

WRM-10P

Transformer Resistance Meter



Vanguard Instruments Company

H.V. TEST (PTY) LTD

3 Gaiety Ave, Robindale, Randburg, South Africa, 2010

Tel: +27(11) 782 1010 Fax: +27(11) 782 2770

P.O. Box 651287, Benmore, 2010

Email: sales@hvtest.co.za

Website: www.hvtest.co.za



WRM-10P™

Fast and Accurate Measurements

The WRM-10P accurately measures winding resistance of highly inductive power transformers. Dual resistance-reading-input channels allow the measurement of two winding resistances simultaneously. Four-wire (Kelvin) connections provide high accuracy and require no lead compensation. Utilizing a 36Vdc power supply capable of outputting up to 10 amperes; the WRM-10P provides stable resistance readings of very large transformers. The resistance reading of a 100MVA transformer can be achieved in 3 minutes or less. The WRM-10P power supply is cooled by two heavy duty fans designed for continuous operation.

Since the WRM-10P can accurately measure resistances ranging from 1 micro-ohm to 2,000 ohms, it can also be used to measure EHV circuit-breaker contact resistance, motor winding resistance, and other low resistance test application. The transformer winding temperature can be input to the WRM-10P, which will calculate the equivalent resistance value of the (aluminum or copper) winding at any standard reference temperature. A special test mode allows the WRM-10P to run a test up to 45 minutes while saving resistance readings at one-minute intervals. A contact mode checks the “make-before-break” tap-switching sequences of voltage regulators and load tap changers.

The WRM-10P can store test results in FLASH EEPROM for later recall, analysis, or printout. The test results may be downloaded to a computer database for archival and statistic purposes. A built-in 2.5-in thermal printer permits users to print out hard copies of test results in the field. The WRM-10P is supplied with three 50-foot cable sets. Each cable lead is terminated with a “quick-disconnect” test clip.

Built-in Safety Features

To ensure the operator's safety, the WRM-10P automatically dissipates the energy stored in the transformer at the end of each test. This discharge circuit will continue to work even in if the WRM-10P supply voltage is lost.

User Interface

A rugged, 16-button alpha-numeric key pad allows the users to enter test information and to select control functions. Current and resistance readings display on a 4-line by 20-character back lighted LCD.

Test Result Storage Capacity

The WRM-10P can store 48 records (up to 96 readings per record) in the FLASH EEPROM memory. User can recall stored records for printing or transfer to an IBM-compatible PC via the RS-232C port. A Windows based software package (provided) with each unit allows the users to down load test records to a PC. The user can then review, print or export test records.

SPECIFICATIONS

TYPE	Special purpose test equipment, portable transformer winding resistance meter
PHYSICAL SPECIFICATIONS	16.8" W by 12.6" H by 10.6" D (42.6 cm x 32.0 cm x 27 cm), Weight 27 lbs (12.2 kg)
INPUT POWER	90-130 Vac or 200-240 Vac (selectable), 50/60 Hz
RESISTANCE READING RANGE	1 micro-ohm to 2,000 ohms
ACCURACY	1 – 19,999 micro-ohm: ±0.5% reading, ±1 count, 20 – 999 milli-ohm: ±1% reading, ±1 count, 1 – 2,000 ohm: ±1.5% reading, ±1 count
TEST VOLTAGE	36 Vdc max
TEST CURRENT RANGE	Auto range, 10 Amperes max
DISPLAY	Backlit LCD, 4 lines by 20 characters
PRINTER	2.5" wide Thermal Printer
KEYBOARD	Heavy-duty keypad: 10 number keys, 6 function keys
TEST RECORD STORAGE	Store 63 records of 96 readings each
COMPUTER INTERFACE	RS-232C port, 19,200 Baud
PC SOFTWARE	Windows® 98/2000/NT/XP-Based software included
SAFETY	Designed to meet IEC61010 (1995), UL61010A-1, CSA-C22.2
ENVIRONMENT	Operating: -10°C to 50° C (15°F to +122° F); Storage: -30° C to 70° C (-22°F to +158° F)
CABLES	Three 50-ft test cables, ground cable, power cord and cable bag
OPTIONS	Shipping Case
WARRANTY	One Year Parts & Labor, Post Warranty Service Contract Available

