

# ATRT-03A Series 2™

## Automatic Transformer Ratio Tester



**Vanguard Instruments Company**

# Automate the



## ATR-03A™ Series 2

### Automatic 3-Phase Transformer Turns-Ratio Tester

The Vanguard Instruments Co Model ATRT-03A S2™ is Vanguard's third generation, microprocessor-based, automatic, three phase, transformer turns-ratio tester.

The ATRT-03A S2™ determines the transformer turns ratio using the IEEE C57.12.90 measurement method. The ATRT-03A S2™ generates and outputs an excitation test voltage to the three transformer primary winding. The induced secondary voltage is sensed and the transformer turns ratio is calculated. The ATRT-03A S2™ is capable of measuring turns ratios from 0.8 to 15,000. The transformer turns-ratio, excitation current and phase-angle readings are displayed on the LCD. The built-in transformer type detection feature allows the ATRT-03A S2™ to detect and test 130 transformer types defined by ANSI, CEL/IEC and Australian standards.

The ATRT-03A S2™ can be used in a stand-alone or a computer controlled mode. An alphanumeric keypad and a rotary switch provide the ATRT-03A S2™ local control. A 64 x 128 graphic LCD is used to display test results and control menus. A built-in 4.5-inch thermal printer allows the user to print test reports in the field. The ATRT-03A S2™ is capable of storing up to 112 test records and 128 test plans in Flash EEPROM memory. Test records or test plans can be stored or transferred to or from an IBM compatible PC via the interface ports (RS-232C or USB) or by using the built-in USB Flash drive interface port.

### Transformer Test Voltage

The ATRT-03A S2™ generates its excitation test voltages internally. Three test voltages (8 Vac, 40 Vac, 100 Vac) allow the ATRT-03A S2™ to test CTs and PTs as well as power transformers.

### Auto-Detect Transformer Configuration

The ATRT-03A S2™ is capable of detecting 130 transformer types (defined by ANSI, CEL/IEC, and Australian standards).

### Operator Interface and Display

In stand-alone mode, the ATRT-03A S2™ displays messages and test results on a 64 x 128 graphic LCD screen. The test result screen displays transformer turns ratio, excitation current, phase angle and percentage error. Operator control inputs are entered via a (16-key) keypad and digital rotary switch.

### Transformer Test Plan

The ATRT-03A S2™ can store up to 128 transformer test-plans in its Flash EEPROM. A test-plan is comprised of transformer nameplate voltages for each tap setting. The calculated turns ratio based on the nameplate voltages is used to compare with the measured turns ratio. By recalling a test plan, the user can quickly test a transformer and view turns ratio Pass/Fail reports. Test plans are created with the PC software and downloaded to the ATRT-03A S2™ via the interface ports (RS-232C or USB) or stored on a USB Flash Drive and later transferred to the ATRT-03A S2™ using the USB Flash Drive port.

### Test Record Storage Capabilities

Up to 112 test records can be stored in the ATRT-03A S2™ Flash EEPROM memory. Each test record may contain up to 33 turns-ratio, excitation current, phase angle and name plate voltage readings. Test records can be recalled locally or down loaded to an IBM compatible PC via the interface ports (RS-232C or USB) or stored/retrieved from a USB Flash Drive.

### USB Flash Drive

A built-in USB Flash Drive interface port allows the user to store/retrieve transformer test plans or test records to a USB Flash Drive from the ATRT-03A S2™. The user can store up to 999 transformer test plans and test records on the USB Flash Drive. The user can then simply plug the USB Flash Drive into a PC to view the test records using the PC software.

### Computer Interface

In the computer interface mode, the unit can be controlled via the RS-232C or USB port using the supplied PC software.

### Thermal Printer

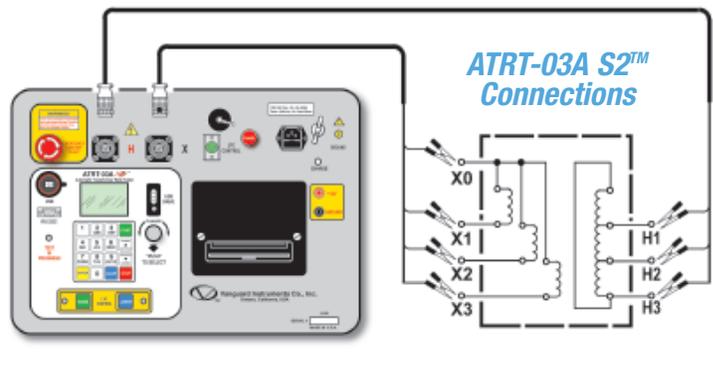
A 4.5-inch wide thermal printer prints test results in a 14 point font for easy viewing. Printer and paper are mounted under the front panel for protection.

### Transformer Load Tap Changer Control

A built-in transformer load tap changer allows the user to change transformer tap positions remotely. This remote-controlled tap changer feature eliminates the need to manually change the transformer's step-up and step-down taps.

### ATR-03A S2™ Power Sources

The ATRT-03A S2™ can be powered from the built-in rechargeable lead acid batteries (3 hours) or a single phase 100-240 Vac 50/60 Hz. A built-in charger allows the user to charge the batteries while operating the unit.



# Automatic Three-Phase Turns-



## **Instruments Designed and Developed by the Hearts and Minds of Utility Electricians Around the World**

You've seen a lot of utility test equipment in your time. You work with it routinely. Your facility relies upon it to ensure peak performance. Often times, your maintenance tasks are tedious, time-consuming and repetitive. But timely and accurate information is the currency of maintaining maximum uptime and minimal repair, thus testing must be done. Your instruments must be up to the task.

Vanguard Instruments is familiar with your problems and shares in your desire to make transformer and breaker testing fast, reliable, and simple. These principles are the basis for every Vanguard design. They also form the premise for our ongoing research and development as well as every innovative feature we introduce.

How do we know what you're looking for in utility test equipment? We're there in the trenches with you! Our Chief Engineer is frequently on-site at power utility sub-stations around the country and all over the world; working, listening and talking with electricians and technicians just like you. More than that, you've shown us the real nitty-gritty of testing. We've taken that to heart and then back to the lab to solve your problems. The results of your recommendations are embodied in utility test equipment that is easy to use, lightweight, rugged and dependable. The ATRI-03A Series 2™, along with Vanguard's full line of test equipment, leads the industry in accuracy and automatically performs a range of tasks and calculations that were once the bane of every utility electrician.

We hope that you will take a few moments to consider the technological innovations that are engineered into every Vanguard test instrument. Equally important, we want to know that our past efforts make a present difference in your testing routines and on-line uptime. We're not done though. You can be confident we're looking for new ways to improve the results of your testing regimen. Thanks for choosing Vanguard Instruments.



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