

AMRU

Grounding resistance and soil resistivity testers



MODELS
10, 11, 21,
120, 120 HD,
200 and 200 GPS

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amperis

AMRU-10

Earthing resistance meter

- Basic measurements of earthing under all conditions

Tap resistance measurement of land

- Earthing resistances by the technical method (3p).
- Resistances by the bipolar method (2p).

Features

- Resistance measurements of auxiliary electrodes r_h and r_s .
- Disturbance voltage measurements up to 100 v.
- Indication of the status of batteries or accumulators.
- Choice of measuring voltage (25 v and 50 v) automatic switch-off function.

Descripción

MRU-10 is a simple meter that enables measurements by the technical method as well as the measurement of earthing resistance by the bipolar method. The device is characterised by ease of operation, high resistance to interference and high accuracy.

MRU-10 is a simple to operate meter for earth resistance measurements. It is a basic device for testing the quality of the earthing circuit on the basis of the measurement result. Its ergonomic design, rugged and compact



housing as well as the large, easy-to-read display make the device ideal for use in the field and in most working environments. The device stands out for its simple operation and intuitive handling. It is the best choice for electrical installation contractors, technicians and grounding measurement specialists.

Technical specifications

Measurement functions	Range measurement	Display range	Resolution	Accuracy $\pm$ (% v.m. + digits)
Disturbing tension	0 V...100 V	0 V...100 V	1 V	$\pm$ (10% v.m. + 1 digit)
Earthing resistance				
2p method	0,00...9999 Ω	0,00...9999 Ω	from 0,01 Ω	form $\pm$ (3% v.m. + 3 digits)
3p method	0,53...9999 Ω according to EN 61557-5	0,00...9999 Ω	from 0,01 Ω	from $\pm$ (3% v.m. + 3 digits)
resistance of auxiliary electrodes	0 Ω ...19,9 k Ω	0 Ω ...19,9 k Ω	from 1 Ω	$\pm$ (5% + 8 digits)

Safety and conditions of use

Measurement category according to EN 61010-1	III 300 V
Housing protection	IP67
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	221 x 102 x 62 mm
Weight	ca. 660 g
Working temperature	-10...+50°C
Storage temperature	-20...+60°C
Humidity	20...90%
Nominal temperature	23 $\pm$ 2°C
Nominal humidity	40%...60%
Height above sea level	$\leq$ 2000 m

Other features

Quality standard - development, design and manufacture	ISO 9001
The product complies with the EMC requirements according to the standard	EN 61326-1 EN 61326-2-2

