HIGH SPEED ACQUISITION SYSTEMS FOR INDUCED POLARISATION DATA: ELREC Pro and SWITCH Pro units

ELREC Pro, 10 simultaneous channel IP receiver

ELREC Pro is a Time Domain IP and resistivity receiver which can measure up to 10 dipoles at the same time. This property makes it a highly efficient receiver for IP surveys.

Its main other specifications are:

- 20 IP chargeability programmable windows
- a large graphical display for plotting the IP decay curves and the full Time Domain signal waveform (ON+, OFF, ON-, OFF)
- 21 000 reading internal memory

ELREC Pro receiver

SWITCH Pro module

SWITCH Pro, multi-electrode switching module

SWITCH Pro is a 24, 48, 72 or 96 electrode switching module, which, used together with the **ELREC Pro** receiver, permits to combine the advantages of automatic electrode switching with those of multi channel measurements.

Using these two devices permits to minimize the acquisition time of field works, and to give the possibility to acquire 3D type of IP data with realistic durations of surveys.

How to proceed ?

To optimise the acquisition time with a multi-electrode system, it is necessary to use a large number of potential electrodes, connected to **SWITCH Pro** modules with individual wires. The **SWITCH Pro** modules are themselves connected together and to the **ELREC Pro** receiver with specific multi-core cables.

Then, a sequence of readings stored in the memory of the **ELREC Pro** receiver is started, which ensures a first series of 10 simultaneous readings, stores them, and automatically switches the receiving electrodes to the next pre-programmed series of 10 combinations, etc. until the end of the sequence.

The electrodes of current are then moved to their next positions and the operator can start again the same sequence of readings for the new position of the current electrodes.

This procedure permits to acquire large amounts of data in a day, once the potential electrodes and the cables have been set up in the field and that the sequence of readings created with a PC has been introduced in the memory of the **ELREC Pro**.

If the electrodes are set in a single line **(2D array)**, the procedure permits to easily carry out “a”, “2a”, “3a”, etc. dipole spacing measurements, which increases the depth of penetration of the survey.

If electrodes are set up in parallel lines **(3D array)**, the procedure permits to measure the IP response in the two directions of the horizontal plane (not only along a single line), which constrains more the inversion processes and may lead to a better determination of the models responsible for the observed anomalies.

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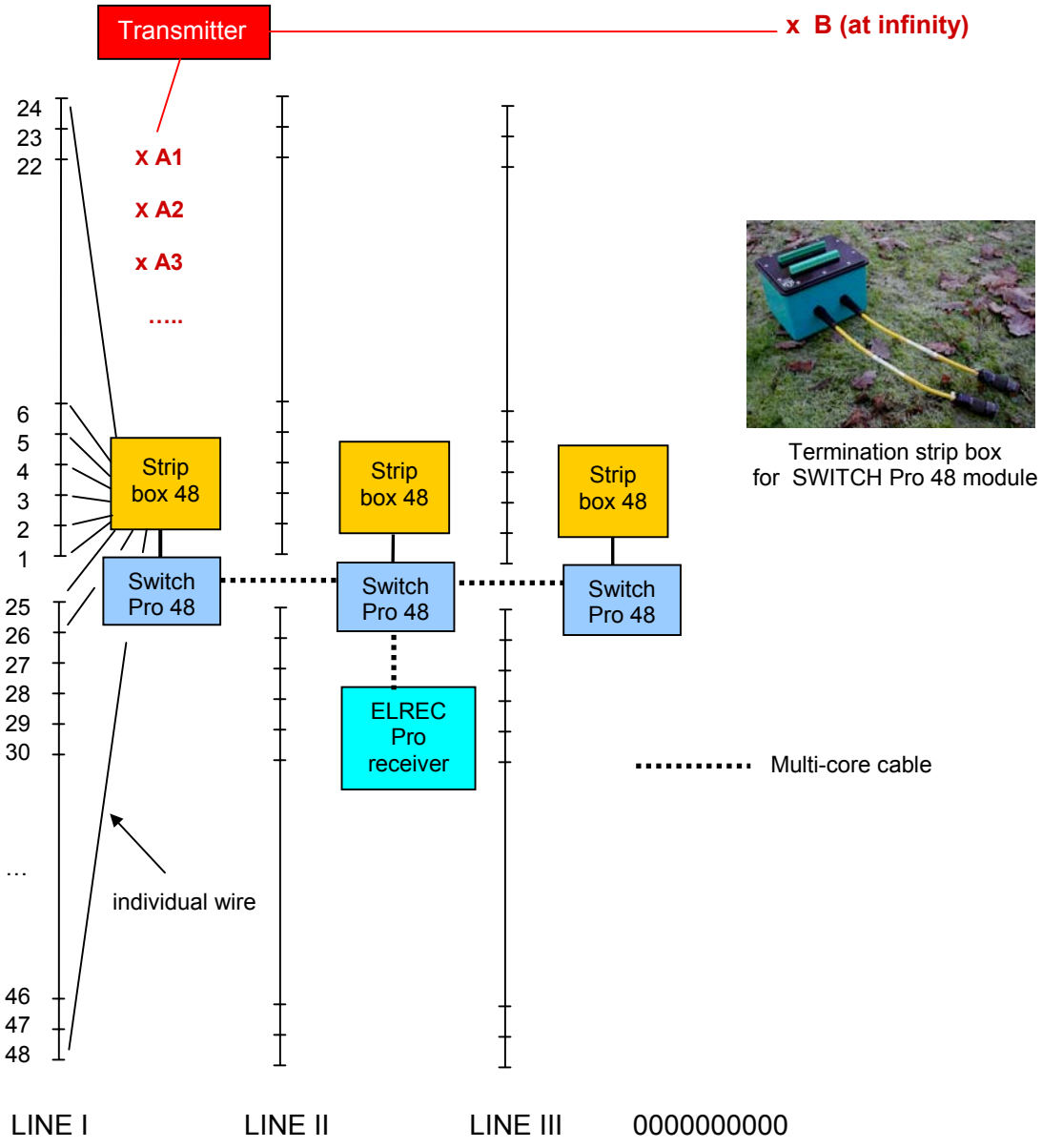

EXAMPLE of FIELD SET UP with one ELREC Pro RECEIVER and three SWITCH Pro 48 MODULES

1, 2, 3, 4 … 23, 24: potential electrodes

A1, A2, A3, … : current electrodes

for each position of a current electrode (A1 for instance), a full set of combinations of receiving dipoles taken between the 48x3 = 144 electrodes of the three lines I, II, III can be measured by the ELREC Pro receiver. Ten dipoles (having a common point) can be measured at the same time by the ELREC Pro.

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