

Armored meter for earth resistance and soil resistivity

Measurement methods

- 3-pole and 4-wire method measurement of earthing systems using auxiliary probes
- 3-pole method with clamp measurement of earthing systems with multiple earth electrodes
- Two-clamp method measurement of earthing system when the auxiliary probes cannot be used
- Earth resistivity Wenner method
- Resistance of earth connection and equipotential bonding measured using current ≥200 mA with auto-zero function – meets the requirements of EN 61557-4

Additional features

- Outstanding resistance to harsh environmental conditions the suitcase housing protects against the ingress of dust and water and protects against the effects of falls
- Measurement of resistance of auxiliary electrodes R_s and R_H
- Measurement of interference voltage
- Measurement in the presence of interference voltage generated by power networks with frequency of 50 Hz or 60 Hz
- Selection of maximum measuring voltage (25 V and 50 V)
- Automatic calculation of soil resistivity in ohm-meters (Ωm) and ohm-feet (Ωft)
- Memory of 990 measurement results (10 banks of 99 cells each)
- Calibration of clamp used
- Real time clock (RTC)
- Data transmission to the computer
- Battery indication











Application

MRU-120HD was created for **the most difficult working conditions**. It generates a measuring current exceeding 200 mA, which provides effective measurements of grounding of energy objects such as transformer stations and power stations.

Thanks to the methods using clamps, it is **not necessary to disconnect the control connectors**, which is sometimes a very tedious operation. This plays a special role when performing works on objects exposed to weather conditions, where the connecting elements are sometimes corroded or tarnished.

The graphical user interface provides clear readings and explicit messages. This translates into quick, trouble-free service.

Transport and security

It doesn't matter if you take measurements while wading in the mud or if you act in the sand amongst clouds of dust. The MRU-120HD meter is ready and will not disappoint. **IP67** protection degree when the cover is closed ensures dust-tightness and prevents water ingress – even when the housing is immersed briefly! When measuring, the tightness is still high (IP54), providing protection against dust and water splashes from any direction.

Capabilities

The measuring methods available in the device allow for comprehensive control of working and protective grounding. The calibration function of the test leads eliminates the influence of their resistance on the result. However, this is just the beginning.

- The 4-wire method provides very accurate measurement of the expected small values of resistance eliminates the resistance of the test leads connecting the meter to grounding.
- **Measurement of resistance** of earth connection and equipotential bonding with a current exceeding 200 mA meets the requirements of EN 61557-4 standard.
- Before performing the measurement, the meter checks whether the tested object is a subject to excessive **interference voltage**, which may indicate additional problems.

Memory and results

The results can be saved to the device's memory. It is divided into **10 banks** of **99 cells**, each corresponding to one measurement. These results can be easily transferred to the **Sonel Reader** software for archiving or subsequent analysis and research.



Technical data

Measurement functions	Measurement range	Display range	Resolution	Accuracy ±(% m.v. + digits)
Interference voltage	0 V100 V	0 V100 V	1 V	±(2% m.v. + 3 digits)
Resistance of earth connection and equipotential bonding	0.24 Ω 19.9 k Ω acc. to EN 61557-4	0.00 Ω19.9 kΩ	from 0.01 Ω	from ±(2% m.v. + 2 digits)
Earth resistance				
3-pole and 4-wire method	0.30 Ω19.9 kΩ acc. to EN 61557-5	0.00 Ω19.9 kΩ	from 0.01 Ω	from ±(2% m.v. + 2 digits)
3-pole + clamp method	0.44 Ω 1999 Ω acc. to EN 61557-5	0.00 Ω1999 Ω	from 0.01 Ω	±(8% m.v. + 3 digits)
two-clamp method	0.00 Ω149.9 Ω	0.00 Ω149.9 Ω	from 0.01 Ω	from ±(10% m.v. + 3 digits)
auxiliary electrodes resistance	0 Ω19.9 kΩ	0 Ω19.9 kΩ	from 1 Ω	±(5% (R _E +R _H +R _S) + 8 digits), but ≥10% R _E
Earth resistivity	0.0 Ωm999 kΩm	0.0 Ωm999 kΩm	from 0.1 Ωm	Depends on the accuracy of the R _E 4p measurement, but not less than ±1 digit

Safety and work conditions

Measuring category according to EN 61010			
≤2000 m a.s.l.	IV 300 V		
≤3000 m a.s.l.	IV 255 V		
Ingress protection			
closed case	IP67		
open case	IP54		
Type of insulation according to EN 61010-1 and IEC 61557	double		
Dimensions	390 x 310 x 180 mm		
Weight	ca. 4 kg		
Operating temperature	-10+50°C		
Storage temperature	-20+80°C		
Humidity	2085%		
Nominal temperature	23±2°C		
Reference humidity	40%60%		
Memory and communication			
Memory of measurement results	990 results		
Data transmission	USB		
Other information			
Quality standard – development, design and production	ISO 9001		
The product meets the EMC (emission for industrial environment) requirements according to standards	EN 61326-1 EN 61326-2-2		

Standard accessories





WAPRZ004BLBB WAPRZ004BUBB

USB cable

WAPRZUSB







Test lead 25 m for earth resistance measurements (on a reel, banana plugs) blue / red

WAPR7025BUBBS7 WAPRZ025REBBSZ

2x cramp with banana socket WAZACIMA1

230 V mains power cable (IEC C7 plug) WAPRZLAD230

Calibration certificate issued by an accredited laboratory (no accreditation)



Test lead 50 m for earth resistance measurements (on a reel, banana plugs) yellow

WAPRZ050YEBBSZ



W1 hanging straps WAPOZSZE5



Z7 Power supply adapter WAZASZ7



L-4 carrying case WAFUTL4

Optional accessories



ERP-1 adapter WAADAERP1

C-3 current clamps

(Ø 52 mm)

WACEGC30KR



FS-2 flexible coil (Ф 1260 mm), output level 100 mV / 1 A

WACEGFS20KR



FSX-3 flexible coil (Ф 630 mm), output level 300 mV / 1 A

WACEGFSX30KR



Double-wire test lead 2 m for N-1 clamps

WAPRZ002DZBB

Crocodile clip 1 kV 20 A black / red / blue / yellow

WAKROBL20K01 WAKRORE20K02 WAKROYE20K02

Test lead on a reel yellow 75 m / 100 m / 200 m

WAPRZ075YEBBSZ WAPRZ100YEBBSZ WAPRZ200YEBBSZ

L-3 carrying case (for 80 cm test probes)

WAFUTL3

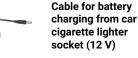


Test lead on a reel red 75 m /

100 m / 200 m WAPRZ075REBBSZ WAPRZ100REBBSZ

WAPRZ200REBBSZ

Earth contact test probe (25 cm) WASONG25



WAPRZLAD12SAM









WAPRZ1X2REBB WAPRZ1X2BUBB WAPRZ1X2YEBB

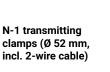
Test lead on a reel blue 75 m / 100 m / 200 m

Earth contact test probe (80 cm) WASONG80

with accreditation









Test lead 1.2 m (banana plugs) black

WAPRZ075BUBBSZ

Calibration certificate

/ blue / yellow

WAPRZ100BUBBSZ WAPRZ200BUBBSZ



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