Standard accessories



**Cable 2.2 m
CAT III/1000 V
CAT IV/600V
(banana plugs) black**

WAPRZ2X2BLBB



**15 m red cable
for measuring
earthing on reel
(banana plugs)**

WAPRZ015REBBN



**30 m yellow cable
for measurement
reel grounding
(banana plugs)**

WAPRZ030YEBBN



**Black crocodile
1 kV 20 A**

WAKROBL20K01



**4 x 1.5 V AA
battery, LR6**



**2 x soil penetration
probe (25 cm)**

WASONG25



**Meter harness
(type M1)**

WAPOZSE4



Case M6

WAFUTM6



**Certificate of
calibration**

**Bracket - M1 hook
for the meter**

WAPOZUCH1

Additional accessories



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

WAKRORE20K02
WAKROBU20K02
WAKROYE20K02



**Cable 1.2 m
(connectors type
banana) black /
blue / yellow**

WAPRZ1X2BLBB



**1 kV tip probe
(banana plug) black
blue / yellow**

WASONBUOGB1
WASONBLOGB1
WASONYEOGB1



**25 / 30 m cable
for measuring
earth on reel
(banana plug) red**

WAPRZ025REBBSZ
WAPRZ030REBBSZ



**15 m cable for
measuring earth
on reel (banana
plugs) blue**

WAPRZ015BUBBSZ



**50 m cable for
measuring earth
on reel (banana
plugs) yellow**

WAPRZ050YEBBSZ



**Cable on reel,
red 75 m /
100 m / 200 m**

WAPRZ075REBBSZ
WAPRZ100REBBSZ
WAPRZ200REBBSZ



**Cable on reel,
blue 75 m /
100 m / 200 m**

WAPRZ075BUBBSZ
WAPRZ100BUBBSZ
WAPRZ200BUBBSZ



**Cable on reel, yellow
75 m / 100 m / 200 m**

WAPRZ075YEBBSZ
WAPRZ100YEBBSZ
WAPRZ200YEBBSZ



**Screw clamp
(banana plug)**

WAZACIMA1



**Probe to be driven
into the ground**

WASONG30
WASONG80



Cover L3

WAFUTL3



**Reel for winding up
the measuring cable**

WAPOZSP1



**Calibration
certificate issued
by accredited
laboratory**

AMRU-11

Earthing resistance meter and soil resistivity

- Easy way to measure wear grounding and resistivity



soil resistivity without conversion

>20 mA

measuring short-circuit current

Resistance measurement on the ground

- Soil resistivity.
- Earthing resistance by 3-wire and 4-wire method with auxiliary electrodes.
- Resistance of the test sample by means of the 2-wire.

Features

- Resistance of auxiliary electrodes R_h and R_s .
- Interference voltage measurement at 100 v.
- Battery status indication.
- Selection of maximum measuring voltage (25 v and 50 v).
- Automatic shutdown function.

Description

The MRU-11 is a simple meter that allows you to measure grounding using the technical method (3 and 4-wire) and soil resistivity using the Wenner method. The instrument is easy to operate, resistant to interference and highly accurate.

The MRU-11 is a basic device that allows the quality of the earthing system to be verified on the basis of the

measurement result received. Its ergonomic shape, Its durable, sturdy housing and large, clear display make this instrument ideal for use in the field as well as in most working environments. The device is simple to operate and intuitive. It is the best choice for electrical installation contractors, technicians and professionals dealing with grounding measurements.



Technical specifications

Measurement functions	Range measurement	Display range	Resolution	Accuracy $\pm(\% \text{ v.m.} + \text{digits})$
Interference voltage	0 V...100 V	0 V...100 V	1 V	$\pm(10\% \text{ m.v.} + 1 \text{ digit})$
Resistance to earth				
2-wire method	0,00...9999 Ω	0,00...9999 Ω	from 0,01 Ω	from $\pm(3\% \text{ v.m.} + 3 \text{ digits})$
3-wire and 4-wire method	0,53...9999 Ω according to EN 61557-5	0,00...9999 Ω	from 0,01 Ω	from $\pm(3\% \text{ v.m.} + 3 \text{ digits})$
auxiliary electrode resistance	0 Ω ...19,9 k Ω	0 Ω ...19,9 k Ω	from 1 Ω	$\pm(5\% + 8 \text{ digits})$
Earth resistivity	0,0 Ωm ...999 k Ωm	0,0 Ωm ...999 k Ωm	from 0,1 Ωm	Depends on the basic measurement uncertainty R_E in the 4p system, but is not less than $\pm 1 \text{ digit}$

Safety and conditions of use

Measurement category according to EN 61010	III 300 V
Degree of protection	IP67
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	221 x 102 x 62 mm
Weight	ca. 660 g
Working temperature	-10...+50°C
Storage temperature	-20...+60°C
Humidity	20...90%
Nominal temperature	23 $\pm$ 2°C
Nominal humidity	40%...60%
Height above sea level	$\leq 2000 \text{ m}$

Other features

Quality standard - development, design and manufacture	ISO 9001
The product complies with the EMC requirements according to the standard	EN 61326-1 EN 61326-2-2

