


CAT IV
300 V

IP54

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 ≥ 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

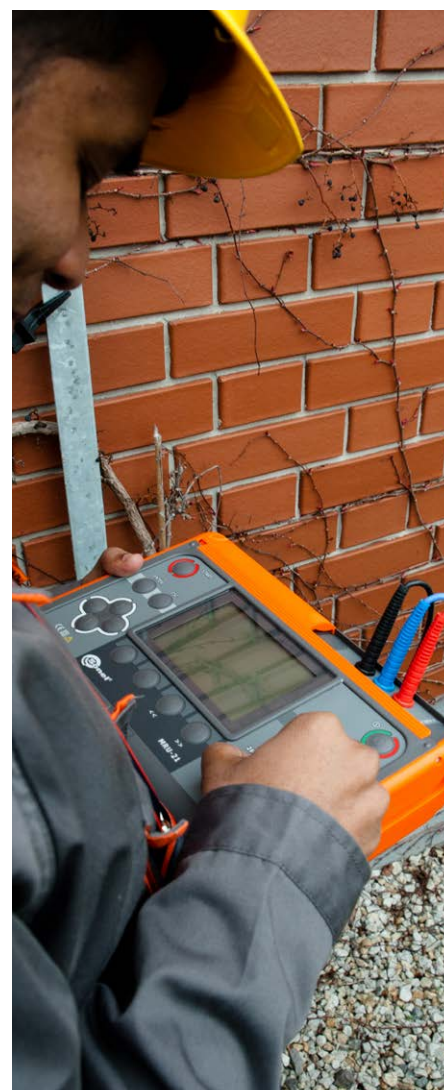
MRU-21 is designed as a reliable measuring instrument, which is both technically advanced and easy to use. It is suitable for tests in industrial plants and in companies providing electrical measurement services. MRU-21 allows user to test individual earth electrodes and systems with multiple earthing 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 **Soneel 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)
Earth resistance				
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% ($R_E + R_H + R_S$) + 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

WAP0J1



L-4 carrying case

WAFUTL4



Hanging straps

WAP0ZSZEKPL



- 4 x R14 alkaline battery
- Factory calibration certificate

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 40 m /
50 m / 60 m / 80 m
(banana plugs, on
a reel), yellow**

WAPRZ040YEBBSZ
WAPRZ050YEBBSZ
WAPRZ060YEBBSZ
WAPRZ080YEBBSZ



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

WASONBU0GB1
WASONRE0GB1
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
WASONG80V2



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

WAFUTL3



Test wire reel

WAP0ZSZP1



**Calibration certificate
with accreditation**