

IRIS INSTRUMENTS

TIME DOMAIN INDUCED POLARISATION SYSTEMS



VIP - ELREC

INDUCED POLARISATION SYSTEMS

for mineral exploration

VIP TRANSMITTERS MAIN FEATURES

- **VIP transmitters** are fully controlled by a microprocessor, for an easier use of operation. Powered by 50-60Hz motor generators, VIP units regulate the current driven into the ground for improving the quality of the reading of the Induced Polarisation chargeability
- **The high output voltage (3 000V)** of the VIP transmitters permits to supply a high current even in highly resistive areas
- **The 4 lines LCD screen** permanently displays the current, voltage, power and ground resistance values; it also gives messages whenever needed in case of overload, short-circuit, input over or under voltage

ELREC RECEIVERS MAIN FEATURES

- **ELREC receivers** have been designed for high productivity surveys, with 2 or 6 or 10 simultaneous measurement channels
- **Their automatic synchronization process** let them work without any link with the transmitter
- **The Induced Polarisation (IP) decay curve** is analyzed with several programmable windows (4, 10, 20) for a higher definition of the IP chargeability waveform

VIP / ELREC IP SYSTEMS

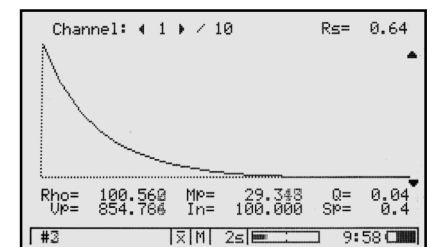
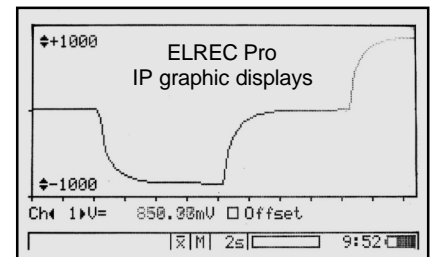
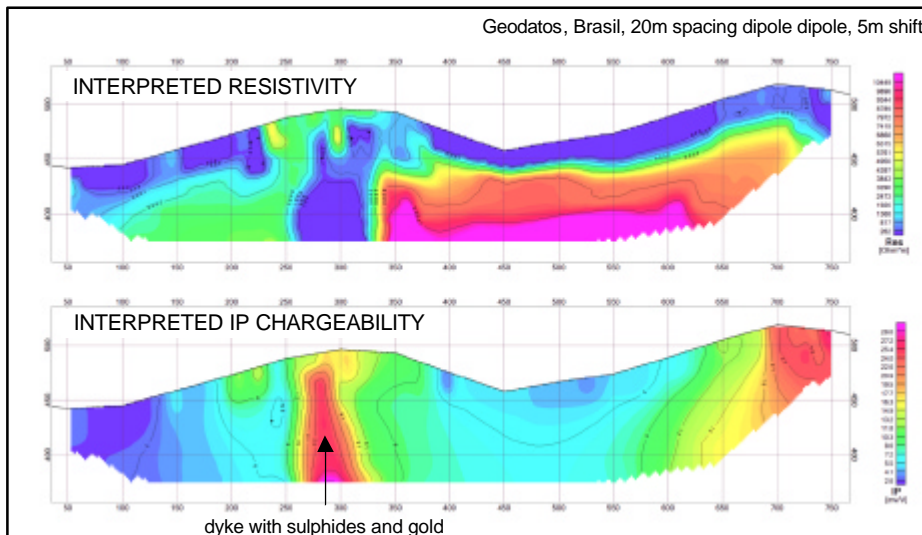
for detecting massive and disseminated sulphide orebodies

VIP TRANSMITTERS:

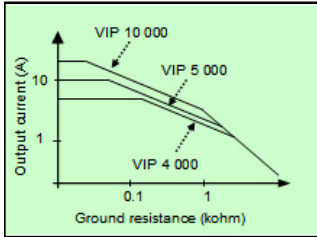
Power: 4, 5, 10kW
 Maximum voltage: 3 000V
 Maximum current: 5, 10, 20A

ELREC RECEIVERS:

