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>145,523286 64486,22 2689 966 56-203 88849<
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DATA SHEET

Model AWRMS



Automatic Winding Resistance / Ratio Test Set

- **Computer Controlled Test System for Power Transformers**
- **Winding Resistance / Turns Ratio / Heat Run Tests**
- **Highest Accuracy (0.05%) in the Industry**
- **48 Channel Scanner Matrix**
- **Heavy Duty Discharge Circuit**
- **Calibration Standards**

MODEL INFORMATION

The AWRMS was built to be used in conjunction with Measurements International's series of AccuLoss™ Systems. The Computer Controlled Automatic Winding Resistance / Ratio Measurement System (AWRMS) features capabilities for testing winding resistance in one set-up and performs measurement in accordance to IEEE and international standards. This measurement system provides the best accuracy and convenience based on the most recent developments in power switching technology. Built into a tough enclosure on castors, the system can be moved about easily. The long 30 m current and voltage cables can easily be mounted on the side of the enclosure. A warning light located on the top of the system indicates that the system is in use.

There are four cables mounted on each side of the rack for connection to both the high and low sides of a three phase transformer. Single phase transformers require only two cables. Each cable has current and voltage clips. The same cables are used for both the winding resistance and ratio measurements. Selection of the power supplies is performed automatically. All the data

for the measurement is stored in an ASCII file for easy transport to a calibration report or table.

Main Features:

- **Measurement Capability:** Source compliance 60V @ 50A expandable for primary and secondary resistance. Alternating current output for ratio measurements, phase, CT ratio on primary bushings, Auto tap changer control.
- **System Accuracy:** a 4 wire measurement technique allows the use of long measurement leads without sacrificing accuracy. Resistance measurements can be made to less than 0.05%
- **Operating Convenience:** The system is a fully automated for hot and cold resistance, ratio, phase and temperature measurements and requires no manual intervention during operation.
- **Exceptional Reliability:** The components of the AWRMS are of the highest quality, designed and manufactured for a rugged environment.



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Measurements International Inc.

Metrology is Our Science, Accuracy is Our Business™

- **Software:** The software provided with the system is written in LabVIEW and test results are output in an ASCII file for easy import to spreadsheets.
 - Using innovative technology, the AWRMS speed and measurement accuracy accounts for increased interest and preferred status among many transformer manufacturers.

System Benefits:

- **Technology:** State-of-the-art technology that will meet current and future testing requirements.
- **Operating Convenience:** A wide range of features specifically tailored for large power transformer testing is accomplished through the 48-channel scanner matrix, which ensures all measurements are automated, improving operator efficiency and eliminating operator error.
- **Safety:** An intrinsically safe heavy-duty discharge circuit with indicator dissipates stored magnetic energy rapidly after the test. Transient protection is provided on all lines to and from transformer under test.
- **Cost Effectiveness:** Automated operation of the AWRMS improves operator efficiency.
- **System Hardware:** with data acquisition measurements and control as well as charging and discharging circuits
- Four (4) standard temperature probes for liquid insulates (oil), PT 100, 30 m
- Built in industrial grade controller with IEEE 488 interface, Monitor, Keyboard, Mouse, AWRMS software, MS Windows, MS Office, Laser Printer
- Automated Temperature Measurements: Ability to specify type J or K thermocouples or thermistor.

- Two powerful supplies enable measurements at various test configurations on transformers with up to 3 winding systems with 3 phases.
- Test cable set for resistance, no load current and ratio measurements, length 30 m
- 2 pieces standard temperature probes for metallic surfaces with magnetic holder, PT 100, 30 m

System Software for:

- Resistance, Ratio, and No Load Current measurements.
 - Heat Run Test with software interface for power and current measurements.
 - Programmable procedure for automatic measurements of above.
 - Data saving to an ASCII file.
- **Standard Resistor set for calibration verification consisting of:**
 - Standard Resistor $0.0001\Omega \pm 0.01\%$ Model 9332
 - Standard Resistor $0.001\Omega \pm 0.01\%$ Model 9332
 - Standard Resistor $0.01\Omega \pm 0.01\%$ Model 9332
 - Standard Resistor $0.1\Omega \pm 0.01\%$ Model 9332
 - Standard Resistor $1\Omega \pm 0.01\%$ Model 9331
 - Standard resistor $10\Omega \pm 0.005\%$ Model 9331
- Additional standard temperature probe for liquid insulates (oil), PT 100, cable length 30 m
- Additional standard temperature probe for metallic surfaces with magnetic holder, PT 100, cable length 30 m



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SPECIFICATIONS:

Resistance Measurement	
Range / Accuracy	10 $\mu\Omega$ to 500Ω / 0.05 % Full Scale
Ratio Measurement	
Range / Accuracy	1 to 1000 / \pm 0.1 %
Phase Measurement	
Range / Accuracy	\pm 180 ° / \pm 0.05 °
Temperature Measurement	
Range / Accuracy	1 – 500 °C / \pm 1°C (Thermocouples) (Optional Thermistors)
Test Voltage / Current	60V / 50A (Higher Currents Available)
Measuring Cycle Time	Selectable
Settling Time	10 to 40 seconds
Power Supplies	2 x 3 kW
General Specifications	
Mains Supply	120 / 240 VAC 50 / 60 Hz
Ambient Temperature	15° C to 35° C
Relative Humidity	30 to 75%
Operating Conditions	
Ambient Temperature	0 to 45° C
Relative Humidity	20 to 60 %
Size (L x W x H)	876 mm x 584 mm x 1410 mm
Weight	150 Kg approx
Portable	Mounted on heavy duty castors for mobility

Data Subject to Change-Rev. 2.1

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