Standard accessories



**Blue crocodile
1 kV 20 A**

WAKROBU20K02



**Black crocodile
1 kV 20 A**

WAKROBL20K01



**4 x measuring probe
to be driven into
the ground (25 cm)**

WASONG25



**Test cable 15 m,
blue (banana plugs,
on H-shaped reel)**

WAPRZ015BUBBN



**Test cable 15 m,
red (banana plugs,
on H-shape reel)**

WAPRZ015REBBN



**Test cable 30 m,
yellow (banana
plugs, on
H-shape reel)**

WAPRZ030YEBBN



**Cable 2,2 m azul
1 kV (conectores
tipo banana)**

WAPRZ2X2BUBB



**Cable 2,2 m negro
1 kV (conectores
tipo banana)**

WAPRZ2X2BLBB



**4 x 1.5 V AA alkaline
battery, LR6**



**Arnés para el
medidor (tipo M1)**

WAPOZSZE4



**Soporte - gancho
M1 para el medidor**

WAPOZUCH1



Case M6

WAFUTM6



**Certificate of
calibration**

Additional accessories



**Measuring probe
to be driven into
the ground (30 cm)**

WASONG30



**100 m red cable for
measuring the earth
connection on reel**

WAPRZ100REBBSZ



**200 m yellow cable
for measuring the
earthing on reel**

WAPRZ200YEBBSZ



**Measuring probe
to be driven into
the ground (80 cm)**

WASONG80



**25 m red cable for
measuring the earth
connection at
reel (banana plugs)**

WAPRZ025REBBSZ



**50 m yellow cable
for measuring the
grounding on reel
(banana plugs)**

WAPRZ050YEBBSZ



Clamp (banana plug)

WAZACIMA1



Cover L3

WAFUTL3



**Calibration
certificate issued
by accredited
laboratory**

AMRU-21

Earthing resistance meter

- Basic measurements of earthing and continuity of connections

ρ $aR \Omega a \Omega m$

Soil resistivity without manual conversion



Measurement methods

- 3-wire method** – measuring earthing with auxiliary probes.
- 2-wire method** – simplified measurement of earthing resistance.
- Resistance of earthing and compensating conductors** at current ≥ 200 mA with auto-zero function: complies with the requirements of EN 61557-4.

Additional features

- Resistance measurement of auxiliary electrodes R_s and R_H .
- Interference voltage measurement.
- Selection of maximum measuring voltage (25 V and 50 V).
- Resistance zeroing function of measuring conductors (RCONT zero) for electrical installation, technicians and specialists involved in earthing measurements.

Application

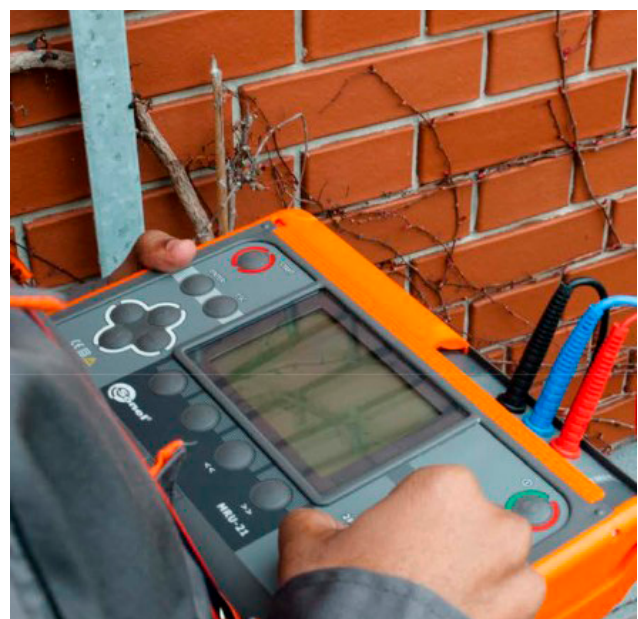
MRU-21 was designed to provide customers with a measuring instrument that is reliable in operation, technically advanced and at the same time easy to use. It works very well in testing in industrial plants as well as companies providing electrical measurement services. MRU-21 allows testing of single earth electrodes as well as multiple earthing systems. electrical, technicians and specialists engaged in earthing measurements.

Capacities

The large, easy-to-read display shows resistance values and help information in all weather conditions. Additional warnings inform the user about irregularities during the measurement.

The IP54 protective housing ensures safety of use during severe weather conditions and lack of concern about splashing.

The results can be stored in 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 Reader software for archiving or further analysis and research.



