



Winding OhmMeter RMO10T

- Lightweight - only 7,5 kg
- Test current 5mA - 10A DC
- Measuring range $1\mu\Omega$ - $2k\Omega$
- Two voltage sense channels
- Extremely quick measurement
- Automatic discharge circuit



High DC current resistance meter for transformers/motors

Description

The ohmmeter RMO10T is designed for resistance measurement of inductive test objects. RMO10T generates true, filtered DC current. Both injection of current and discharge of energy from the inductance is automatically regulated.

RMO10T injects current with a voltage as high as 60V. This ensures that the duration of test is as short as possible, and that the desired test current is reached as soon as possible. Two independent channels enable testing of two series windings, or primary and secondary windings. There is enough memory within RMO10T instrument to store 100 measurements. All measurements are time and date stamped.

The set is equipped with thermal and overcurrent protection. The RMO10T has very high ability to cancel electrostatic and electromagnetic interference in high HV electric fields. It is achieved by very efficient filtration. The filtration is made utilizing appropriate hardware and software. The RMO10T current output is 10 A continuously.

On Load Tap Changers

RMO10T can measure the winding resistance of the individual taps of a power transformer's tap changer, and can check whether the on-load tap changer (OLTC) switches without an interruption. In the moment the tap is changed from tap to tap, the device detects the sudden, very short drop of the current flow. A properly working of tap changer differs from a malfunctioning one, e.g., an interruption during the change, by the magnitude of the ripple and slope values. An interruption will result in much higher ripple and slope values than a properly functioning of tap changer.

RMOWin-T

Using RMOWin-T software a test can be operated from PC, and the results can be obtained directly in PC. Using RMOWin-T the result can be printed like an Excel table which later can be shown as a diagram and used for a report.

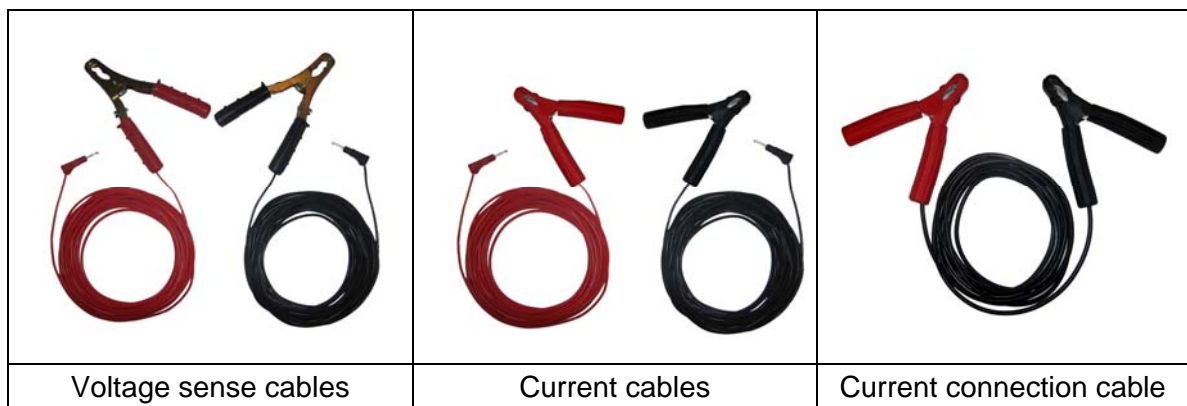
Typical application

Typical application of RMO10T is measuring the resistance of:

- ✓ transformers
- ✓ On-Load Tap Changers
- ✓ generators and electrical motors
- ✓ high-current busbar joints
- ✓ cable splices

