



soil resistivity  
without manual  
conversion


**CAT IV**
**300 V**

**IP65**

## Basic measurements of earthing systems and continuity of connections

### Measurement methods

- **3-pole method** – measurement of earthing systems using auxiliary probes
- **2-pole method** – simplified measurement of resistance-to-earth
- **Resistance of earth connection and equipotential bonding** measured using current  $\geq 200$  mA with auto-zero function – meets the requirements of EN 61557-4

### Additional features

- Measurement of resistance of auxiliary electrodes  $R_s$  and  $R_H$
- Measurement of interference voltage
- Selection of maximum measuring voltage (25 V and 50 V)
- Auto-zero function for the resistance of measurement leads ( $R_{CONT}$  zero)

### Application

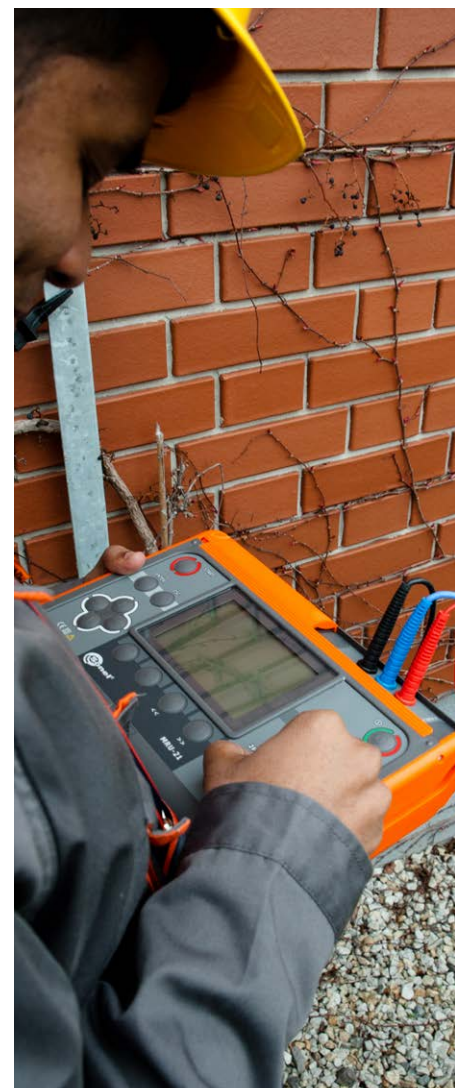
MRU-21 is designed as a reliable measuring instrument, which is both technically advanced and easy to use. It is suitable for tests in industrial plants and in companies providing electrical measurement services. MRU-21 allows user to test individual earth electrodes and systems with multiple earthing electrodes.

### Capabilities

**Large and easy to read display** shows the resistance values and supporting information in all weather conditions. Additional warnings inform the user about irregularities during the measurement.

**Housing with IP54 rating** ensures safety in difficult weather conditions and protect the device against splashes.

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 specifications

Measurement functions	Measurement range	Display range	Resolution	Accuracy ±(% m.v. + digits)
Interference voltage	0 V...100 V	0 V...100 V	1 V	±(2% m.v. + 3 digits)
Resistance of earth connection and equipotential bonding	0.13 Ω...199 Ω acc. to EN 61557-4	0.00 Ω...199 Ω	from 0.01 Ω	±(2% m.v. + 3 digits)
<b>Earth resistance</b>				
2-pole method	0.00 Ω...1.99 kΩ	0.00 Ω...1.99 kΩ	from 0.01 Ω	from ±(2% m.v. + 3 digits)
3-pole method	0.50 Ω...1.99 kΩ acc. to EN 61557-5	0.00 Ω...1.99 kΩ	from 0.01 Ω	±(2% m.v. + 3 digits)
auxiliary electrodes resistance	0 Ω...50.0 kΩ	0 Ω...50.0 kΩ	from 1 Ω	±(5% (R <sub>e</sub> +R <sub>h</sub> +R <sub>s</sub> ) + 3 digits)

## Safety and work conditions

Measuring category according to EN 61010	III 600 V / IV 300 V
Ingress protection	IP54
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	288 x 223 x 75 mm 11.3" x 8.8" x 3.0"
Weight	ca. 1.4 kg ca. 3.1 lbs
Operating temperature	-10...+55°C 14...131°F
Storage temperature	-20...+70°C -2...+157°F
Humidity	20...90%
Nominal temperature	23 ± 2°C 73.4°F ± 3.6°F
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



**Test lead 15 m on a reel, banana plugs, blue**

WAPRZ015BUBBSZ



**Test lead 1.2 m (banana plugs) blue**

WAPRZ1X2BUBB



**Crocodile clip 1 kV 20 A blue**

WAKROBU20K02



**Test lead 30 m for earth resistance measurements on a reel, red**

WAPRZ030REBBSZ



**Test lead 2.2 m (banana plugs) black**

WAPRZ2X2BLBB



**Crocodile clip 1 kV 20 A black**

WAKROBL20K01



**2 x earth contact test probe (30 cm)**

WASONG30



**USB cable**

WAPRZUSB



**Battery pack 4xLR14**

WAPOJ1



**L-4 carrying case**

WAFUTL4



**Hanging straps**

WAPOZSZEKPL



- 4 x R14 alkaline battery
- Calibration certificate without accreditation

## Optional accessories



**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



**Test lead 25 / 30 m on a reel, banana plugs, red**

WAPRZ025REBBSZ  
WAPRZ030REBBSZ



**Test lead 15 / 25 m on a reel, banana plugs, blue**

WAPRZ015BUBBSZ  
WAPRZ025BUBBSZ



**Test lead 50 m for earth resistance measurements (banana plugs) yellow**

WAPRZ050YEBBSZ



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

WASONBUOGB1  
WASONREOGB1  
WASONBLOGB1  
WASONYE0GB1



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

WAPRZ1X2BLBB  
WAPRZ1X2REBB  
WAPRZ1X2BUBB  
WAPRZ1X2YEBB



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

WAKRORE20K02  
WAKROBU20K02  
WAKROYE20K02



**Cramp with banana socket**

WAZACIMA1



**Earth contact test probe 25 cm / 80 cm**

WASONG25  
WASONG80



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

WAFUTL3



**Test wire reel**

WAP0ZSZP1



**Calibration certificate with accreditation**