Technical data

Measurement functions	Range measurement	Display range	Resolution	Accuracy $\pm(\% \text{ v.m.} + \text{digits})$
Interference voltage	0 V...100 V	0 V...100 V	1 V	$\pm(2\% \text{ v.m.} + 3 \text{ digits})$
Connection and resistance of equipotential bonding	0,13 Ω ...199 Ω according to EN 61557-4	0,00 Ω ...199 Ω	from 0,01	$\pm(2\% \text{ v.m.} + 3 \text{ digits})$
Resistance to earth				
2-wire method	0,00 Ω ...1,99 k Ω	0,00 Ω ...1,99 k Ω	from 0,01 Ω	from $\pm(2\% \text{ v.m.} + 3 \text{ digits})$
3-wire method	0,53...9999 Ω according to EN 61557-5	0,00...9999 Ω	from 0,01 Ω	from $\pm(2\% \text{ v.m.} + 3 \text{ digits})$
auxiliary electrode resistance	0 Ω ...50,0 k Ω	0 Ω ...50,0 k Ω	from 1 Ω	$\pm(5\% (R_E + R_H + R_S) + 3 \text{ digits})$

Safety and conditions of use

Measurement category according to EN 61010	III 600 V / IV 300 V
Income protection	IP54
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	288 x 223 x 75 mm
Weight	ca. 1,4 kg
Working temperature	-10...+55°C
Storage temperature	-20...+70°C
Humidity	20...90%
Nominal temperature	23 $\pm$ 2°C
Reference humidity	40%...60%

Communication memory

Memory of measured results	990 results
Data transmission	USB

Other information

Norma de calidad: desarrollo, diseño y producción	ISO 9001
The product complies with EMC requirements (immunity for industrial environments)	EN 61326-1 EN 61326-2-2

AMRU-120

Earthing resistance meter and soil resistivity

200 mA

Measuring
current



Soil resistivity without
manual conversion

CAT IV

300 V



IP54



Measurement methods

- **3-wire and 4-wire method** – measurement of earthing with auxiliary probes.
- **3 wire clamp method** – the measurement of multiple earthings.
- **Soil resistivity** – Wenner method.
- **Resistance of earthing and compensating conductors** at current ≥ 200 mA with self-zeroing function: complies with the requirements of EN 61557-4.

Additional features

- **Measuring current 200 mA** – facilitates earth resistance measurements on difficult ground (sand, stony ground).
- Resistance measurement of auxiliary electrodes R_s and R_{Hr} .
- Interference voltage measurement.
- Measurement in the presence of interference voltage generated by mains systems with 50 Hz and 60 Hz frequencies.
- Selection of maximum measuring voltage (25 V and 50 V).
- Automatic calculation of soil resistivity at ohm metre (Ωm) and ohm foot (Ωft).
- Memory of 990 measurement results (10 banks of 99 cells).
- Calibration of clamp used.
- Real Time Clock (RTC).
- Data transmission to the computer.
- Battery indication.



Application

MRU-120 was designed for the **toughest working conditions**. It generates a measuring current of more than 200 mA, which makes it possible to effectively measure the earthing of power installations, such as transformer stations or power plants.

Thanks to 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 working on objects exposed to weather conditions, where the connection elements sometimes corrode or tarnish.

The graphical user interface provides readings clear and explicit messages.



Protection and equipment

The housing of the MRU-120 enables safe working outside as well as inside buildings. The IP54 protection protects the device against water and solids in case of splashes or heavy dust. In addition, the housing provides excellent protection during transport and handling. The extensive standard equipment allows most measurements to be carried out without the need to purchase additional accessories. MRU-120 is a versatile solution offering complete grounding control.



Capacities

The measurement methods available in the device allow a comprehensive control of the working and protective earth connection. The calibration function of the test leads **eliminates the influence of their resistance on the result**. However, this is only the beginning.

- **The four-wire method** provides a very accurate measurement of the expected small resistance values: it eliminates the resistance of the test leads connecting the meter to ground.
- **Continuity measurement of protective conductors** and equipotential bondings with a current greater than 200 mA meets the requirements of EN 61557-4.

