

# SYSCAL Pro



SYSCAL Pro *Switch-48* unit with its graphic LCD screen

**10 CHANNELS**

**RESISTIVITY AND IP SYSTEM**

**SWITCH CAPABILITY**

- 10 simultaneous reception channels
- **1000 V – 250 W – 2.5 A**
- Automatic injection ranging
- Electrodes switching capability

**SYSCALPro:** the SYSCAL Pro unit is a new system designed for high productivity resistivity and IP measurements. It features some high output capabilities allowing to work in any field conditions for groundwater exploration and for civil engineering or environment applications.

**Automatic injection ranging:** the output current can be automatically adjusted to optimize the input voltage values and ensure the best measurement quality. The system offers also the possibility to inject the current with a voltage specified by the operator.

**IP measurement:** IP curves of the 10 channels can be directly visualized in real time thanks to the graphic LCD screen.

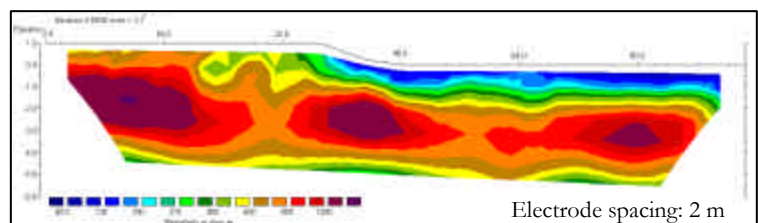
**Marine application:** a specific mode allows the system to be used for continuous logging, especially dedicated to marine applications ; in that mode, a GPS can be directly connected to the unit by a serial link for a continuous recording of the location of the 10 channels all along the profile ; a set of 10 resistivities is measured and stored approximately every 2 seconds. In that case, specific cables are supplied to fit to that environment. A specific remote PC software can be used for data storage and for a graphical picturing in real time of the resistivity pseudo-section.

**Remote software:** a specific remote software can be used to drive the unit from a PC. This function has the advantage to store the data directly in the PC hard disk without memory limitation (useful for Marine application) and offers also the opportunity to pre-program some sequences of measurement at user defined timing intervals (useful for ERT acquisition).

**Switching capability:** internal switching boards can be added to the basic SYSCAL Pro unit to make it a very fast resistivity imaging system ; in that version, the unit is called SYSCAL Pro *Switch-48 - 72* or *96* (for a 48 – 72 or a 96 electrodes switching configuration) and allows to obtain simultaneously a set of 10 measurements and performs the switching of the electrodes automatically. Some external switching box(es), called *Switch Pro*, can be added to the unit for 3D investigations. In the *Switch* version, the max. output features of the unit are: 800 V – 250 W – 2.5 A.



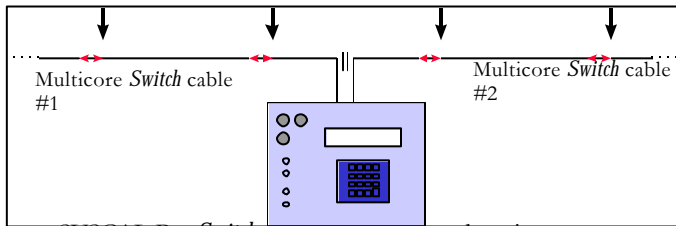
SYSCAL Pro *Switch* back side



True resistivities section obtained with a SYSCAL Pro *Switch-48* Sequence with 400 data points - Setup: 1 second current pulse - 3 stacks  
**Acquisition time: 5 minutes**

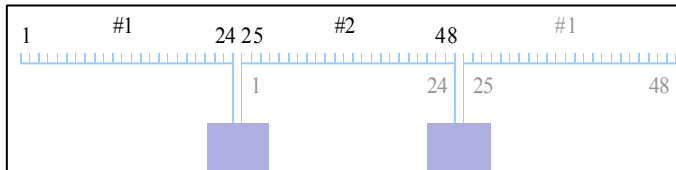
## FIELD LAY-OUT OF A SYSCAL PRO SWITCH UNIT

The unit is located at the centre of the configuration. Standard take-out spacing of the multicore *Switch* cables are 5 and 10 meters. The cables are supplied on reels in several sections in regards to the number of take-outs and the spacing, so as to keep a suitable weight for each reel. Sequences of measurement using standard electrode arrays (Dipole-Dipole,...) can be directly programmed from the SYSCAL Pro for a full in-the-field autonomy. Non standard configuration can also be uploaded to the unit by the ELECTRE II PC software.



SYSCAL Pro *Switch*-48 with two electrode strings

The roll-along capability can also be easily implemented thanks to the cable design (double ended) and to the internal or ELECTRE II programs.



Roll along of the SYSCAL Pro *Switch*-48

For 3D surveys, *Switch* Pro boxes can be added to the basic SYSCAL Pro unit (standard or *Switch* version).

A *Switch* Pro box contains switching boards to drive 48, 72 or 96 electrodes, a 12V rechargeable battery and a LCD screen. The user has the opportunity to perform the numbering of the electrodes connected to the box for a full flexibility.

## DATA MANAGING

Thanks to the data managing PROSYS software, one has the opportunity to visualize graphically the apparent resistivity section and process the data (filter, insert topography, add data files...).

Then, one can export the data to ?txt? file or to interpretation software:

WINSEV for 1D sounding interpretation.

RES2DINV – SENSINV2D software for pseudo-section inversion to true resistivity (and IP) 2D section.

RES3DINV software, for inversion to true resistivity (and IP) 3D data.

## TECHNICAL FEATURES

### OUTPUT SPECIFICATIONS

- Automatic injection ranging (microprocessor controlled)
- Current: up to 2.5 A
- Voltage: up to 1000 V (1500 V with an external DC/DC converter)
- Power: up to 250 W (500 W with an external DC/DC converter)  
Possibility to use an external AC/DC 1200 W converter
- Pulse duration: 0.2, 0.25, 0.5, 1, 2, 4 or 8 s
- Current measurement precision: 0.2 % typical
- *Switch* version output voltage: up to 800 V

### INPUT SPECIFICATIONS

- Measuring process: automatic ranging and calibration
- Input impedance: 100 M $\Omega$
- Input voltage:  
Max. channel 1: 15 V  
Max. channel 2 to channel 10: 15 V  
Protection up to 1000V
- 50 to 60 Hz power line rejection
- Voltage measurement:  
Precision: 0.2 % typical  
Resolution: 1  $\mu$ V
- Noise reduction: automatic stacking number in relation with a given standard deviation value
- SP compensation through automatic linear drift correction
- Induced Polarization (chargeability) measured over up to 20 automatic or user defined slices

### GENERAL SPECIFICATIONS.

- Up to 4000 electrodes can be used
- Data flash memory: more than 21 000 readings
- Serial link RS-232 data download
- Power supply: two internal rechargeable 12V, 7.2 Ah batteries ; optional external 12V standard car battery can be connected to the transmitter part
- Weather proof
- Shock resistant fiber-glass case
- Operating temperature: -20 to +70  $^{\circ}$ C
- Dimensions (SYSCAL Pro *Switch*-48): 31 x 23 x 36 cm
- Weight (SYSCAL Pro *Switch*-48): 13 kg
- Weight of a 24 take-outs (spaced 5 m) string on a reel: 23 kg