2, 6, 10 channels
 4, 10, 20 IP windows



VIP / ELREC IP systems



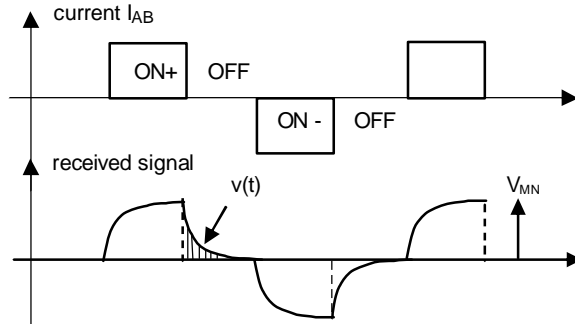
VIP 5 000 transmitter



VIP 10 000 transmitter

VIP TECHNICAL SPECIFICATIONS

- **VIP 4 000:** 4 kW, 3 000V, 5A, 16kg
- **VIP 5 000:** 5 kW, 3 000V, 10A, 23kg
- **VIP 10 000:** 10 kW, 3 000V, 20A, 35kg
- motor generator 220V, 50-60Hz
- 1 phase for 4kW, 3 phase for 5 & 10 kW
- pulse square time domain current waveform
- ON and OFF pulse duration: 0.5, 1, 2, 4, 8s
- current accuracy: 1%
- current stability: 0.1%
- measurement of ground resistance
- protection against short circuit, open line, ...
- display of voltage, current, power, resistance



ELREC TECHNICAL SPECIFICATIONS

- **ELREC 2 :** 2 channels, 4 IP windows
- **ELREC 6 :** 6 channels, 10 IP windows
- **ELREC Pro:** 10 channels, 20 IP windows
- computation of apparent resistivity, average chargeability, standard deviation
- stacking process for signal enhancement
- SP compensation with linear drift correction
- link to PC for data transfer
- PROSYS II PC software for data filtering
- ELREC Pro input impedance: 100 Mohm
- ELREC Pro memory: 21 000 readings
- ELREC Pro max input voltage: 15V
- ELREC Pro chargeability accuracy: 0.6% typ

DEFINITION OF THE INDUCED POLARIZATION PARAMETER:

CHARGEABILITY
 $= \int v(t) dt / V_{MN}$

Unit of chargeability:
 mV / V, or per mil

The Induced Polarization (IP) effect occurs with some **minerals such as sulphide particles**: it is equivalent to a charge / discharge behaviour of capacitors when currents are switched on and off.



ELREC 6 receiver



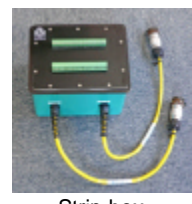
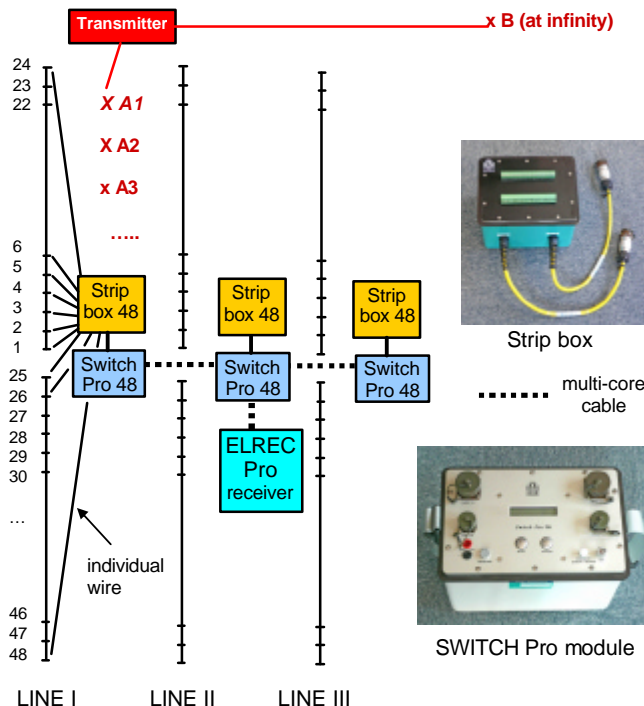
ELREC Pro receiver

Switch Pro units for 3D acquisition

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, combines 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.



Strip box



SWITCH Pro module

How to proceed?

For each position of the transmitting electrodes A and B, a sequence of readings stored in the memory of the ELREC Pro receiver is measured, 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.

This procedure permits to quickly acquire large amounts of data in a day, once the potential electrodes and the cables have been set up in the field.

If electrodes are set up in parallel lines (**3D array**), the procedure permits to measure the IP response in two horizontal directions, which constrains more the inversion processes and leads to a more accurate solution.