Automatic 3-Phase Transformer Turns Ratio Test Set

Model PATTR-03A

- Portable, lightweight
- Battery power
- Built-in tap changer controls
- Built-in printer

DESCRIPTION

The PATTR-03A determines the transformer turns-ratio using the IEEE C57.12.90 measurement method. The PATTR-03A generates and outputs an excitation test voltage to the transformer's three primary windings. The induced secondary voltage is sensed and the transformer turns ratio is calculated. The PATTR-03A can measure turns-ratios from 0.8 to 15,000. The transformer turns-ratio, excitation current, and phase-angle readings are displayed on the unit's LCD screen. The built-in transformer type detection feature allows the PATTR-03A to detect and test 130 transformer types defined by ANSI, CEI/IEC and Australian standards.

The PATTR-03A can be used as a stand-alone unit or can be computer-controlled. It can be operated locally using its alpha-numeric keypad and rotary switch. Information is displayed on a back-lit LCD screen (64 x 128 dot graphic) that is viewable in both bright sunlight and low-light levels. Test reports can be printed in the field on the unit's built-in 4.5-inch wide thermal printer. The PATTR-03A can store up to 112 test records and 128 test plans in Flash EEPROM. Test records or test plans can be stored or transferred to and from a PC via the available interfaces (RS-232C port, USB port, USB Flash drive port).

TESTING APPLICATIONS

Designed for testing transformers at utility power substations

CABLE | GIS SWITCHGEAR | CIRCUIT BREAKER | TRANSFORMER | MOTOR | GENERATOR | INSULATION MATERIALS | RECLOSER | PROTECTIVE EQUIPMENT | PORTABLE

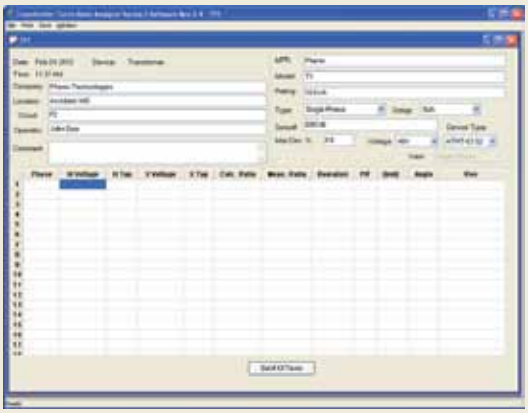
Brochure No. **20405**

SAFETY and DESIGN FEATURES

Transformer Test Voltage
The PATTR-03A generates excitation test voltages internally. Three test voltages (8 VAC, 40 VAC, 100 VAC) allow the PATTR-03A to test CT's and PT's, as well as power transformers.

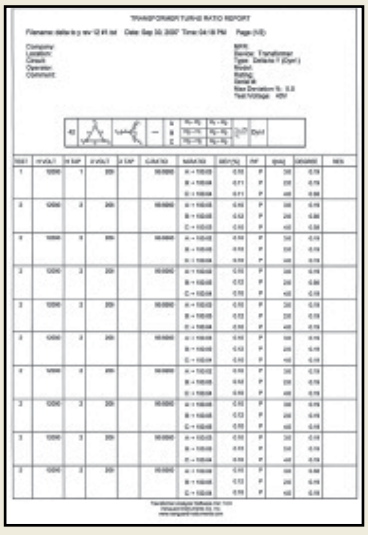
Auto-Detect Transformer Configuration
The PATTR-03A can automatically detect 130 different transformer types defined by ANSI, CEI/IEC, and Australian standards.

User Interface
The PATTR-03A features a back-lit LCD screen (64 x 128 dot graphic) that is viewable in both bright sunlight and low-light levels. The test results screen displays the transformer turns-ratio, excitation current, phase angle, and percentage error. The unit is controlled via a rugged, 16-key, membrane keypad and a digital rotary switch.



Transformer Test Plans
The PATTR-03A can store up to 128 transformer test plans in its Flash EEPROM. A test plan is comprised of the transformer nameplate voltages for each tap setting. The calculated turns-ratio based on the nameplate voltages is compared with the measured turns-ratio. By recalling a test plan, a transformer can be quickly tested and turns-ratio Pass/Fail reports can be reviewed. Test plans can be created with the PC software and can be transferred to the PATTR-03A via the available interfaces (RS-232C port, USB port, USB Flash drive port.

Internal Test Record Storage
Up to 112 test records can be stored in the PATTR-03A's Flash EEPROM memory. Each test record may contain up to 33 turns-ratio, excitation current, phase angle, and nameplate voltage readings. Test records can be recalled locally or transferred to a PC via the available interfaces (RS-232C port, USB port, USB Flash drive port).



