-in-one multinode resistivity imaging** system. It features an internal switching board for 48 electrodes and an internal 100W power source. The output current is automatically adjusted (automatic ranging) to optimise the input voltage values and ensure the best measurement quality. The system is designed to automatically perform pre-defined sets of resistivity measurements with roll-along capability. Four multi-core cables with 12 electrodes takeout each are connected on the back of the resistivity meter. These heavy-duty cables are available with standard 5 or 10 m electrode spacings. Customized cables can also be assembled for special arrays or non-standard applications.

Compact, easy-to-use and field proof, the SYSCAL JUNIOR Switch-48 measures both resistivity and chargeability (IP). It is ideal for environmental and civil engineering applications such as pollution monitoring and mapping, salinity control, depth-to-rock determination and weathered bedrock mapping. It can also be used for shallow groundwater exploration (depth and thickness of aquifers).

With the SYSCAL JUNIOR Switch-48, resistivity surveys can be performed very efficiently with one operator only.



Resistivity interpretation (2D section of true resistivity)

The well-known reliability and accuracy of the SYSCAL range of resistivity meters will also mean extra value both for the contractor and the results end-user.

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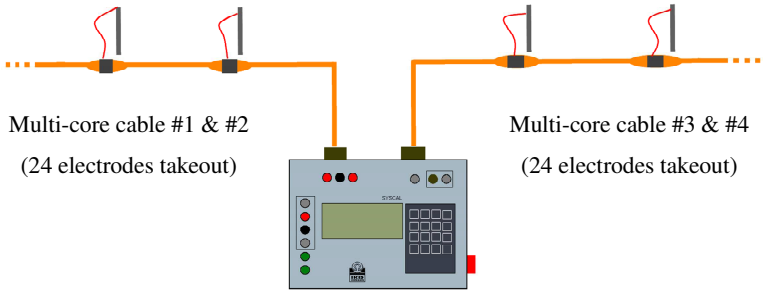
SYSCAL JUNIOR *Switch-48*

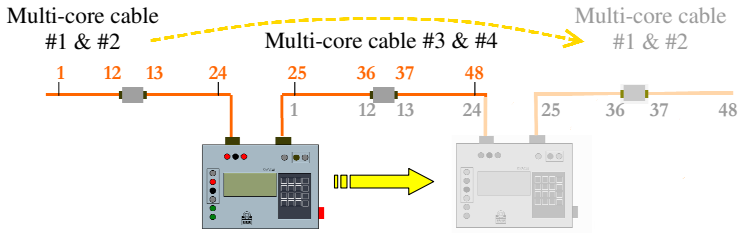
RESISTIVITY IMAGING

- 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: ρ = K*V/I, K depending on the chosen electrode array and the electrode separation
- Resistivity pseudo-section: contoured plot of the apparent resistivity data, using the electrode distance as a pseudo-depth parameter
- True resistivity section: contoured plot of the resistivity distribution obtained through the inversion of the measured data (using a non linear parameter fitting scheme)
- Applications: environmental studies, groundwater investigation, civil engineering, archaeology...

FIELD LAY-OUT



Preset arrays (Wenner, Dipole…) or customized arrays are uploaded through the user-friendly ELECTRE PRO PC software. The roll-along capability is also implemented.



ACCURACY

- Automatic SP compensation including linear drift
- Digital stacking for noise reduction
- Standard deviation computation
- Noise may be monitored before injection

OUTPUT CURRENT SPECIFICATIONS

- Automatic ranging (microprocessor controlled)
- 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 8 s
- Current measurement precision: 0,5 % typical

INPUT VOLTAGE SPECIFICATIONS

- 2 simultaneous reception channels
- Measuring process: automatic ranging and calibration
- Input impedance : 100 MΩ
- Input voltage protection up to 1000V, range from –15 V to +15 V
- Power line rejection
- Voltage measurement precision: 0.5 % typical
- Noise reduction: continuous stacking selectable from 1 to 255 stacks
- SP compensation through automatic linear drift correction
- Resistivity accuracy: 0,5 % typical
- Induced polarization (chargeability) measured over 20 predefined windows
- Chargeability accuracy: 1 % of measured value for input voltage higher than 10 mV

GENERAL SPECIFICATIONS

- Weight: 13 kg
- Dimensions: 31 x 23 x 38 cm
- Weather proof
- Shock resistant fiber-glass case
- Operating temperature: -20 to +70 °C
- LCD display with 4 lines of 20 characters
- 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 with a capacity of 7 000 000 readings (option)
- Power supply: two internal rechargeable 12V / 7.2 Ah batteries ; optional external 12V backup car battery for transmitter power
- Autonomy with internal battery: several thousands of readings
- Weight of a 12 takeout multi-core cable on a reel: about 12 kg (for 5m spacing)
- Emergency push button for security

DATA 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

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