

High Frequency Earth Tester Model ER25K



Testing Applications

Used for measuring earth resistance of electrical pylons. The influence of adjacent pylons is minimized by a Guard cable connection.

Description

The testing of the quality of the grounding (G) of power transmission towers poses a serious problem as they are all electrically interconnected by means of Ground Wires which act as lightning rods, protecting the lines from atmospheric discharges.

Because of this connection, any attempt to measure a tower grounding (G) resistance using a conventional earth meter leads to incorrect results as what is really being measured is all the shunt towers grounding (G) resistance (or more precisely, its impedance at low frequency). Trying to disconnect the ground wire from an energized line is a risky operation due to the need to climb the tower to its highest point as well as the close proximity of the high voltage conductors.

The ER25K grounding resistance meter for high frequency makes this kind of test feasible, which is of vital importance to ensure the transmission of electrical power without interruptions. It is the appropriate tool for fast, safe, and reliable grounding resistance measurement in each tower of a working line transmission, without disconnecting the ground wire.

The ER25K is based on the use of a high frequency measurement current (25 kHz), for which ground wire inductive impedance – taking into account a typical length span is reasonably high, making it possible to reduce the effect of the adjacent towers under measurement. The ER25K measures only the ground resistance of the surveyed tower, including its base. The extensive G system, such as meshes, buried wires, metal pipes, are measured only considering the closest section to the connection point. The measured value represents the performance, against a pulse signal similar to an atmospheric discharge. Values obtained better represent the system capacity to ground lightning currents than the ones obtained with low frequency conventional equipment, even when disconnecting the ground wire.

The test is performed by making current of a known-value flow through the earth diffusion resistance and an auxiliary electrode, called the current electrode, and by measuring the voltage produced between grounding and another auxiliary electrode thrust into the ground in the area of the potential created by flowing current (Potential Plateau).

The current injected by the earth meter is automatically adjusted to the predetermined value and the equipment and it directly indicates the resistance value on its ohms-grades scale.

Bluetooth interface and software gives you the capability to save photos of the towers and their GPS coordinates, plus record voice comments for each measurement.

- **Fast, safe, and reliable** testing
- **Built-in memory, printer and rechargeable** battery
- **Bluetooth interface** for **remote control** via a tablet



Design Features

- Operation frequency 25 kHz
- Resistance reading up to 300 Ω
- Automatic compensation of inductive component
- Automatic current injection
- USB and Bluetooth interfaces
- Built-in memory and printer
- Rechargeable battery
- ISO 17025 Calibrated



MEASUREMENT RANGES	0 – 300 Ω
OPERATION FREQUENCY	25,000 Hz
TEST CURRENT	20 mA automatic
INDUCTIVE COMPONENT COMPENSATION	Through a bank of capacitors integrated into the equipment Maximum capacity 4.2 μF, Resolution 10 nF
MEASUREMENT ACCURACY	±2.5% of reading ±1 digit
DISPLAY	Alphanumeric display (LCD)
MAX EARTH RESISTANCE OF AUXILLIARY RODS	2000 Ω (current rod) 2000 Ω (voltage rod)
BUILT-IN MEMORY	Up to 2000 test readings
DATA OUTPUT	USB and Bluetooth interfaces. Built-in printer.
SOFTWARE	Software for remote control via a tablet. Compatible with Android 4.0 Ice Cream Sandwich (API 14) or higher.
POWER SUPPLY	Internal rechargeable battery, 12.6 V, 6000 mAh
BATTERY CHARGER	12 V - 2A (AC adapter)
OPERATING TEMPERATURE	-5°C to 50°C
STORAGE TEMPERATURE	-15°C to 65°C
HUMIDITY	Up to 95% RH (non-condensing)
DIMENSIONS (approx.)	13" (340 mm) L x 12" (295 mm) W x 6" (152 mm) H
WEIGHT (approx.)	11 lbs (4.9 kg)

Accessories Included

- 4 19" (50 cm) steel core rods with copper coating
- 1 rod extractor
- 1 229' (70 m) shielded cable
- 1 164' (50 m) shielded cable
- 1 98' (30 m) cable to current rod
- 1 229' (70 m) cable to auxiliary potential rod
- 1 164' (50 m) cable to auxiliary potential rod
- 1 cable adapter for current electrode
- 1 cable for connection to the electrode (tower)
- 1 AC adapter
- 1 Software license
- 1 carrying case for accessories
- 1 User guide



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