

Chameleon

Multi-Purpose Geoelectric Equipment

- **Useful for 5 different geophysical resistivity methods**
 - Geoelectrics with capacitive and galvanic electrodes
 - Geoelectrics with moving electrodes
 - Spectral Induced Polarization
 - VLF (Tipper), VLF Gradient
 - Radiomagnetotellurics



Geophysics

The **CHAMELEON** system can be used for five different geophysical resistivity methods. Each location requires its own optimal method, and our multi-purpose instrument always supports the most suitable one. To change from one method to another the user just has to change the sensors (Current, E- & B-Field) and operating software. This can be done within a matter of minutes. The instrument can be used in the laboratory as well as in the field. For field measurements powerful transmitters are available. The high data rate and very low input capacity allows precise impedance measurements between 0.001 Hz and 250.000 Hz. The standard hardware and software supports up to 5 channels. More channels are also available.

GEOELECTRICS WITH CAPACITIVE ELECTRODES

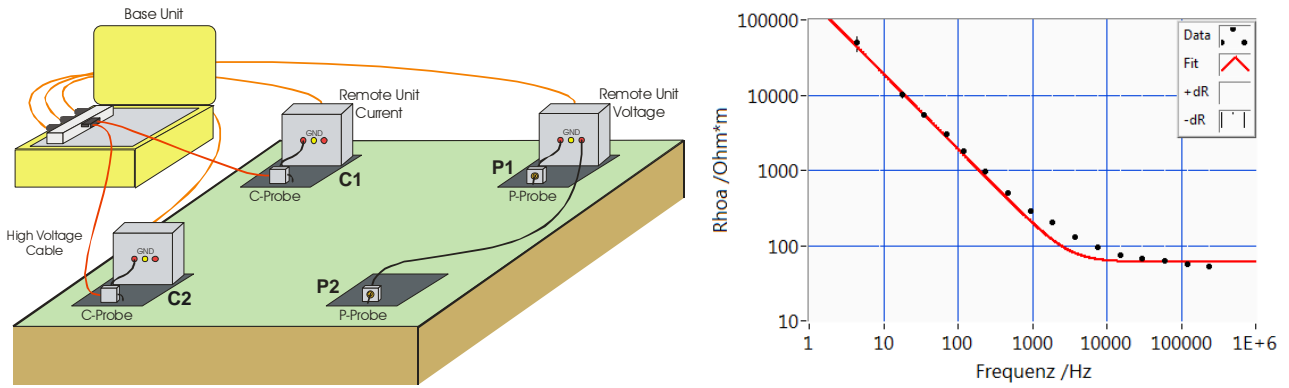


Fig. 1: Left: Set-up for capacitive measurements. Right: Field data from Linumhorst (near Berlin). Configuration: Squared array with 1 m electrode spacing. Fit (red): $\text{Rho}_a=60 \Omega\text{m}$, Electrode elev.=2.2 mm.

SPECTRAL INDUCED POLARIZATION

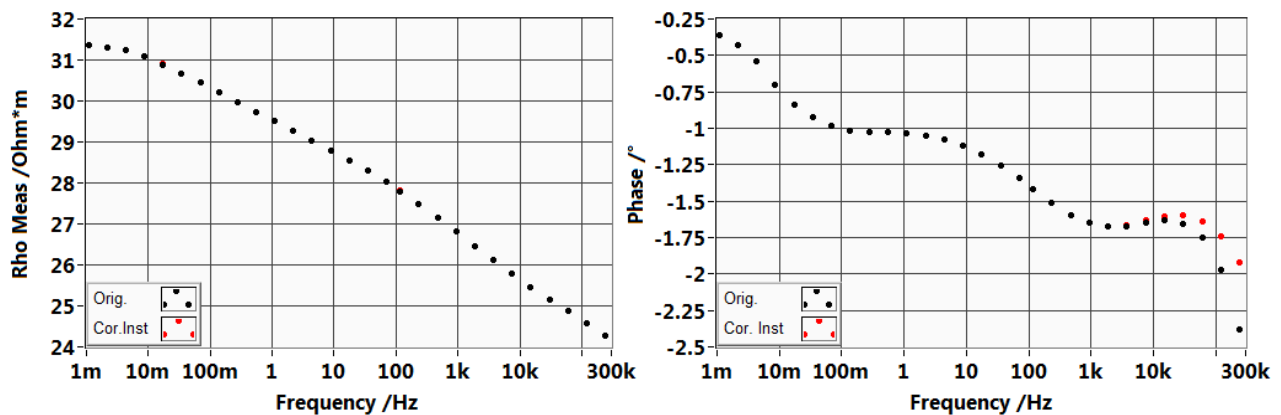


Fig.2: Resistivity spectrum of sample MZ4. Sandstone type: "Baumberger R18". BAM-Berlin. 2013. Black: Original data. Red: Data after correction input impedance influence.

