



MRU-120

Indeks: WMGBMRU120

Earth Resistance and Resistivity Meter

CAT IV
300V

CAT III
600V

IP 54

Description

Possible measurements:

- earth resistance measurement with 3-pole,4-pole method,
- earth resistance measurement without disconnecting measured earths (using clamp),
- continuity of equipotential bondings and protecting conductors
- two clamps earth resistance measurement without auxiliary test probs,
- earth resistivity measurement,



Technical Specification

It allows to take the measurements of:

- earth resistance using auxiliary electrodes,
- earth resistance using auxiliary electrodes and clamp (for measurements of multiple earth)
- earth resistance using double clamps (for measurement of earthing when it is impossible to use auxiliary electrodes),
- ground resistivity (Wenner method),
- measurement of continuity of equipotential bondings and protective conductors (meeting the requirements of IEC 60364 - 6-61:2000 section 6.12.2) with auto-zero function - with current 200 mA.

Additionally:

- measurement of resistance of auxiliary electrodes R_S and R_H ,
- measurement of interference voltage,
- measurement of interference frequency,
- measurement in the presence of interference voltage in the power network with frequency 50 Hz, 60 Hz
- selection of maximum measuring voltage (25 V and 50 V)
- introducing the distance between the electrodes for the resistivity in metres (m),
- memory of 990 measurements (10 banks of 99 cells each),
- calibration of clamp used,
- real time clock (RTC).

- data transmission to the computer (USB, wireless),
- indication of battery state.

Electric security:

- type of insulation: double, according to EN 61010 - 1 and IEC 61557
- measurement category: CAT IV 300 V acc. to EN 61010 - 1
- protection class acc. to EN 60529: IP54

Rated operational conditions:

- operation temperature: -10...+50°C
- storage temperature: -20...+70°C
- humidity: 20...80%

Other technical data:

- LCD display: graphic, backlighted
- interface: USB, wireless
- number of measurements carried out of set of batteries: > 500
- warranty: 24 months

Measurement of interference voltage

Range	Resolution	Accuracy
0...100 V	1 V	$\pm(2\% \text{ m.v} + 3 \text{ digits})$

- signalling overvoltage 24 V or 40 V rms
- measurement for DC and AC 45...65 Hz,

Measurement of earth resistance (method 3- and 4-pole)

measurement range to IEC61557 - 5: **0,30 Ω ...19,9 k Ω**

Range	Resolution	Accuracy
0,00...19,99 Ω	0,01 Ω	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
20,0...199,9 Ω	0,1 Ω	
200...1999 Ω	1 Ω	
2,0k...9,99 k Ω	0,01 k Ω	$\pm(5\% \text{ m.v.} + 4 \text{ digits})$
10,0k...19,9 k Ω	0,1 k Ω	

- measurement current: under short circuit >200 mA,
- voltage on open terminals: selectable <25 V AC or <50 V AC,
- frequency of measurement current: 125 (for networks 50 Hz) or 150

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

Measurement of continuity of equipotential bondings and protective conductors (R_{cont})

measurement range to IEC61557 - 5: **0,24 Ω...19,9 kΩ**

Range	Resolution	Accuracy
0,00...19,99 Ω	0,01 Ω	±(2% m.v. + 2 digits)
20,0...199,9 Ω	0,1 Ω	
200...1999 Ω	1 Ω	
2,0k...9,99 kΩ	0,01 kΩ	±(5% m.v. + 2 digits)
10,0k...19,9 kΩ	0,1 kΩ	

- voltage on open terminals: <24 V_{rms} but >4 V_{rms},
- measurement current: under short circuit >200 mA,
- frequency of measurement current: 125 (for networks 50 Hz) or 150 Hz (for networks 60 Hz), possible choice of measurement frequency in menu,
- auto-zero function measurement leads

Measurement of resistance of auxiliary electrodes R_H and R_S

Range	Resolution	Accuracy
0...999 Ω	1 Ω	±(5% (R _S +R _E +R _H) + 8 digits)
1,00k...9,99 kΩ	0,01 kΩ	
10,0k...19,9 kΩ	0,1 kΩ	

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

Range	Resolution	Accuracy
0,00...19,99 Ω	0,01 Ω	±(8% m.v. + 3 cyfry)
20,0...199,9 Ω	0,1 Ω	
200...1999 Ω	1 Ω	

- voltage on open terminals: selectable <25 V AC or <50 V AC,

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

Measurement of multiple earth resistance with using double clamps

Range	Resolution	Accuracy
0,00..19,99 Ω	0,01 Ω	±(10% m.v. + 3 digits)
20,0...149,9 Ω	0,1 Ω	±(20% m.v. + 3 digits)

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

Measurement of ground resistivity

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

Range	Resolution	Accuracy
0,0...199,9 Ωm	0,1 Ωm	depending on measurement accuracy R_E with 4p method, but not less than ±1 digit
200...1999 Ωm	1 Ωm	
2,00k...19,99 kΩm	0,01 kΩm	
20,0k...99,9 kΩm	0,1 kΩm	
100k...999 kΩm	1 kΩm	

L - distance between probes: 1...50 m