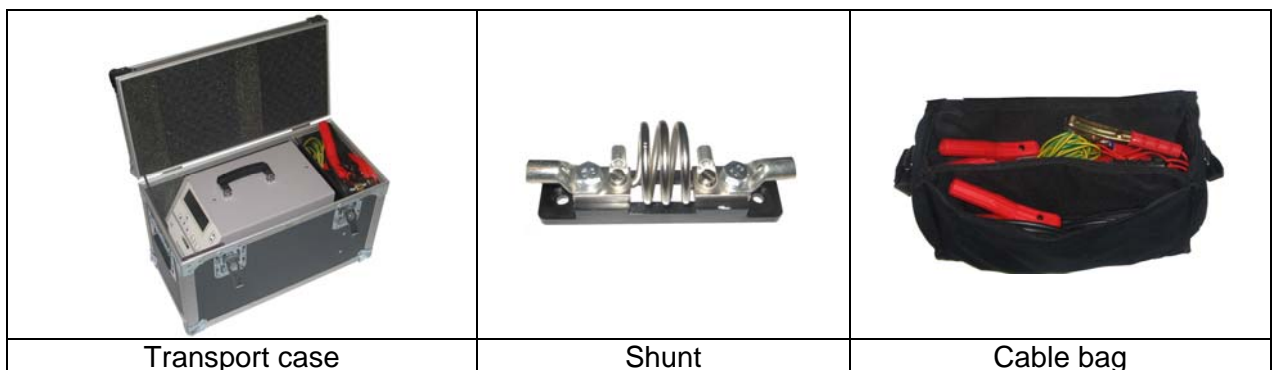
Standard accessories

- ✓ RMO-Win PC software including RS232 cable
- ✓ Current cables 2 x 10m 2,5mm² with battery clips
- ✓ Sense cables 2 x 2 x 10m 2,5mm² with alligator clips
- ✓ Current connection cable 1x 5m 6 mm²
- ✓ Mains power cable
- ✓ Ground (PE) cable
- ✓ Transport case



Optional accessories

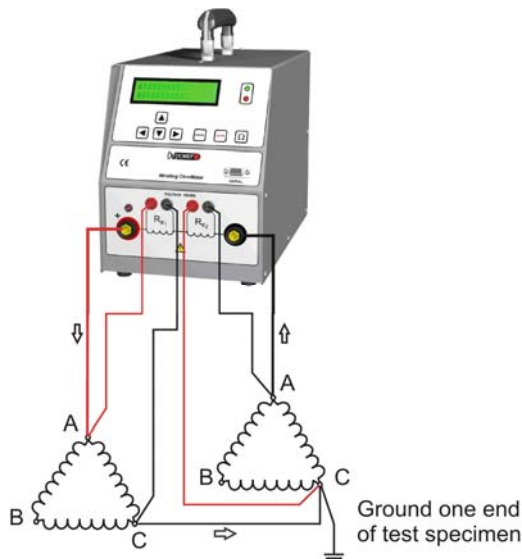
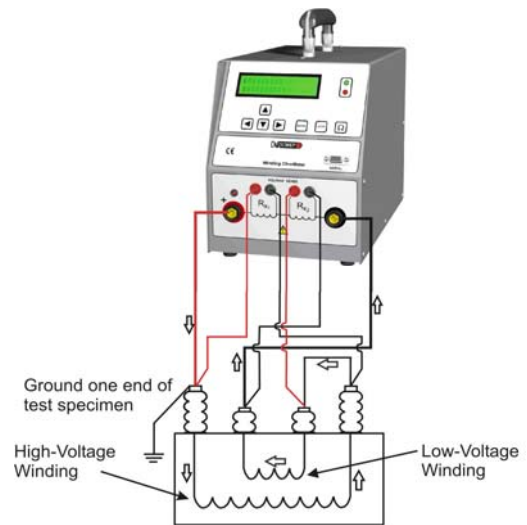
- ✓ Test shunt 50A/100mV
- ✓ Current cables 2 x 15m 2,5mm² with battery clips
- ✓ Sense cables 2 x 2 x 15m 2,5mm² with alligator clips
- ✓ Cable bag



Connecting a Test Object to RMO10T

With RMO10T turned off, connect RMO10T to the test object in such a way that the measuring cables from the "Voltage Sense" sockets are attached as close as possible to measured resistance, and in between the current feeding cables. That way, resistance of both cables and clamps is almost completely excluded from the resistance measurement.

