



Automatic 3-Phase Transformer Turns Ratio Test Set

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).

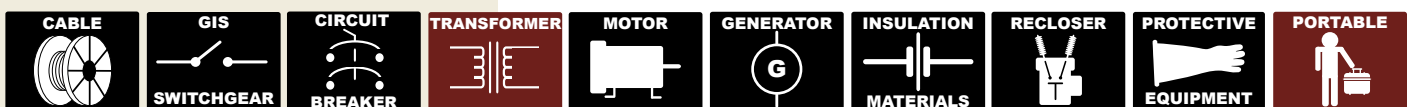
Model PATTR-03A

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



TESTING APPLICATIONS

Designed for testing transformers at utility power substations





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

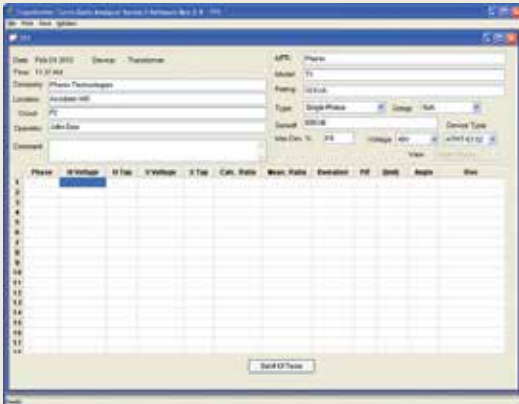
A built-in 4.5-inch wide thermal printer prints test results in a 14 point font for easy viewing. The printer and paper dispenser are mounted under the front panel for protection.

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.



TRANSFORMER TURNS RATIO REPORT

Filename: 0001012.rpt Date: Sep 10, 2007 Time: 04:18 PM Page: 2/2

Company: Phoenix Transformer
Location: Phoenix, AZ
Operator: J. Smith
Comment:

Model: 100000
Type: 100000
Nameplate (2 digit): 100000
Serial: 100000
Year: 100000
Tech: Phoenix, AZ

TEST	WINDING	N TAP	Y TAP	X TAP	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33		
1	100000	1	100	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	100000	2	200	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	100000	3	300	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	100000	4	400	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	100000	5	500	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	100000	6	600	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	100000	7	700	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	100000	8	800	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	100000	9	900	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	100000	10	1000	100000	N=100000	0.91	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





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





PHENIX Technologies is committed to providing leadership, innovation, technology, quality, and service in all areas of our business.

Our 80,000 square-foot headquarters is a modern manufacturing facility. All aspects of electrical, mechanical, and software design and production are performed in this facility and controlled by an ISO9001 certified quality program. Our engineers offer a unique blend of theoretical knowledge and practical experience. Our Service and Calibration Department assists customers during and after installation to insure years of trouble free service.

We carry our commitment into the future as we proudly continue to provide the best in high voltage, high current, high power test systems and components.

High Voltage • High Current • High Power Test Systems and Components

ISO 9001
CERTIFIED



www.phenixtech.com

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

