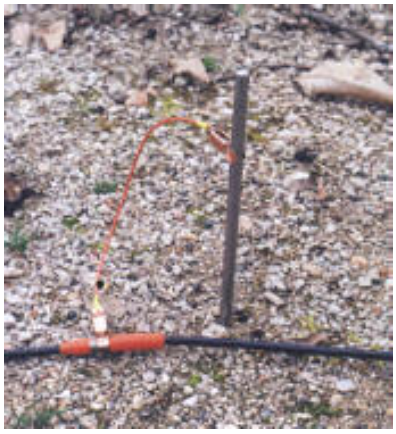
IRIS INSTRUMENTS

SYSCAL Jr *Switch-48*

RESISTIVITY IMAGING FOR ENVIRONMENTAL APPLICATIONS

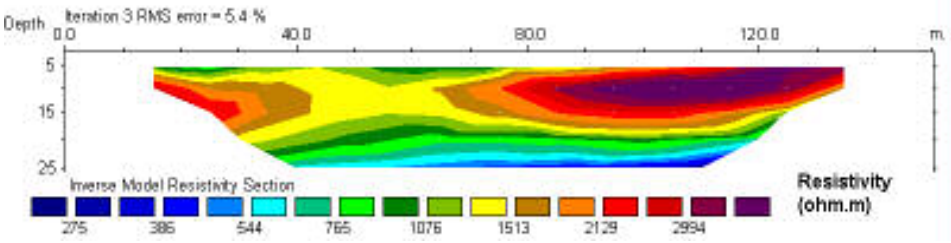
- **Compact yet powerful**
- **400 V - 100 W - 1.2 A**
- **Automatic ranging**
- **Automatic switching**



SYSCAL Jr Switch-48 is a new **all-in-one multinode resistivity imaging** system. It features an internal switching board for 48 electrodes and an internal 100 W 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. Two strings of cable with 24 electrode take-out each are connected on the back of the resistivity meter. Made of heavy duty seismic cable, these strings are available with standard 5 or 10 m electrode spacings. Customized cables may also assembled for special arrays or non-standard applications.

Compact, easy-to-use and field proof, the SYSCAL Jr 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 Jr 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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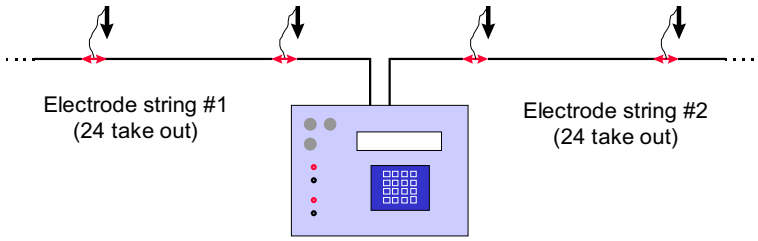
SYSCAL Jr *Switch-48*

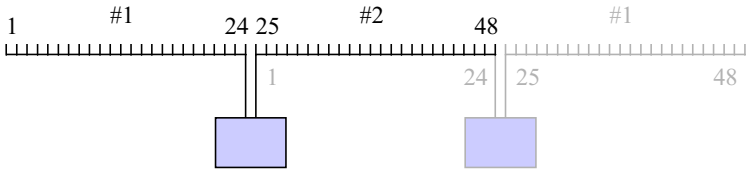
RESISTIVITY IMAGING

- 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: $\rho = K*V/I$, K depending on 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 (version 2) PC software.
The roll-along capability is implemented.



ACCURACY

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

DATA INTERPRETATION SOFTWARE

- RES2DINV or RESIX-2DI (PC),
  for pseudo-section inversion to true resistivity (and IP) 2D section.
- RES3DINV (PC),
  for inversion to true resistivity (and IP) 3D data.

OUTPUT CURRENT SPECIFICATIONS

- Automatic ranging
  (microprocessor controlled)
- Intensity: up to 1200 mA
- Voltage: up to 400V
  (800V peak to peak)
- Power: up to 100 W
- Selectable cycle time of 0.25, 0.5, 1 or 2 s 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 MΩ minimum.
- Input voltage protection up to 1000V, range from –5 V to +5 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 four predefined windows.
- Chargeability accuracy:
  1 % of measured value for input voltage higher than 10 mV.

GENERAL SPECIFICATIONS

- Weather proof
- Shock resistant fiber-glass case
- Operating temperature: -20 to +70 °C
- Dimensions: 31 x 23 x 35 cm.
  Weight: 11 kg
- Internal memory for 2700 readings
- Power supply: two internal rechargeable 12V / 7 Ah batteries ; optional external 12V backup car battery for transmitter power
- Autonomy with internal battery:
  several thousands of readings
- Weight of a 24 take-out string on a reel:
  22 kg (for 5m spacing)

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