

MRU-120HD

index: WMGBMRU120HD



measurement current













Armored meter for earth resistance and soil resistivity

Measurement methods

- 3- and 4-wire method measurement of earthing systems using auxiliary probes
- 3-wire method with clamps measurement of earthing systems with multiple earth electrodes
- **Two-clamp method** measurement of earthing system when the auxiliary probes cannot be used
- Soil resistivity Wenner method
- Resistance of earth and compensatory conductors 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



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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 guick, 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 four-lead 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 the continuity of protective connections and equipotential bondings 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.





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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)	
Connection and equipotential bonding resistance	0.24 Ω19.9 kΩ acc. to EN 61557-4	0.00 Ω19.9 kΩ	from 0.01 Ω	from ±(2% m.v. + 2 digits)	
Earth resistance					
3- 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-wire + clamp method	$0.44~\Omega1999~\Omega$ 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	\pm (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 $R_{\scriptscriptstyle E}$ 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	ht		ca. 4 kg		
Operating temperature		-10+50°C			
Storage temperature		-20+80°C			
Humidity	2085%		5%		
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			

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Standard accessories



Test lead 4 m (banana plugs) black / blue

WAPRZ004BLBB WAPRZ004BUBB



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

WAPRZ025BUBBSZ WAPRZ025REBBSZ



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

WAPRZ050YEBBSZ



4x earth contact test probe (30 cm)

WASONG30



2x cramp with banana socket

WAZACIMA1



W1 hanging straps

WAPOZSZE5



USB cable

WAPRZUSB



230 V mains power cable (IEC C7 plug)

WAPRZLAD230



Z7 Power supply adapter

WAZASZ7



L-4 carrying case

WAFUTL4



Calibration certificate issued by an accredited laboratory (no accreditation)

Optional accessories



ERP-1 adapter

WAADAERP1



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

WACEGFS20KR



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

WACEGFSX30KR



C-3 current clamps (Ø 52 mm)

WACEGC30KR



N-1 transmitting clamps (Ø 52 mm, incl. 2-wire cable)

WACEGN1BB



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

WAPRZ002DZBB



Pin probe 1 kV (banana socket) black / red / blue / yellow

WASONBUOGB1 WASONBLOGB1 WASONYEOGB1



Test lead 1.2 m (banana plugs) black / blue / yellow

WAPRZ1X2REBB WAPRZ1X2BUBB WAPRZ1X2YEBB



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

WAKROBL20K01 WAKRORE20K02 WAKROBU20K02 WAKROYE20K02



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

WAPRZ075REBBSZ WAPRZ100REBBSZ WAPRZ200REBBSZ



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

WAPRZ075BUBBSZ WAPRZ100BUBBSZ WAPRZ200BUBBSZ



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

WAPRZ075YEBBSZ WAPRZ100YEBBSZ WAPRZ200YEBBSZ



Earth contact test probe (25 cm)

WASONG25



Earth contact test probe (80 cm)

WASONG80



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

WAFUTL3



Cable for battery charging from car cigarette lighter socket (12 V)

WAPRZLAD12SAM



Calibration certificate with accreditation

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