- Before performing the measurement, the meter checks whether the tested object is under **excessive interference voltage**, which may indicate additional problems.

Report and results

The results can be stored in 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 **Reader** software for archiving or further analysis and research.

Other functions of use

Integrated help – additional pictures show how to perform the measurement correctly for each method.

Connection correction - if the meter detects an error that does not allow a correct measurement to be made, it will signal this fact at the top of the display using the appropriate symbol of the measurement socket.

Measurement data set - in addition to measuring earth resistance, additional measurements of interference voltages and resistance of auxiliary probes are performed. The results contain information on the date and time of the test, which facilitates the creation of measurement documentation.



Technical data

Measurement functions	Range measurement	Display range	Resolution	Accuracy $\pm(\% \text{ v.m.} + \text{digits})$
Interference voltage	0 V...100 V	0 V...100 V	1 V	$\pm(2\% \text{ v.m.} + 3 \text{ digits})$
Connection and resistance of equipotential bonding	0,24 Ω ...19,9 k Ω according to EN 61557-4	0,00 Ω ...19,9 k Ω	from 0,01 Ω	$\pm(2\% \text{ v.m.} + 2 \text{ digits})$
Resistance to earth				
3- and 4-wire method	0,30 Ω ...19,9 k Ω according to EN 61557-5	0,00 Ω ...19,9 k Ω	from 0,01 Ω	from $\pm(2\% \text{ v.m.} + 2 \text{ digits})$
3-wire method + clamps	0,44 Ω ...1999 Ω according to EN 61557-5	0,00...1999 Ω	from 0,01 Ω	from $\pm(8\% \text{ v.m.} + 3 \text{ digits})$
2-wire method	0,00 Ω ...149,9 Ω	0,00 Ω ...149,9 Ω	from 0,01 Ω	$\pm(5\% (R_E + R_H + R_S) + 8 \text{ digits})$, but $\geq 10\% R_E$
auxiliary electrode resistance	0 Ω ...50,0 k Ω	0 Ω ...50,0 k Ω	from 1 Ω	$\pm(5\% (R_E + R_H + R_S) + 3 \text{ digits})$

Safety and conditions of use

Measurement category according to EN 61010	III 600 V / IV 300 V
Income protection	IP54
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	288 x 223 x 75 mm
Weight	ca. 2 kg
Working temperature	-10...+50°C
Storage temperature	-20...+80°C
Humidity	20...85%
Nominal temperature	23 $\pm$ 2°C
Reference humidity	40%...60%

Communication memory

Memory of measured results	990 results
Data transmission	USB

Other information

Quality standard: development, design and production	ISO 9001
The product complies with EMC requirements (immunity for industrial environments).	EN 61326-1 EN 61326-2-2

AMRU-120HD

Grounding resistance and soil resistivity tester

200 mA

Measuring
current



Soil resistivity without
manual conversion



Measurement methods

- **3 and 4-wire method** - grounding measurement with auxiliary probes.
- **3-wire clamp method** - the measurement of multiple earthings.
- **Two-clamp method** - the measurement of earthing when auxiliary probes cannot be used.
- **Soil resistivity** - Wenner method
- **Resistance of earthing and compensating conductors** at current ≥ 200 mA with auto-zero function: complies with the requirements of EN 61557-4.

Additional features

- **Excellent resistance to harsh environmental conditions:** case shell protects against dust and water ingress and drop protection.
- Resistance measurement of auxiliary electrodes R_s and R_H .
- Interference voltage measurement.
- Measurement at the presence of the interference voltage generated by mains systems with 50 Hz or 60 Hz frequencies.
- Selection of maximum measuring voltage (25 V and 50 V).
- Automatic calculation of soil resistivity at ohm metre (Ωm) and ohm foot (Ωft).
- Memory of 990 measurement results (10 banks of 99 cells).
- 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 in excess of 200 mA, which provides effective measurements of the grounding of power objects such as transformer stations and power plants.

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 working on objects exposed to weather conditions, where the connecting elements sometimes corrode or tarnish.

Graphical user interface provides clear readings and explicit messages.

