



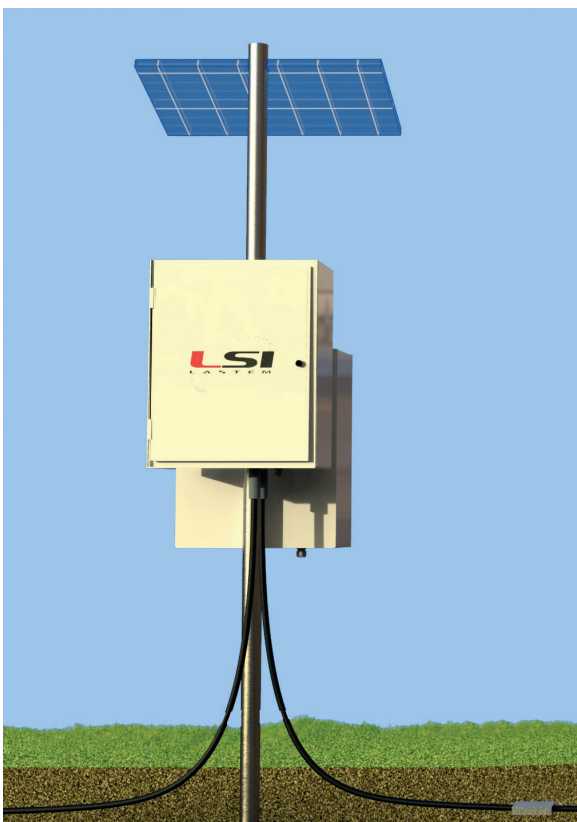
G.Re.T.A.

GeoResistivimeter for Time Lapse Analysis



G.Re.T.A. is the most effective and innovative solution for **Permanent Geoelectric Monitoring** of the conditions of **large sections of soil**.

This instrument measures the **alteration over time of the soil's resistivity profile**, functional to the characterization of the same in terms of water content, presence of cavities or other anomalies.



Highlights

- Fixed and energetically self-sufficient installation
- Visualization and configuration by Cloud software
- Automatic Alarm messages system when alarm thresholds are reached

