

# MTD 20KWe



## EARTH RESISTANCE AND RESISTIVITY METER

- ✓ DIGITAL AND AUTOMATIC
- ✓ 3½ DIGITS DISPLAY
- ✓ EARTH RESISTANCE MEASUREMENT
- ✓ GROUND RESISTIVITY (WENNER'S METHOD)
- ✓ SPURIOUS VOLTAGE MEASUREMENT
- ✓ HIGH SPURIOUS VOLTAGE REJECTION
- ✓ 0,01 RESOLUTION
- ✓ UP TO 20K RESISTANCE RANGE

The MTD-20KWe earth tester is a digital and automatic Earth Resistance Tester, that allows to measure Earth Resistances (three pole) and Ground Resistivity by the Wenner's (four pole) method. It has also a built-in voltmeter that enables the measurement of spurious voltages of the soil, caused by surface leakage currents.

This apparatus is well suitable for measurements of earth resistances of lightning-conductors, pylons, substations, primary cabins, industrial and home installations, etc. The measurement of the ground resistivity facilitates the project and optimization of earth systems.

A 1470Hz internal generator injects alternated current on the soil through an auxiliary rod. The voltage generated over the earth resistance is measured by the apparatus, and the resistance value is evaluated. Results are shown in a digital display with up to 3 ½ digits resolution. The test current is automatically regulated.

A sharp and intermittent audible signal indicates anomalies in the circuit. If, for any reason, the current is lower than the value required to perform the measurement, (for example because of some discontinuity in the auxiliary cables, extremely high resistivity ground, etc) the alarm circuit, that produces the intermittent "beep", is activated

# MTD 20KWe - TECHNICAL SPECIFICATIONS

## APPLICATION

Measurement of grounding resistances (with 3 terminals), soil resistivity (with 4 terminals) and spurious voltages present in the soil.

## RESISTANCE MEASUREMENT METHOD

The equipment injects an electronically stabilised current in the soil, and measures, with high precision, the voltage developed in the soil by means of that current flowing through grounding diffusion resistances. Display shows the Resistance value.

## IMMUNITY TO INTERFERENCE

Operation frequency: 1470 Hz

This operation frequency complies with the equation:

$$f_g = \frac{2n + 1}{2} \times f_i$$

Where:

$f_g$  = frequency of the current generated by the earth meter.

$n$  = integer number.

$f_i$  = industrial frequency (50 or 60 Hz).

The compliance with this equation implies that the operation frequency will not coincide with any harmonic of the industrial frequency, in order to minimise the effect of parasitic currents present in the surveyed soils, by means of the use of appropriate filters.

## OPERATION AS A VOLTMETER

In the voltmeter function, the equipment operates as a CA conventional voltmeter, making it possible to check the presence and to measure voltages generated by parasitic currents.

## MEASUREMENT RANGES

Resistances: 0-20; 0-200; 0-2,000 and 0-20k

Voltage: 0-200V~

## ACCURACY

**Resistances measurements:**  $\pm$  (2% of the measured value + 1% of the maximum value of the selected range).

**Voltage measurement**  $\pm$  (2% of the measured value + 1% of end of scale value)

## READING RESOLUTION

0.01 in the resistance measurement.

0.1V in the voltage measurement.

## OUTPUT POWER AND CURRENT

The output power is less than 0.5W, and the output current is limited to less than 15mA (Peak to peak)

## BATTERY STATUS CHECKING

It makes it possible to verify the battery charge status under normal use conditions.

## AUDIBLE ALARM

It warns the operator in case that there are abnormalities in the current circuit, which make it difficult to obtain a reliable result.

## POWER SUPPLY

By means of an internal rechargeable battery, from a 12V external battery or from the mains (95-240V~ 50-60Hz), by the provided power supply.

## BATTERY CHARGER

A smart, microprocessor controlled, circuit adjusts the battery charge to the optimised parameters in order to ensure the maximum service life. It is supplied by means of an external power supply for 95-240V~ 50-60Hz (provided with the equipment) or from a 12V car battery.

## OPERATION TEMPERATURE

-10°C to 50°C

## STORAGE TEMPERATURE

-25°C to 65°C

## HUMIDITY

95% RH (without condensation)

## EQUIPMENT WEIGHT

Approximately 2.3kg (without accessories)

## DIMENSIONS

221 x 189 x 99mm.

## ACCESSORIES

### Standard kit

- 4 auxiliary electrodes (30cm long rods, hexagonal shape, galvanized steel).
- AC adapter for the battery charger (universal mains supply, 95 to 240V~)
- Connection cable to use an external 12V battery (car battery or similar) to charge the internal battery
- 40m red lead (on spool)
- 20m blue lead (on spool)
- 20m green lead (on spool)
- 5m black lead
- 5m green lead
- Carrying bag
- User's guide

### Premium kit

- 4 auxiliary electrodes (50cm long rods, hexagonal shape, cooper coated steel).
- 1 rod extraction tool.
- AC adapter for the battery charger (universal mains supply, 95 to 240V~)
- Connection cable to use an external 12V battery (car battery or similar) to charge the internal battery
- 40m red lead (on spool)
- 20m blue lead (on spool)
- 20m green lead (on spool)
- 5m black lead
- 5m green lead
- Carrying bag
- 50 meters tape measure
- User's guide.

Technical modifications reserved.



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