ASD

Automation Systems and Diagnostics

Integrated Systems Design and Development

AR^2

Automated Resistance and Ratio System

Automated Resistance and Ratio System

The Automated Resistance and Ratio System (AR^2) is a fully automated, self-contained system; designed to work on test floors, in fields, or in laboratory environments. Its unique features allow it to reduce test time and minimize human intervention during the conducting of tests.

With its automated features, the operator can select the required TUT through its user-friendly interface and the system takes care of the rest; it performs measurements, checks the results, identifies erroneous measurements, notifies the operator of the test stages and system status, stores resulting data and can printout a test result report.

The AR^2 can perform the following tests according to standard IEEE/ANSI compliant requirement:

- Cold resistance Test
- Ratio & Phase Test

The AR^2 built-in protection features provide safety to the operator and the transformer under test (TUT). Its modular design facilitates addition of further options.

AR^2 may be combined to other ASD products; TLS-300 or TLS-100 (Three/Single Phase Transformer Loss Test System). Upon the customer's request, this union shall form a complete automated three phase test system; and the following test capabilities will be added to the above listed.

- Excitation Current
- No-Load (core) Losses
- % Impedance
- Load (copper) Losses
- Induced Test
- Applied Tests (HI POT HV/LV)

AR^2 HARDWARE

AR^2 is formed of:

- Sorensen DC Power Supply
- Keithley Multi-meters
- ASD Controller

Digital Multi-meters

AR^2 is armed with two Keithely 2700 digital multi-meters. This meter combines precise measurements, switching, data logging and control (programming) in a single, tightly integrated enclosure for either rack-mounted or bench top applications. It provides a true 61/2-digit (22-bit) resolution and a scan rate up to 500 channels /second (up to 3500 readings/second on a single channel).

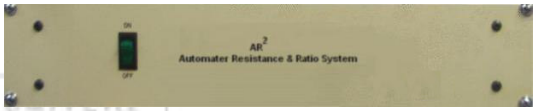
DC Power Supply

A Sorensen Power Supply is also integrated into our AR^2 system. It is a programmable DC power supply (DCS 20-50E). This unit provides 0-20V output voltage and 0-50A output current. Remote programming for voltage and current is allowed. Input voltage and current are specified as such: 200-250 VAC, single phase, 8A typical, 47-63 Hz; or 100-132 VAC, single phase, 15A typical, 47-63 Hz, internal jumper selectable.

ASD Controller

A well designed ASD control unit is equipped with a powerful electronics control board, at the heart of which a microcontroller lies. The controller supplies the required fully automated operation modes and ensures

The interaction of all system parts together with the available PC.



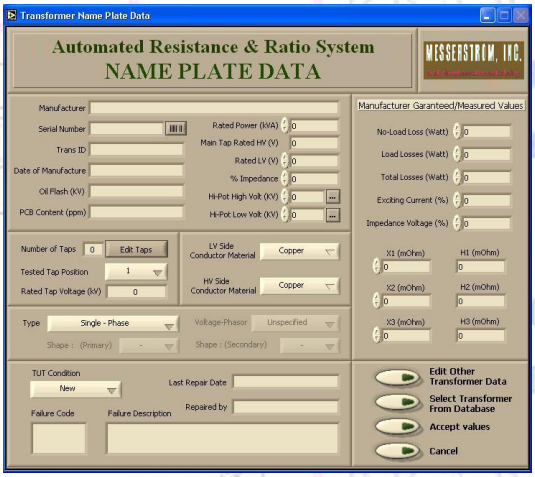
The controller front panel is supplied with a power on/off switch. This same switch acts as a light indicator when system is powered.

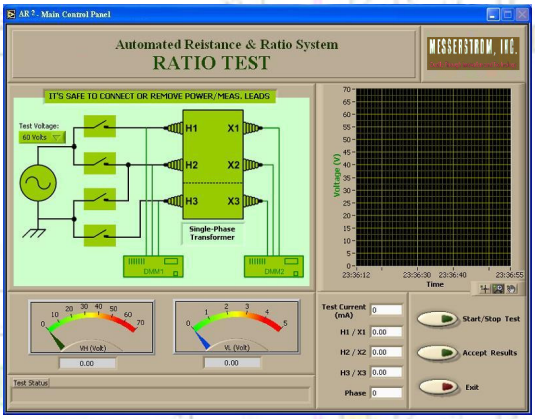
AR² SOFTWARE

Similar to all ASD products, well developed software, adds much more versatility and power to our systems. The attractive and user-friendly visual interface is simple to use. After logging on to the AR² password protected software; users can configure all required parameters, select TUT (Transformer under Test), perform complete diagnostics on the system's hardware, perform tests, save corrected results and generate result reports.

System users are of two ranks, either operators or supervisors. Supervisors have full privileges that they may add or delete any user they choose, as well as being able to edit any parameter in the system configuration. Supervisors can access the ADD/REMOVE USERS and CONFIGURATION options; while those logged in as operators, will view these option buttons in the main panel as disabled. The Configuration option allows viewing or editing user configurable system settings that are related to software control algorithms, file paths, installed hardware, ports and other such options.

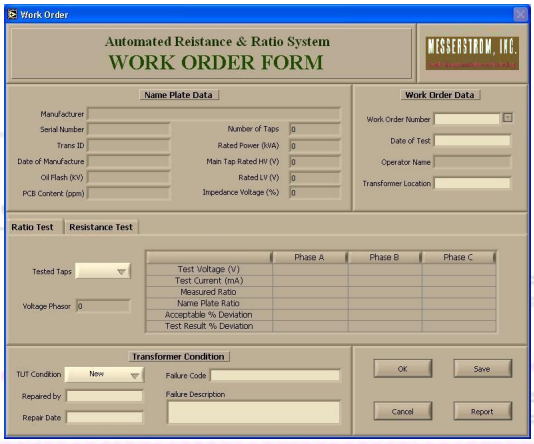
Before attempting any test process, user should specify the TUT either by editing the transformer name plate data or selecting it from database. Further options are offered to facilitate the user's work as scanning the transformer's serial number directly from a bar code reader and search/sort the database for the requested TUT. When this process is done, all you have to do is to start a test, sit back and watch the PC do the work for you. A graphical monitor will show you the voltage, current, at all times, as well as visual indicators that are on screen.





When tests are done, results are saved to the database and can be retrieved at any time for any transformer. The work order form recalls the transformer name plate data, transformer condition, results of performed tests, date of test and operator's name. A report can be generated and printed out.

Automated Resistance and Ratio System



AR² SYSTEM FEATURES

- Compact design
- Short setup time
- Precision digital multi-meters
- Rugged powerful output
- Resistance measurement accuracy of 0.1%
- Ratio measurement accuracy of 0.1%
- Temperature measurement accuracy within 1 degree Celsius
- Resistance range 50 μΩ – 500 Ω
- Full Automation
- Test results report printout

SYSTEM SPECIFICATIONS

- ***Power Supply***

Input	Output
120/240 V, AC 1Φ, 50 / 60 Hz	0–60 V, 0–18 A DC

- ***Standard shunts***

100 mV, 0.1% accuracy

- ***Discharge circuit***

Power resistors and diodes

- ***Switching DC circuit***

High current relays

PHYSICAL SPECIFICATIONS

- ***Environmental***

Operating temperate 0º to 50ºC
Humidity 10 to 80%

- ***Dimensions***

23” W x 21” H x 20” D

- ***Weight***

Approximately 85 lbs

- ***Enclosure***

The AR² is housed in a rugged sheet metal enclosure equipped with casters for mobility.

CONTACT INFORMATION

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