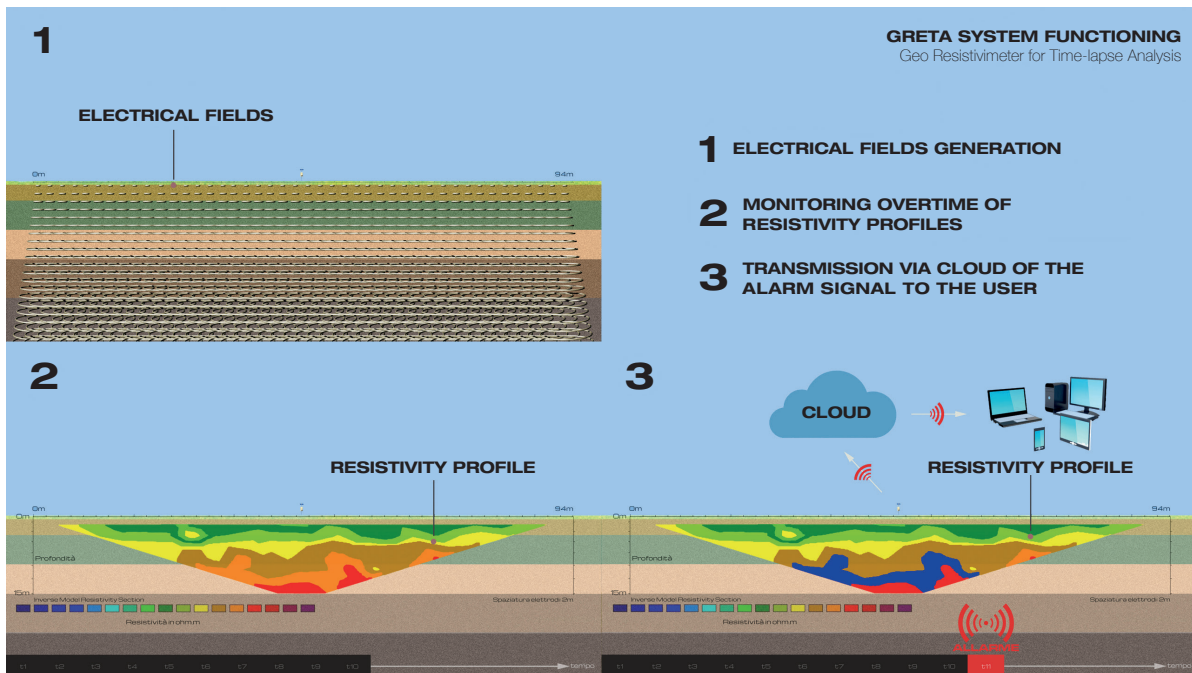
A consolidated technology

Multielectrode Electric Tomography (ERT) is based on the insertion of an electric field in the ground through electrodes (input electrodes), and the measurement of the voltage is effectuated through other electrodes (measurement electrodes). From the measure of the voltage it is possible to obtain, through the second law of Ohm, the **resistivity value**, a peculiar characteristic of all materials

Fields of application

- Monitoring of embankments, such as dams and levees
- Monitoring of landslides
- Monitoring of percolates' and other pollutants' spillage risk
- Monitoring of salt water intrusion in the groundwater layer
- Precision agriculture





Main technical features

- Max number of electrodes: 48
- Distance between the electrodes: 1-2m
- Measured profile length: 47- 94m
- Max measured profile depth: up to 15m
- Measurement configuration: Wenner
- Power supply: solar panel
- Modem / Router for automatic data transmission
- Remote control and programming via LSI LASTEM Cloud
- Alarm management based on pre-defined thresholds

Main components of G.Re.T.A. GeoResistivimeter

- Measurement and communication box
- Energy supply box
- 48 electrodes topline in anti-rodent material

The heart of G.Re.T.A

Energy efficiency

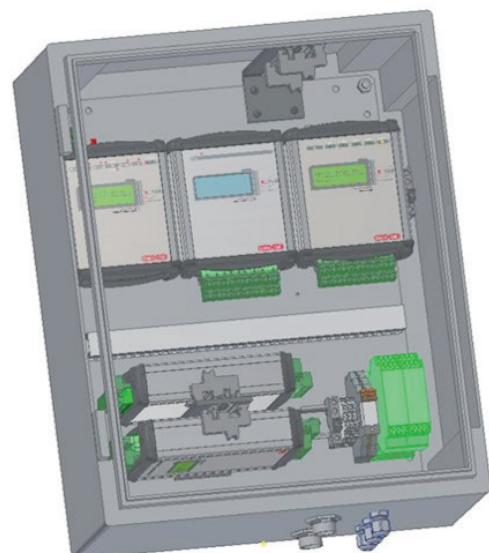
All components and operating logics have been designed to ensure the lowest energy consumption

Filtration of any disturbing signals

The G.Re.T.A. system is able to recognize and exclude from the measurement any disturbing signals present in the ground.

Modular architecture

Each specific function of the system (current injection and voltage measurement, signal switching, processing and data transmission) is implemented as an independent module; this favors possible maintenance activities.



Two Types of Installation:



