

## TM25R

### High frequency earth tester

Intended for measurement of earth resistance of electricity pylons



Illustrative Photo. Tablet not included.

#### Features

- Intended for measurement of earth resistance of electricity pylons
- Minimizes the influence of adjacent pylons, connected by the guard cable
- Operation frequency: 25 kHz
- Resistance reading: up to 300 Ω
- Automatic compensation of inductive component
- Automatic current injection
- USB interface
- Built-in memory and printer
- Rechargeable LFP battery
- Bluetooth interface for remote control through a tablet



#### BlueLogg

This instrument has Bluetooth® interface and can be controlled remotely via an Android™ smartphone / tablet running the BlueLogg application.



#### Description

Testing of the power transmission towers grounding (G) quality 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.

Due to the existence of this connection, any attempt to measure a tower grounding (G) resistance using a conventional earth meter leads to wrong 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 for climbing to the tower highest part as well as for the proximity to the high-voltage conductors.

To make this kind of test feasible, which is of vital importance to ensure the transmission of the electrical power without interruptions, MEGABRAS TM25R grounding resistance meter for high frequency has been developed. This is the appropriate tool for a fast, safe and reliable grounding resistance measurement in each tower of a working line transmission, without disconnecting the ground wire.

Its operation 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 equipment only measures the ground resistance of the surveyed tower, including its base. The extensive G systems, such as meshes, buried wires, metal pipes, etc, are measured only considering the closest section to the connection point, so that the measured value represents the performance, against a pulse signal similar to an atmospheric discharge.

Thus, values that better represent the system capacity to ground lightning currents than the ones obtained with low frequency conventional equipments, even when disconnecting the ground wire, are obtained.

The test is performed by making the known-value current 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.

The Bluetooth interface allows the remote control of the equipment through a tablet running the BlueLogg application. With it you can save photos of the towers and the GPS coordinates of each. Also allows you to record voice annotations to each measurement.

TM25R is powered with its universal charger, from a built-in rechargeable battery. It is a strong equipment, easy to carry, resistant to the hard weather and geographical features of the tropical and high-mountain regions, that is why it is described as an excellent product for field works under the most severe environmental conditions.



#### Rechargeable battery (LiFePO4)

**Expected lifetime:** 2000 charge / discharge cycles (average).

**Low self-discharge:** when the equipment is not in use, battery charge decreases with time at a much lower rate than other battery technologies.

**Safety:** in contrast to other lithium battery technologies commonly used, LFP batteries are thermally and chemically stable, significantly improving battery safety.

## Technical Specifications

# TM25R

### MEASUREMENT RANGES

0 - 300  $\Omega$ .

### OPERATION FREQUENCY

25,000 Hz.

### TEST CURRENT

20 mA automatic.

### INDUCTIVE COMPONENT COMPENSATION

Through bank of capacitors integrated to the equipment.  
Maximum capacity: 4.2  $\mu$ F.  
Resolution: 10 nF.

### MEASUREMENT ACCURACY

$\pm$  2.5 % of reading  $\pm$  1 digit.

### DISPLAY

Alphanumeric display (LCD).

### MAX. EARTH RESISTANCE OF AUXILIARY RODS

2,000  $\Omega$  (current rod).  
2,000  $\Omega$  (voltage rod).

### BUILT-IN MEMORY

It allows for the storage of 2,000 tests readings in its internal NVRAM memory.

### DATA OUTPUT

USB.

### BLUETOOTH

For remote control of the equipment through a tablet.

### SUPPLIED SOFTWARES

MegaLogg2: Software to adjust date and time, download test results and clear the internal memory of the equipment.  
BlueLogg: Compatible with system Android 4.1 JELLY BEAN (API 16) or Higher.

### POWER SUPPLY

Internal rechargeable battery (LiFePO4 12 V 6000 mA).

### BATTERY CHARGER

12 V - 2 A.

### OPERATING TEMPERATURE

-5  $^{\circ}$ C to 50  $^{\circ}$ C.

### STORAGE TEMPERATURE

-15  $^{\circ}$ C to 65  $^{\circ}$ C.

### HUMIDITY

Up to 95% RH (non condensing).

### DIMENSIONS

340 x 295 x 152 mm.

### EQUIPMENT WEIGHT

Approx. 4.9 kg.

## Included accessories

- 8x 50 cm long steel core rods with copper coating
- 6x 2 m cables for interconnection of extra auxiliary rods
- 1x Rod extractor
- 1x 70 m shielded cable
- 1x 50 m shielded cable
- 1x 30 m cable to current rod
- 1x 70 m cable to auxiliary potential rod
- 1x 50 m cable to auxiliary potential rod
- 1x Cable adapter for current electrode
- 1x AC Adapter
- 1x Cable for connection to the unknown electrode (Tower)
- 1x USB cable
- 1x Case to carry accessories



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