Handheld Micro-Ohmmeter RMO-EH Series

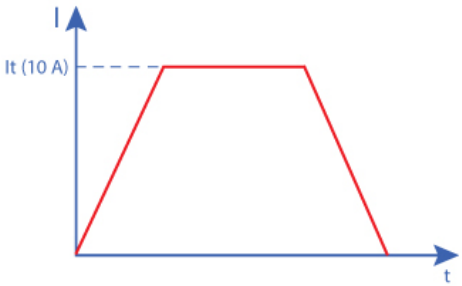
- Extremely lightweight – only 0,95 kg / 2.1 lbs
- Response time less than 3 seconds
- Regulated test current up to 10 A DC
- No rest time is needed between the tests
- Battery-powered / Internal memory
- Typical accuracy ± (0,2 % rdg + 0,2 % FS)
- Test leads on cable reel (up to 200 m)

Description

The RMO-EH, battery-powered, and handheld micro-ohmmeter is the unique solution on the market manufactured for low (mΩ) resistance measurement. It is designed to provide fast, repeatable, and accurate measurements, where non-inductive resistance is checked during factory, maintenance, and commissioning inspections or testing in high-induction field environments.

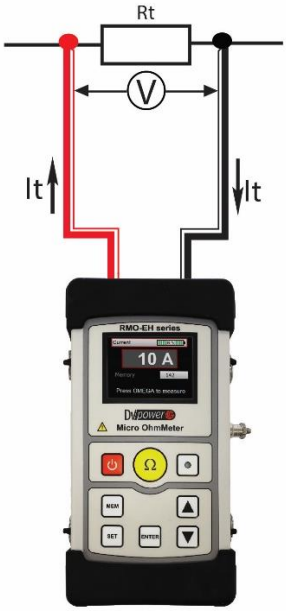
The high-capacity Li-Po battery enables generating a true DC ripple-free current.

With the use of an automatic test ramp (figure below), the test current is gradually increased before the measurement and decreased after the measurement is completed. This significantly reduces the influence of magnetic transients.



Applications

- Wind turbines - lightning protection
- On-board aircraft electrical systems – bonding tests
- Rail vehicle, lines, and rail track joints testing
- Earthing systems continuity verification
- HV and MV disconnecting switches
- High-current busbar joints
- Oil and gas pipelines bonding
- Continuity of protective bonding conductors
- Welding joints
- Cable splices and cable resistance



Connecting RMO-EH to a test object

The illustration diagram of the RMO-EH device connection to the test object is shown in the figure above.
For efficient measurement of the contact resistance values in applications where long test leads are required, a special measuring technique needs to be applied.
To eliminate the resistance of long test leads, the combined current and voltage sense leads with appropriate clamps and probes are designed to fulfill Kelvin's 4-point principle.

Ground grid continuity and integrity verification

For electrical substations and other facilities in which the availability of power supply is limited or when the lightweight, handheld, and easily portable test set is required, our battery-operated RMO-EH device is ideal to verify the condition of the earthing systems. The reliable integrity of the earthing systems is crucial as it provides safety for personnel and the installed equipment. The RMO-EH device provides a maximum of 10 A test current, test leads even up to 200 m (on reels), and accurate measurements within in-service grounding systems. Overcoming background noise, stray currents, etc., and enabling testing multiple times faster than with conventional methods.

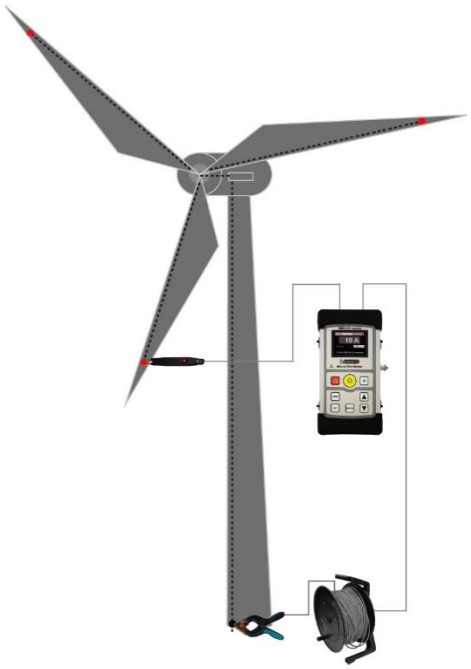
Ground grid continuity testing with RMO-EH

Wind turbines – lightning protection systems testing

Due to the increase in height of the wind turbines and exposed location, the risk of direct lightning strikes and corresponding damage becomes considerable.

