



## *Syscal Junior Switch 48*

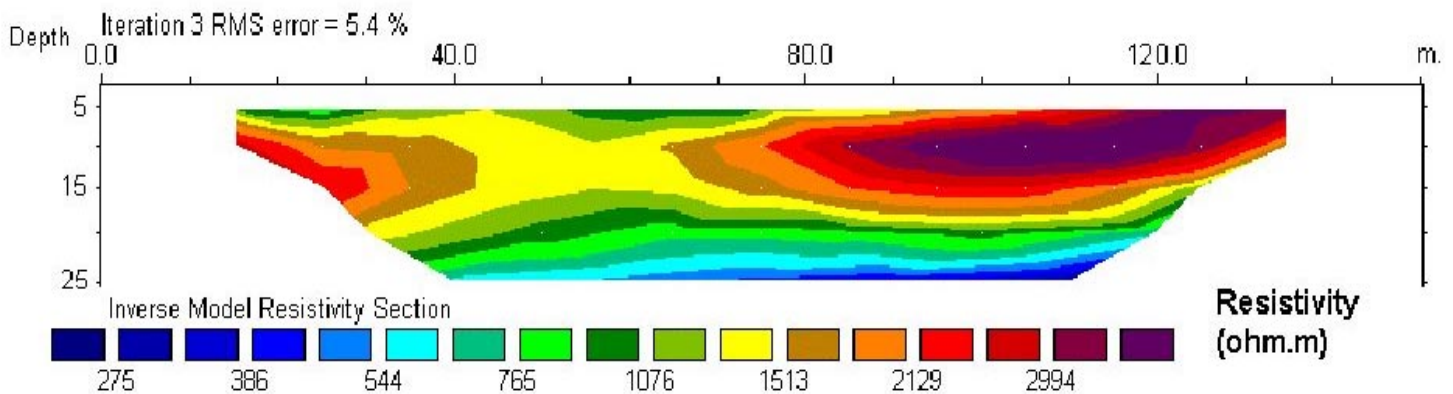
### *Resistivity Imaging For Environmental Applications*

- ***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 be 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 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:**  $\rho = K \cdot V/I$ ,  $K$  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...

## 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	0.5 , 1 or 2 s
Current measurement precision:	0,5% typical.

## INPUT VOLTAGE SPECIFICATIONS

**Measuring process:** automatic ranging and calibration

**Input impedance:** 10 M $\Omega$  minimum.

Input voltage protection up to 1000V, range from -10 V to +10 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 battery ; optional external 12V backup car battery for transmitter power

**Autonomy with internal battery:** several thousands of readings

Standard cable string weight: 15 kg each for 5m spacing

## 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 2D section.

