

TM25K



HIGH-FREQUENCY EARTH METER

- ✓ **DESIGNED FOR THE MEASUREMENT OF POWER TRANSMISSION TOWERS GROUNDING**
- ✓ **MINIMIZES GROUND CABLE EFFECT**
- ✓ **REDUCES MEASUREMENT TIME**
- ✓ **OPERATION FREQUENCY: 25kHz**
- ✓ **RANGE: UP TO 200**
- ✓ **AUTOMATIC OR MANUAL CURRENT ADJUSTMENT**
- ✓ **INDUCTIVE COMPONENT COMPENSATION**
- ✓ **PORTABLE AND STRONG FOR FIELD WORKS**
- ✓ **RECHARGEABLE BATTERY**

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MEGABRAS
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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 TM25K 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 (25KHz), 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 (Ex) and an auxiliary electrode, called the current electrode (Ce), and by measuring the voltage produced between grounding and another auxiliary electrode (Ae), thrust into the ground in the area of the potential created by flowing current (Potential Plateau).

The equipment has highly selective filters which eliminate the interference effect of the industrial frequency (50/60Hz) parasitic currents which may be present in the area.

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 precision of the frequency generated by the earth meter (25.000Hz) is guaranteed by the use of an oscillator controlled by a high-stability crystal.

TM25K 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.

TM25K - TECHNICAL SPECIFICATIONS

RESISTANCE MEASUREMENT RANGES

0 - 3 / 0 - 10 / 0 - 30 / 0 - 100

MEASUREMENT EXTENDED RANGE

It allows for the measurement of resistances up to 200 , though with a higher degree of uncertainty.

OPERATION FREQUENCY

25000 ± 1 Hz crystal-controlled.

MEASUREMENT CURRENT

20 mA automatically adjusted
from 10 to 25 mA with manual adjustment

INDUCTIVE COMPONENT COMPENSATION

By means of a capacitors bank incorporated to the equipment.

Maximum capacity: 4.2 F
Resolution: 10 nF

RESISTANCE MEASUREMENT ACCURACY

Class 2, measured on standard resistors at 25°C

INDICATING DEVICE

Analogical, with tense-belt suspension, class 1

AUXILIARY ROD MAXIMUM RESISTANCE

200 for current rod
500 for voltage rod

POWER SUPPLY

Internal 12V rechargeable battery or external battery

BATTERY CHARGER

For 110-120V or 220-240V 50-60Hz

OPERATING TEMPERATURE

From - 5°C to 50°C

STORAGE TEMPERATURE

From -15°C to 65°C

HUMIDITY

Up to 95% REH, without condensation

OPERATION ALTITUDE

Up to 3000m s.n.m.

SUPPLIED ACCESSORIES

12- 60 cm- Steel core rods covered with the "Copperweld" copper system
12- Rods extractors
01- Shielded cable, 70m long
01- Extra shielded cable, 50m long
01- 2.5mm yellow cable, for extension of the current cable, 30m long
01- Extra 2.5mm red cable, for the connection to the 70 m long potential auxiliary rod
01- Extra 2,5mm red cable, for the connection to the 50m-long potential auxiliary rod
01- Shielded cable adapter to current rod
01- Cable for external battery
01- 5 m-long cable for the connection to the unknown electrode
10- 1 m-long cables for auxiliary rod interconnection
02- Carrying case for the accessories
01- User manual

EQUIPMENT SIZE

345 x 190 x 340mm

EQUIPMENT WEIGHT

8.8kg

Technical modifications reserved.



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