

# RMO20T

- Lightweight - only 7,5kg
- Test current 5mA - 20A DC
- Measuring range 0,1 $\mu\Omega$  - 2k $\Omega$
- Two voltage sense channels
- Extremely quick measurement
- Automatic discharge circuit



## High DC current resistance meter for transformers/motors

### DESCRIPTION

The ohmmeter RMO20T is designed for resistance measurement of inductive test objects. RMO20T generates true, filtered DC current. Both injection of current and discharge of energy from the inductance is automatically regulated.

RMO20T 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 RMO20T instrument to store 500 measurements. All measurements are time and date stamped.

The set is equipped with thermal and overcurrent protection. The RMO20T 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. □

### ON LOAD TAP CHANGERS

RMO20T 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 value. An interruption will result in much higher ripple value 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 RMO20T is measuring the resistance of:

- Power 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 2x10m 2,5mm<sup>2</sup>
- Sense cables 2x2x10m 2,5mm<sup>2</sup>
- Current connection cable 1x5m 6mm<sup>2</sup>
- Mains power cable
- Ground (PE) cable
- Transport case



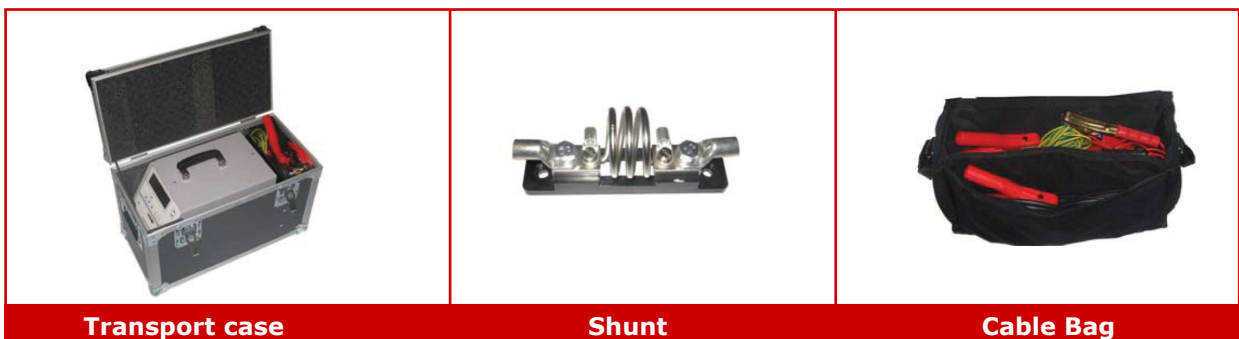
Voltage sense cables

Current cables

Current connection cable

**TYPICAL APPLICATION**

- Built-in thermal printer
- Test shunt 50A/100mV
- Current cables 2x15m 2,5mm<sup>2</sup>
- Sense cables 2x2x15m 2,5mm<sup>2</sup>
- Cable bag



Transport case

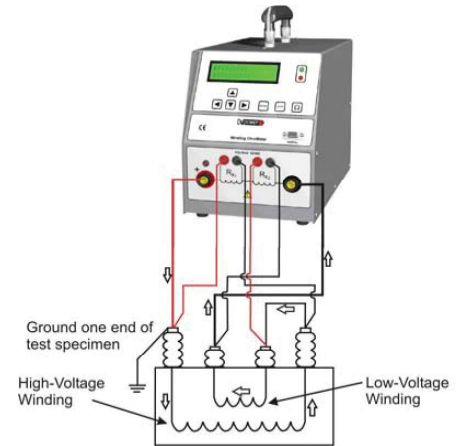
Shunt

Cable Bag

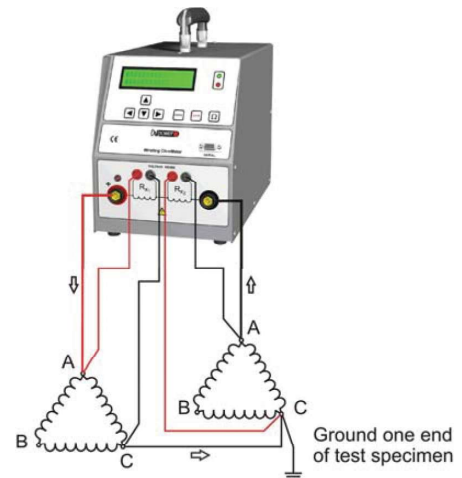
**CONNECTING A TEST OBJECT TO RMO20T**

With RMO20T turned off, connect RMO20T 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. □

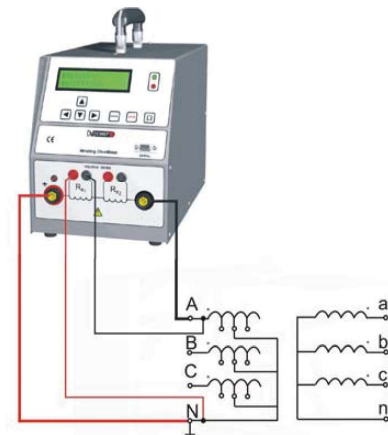


Testing of a Delta-delta winding resistance is usually a very time consuming procedure. This is because the two windings resemble two closed loop inductors. When energy is brought into the inductors, this energy (in the form of D.C. current) continually circulates within each winding. A method to quickly 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 RMO20T'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, RMO20T 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 value for ripple.



**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  5mA DC - 20A DC
- Measuring range / Resolution 
  - 1μΩ-999,9μΩ  0,1μΩ
  - 1,000mΩ-9,999mΩ  1μΩ
  - 10,00mΩ-99,99mΩ  10μΩ
  - 100,0 mΩ-999,9mΩ  0,1mΩ
  - 1,000Ω-99,99Ω  10mΩ
  - 100,0Ω-999,9Ω  0,1mΩ
  - 1000Ω-2000Ω  1Ω
- Typical accuracy  ±(0,2% rdg + 0,2% FS)

**3. Measurement**

- Operating temperature  -10°C - +50°C / 14°F - +122°F
- Storage and transportation  -25°C - +70°C / -13°F - +158°F
- Humidity  5 - 95% relative humidity, non condensing

**4. Dimensions and Weight**

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

**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.*