Transport and security

It doesn't matter if you take measurements while walking in the mud or working in the sand amidst clouds of dust. The MRU-120HD meter is ready and will not disappoint.

The IP67 protection rating when the cover is closed ensures dust tightness and prevents water ingress, even when the case is briefly submerged.

Capacities

The measurement methods available in the device enable comprehensive control of the working and protective earth connection. The calibration function of the test leads eliminates the influence of their resistance on the result. However, this is only the beginning.

The four-wire method provides a very accurate measurement of the expected small resistance values:

it eliminates the resistance of the test leads connecting the meter to earth.

Measuring the continuity of protective conductors and equipotential bonding with a current greater than 200 mA meets the requirements of EN 61557-4. Before performing the measurement, the meter checks whether the tested object is under excessive interference voltage, which may indicate additional problems.

Report and results

The results can be stored in 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 Reader software for archiving or further analysis and research.

Datos técnicos

Measurement functions	Range measurement	Display range	Resolution	Accuracy ±(% v.m. + digits)
Interference voltage	0 V...100 V	0 V...100 V	1 V	±(2% v.m. + 3 digits)
Connection and resistance of equipotential bonding	0,24 Ω...19,9 kΩ according to EN 61557-4	0,00 Ω...19,9 kΩ	from 0,01 Ω	±(2% v.m. + 2 digits)
Resistance to earth				
3 and 4-wire method	0,30 Ω...19,9 kΩ according to EN 61557-5	0,00 Ω...19,9 kΩ	from 0,01 Ω	from ±(2% v.m. + 2 digits)
3-wire + clamp method	0,44 Ω...1999 Ω according to EN 61557-5	0,00...1999 Ω	from 0,01 Ω	from ±(8% v.m. + 3 digits)
two-clamp method	0,00 Ω...149,9 Ω	0,00 Ω...149,9 Ω	from 0,01 Ω	from ±(10% v.m. + 3 digits)
auxiliary electrode resistance	0 Ω...19,9 kΩ	0 Ω...19,9 kΩ	from 1 Ω	±(5% ($R_E + R_H + R_S$) + 8 digits), but ≥10% R_E
Soil resistivity	0,0 Ωm...999 kΩm	0,0 Ωm...999 kΩm	from 0,1 Ωm	Depends on the accuracy of the R_E 4p measurement, but not less than ±1 digit
Dimensions		390 x 310 x 180 mm		
Weight		Ca. 4 kg		
Working temperature		-10...+50°C		

AMRU-200 / 200 GPS

Earthing resistance meter and soil resistivity



Measurement methods

- **Impulse method** - lightning protection measurement with measuring impulse with 4/10 μ s, 8/20 μ s, 10/350 μ s flank.
- **3 and 4 wire method** - measurement of earthing with auxiliary probes.
- **3 wire clamp method** - the measurement of multiple earthings.
- **Two-clamp method** - the measurement of earthing when auxiliary probes cannot be used.
- **Soil resistivity - Wenner method.**
- **Resistance of earthing and compensating conductors** with current ≥ 200 mA with auto-zero function: meets the requirements of EN 61557-4.
- **Measurement of leakage current.**

Additional features

- Built-in GPS receiver - saves result and location coordinates (AMRU-200-GPS)
- Resistance measurement of auxiliary electrodes R_s and R_{Hr} .
- Interference voltage measurement.
- Interference frequency measurement.
- Measurement in the presence of interference voltage generated by mains systems with frequency of 16 2/3 Hz, 50 Hz, 60 Hz, 400 Hz.
- Selection of maximum measuring voltage (25 V and 50 V).
- Automatic calculation of soil resistivity at ohm metre (Ω m) and ohm foot (Ω ft).
- Memory of 990 measurement results (10 banks of 99 cells).
- Calibration of clamp used.
- Real Time Clock (RTC).
- Data transmission to computer and mobile devices.
- Battery indication.
- Memory of 990 measurement results (10 banks of 99 cells).

