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## Resistivity Meter with Multi Electrode ZI 10010

Standards:

Specification:

### Applications:

- Shallow detailed investigations of pollutant plums in the ground
- Archaeological surveys
- Waste site deposit monitoring
- Mapping and monitoring of salty water contamination of groundwater reservoirs along coastal areas



### The Revolution of Electrical Imaging (ERT)

Till this moment the use of Electrical Resistivity Tomography (ERT) for geology has always been basically the same since its debut, based on the original vertical Electrical Soundings (VES) principles: applying a continuous current to two stakes inserted into the ground and measuring the corresponding voltage between other two. The applied current and thus the relative tension have always been continuous, with an inversion in polarity for each measure. The new tool POLARES uses an alternate current, instead, sinusoidal type, with an adjustable frequency.

### Advantages of the new POLARES system

Considering the higher complexity of the device, the alternating current stimulation has shown particular advantages with regard to the faster

implementation of the measures with the same quality of results. This higher speed can reduce the time required to perform a set of field measurements by a factor of at least 10 (or 20 in most cases!) in respect to traditional system. Moreover, the measure of the relationship between the detected voltage and the injected current, in sinusoidal state, both as form and as a phase (delay of a signal over the other), these two pieces of information, with only one measure, allow the simultaneous detection of the resistivity and the induced polarization of the ground.

**POLARES Benefits:** The proposed new instrument brings together into a single small and lightweight case the management and control system and the power section, the only external part is the signal switching system, so to offer the a great flexibility.

Available configurations: from 16 to 256 electrodes.

Compared to the previous generations, the new electrical imaging system POLARES is lighter, smaller, faster and more reliable. The user interface is built with a high brightness LCD monitor with touch screen, all operations are made without using either the mouse or keyboard. The use of an embedded ultra low power PC combined with the lack of fans and traditional HD, correlate with the using of an open source operating system (Linux), provides a far superior battery life and overall reliability improved. The only interface to the outside is a USB port to which you can connect a number of different devices such as pen drives for data storage, network interfaces, WiFi, Bluetooth, GPS antennas, keypads, and more. Another advantage of not using a traditional PC is the wider range of working temperature and humidity that makes POLARES the best solution even in marsh environmental conditions.

## TECHNICAL SPECIFICATIONS:

- CPU: Arm 9 32 bit
- Operating system: Linux
- Display: QVGA 5.7" with LED background lighting
- Touch Screen: 4 wire resistive
- Data storage: Solid state flash memory
- External data ports: USB host 1.1
- Connectivity: USB key
- Optional connectivity: Ethernet, Wi-Fi, Bluetooth, RS232, RS485, USB cli-ent, GPS, etc.
- GPS: Integrated receiver for georeference of measures
- DSP: Freescale (Motorola) 120 MIPS
- Converters: A/D 16 bit SAR and D/A to 16 bit
- Voltage measurement range: 300V, 30V, 3V
- Current measurement range: 3A, 300mA, 30mA
- Frequencies that can be generated: 114Hz, 28.6Hz, 7.15Hz, 1.79Hz, 0.45Hz, 0.11Hz
- Measurement soundness check: DC component, distortion, background noise, phase excess, module sigma, phase sigma
- Maximum number of spikes: Unlimited
- Maximum number of scans per measurement: > 40,000
- Results that can be stored to memory (scan): > 200,000
- Peak voltage that can be generated: 700 Vpp
- Peak current that can be generated: 2 A
- Peak power output that can be generated: 200 W
- Thermal protections: Heatsink and inside case alarms and system shut-down
- Power supply: 8.5V= / 15V= lead or lithium batteries, 30 A internal fuse, protection against polarity inversions
- Operating temperature: -20°C / 50 °C outside
- Dimensions and weight: 410x300x170mm; 6kg