

ARES AUTOMATIC RESISTIVITY SYSTEM



2000 V_{p-p} - 5 A - 850 W Transmitter

**2D/3D Resistivity & IP Tomography
VES, RP, SP Measurements
up to 10 Adjustable IP Windows**

Easy-Control System

**Active Multi-Electrode Cables
Passive Cables with Switch Box
Roll-Along Possibility**

Applications:

groundwater explorations, geotechnical investigations, monitoring of dams and dikes, environmental studies, pollution plumes mapping, geological surveys, mineral prospecting, archaeology, detecting of cavities, underwater, marine, borehole and cross-hole measurements.

ARES represents a well equipped resistivity and IP imaging system.

Its variability, easy field operation (without PC), feeding from a standard 12 V battery, rich support of standard and special electrode arrays and compatibility with widespread interpretation software makes ARES a cost effective and useful tool for working groups and research teams.



ARES - Technical Specifications

One ruggedized weatherproof unit integrates a powerful transmitter with a sensitive receiver and a control unit completed with rich software support for a variety of measuring methods.

Transmitter

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|--------------------|--|
| Power | up to 850 W |
| Current | up to 5 A |
| Current resolution | 24 bits |
| Voltage | 2000 V _{p-p} (actually applied voltage automatically optimizes level of measured potential) |
| Protection | full electronic protection |

Receiver

| | |
|---------------------------|---|
| Input voltage range | ±5 V _{p-p} (±10 V _{p-p} optionally) |
| Voltage resolution | 24 bits |
| Input impedance | 20 MΩ |
| Mains frequency filtering | 50 or 60 Hz selectable notch filter |

Measuring methods

2D/3D Multi-Electrode Resistivity and IP Tomography
VES – Vertical Electrical Sounding (resistivity and IP)
RP – Resistivity and IP Profiling
SP – Self Potential

Supported arrays

Wenner Alpha / Beta / Gamma, Wenner-Schlumberger, Dipole-Dipole, Pole-Dipole, Reverse Pole-Dipole, Pole-Pole, MGM, Equatorial Dipole-Dipole, Cross-Hole, Borehole-Surface, user defined configurations

Measurement - features

| | |
|---|--|
| Total accuracy | Self-adapting control system |
| IP - Induced Polarization (Chargeability) | Automatic ranging and calibration |
| Pulse | Automatic pulse cycling and checking of measured values |
| SP compensation | Easy interruption of the measurement |
| Stacking | Capability of profile prolongation by means of multi-electrode cable rolling |
| | Better than 1% (typically) |
| | Up to 10 adjustable IP-windows, each max. 30 s, step 20 / 16.66 ms |
| | 0.3 s – 30 s, step 0.1 s |
| | Constant and linearly varying SP cancellation |
| | Manual or automatic (with self-adaptive setting) |
| | Adjustable optimum measured voltage and maximum acceptable measurement error |
| Stored values | Position of the measured point, output current, input voltage, SP, apparent resistivity, standard deviation, chargeability with standard deviation for up to 10 IP windows |
| Number of electrodes | max. 200 in one array |
| Line length for ME cable | max. 10 km |

Control unit

| | |
|--------------------|--|
| Memory | Easy-Control system, no need of PC for the measurement |
| PC Interface | Alphanumeric keyboard, large LCD display |
| PC software | Measuring system can be upgraded via internet |
| | Safety switch |
| | 16 Mbit, up to 100 files, 70000 readings |
| | RS232 and USB |
| | provides data download and export for processing programs (RES2DINV / RES3DINV, Surfer, IPI2WIN and others) as well as upload of measuring procedures |
| Power supply | 12 V car battery or 12 V attachable battery pack, AC/DC adapter for office |
| Connectors | for PC, battery and a universal one for all measuring accessories (Multi-Electrode Cable, VES-Adapter, Switch box), measuring current and potential clamps |
| Dimensions | 15 x 21 x 40 cm |
| Weight | 5.9 kg |
| Ambient conditions | -10°C to +50°C, weatherproof |

Standard Accessories:

- Transport case
- T-piece (for connection of multi-electrode cable sections and cables for current and potential electrodes)
- Cable for external 12 V battery
- AC/DC adapter (for all countries)
- RS232 and USB cables
- PC software ARES (MS Windows based)
- User manual

Optional accessories:

- Multi-electrode cable sections - active and passive
- Switch box (attachable 48-channel adapter) for passive multi-electrode cables
- 12 V attachable battery pack with fast 3-stage battery charger
- Electronic power supply (230 V/115 V AC to 12 V DC converter)
- VES-adapter (for 5 pairs of potential electrodes)
- Cable reels
- Stainless steel electrodes, non-polarizable electrodes
- Processing software for 2D/3D inversion, mapping and VES interpretation



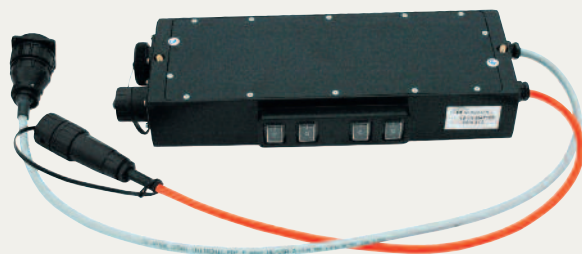
Active Multi-Electrode Cable



Passive Multi-Electrode Cable



Battery Pack



Switch Box (48 channels) for Passive Multi-Electrode Cable



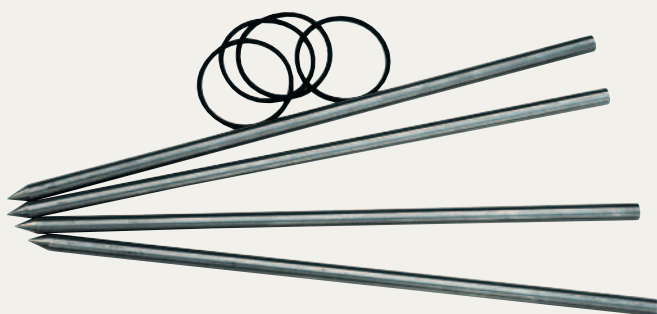
VES Adapter



Current Cable Reel



Potential Cable Reel



Stainless Steel Electrodes



Non-Polarizable Electrode

Monitoring of rock surface for judgement of slope deformation and landslide risk

Measurement before the new building construction. Wenner-Schlumberger array used.