To protect the wind turbines, the structure must have a very low resistance path to the ground. It begins with the receptors placed on the blades and continues with internal conductors that lead the path into the ground. For this reason, different lightning protection systems are required and should be periodically inspected.

To measure the low resistance values (typically < 30 mΩ) of wind turbine lightning conductors, the RMO-EH provides accurate results by using the test currents in a range of 1 A - 10 A.



Lightning protection system testing with RMO-EH

Benefits and features

RMO-EH is ideal for field and factory testing, with a very user-friendly interface (1-click test). This is achieved with an intuitive keyboard, menu design, and remote-control probe with a test button. It is designed to provide fast (test time less than 3 seconds), accurate, and repeatable measurements even in electrically noisy environments.

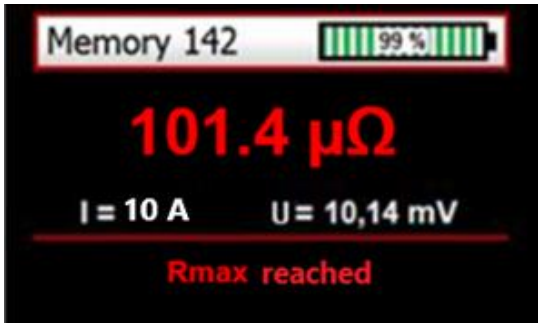
The high-capacity Li-Po battery enables multiple measurements. With a fully charged battery, RMO-EH can perform over 200 tests with the 10 A test current.

RMO-EH devices can store up to 10 000 test results in internal memory (time and date stamped resistance, test current, and voltage drop values). The results can be transferred to a PC with the use of Bluetooth communication.

The RMO-EH instruments have a very high typical accuracy ± (0,2% rdg + 0,2% FS), with the best resolution of 0,1 µΩ, which will ensure an accurate check of the wind turbine ground conductors.

Pass/fail criteria

The additional feature is the pass/fail criteria implemented through the R_{max} function. When this function is turned ON, the RMO-EH device displays information if the measured value is higher than the set R_{max} resistance value.



Software

The main features of the software are:

- Download of the test results to a PC
- Saving the test results in different formats
- Test reports creation (fully customized)

Test set

The instrument has dedicated test leads, short ones, and a long one on a cable reel, with click locking connectors, which makes RMO-EH ideal for testing the continuity of lightning protection conductors of the wind turbines or similar applications.

- Long test leads on cable reel: 200 m, 100 m, 60 m, and 30 m (655 ft, 330 ft, 200 ft, and 100 ft).
- One short lead with duplex probes and remote test button.
- One short lead with TTA or SCT clamps to establish the reference point.

Resistance measurement ranges

Test current	Resistance range	Cable length
1 mA	10 k Ω	30, 60, 100, 200 m
10 mA	1 k Ω	30, 60, 100, 200 m
100 mA	100 Ω	30, 60, 100, 200 m
1A	10 Ω	30, 60, 100, 200 m
2 A	5 Ω	30, 60, 100, 200 m
5 A	2 Ω 1,9 Ω 900 mΩ	30 m 60 m 100 m
10 A	950 mΩ 200 mΩ	30 m 60 m

Technical data

Battery

- Type: Li-Po (User-replaceable)
- 2 x 4 cells, 1300 mAh
- Recharge time: 1 hour

AC Adapter

- Input voltage 90 – 264 V AC, 47-63 Hz
- Output voltage 18 V DC
- Output current 3,33 A

