



Winding Resistance Meter

Model WRM-10P

TESTING APPLICATIONS

Designed to accurately measure the winding resistance of highly inductive power transformers

DESCRIPTION

The unit's dual resistance-reading input channels can measure two winding resistances simultaneously, and four-wire (Kelvin) connections provide high accuracy and require no lead compensation. The WRM-10P provides stable resistance readings of very large transformers by utilizing a 36 VDC power supply capable of providing up to 10 A test current. The resistance reading of a 100 MVA transformer can be achieved in 5 minutes or less. The unit's power supply is cooled by heavy-duty fans designed for continuous operation.

Since the WRM-10P can accurately measure resistances ranging from 1 micro Ohm to 2000 Ohms, it can also be used to measure EHV circuit breaker contact resistance, motor winding resistance, or any low resistance. If the transformer winding temperature is entered, the WRM-10P can calculate the equivalent resistance value of the winding material (aluminum or copper) at any standard reference temperature. Also, a special test mode can run a test for up to 45 minutes while saving resistance readings at one-minute intervals. In addition to measuring the resistance value, the WRM-10P also checks the "make-before-break" tap-switching sequences of voltage regulators and load tap changers.

The WRM-10P is furnished with three 50-foot test cables. Each test cable lead is terminated with a quick-disconnect test clip.

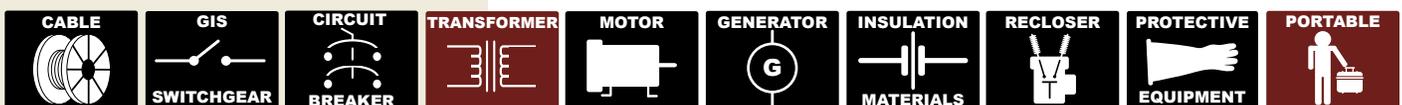
- Portable, lightweight
- Auto discharge circuit for operator safety
- Auto current ranging from 10 mA to 10 A
- Digital resistance reading from 1 micro Ohm to 2000 Ohms
- Stores 63 records (of 48 readings each)
- Built-in 2.5 inch wide thermal printer



Internal Test Record Storage

The WRM-10P can store 63 test records (up to 48 readings per test record) in Flash EEPROM. Test records can be retrieved and printed on the built-in thermal printer or can be transferred to a PC via the RS-232C interface port. Windows®-based software is provided with each WRM-10P that can be used to retrieve test records from the WRM-10P and can also be used to export records in Microsoft® Excel format.

TEST RESULTS	
DATE: 01/19/12	TIME: 12:19:38
COMPANY:	
STATION:	
CIRCUIT:	
MFR:	
MODEL:	
S/N:	
KVA RATING:	
OPERATOR:	
EQUIVALENT RESISTANCE DATA	
MEAS TEMP T _a = 25.0C 77.0F	
REF TEMP T _r = 85.0C 185.0F	
COPPER WINDINGS, T _k = 234.5C	
R _a = R _{meas} x C[(T _a +T _k)/(T _r +T _k)] ²	
All temps for eqn are in deg C	
V1 & V2 TEST	
R1 = 60.499 MILLI-OHMS	
R1s = 74.49 MILLI-OHMS	
R2 = 60.570 MILLI-OHMS	
R2s = 74.57 MILLI-OHMS	
TAP/WINDING:	
DATE: 01/19/12	TIME: 12:19:38



Built-in Safety Features

At the end of each test, the WRM-10P automatically dissipates the stored energy in the transformer. This discharge circuit will continue to work even if the supply voltage is lost. For added safety, the unit's power supply is thermally protected from over-load damage.

User Interface

The WRM-10P features a back-lit LCD screen (20 characters by 4 lines) that is viewable in both bright sunlight and low-light levels. A rugged, alpha-numeric, membrane keypad is used to control the unit.

INPUT POWER	100-120 VAC or 200-240 VAC (factory preset), 50/60 Hz
RESISTANCE READING RANGE	1 micro Ohm - 2000 Ohms
ACCURACY	1 - 19,999 micro Ohms: $\pm 0.5\%$ reading, ± 1 count 20 - 999 milli Ohms: $\pm 1\%$ reading, ± 1 count 1 - 2000 Ohms: $\pm 1.5\%$ reading, ± 1 count
TEST VOLTAGE	36 VDC max
TEST CURRENT RANGE	Auto range, 10 A max
DISPLAY	Back-lit LCD Screen (20 characters by 4 lines); viewable in bright sunlight and low-light levels
PRINTER	2.5-inch wide built-in thermal printer
KEYPAD	Rugged membrane keypad (10 alpha-numeric keys, 6 function keys)
INTERNAL TEST RECORD STORAGE	Stores 63 test records of 48 readings each
COMPUTER INTERFACE	One RS-232C port
PC SOFTWARE	Windows®-based software is included
SAFETY	Designed to meet IEC61010 (1995), UL61010A-1, CSA-C22.2 standards
ENVIRONMENT	Operating: -10° to $+50^{\circ}\text{C}$ ($+15^{\circ}$ to $+122^{\circ}\text{F}$); Storage: -30° to $+70^{\circ}\text{C}$ (-22° to $+158^{\circ}\text{F}$)
HUMIDITY	<90% RH @ 40°C (104°F) non-condensing
ALTITUDE	2000 m (6,562 ft) to full safety specifications
DIMENSIONS & WEIGHT	17" L x 10 1/2" W x 12 1/2" H; Weight: 27 lbs (12 kgs)
CABLES INCLUDED	Three 50' (15 m) test cables, ground cable, power cord and cable bag

NOTE: This product is manufactured by one of Phenix Technologies' valued partners offering supplementary innovative testing solutions.



High Voltage • High Current • High Power Test Systems and Components

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