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LandMapper® ERM-02

LandMapper ERM-02 is a newest device in the product line of Landviser, LLC. This portative device can measure three important electrical properties of solid, semisolid, and liquid media: electrical resistivity (ER), conductivity (EC), and potential (EP). Using the most accurate four-electrode principle LandMapper ERM-02 measures ER or EC to help you to delineate areas with contrasting soil properties within the fields quickly, non-destructively, and cost-efficiently. Using the device prior to soil sampling you can significantly reduce the amount of samples required and precisely design a sampling plan based on the site spatial variability.

LandMapper ERM-02 measures electrical resistivity or conductivity of soils and related media for express non-destructive mapping and monitoring of agricultural fields as well as construction and remediation sites. In a typical setting, a four-electrode probe is placed on the soil surface and an electrical resistivity or conductivity value is read from the digital display. The device measures electrical resistivity or conductivity in a surface soil layer of the depth from 2 cm down to 20 m, which is set by varying the size of a four-electrode probe.

LandMapper ERM-02 is the most versatile device in LandMapper series and allows you not only measure ER and EC using artificially applied electrical current and four-electrode probes, but also study natural electrical fields in soils and plants with patented non-polarizing electrodes. Electrical balance between soil and plants is important for plant health and electrical potential gradient governs water and nutrient uptake by plants. Monitoring of electrical potentials in plants and soils is a cutting-edge research topic in the leading scientific centers around the world.

Advanced scientific research supports versatile applicability and usefulness of our equipment. Our team was working on a theory of the electrical fields in soils, applications of electrical resistivity measurements in soil science, and electrical geophysical data interpretation for 20 years; combined work of three Ph.D. scientists in the area is about 38 years. Five dissertations and 6 books were published on the topic in Russia and USA.

<h1 style="text-align:center">Compare ERM-01 and ERM-02</h1>

Feature	LandMapper ERM-01	LandMapper ERM-02
Electrical Resistivity, Ohm m	YES	YES
Electrical Conductivity, Sm	Post-process	YES, direct readout
Natural Electrical Potential	NO	YES
Central-symmetric 4-electrode probes (Wenner, Schlumberger)	YES	YES
Universal 4-electrode probes (dipole-dipole, square, etc.)	NO	YES
Max depth	20 m	20 m
Measurements in the lab	YES	YES
Measurements in the soil pit	YES	YES
Stores 1000 data points for download to PC	YES	YES
Responds to commands from PC in interactive regime	NO	YES

<h2 style="text-align:center">Key Features</h2>

Compact and **portable** design (weights only 250 g without the probe)

Fast (one measurement takes 4 sec.)

Accurate (automatically accounts for spontaneous potential arising from grounding of the electrodes)

Safe and **economical** (uses a standard 9 V battery)

Seamless connection with personal computer for data transfer (stores 999 data values)

Modular and **interchangeable** the 4-electrode probes, laboratory cells, non-polarizing electrodes, and detachable measuring unit

Versatile (the same unit can be used in field mapping and laboratory experiments)

Affordable (enquire about our very competitive prices and available discounts)

<h2 style="text-align:center">Technical Specifications</h2>

- Range of measurements………………………………….…………ER= 0.1-1 10^6 Ohm m
  ..……………………………………………… EC= 1 10^{-6} – 10 Sm^{-1}
  ………………………….……………EP= -1 to +1 V (Δ=0.01 mV)
- User-selectable ER/EC/EP modes of measurement.
- Automatically adjusts electrical resistivity/conductivity/potential ranges to provide best measurement accuracy.
- Precision and error of measurements is typically less than 1%. See exact values for the ER ranges in LandMapper ERM-01 flyer.
- User-defined K (geometrical coefficient)………………………….……...0.1 up to 99.9
- Quantity of changeable K-coefficients..…………………………………………...10
- Quantity of data storage locations………………………………………...……999
- Range of operation temperatures…………………..from - 10 up to + 40 C^0 or 14 to 100 F
- Air humidity no more than…………………………………………………………65 %
- Weight of the device no more…………………………………………... 250 g or 8 oz
- Current of consumption no more…………………………………………...7.0 mA
- Output voltage, no more…………………………………………………….………5 V
- Measurements comparable with DC methods, frequency….............………………1.25 Hz
- Computer connection……………………………………………………….serial port