Application

The MRU-200 and MRU-200-GPS meters are designed for harsh working conditions. They generate current measurement in excess of 200 mA, which makes it possible to effectively measure the earthing of power installations, such as transformer stations or power

plants. Thanks to the clamp-on methods, there is no need to disconnect the control connectors, which is sometimes a very tedious operation. The graphical user interface provides clear readings and explicit messages.

Method of drive

With MRU-200 and MRU-200-GPS it is possible to examine lightning protection earthing, as the meters can simulate lightning strike conditions: they generate currents which

are characterised as follows for the standardised sudden rise and time to half-peak. Pulse shapes with 4/10 μs , 8/20 μs , 10/350 μs edge are available.

Works with ERP-1 adapter

The ERP-1 adapter makes it possible to examine earth connections with the flexible clamp. This is particularly useful e.g. in case of electricity masts because it is not necessary to deactivate the lines or to disconnect the

control joints. A special algorithm makes it possible to check the current direction for individual measurements and makes it easier to find damage, e.g. a rusty strap.

Capacities

The measurement methods available in the device enable comprehensive control of the working and protective earth connection. The calibration function of the test leads eliminates the influence of their resistance on the result. However, this is only the beginning.

The four-wire method provides a very accurate measurement of the expected small resistance values: it eliminates the resistance of the test leads connecting the meter to ground.

Continuity measurement of protective conductors and equipotential bondings with a current greater than 200 mA meets the requirements of EN 61557-4.

Before performing the measurement, the meter checks if the tested object is under excessive interference voltage, which may indicate.

Report and results

The results can be stored in 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 Reader software for archiving or further analysis and research.

Bluetooth wireless communication interface allows measurement results to be sent to the computer and mobile with the AMRU Mobile app. This means not only the possibility to archive the data, but also to send it directly from the measurement site as an e-mail.

Technical data

Measurement functions	Range measurement	Display range	Resolution	Accuracy $\pm(\% \text{ v.m.} + \text{digits})$
Interference voltage	0 V...100 V	0 V...100 V	1 V	$\pm(2\% \text{ v.m.} + 3 \text{ digits})$
Connection and resistance of equipotential bonding	0,045 Ω ...19,99 k Ω according to EN 61557-4	0,000 Ω ...19,99 k Ω	from 0,001 Ω	$\pm(2\% \text{ v.m.} + 2 \text{ digits})$
Resistance to earth				
3 and 4-wire method	0,100 Ω ...19,9 k Ω according to EN 61557-5	0,000 Ω ...19,99 k Ω	from 0,001 Ω	desde $\pm(2\% \text{ v.m.} + 2 \text{ digits})$
3 wire + clamp method	0,120 Ω ...1999 Ω according to EN 61557-5	0,000 Ω ...1999 Ω	from 0,001 Ω	desde $\pm(8\% \text{ v.m.} + 3 \text{ digits})$
two-clamp method	0,00 Ω ...149,9 Ω	0,00 Ω ...149,9 Ω	from 0,01 Ω	desde $\pm(10\% \text{ v.m.} + 3 \text{ digits})$
drive method impulse 4/10 μs , 8/20 μs , 10/350 μs	0,0 Ω ...199 Ω	0,0 Ω ...199 Ω	from 0,1 Ω	$\pm(2,5\% \text{ w.m.} + 3 \text{ digits})$
auxiliary electrode resistance	0 Ω ...19,9 k Ω	0 Ω ...19,9 k Ω	from 1 Ω	$\pm(5\% (R_E + R_H + R_S) + 8 \text{ digits})$
Soil resistivity	0,0 Ωm ...999 k Ωm	0,0 Ωm ...999 k Ωm	from 0,1 Ωm	Depends on the accuracy of the R_E 4p measurement, but not less than ± 1 digit
Leakage current	0,1 mA...300 A	0,1 mA...300 A	from 0,1 mA	from $\pm(5\% \text{ w.m.} + 5 \text{ digits})$

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PROYECTO COFINANCIADO POR EL IGAPE, XUNTA DE GALICIA Y FONDO EUROPEO DE DESARROLLO REGIONAL DEL PROGRAMA OPERATIVO 2014-2020



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Xacobeo 2021