Plate Electrodes

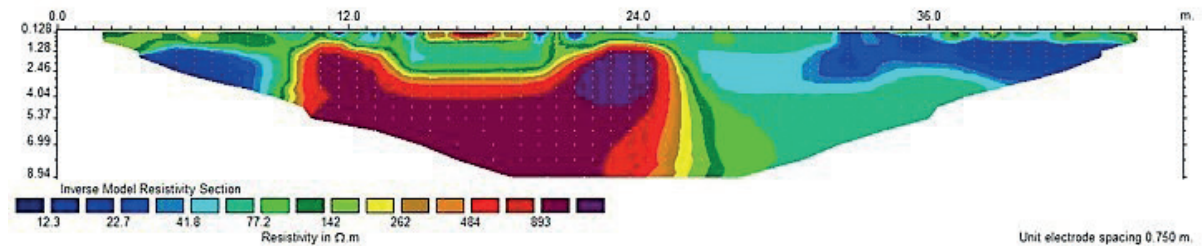
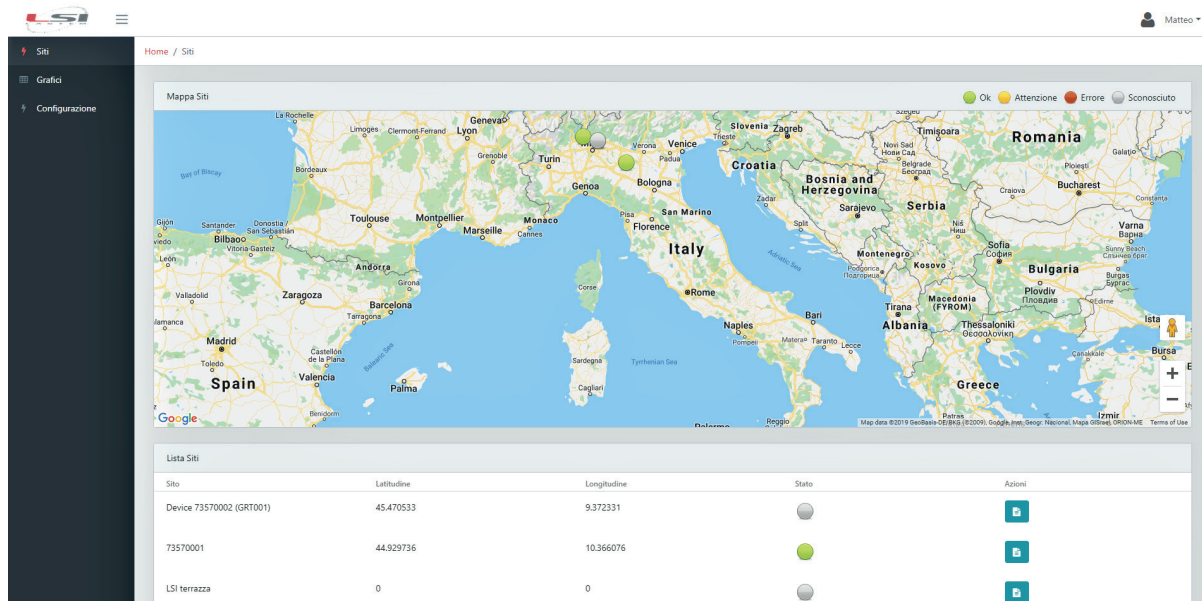
This solution requires a small excavation (20 cm depth) to house the two topline with electrodes. It allows the best adherence of the electrodes to the ground and the complete protection of the topline from possible interference with external agents (people, animals, etc.).



Picket Electrodes

In this case no excavation is required as the topline leans on the ground. Spiked electrodes are inserted into the ground.

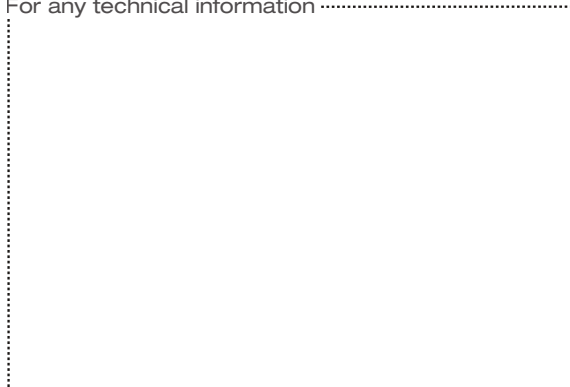
Instrument settings and data management



The cloud software allows measurement visualization, data storage, instrument parameterization as well as the typical processing of raw data inversion algorithms. It also allows:

- The geolocation of the installed system
- The comparison of measurements between different periods with simple and intuitive graphic models
- Calculation of the water content in the subsoil according to the resistivity data and the soil characteristics
- Automatic sending of alarm messages when pre-set thresholds are exceeded
- Views and queries are also possible on a Smartphone using a Telegram application

For any technical information



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