H.V. TEST (PTY) LTD

3 Gaiety Ave, Robindale, Randburg, South Africa, 2010

P.O. Box 651287, Benmore, 2010

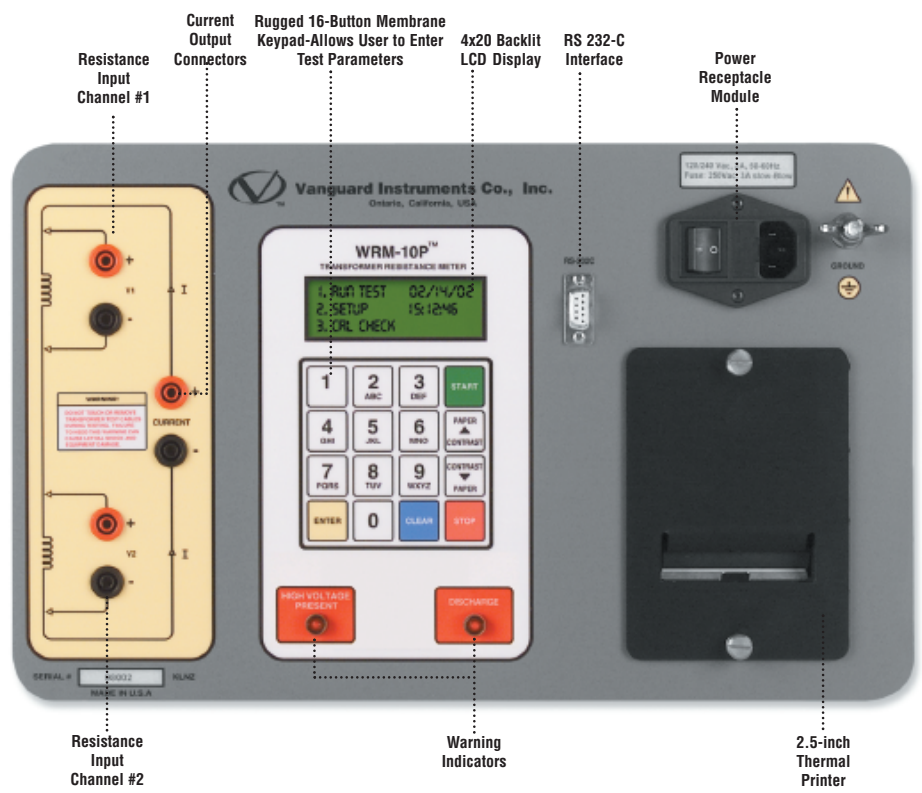
Tel: +27(11) 782 1010 Fax: +27(11) 782 2770

Email: sales@hvtest.co.za

Website: www.hvtest.co.za

REC NUMBER 3	
TEST RESULTS	
DATE: 01/21/05	TIME: 14:55:09
COMPANY:	NPC
STATION:	WSH
CIRCUIT:	BNKS
MFR:	EFACEC
MODEL:	C13968
S/N:	C13968
KVA RATING:	138 13
OPERATOR:	AG
EQUIVALENT RESISTANCE DATA MEAS TEMP $T_m = 20.5C$ 68.9F REF TEMP $T_s = 85.0C$ 185.0F COPPER WINDINGS, $T_k = 234.5C$	
$R_s = R_{meas} \times C[(T_s+T_k)/(T_m+T_k)]$ All temps for eqn are in deg C	
V1 & V2 TEST	
R1 = 60.393 MILLI-OHMS	
R1s = 75.67 MILLI-OHMS	
R2 = 60.377 MILLI-OHMS	
R2s = 75.65 MILLI-OHMS	
TAP/WINDING: _____	
V1 & V2 TEST	
R1 = 60.430 MILLI-OHMS	
R1s = 75.71 MILLI-OHMS	
R2 = 60.395 MILLI-OHMS	
R2s = 75.67 MILLI-OHMS	
TAP/WINDING: _____	

- FEATURES**
- AUTO DISCHARGE CIRCUIT FOR OPERATOR SAFETY
 - AUTO CURRENT RANGING FROM 10 mA TO 10 AMPERES
 - DIGITAL RESISTANCE READING FROM 1 MICRO-OHM TO 2000 OHMS
 - STORES 63 RECORDS (OF 48 READINGS EACH)
 - BUILT-IN 2.5-INCH THERMAL PRINTER • WEIGHT: 27 LBS



▲ Thermal Printer Output

Ordering Information
WRM-10P™ Winding Resistance Meter

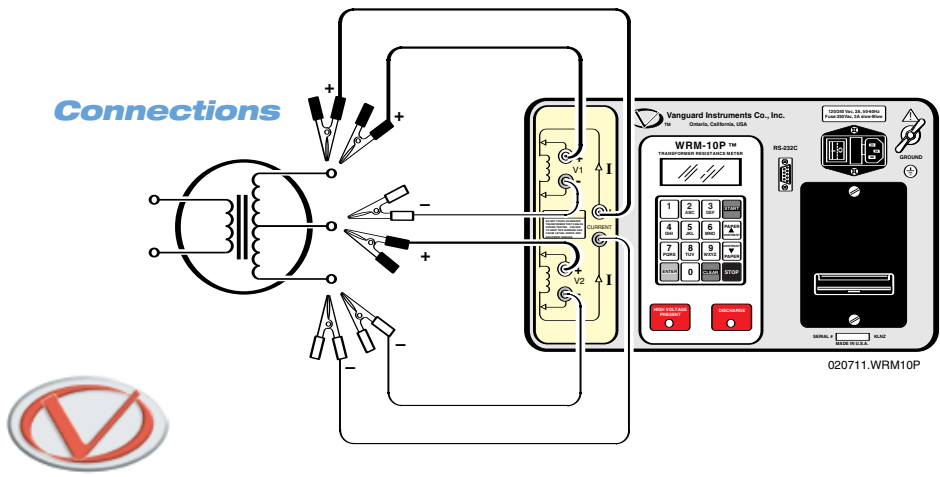
WRM-10P™, Cable, Software
Part No: WRM-10P

WRM-10P™ Shipping Case
Part No: WRM-10P Case

50-ft Test Cable
Part No: WRM Test Cable

2.5-inch Printer Paper
Part No: Paper TP3

Connections



H.V. TEST (PTY) LTD

3 Gaiety Ave, Robindale, Randburg, South Africa, 2010
P.O. Box 651287, Benmore, 2010

Tel: +27(11) 782 1010 Fax: +27(11) 782 2770
Email: sales@hvtest.co.za Website: www.hvtest.co.za