RADIOMAGNETOTELLURIC MEASUREMENTS

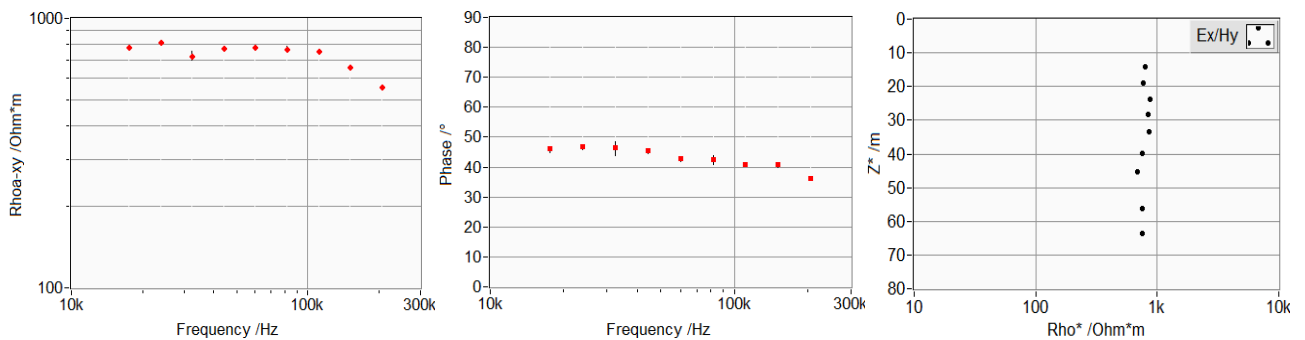


Fig.3: RMT sounding with Chameleon equipment. Left and middle graphics: Amplitude and phase spectra of the apparent resistivity. Right Graphic: Resistivity vs. depth (Rho^*/Z^* approximation).

Figure 3 shows the results of a RMT measurement from Linumhorst (near Berlin). A grounded electrical dipole and an induction coil with a 50 cm diameter were used to record the electrical and magnetically field for 50 msec. The left and middle figures show the amplitude and phase of the xy-component of the resistivity tensor. Phase values are slightly below 45° , which is typical for soil where the resistivity decreases slightly with depth.

RANGE OF APPLICATIONS

- Humus
- Seashore
- Arable land
- Historical buildings
- Contaminated sites
- Archaeological sites
- Laboratory measurements
- Nuclear waste disposal sites
- Estimation of hydraulic permeability
- Groundwater exploration in arid areas
- Discrimination between clay and saline water
- Detection and characterization of electronic conductors (mineral exploration)



Base unit with or without built-in transmitter available



External 600 W transmitter available



Remote Unit



Voltage Probe



Current Probe

CHAMELEON

Technical Specifications

Base Unit

- Frequency range: 0.001 Hz-250kHz
- Signal shape: sinusoidal
- Optical interfaces for 2 - 5 (10) RUs
- PC interface: USB
- Built-in transmitter (optional)
- Powered by ext. 12 V car-battery
- Interface to ext. 600 watt transmitter
- Weight: 10 kg
- Plastic case size: 50 x 35 x 18 cm³

Remote Unit

- A/D converter: 24 Bit
- Max. data rate: 576 kHz
- Input range (voltage): ± 10 V
- Input range (current):
 ± 2.5 A, ± 0.1 mA (1 Ω shunt),
 ± 25 mA, ± 1 mA (300 Ω shunt)
- Time series: max. 64k samples
- Data format: 32 Bit
- Digital power line filter
- Digital drift filter
- Optical cable length: 2-10 m
- Battery capacity: ~10 h
- Weight: 1 kg
- Size: 12 x 12 x 10 cm³

Separate Notebook PC

- Windows 7, 8
- Control of the whole system
- Time series recording, storing, displaying, transfer function, confidence limits

Optional ext. 600 W transmitter

- Frequency range: DC - 20 kHz
- Maximum output: ± 400 V, ± 1.5 A
- Powered by: 230 VAC, 47-63 Hz
- Weight: 41 kg
- Plastic case size: 57 x 63 x 62 cm³

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