USB Flash Drive Interface
A built-in USB Flash drive interface provides a convenient method for transferring test plans and test records to or from a USB Flash drive. The user can store up to 999 transformer test plans and test records on a USB Flash drive, and the supplied PC software can be used to view the test records.

Computer Interface
In computer-controlled mode, the unit can be controlled via the RS-232C or USB port using the supplied PC software (Transformer Turns-Ratio Analyzer application provided with each PATTR-03A). This Windows® XP/Vista-based software can be used to run a test and to store test results on a PC. Test results can also be exported to Microsoft® Excel.

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

Transformer Load Tap Changer Control
Transformer tap positions can be changed remotely using the unit's built-in transformer load tap changer. This remote-controlled tap changer feature eliminates the need to manually change the transformer's step-up and step-down taps.

PATTR-03A Power Sources
The PATTR-03A can be powered from its built-in rechargeable lead acid batteries (3 hours) or from a single-phase 100-240 VAC 50/60 Hz power source. A built-in charger allows the batteries to be charged while in use.

OPERATING VOLTAGE	100-240 VAC, 50/60 HZ
BATTERIES	Two lead acid batteries (12 V, 2 A) provide up to 3 hours of operation
MEASUREMENT METHOD	ANSI/IEEE C57.12.90
TURNS-RATIO MEASURING RANGE	0.8 – 15,000
TURNS-RATIO ACCURACY	0.8 – 1999: ±0.1%, 2,000 – 3,999: ±0.25%, 4,000 – 15,000: ±1% @ 8 VAC 0.8 – 1999: ±0.1%, 2,000 – 3,999: ±0.20%, 4,000 – 15,000: ±1% @ 40 VAC 0.8 – 1999: ±0.1%, 2,000 – 3,999: ±0.15%, 4,000 – 15,000: ±1% @ 100 VAC
TEST VOLTAGES	8 VAC @ 350 mA, 40 VAC @ 70 mA, 100 VAC @ 20 mA
EXCITATION CURRENT READING RANGE	0 -2 A; Accuracy: ±0.1 mA, ±2% of reading (±1 mA)
PHASE-ANGLE MEASUREMENT	0- 360°; Accuracy: ±0.2° (±1 digit)
DISPLAY	Back-lit LCD screen (64 x 128 dot graphic display); Viewable in bright sunlight and low-light levels
PRINTER	Built-in 4.5-inch wide thermal printer
COMPUTER INTERFACE	One RS-232C port, one USB port
EXTERNAL DATA STORAGE	One USB Flash drive interface port; up to 999 transformer test records can be stored on a USB Flash drive (not included)
PC SOFTWARE	Windows® XP/Vista-based Transformer Turns-Ratio Analyzer application is included
INTERNAL TEST RECORD STORAGE	The unit can store 112 transformer test records. Each record holds the test record header and up to 33 readings.
INTERNAL TEST PLAN STORAGE	The unit can store 128 transformer test plans. Test plans can be transferred to the unit from the PC via the RS232C/USB port or via the USB Flash drive interface.
LOAD TAP CHANGER CONTACT	240 VAC, 1A
SAFETY	Designed to meet UL 61010A-1 and CAN/CSA C22.2 No. 1010.1-92 standards
ENVIRONMENT	Operating: -10° to 50° C (15° to +122° F); Storage: -30° C to 70° C (-22° to +158° F)
HUMIDITY	90% RH @ 40°C (104°F) non-condensing
ALTITUDE	2000 m (6,562') to full safety specifications

DIMENSIONS & WEIGHT	20"(508 mm)L x 15½"(394 mm)W x 7½"(191 mm)H; Weight: 27 lbs (12 kg)

CABLES INCLUDED	One 15' (4.5 m) single-phase set, One 15' (4.5 m) 3-phase set, One 25' (7.6 m) extension set, One safety ground, One USB, One RS-232, One LTC cable, One cable-carrying duffel bag

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PHENIX®
TECHNOLOGIES

World Headquarters

Phenix Technologies, Inc.
75 Speicher Drive
Accident, MD 21520 USA
Ph: +1.301.746.8118
Fx: +1.301.895.5570
Info@phenixtech.com

Branch Offices

Phenix Systems AG
Riehenstrasse 62A, 4058 Basel, Switzerland
Ph: +41.61.383.2770 • Fx: +41.61.383.2771
Info@phenixsystems.com

Phenix Asia
Zhong Cheng Rd, Sec 1, No 177, 2F, Taipei 11148 Taiwan
Ph: +886.2.2835.9738 • Fx: +886.2.2835.9879
Info@phenixasia.com

www.phenixtech.com