



Single Phase Transformer Loss Evaluation Test Systems

Models TTS5M and TTS10M

TESTING APPLICATIONS

- Designed to provide voltages and currents to test single-phase distribution transformers
- Ensure a transformer's specifications and performance are met

- Minimal set-up time
- Quick, accurate and reliable testing
- Mobile and well-suited for testing in the field or shop



The Phenix TTS5M and TTS10M models are simple to use, cost effective, fully featured distribution class transformer test systems. Typical applications include testing prior to installation, testing after repair, and verification of manufacturer's test and design data. The precision metering system complies with DOE efficiency and international transformer standards.



SAFETY and DESIGN FEATURES

- Circuit breaker protection
- High voltage On/Off pushbuttons with indicator
- Hold function for all meters
- Flashing red warning lamp
- Four-wire measurement system for accurate readings
- Digital multi-range metering
- Digital temperature meter with 15 ft. (4.5m) thermocouple
- Recalibration provisions for all meters
- Additional external interlock provision with indicator light
- Foot switch for operator safety
- Zero Start interlock
- Output overload indicator with reset switch
- Three constant kVA taps
- Casters for ease of mobility
- Cable storage hooks
- Two copies of operation/maintenance manual



DESCRIPTION

Phenix Technologies' Transformer Loss Evaluation Systems are designed to provide voltages and currents to test single-phase distribution transformers. Transformers which can be tested will vary with impedance. Units equipped with optional high voltage taps will allow you to test transformers with higher impedances and/or higher secondary voltages. Tests are made to ensure that the transformer meets purchase specifications and will perform adequately after installation.

The test set consists of:

- Single-phase variable transformer for voltage and current control
- Multi-tapped transformer
- Digital meters to measure the output voltage, current, and power supplied by the test set
- Digital temperature meter to measure the temperature of the transformer being tested for correction of load loss readings
- Overload protection
- Safety interlocks

The following tests can be performed, per ANSI C57 standards, latest version:

- Excitation Current Measurement
- Excitation Loss (No-Load or Core Loss)
- Impedance Voltage Measurement
- Copper Loss (Load Loss)
- Temperature

Additional tests that can be performed when options are selected:

- Turns Ratio (Optional with TTR addition)
- Applied Potential Test (Optional with AC hipot addition)
- Induced Potential Test (Optional with M/G set addition)
- Winding Resistance Measurement (Optional with WRM addition)

ENVIRONMENTAL OPERATING CONDITIONS

- Indoor; Outdoor under fair weather conditions
- Operation Temperature 10°C to 40°C
- Humidity less than 90%, non-condensing
- Low pollution level
- Altitude less than 1000 m



	MODEL	TTS5M					TTS10M				
APPROX. MAXIMUM TEST CAPABILITY	Impedance	2%	3%	4%	5%	6%	2%	3%	4%	5%	6%
	Load Loss	375 kVA	250 kVA	188 kVA	150 kVA	125 kVA	750 kVA	500 kVA	375 kVA	300 kVA	250 kVA
	Primary Voltage of Transformer	30 kV	20 kV	15 kV	12 kV	10 kV	30 kV	20 kV	15 kV	12 kV	10 kV
INPUT	Voltage/Current	208/230 VAC, 40 A, single phase					208/230 VAC, 80 A, single phase				
	Frequency	50 or 60 Hz (one must be specified)					50 or 60 Hz (one must be specified)				
		(Other input voltages are available; consult factory)									
OUTPUT	TAP	Voltage	Current		Voltage	Current					
			Continuous	5 min ON/15 min OFF		Continuous	5 min ON/15 min OFF				
	1	0-150 VAC	33 AAC	50 AAC	0-150 VAC	67 AAC	100 AAC				
	2	0-300 VAC	16.5 AAC	25 AAC	0-300 VAC	33.5 AAC	50 AAC				
	3	0-600 VAC	8.3 AAC	12.5 AAC	0-600 VAC	16.7 AAC	25 AAC				
DIGITAL METERING	Metering / Accuracy	4 1/2 digit with LED display, $\pm 0.5\%$ Full Scale									
	Voltmeter Range	0-150/300/600 VAC, selectable True RMS or Average									
	Currentmeter	0-1.999/19.99/199.9 A, True RMS									
	Wattmeter Range	Auto Ranging									
	Temperature	0-100°, Accuracy $\pm 1^\circ$ C									

	MODEL	TTS5M	TTS10M
DIMENSIONS & WEIGHTS	Length	32" (813 mm)	
	Width	29" (737 mm)	
	Height	52" (1321 mm)	
	Weight	455 lbs (206 kgs)	510 lbs (131 kgs)

CABLES INCLUDED	Input Power	15' (4.5 m)
	Power Interconnect	10' (3 m)
	Meter Interconnect	10' (3 m)
	Ground	15' (4.5 m)
	Thermocouple	15' (4.5 m)

OPTIONS

Computer Interface and Testing Software

Includes testing software and RS232 output for interfacing all metering of the test system to customer's computer. The software performs all loss calculations (including correction for temperature and sine wave basis), records all test data, and generates reports.

Laptop Computer

External Printer

Applied Potential (Hipot) Testing Capability

AC Hipot Cylinder type designed for applied potential testing of up to 375 kVA transformers complete with standard controls.

Induced Potential Testing Capability

M/G Set designed for induced potential testing of up to 375 kVA transformers. Includes ON/OFF switch and frequency meter.

Transformer Turns Ratio Test Set, PATTR-03A

Transformer Winding Resistance Meter, WRM-10P





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

Our 70,000 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

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