Output data

- Test current range:
  - 1 mA – 10 A DC

  **Test current is regulated and user-selectable*
- Maximum DC output voltage:
  - 16,8 V (4 cells x 4,2 V)

Measurement

- Resistance range 0,1 µΩ – 10 kΩ
- Resolution

0,1 – 999,9 µΩ:	0,1 µΩ
1 – 9,999 mΩ:	1 µΩ
10 – 99,99 mΩ:	10 µΩ
100 – 999,9 mΩ:	0,1 mΩ
1 – 9,999 Ω:	1 mΩ
10 – 99,99 Ω:	10 mΩ
100 – 999,9 Ω:	0,1 Ω
1000 – 9999 Ω:	1 Ω

- Typical accuracy
  ± (0,2 % rdg + 0,2% FS)
- The device is equipped with the overcurrent, overvoltage, and undervoltage protection
- Response time less than 3 seconds

Display

- LCD display TFT 2.8 in
  (43,2 mm x 57,6 mm) / 1.8 in x 2.3 in
  320 x 240 pixels

Memory

- Internal: 32 GB SD Card
- RMO-EH can store up to 10 000 measurements*

  Time and date stamped resistance, measured and selected test current, and voltage drop values

Interface

- Bluetooth communication

Environment conditions

- Operating temperature:
  -10 ºC - +55 ºC / +14 ºF - +131 ºF
- Storage & transportation temperature:
  -40 ºC - +70 ºC / -40 ºF - +158 ºF
- Humidity: up to 95 %, non-condensing

Environmental protection (IP rating)

- IP40

Dimensions and Weight

- Dimensions (L x W x D):
  226 mm x 116 mm x 50 mm
  8.9 in x 4.5 in x 1.9 in
- Weight: 0,95 kg / 2.1 lbs

Warranty

- 3 years + 1 year upon device registration at DV Power website

Applicable Standards

- Installation/overvoltage: category II
- Pollution: degree 2
- Environmental tests – Shock: IEC 60068-2-27
- Environmental tests – Vibrations:
  IEC 60068-2-6
- Safety: Directive 2014/35/EU (CE conform)
  Standard EN61010-1 (LVD Directive)
- EMC: Directive 2014/30/EU (CE conform)
  Standard EN 61326-1:2021

All specifications herein are valid at the rated battery voltage (or higher output voltage), ambient temperature of + 25 °C and recommended accessories. Specifications are subject to change without notice.

Accessories

Cable reel (30m, 60m, 100m, or 200m)

Current and sense cable 2 m with flexible duplex probe (with trigger button)

Test lead extension 2 m

Current and sense cable 2 m with TTA clamps (3-pin) - black

Current and sense cable 2 m with SCT clamps (3-pin) – black

Current and sense cable 2 m with TTA clamps (4-pin) - red

Current and sense cable 2 m with SCT clamps (4-pin) - red

Power supply adapter

Transport bag

Order info

Instrument with included accessories	Article No
Handheld Micro Ohmmeter RMO10EH	RMO10EH-N-02
- USB with software - Ground (PE) cable - Carrying belts - Transport bag - Mains power cable 10 A with power supply adapter 18 V	

Standard accessories	Article No
Current and sense cable 1 x 2 m with flexible duplex probe (with trigger button)	CS-024MCN-XTDP
Current and sense cable 1 x 2 m with SCT clamps (3-pin) - black	CS-02-3MCNST
Test lead extension 1 x 2 m	E1-02-3MCNMC
Cable reel 60 m	CR-060-3FMCN

Optional accessories	Article No
Current and sense cable 1 x 2 m with TTA clamps (3-pin) - black	CS-02-3MCNWC
Current and sense cable 1 x 2 m with TTA clamps (4-pin) - red	CS-02-4MCNWC
Current and sense cable 1 x 2 m with SCT clamps (4-pin) - red	CS-02-4MCNST
Cable reel 30 m	CR-030-3FMCN
Cable reel 100 m	CR-100-3FMCN
Cable reel 200 m	CR-200-3FMCN
Test Shunt 150 A / 150 mV	SHUNT-150-MK
Cable bag	CABLE-BAG-00
Li-Po battery 14.8 V 650 mAh within fire retardant battery bag (2 pcs)	LION-BAT-003

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