At the right figure is shown simultaneous testing both windings (high and low) on a single-phase transformer. In such a way, it is possible to speed up the measurement when two channels are used to test both windings of the transformer.

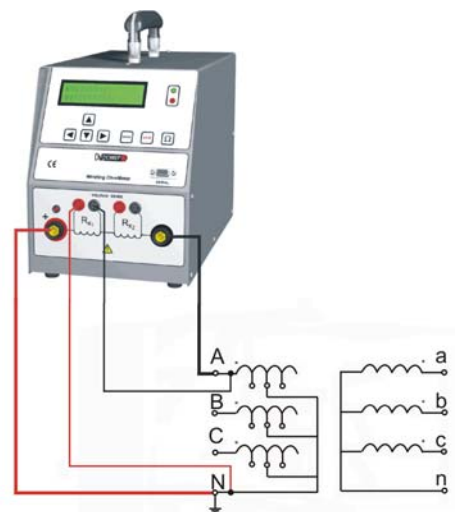


Testing of a Delta-delta winding resistance is usually a very time consuming procedure. This is because the two windings resemble two closed loop inductors. When energy is brought into the inductors, this energy (in the form of D.C. current) continually circulates within each winding. A method to quickly test this configuration requires that both the high side and low side are connected in series with the Transformer Ohmmeter's current source. By having these two windings in opposite polarity, the internal circulating currents settle very quickly to obtain a balance, and discharge with the same speed. Even if only one side of the transformer needs to be tested, connecting both high and low windings in series will speed up the test considerably.

Using RMO10T's the TapChanger menu the winding resistance of the individual taps of a power transformer's tap changer can be measured, and also can be checked whether the on-load tap changer switches without an interruption.

From the Current outputs, RMO10T injects a constant current into the power transformer. From this current value and the voltage measured, the winding resistance is calculated.

An interruption caused by a defective tap changer results in comparatively high measured values for ripple and slope.



Technical data

1 - Mains Power Supply

- Connection according to IEC/EN60320-1; UL498, CSA 22.2
- Voltage single phase 110 - 240V AC, +10% - -15%
- Frequency 50/60 Hz

2 - Output data

- Test current 5 mA DC - 10A DC
- Measuring range / Resolution
 - 1 $\mu\Omega$ - 999,9 $\mu\Omega$ 0,1 $\mu\Omega$
 - 1,000m Ω - 9,999m Ω 1 $\mu\Omega$
 - 10,00m Ω - 99,99m Ω 10 $\mu\Omega$
 - 100,0 m Ω - 999,9 m Ω 0,1 m Ω
 - 1,000 Ω - 99,99 Ω 10 m Ω
 - 100,0 Ω - 999,9 Ω 0,1 m Ω
 - 1000 Ω - 2000 Ω 1 Ω
- Typical accuracy \pm (0,20% + 0,20 F.S.)

3 – Environmental conditions

- Operating temperature -10 $^{\circ}$ C - +50 $^{\circ}$ C / 14 $^{\circ}$ F - +122 $^{\circ}$ F
- Storage and transportation -25 $^{\circ}$ C - +70 $^{\circ}$ C / -13 $^{\circ}$ F - +158 $^{\circ}$ F
- Humidity 5 - 95% relative humidity, non condensing

4 - Dimensions and Weight

- Dimensions 198 x 255 x 380 mm
7,8 x 10 x 15 in
(W x H x D) without handle
- Weight 7,5 kg/16,5 lb

5– Safety Standards

- European standards EN 61010-1
- International standards IEC 61010-1

6 – Electromagnetic Compatibility (EMC)

- CE conformity EMC standard 89/336/EEC
- Emission EN 50081-2, EN 61000-3-2/3
- Interference Immunity EN 50082-2

Specifications are subject to change without notice.

