

# EARTH RESISTANCE METER

## MRU-30



### Possible measurements:

- earth resistance measurement with 3-pole, 4-pole method,
- selective earth resistance measurement with clamp (no influence from parallel earths; no opening of rusty junctions is needed),
- continuity of equipotential bondings and protecting conductors,
- utwo calmps earth resistance measurement without auxiliary test probs,
- earth resistivity measurement.

### Standard accessories of the meter MRU-30:

- earth contact test probe (rod); 0,3m
- test lead with banana plug; 1,2m; red
- test lead with banana plug; 2,2m; black
- test lead on a reel with banana plug; 25m; red
- test lead on a reel with banana plug; 50m; yellow
- „crocodile” clip K01; black

- WASONG30**
- WAPRZ1X2REBB**
- WAPRZ2X2BLBB**
- WAPRZ025REBBSZ**
- WAPRZ050YEBBSZ**
- WAKROBL20K01**

- pin probe with banana plug; red
- USB transmission cable
- Sonel Reader software
- power supply adaptor Z7
- carrying case M9
- carrying case L10

- WASONRE0GB1**
- WAPRZUSB**

- WAZASZ7**
- WAFUTM9**
- WAFUTL10**

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• **It allows to take the measurements of:**

- earthing resistance using auxiliary electrodes,
- earthing resistance using auxiliary electrodes and clamp (for measurements of multiple earthing),
- earthing resistance using double clamps (for measurement of earthing when it is impossible to use auxiliary electrodes),
- ground resistivity (Wenner method),
- continuity of equipotential bondings and protective conductors (meeting the requirements IEC 60364) with auto-zero function – with current 200mA.

• **Additionally:**

- measurement of resistance of auxiliary electrodes  $R_s$  and  $R_H$ ,
- measurement of interference voltage,
- measurement in the presence of interference voltage in the power network with frequency 50Hz, 60Hz,
- selection of maximum measuring voltage (25V and 50V),
- introducing the distance between the electrodes for the resistivity in metres (m) and feet (ft),
- memory of 990 measurements (10 banks of 99 cells each),
- calibration of clamp used,
- data transmission to the computer (USB),
- indication of battery state.

**Electric security:**

- type of insulation double, according to EN 61010-1 i IEC 61557
- measurement category CAT III 300V wg EN 61010-1
- protection class acc. to EN 60529 IP65

**Rated operational conditions:**

- operation temperature -10...+55°C
- storage temperature -20...+80°C
- humidity 20...90%

**Other technical data:**

- LCD display segment, backlit
- dimensions 200x150x74 mm

**Other accessories of the meter MRU-30:**

- earth contact test probe (rod); 0,8m;
- current clamp N-1 ( $\varnothing=52\text{mm}$ )
- current clamp C-3 ( $\varnothing=52\text{mm}$ )
- carrying case L3
- charger for battery loading from the socket of car lighter (12V)
- calibration certificate issued by calibration laboratory
- Test lead with banana plugs 2m (N-1)
- „Crocodile“ clip K02; red
- Cramp

WASONG80  
WACEGN1BB  
WACEGC30KR  
WAFUTL3  
WAPRZLAD12SAM

WAPRZ002DZBB  
WAKRORE20K02  
WAZACIMA1



**Measurement of interference voltage  $U_N$  (RMS)**

Range	Resolution	Accuracy
0...100 V	1 V	$\pm(10\% \text{ m.v.} + 1 \text{ digit})$

**Measurement of continuity of equipotential bondings and protective conductors ( $R_{con}$ )**  
measurement range to IEC 61557-4:2007: 0,13  $\Omega$ ...1999  $\Omega$

Range	Resolution	Accuracy
0,00...9,99 $\Omega$	0,01 $\Omega$	$\pm(2\% \text{ m.v.} + 3 \text{ digits})$
10,0...99,9 $\Omega$	0,1 $\Omega$	
100...1999 $\Omega$	1 $\Omega$	

- measurement current: under short circuit >200mA
- frequency of measurement current: 125 Hz (for networks 50 Hz) and 150 Hz (for networks 60 Hz).

**Measurement of earthing resistance (method 3- and 4-pole)**

measurement range to IEC 61557-5:2007: 0,53  $\Omega$ ...9999  $\Omega$  (dla 50 V)

Range	Resolution	Accuracy
0,00...19,99 $\Omega$	0,01 $\Omega$	$\pm(3\% \text{ m.v.} + 3 \text{ digits})$
20,0...199,9 $\Omega$	0,1 $\Omega$	
200...1999 $\Omega$	1 $\Omega$	$\pm 5\% \text{ m.v.}$
2000...9999 $\Omega$	1 $\Omega$	$\pm 8\% \text{ m.v.}$

- measurement current: under short circuit >20 mA,
- voltage on open terminals: selectable 25 V AC or 50 V AC,
- frequency of measurement current: 125 Hz (for networks 50 Hz) or 150 Hz (for 60 Hz)

**Measurement of multiple earthing resistance with using the clamp and auxiliary electrodes (3p + clamp)**

Range	Resolution	Accuracy
0,00...19,99 $\Omega$	0,01 $\Omega$	$\pm(3\% \text{ m.v.} + 3 \text{ digits})$
20,0...199,9 $\Omega$	0,1 $\Omega$	
200...1999 $\Omega$	1 $\Omega$	$\pm 5\% \text{ m.v.}$
2000...9999 $\Omega$	1 $\Omega$	$\pm 8\% \text{ m.v.}$

- voltage on open terminals: selectable 25 V AC or 50 V AC,
- measurement current: under short circuit >20 mA,
- frequency of measurement current: 125 Hz (for networks 50 Hz) and 150 Hz (for networks 60 Hz)

**Measurement of multiple earthing resistance with using double clamps**

Range	Resolution	Accuracy
0,00...19,99 $\Omega$	0,01 $\Omega$	$\pm(10\% \text{ m.v.} + 8 \text{ digits})$
20,0...99,9 $\Omega$	0,1 $\Omega$	$\pm(20\% \text{ m.v.} + 3 \text{ digits})$

- frequency of measurement current: 125 Hz (for networks 50 Hz) and 150 Hz (for networks 60 Hz)

**Measurement of ground resistivity**

Measurement method: Wenner,  $\rho=2\pi LR_E$

Range	Resolution	Accuracy
0,00...9,99 $\Omega\text{m}$	0,01 $\Omega\text{m}$	depending on measurement accuracy $R_E$ with 4p method, but not less than $\pm 1$ digit
10,0...99,9 $\Omega\text{m}$	0,1 $\Omega\text{m}$	
100...999 $\Omega\text{m}$	1 $\Omega\text{m}$	
1,00...9,99 $\text{k}\Omega\text{m}$	0,01 $\text{k}\Omega\text{m}$	
10,0...99,9 $\text{k}\Omega\text{m}$	0,1 $\text{k}\Omega\text{m}$	
100...999 $\text{k}\Omega\text{m}$	1 $\text{k}\Omega\text{m}$	

L – distance between probes: 1...50 m.. or 1...150 ft

**Measurement of resistance of auxiliary electrodes  $R_H$  i  $R_s$**

Range	Resolution	Accuracy
0...999 $\Omega$	1 $\Omega$	$\pm(5\% \text{ m.v.} + 8 \text{ digits})$
1,0k...9,99 $\text{k}\Omega$	0,01 $\text{k}\Omega$	
10,0...19,9 $\text{k}\Omega$	0,1 $\text{k}\Omega$	