POWER DIAGNOSTIC INSTRUMENT COMPANY

TR 100

Single Phase Turns Ratio Tester

- **Selectable test voltages: 1, 4, 40, 100 & 250 VAC**
- **Measurement range 0.8 – 30 000 with 0.1% accuracy**
- **Built in 2” thermal printer**
- **Stores up to 128 test results with up to 33 readings for each test. (4000 test results)**
- **Battery backup for up to 4 hours of operation**
- **Displays winding polarity, excitation current and phase angle**
- **Calculate turns-ratio percentage error**
- **Field portable rugged housing**

Introduction:

The TR 100 is a single-phase transformer turns ratio test instrument designed to test any type of transformer. It performs turns ratio tests per the IEEE C57.12.90 measurement standard. The TR 100 generates its own single-phase excitation test voltage which is applied to the transformer's primary windings. The secondary voltage is measured to calculate the turns ratio. The TR 100's measuring range is 0.8-30,000 : 1. In addition to measuring turns ratio, the TR 100 can also measure excitation current and phase angle difference between the primary and secondary voltages. The test results can be displayed on the unit's built in color display.

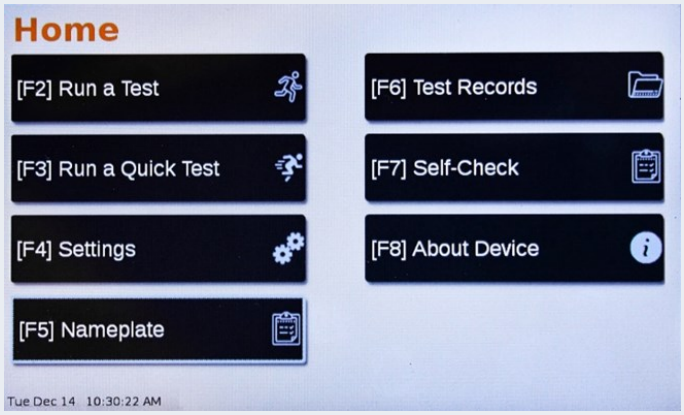
Higher Test Voltages for increased accuracy

The TR 100 offers selectable test voltages of 1V, 4V, 40V, and 100V. Optionally, a 250V test voltage is available for testing in electrically noisy environments. The higher test voltages increase the measurement accuracy, especially at high turns ratios. The TR 100 generates its own three phase test voltages so that the turns ratio, excitation current, and phase angle can be measured. In addition, the test frequency of the voltage is 55 Hz so power frequency interferences of the substation do not affect the turns ratio measurement. Higher test voltages, coupled with off frequency measurement, make the TR 100 an ideal instrument for high accuracy testing.

To prevent an accidental wrong test lead hookup, such as when the operator reverses H and X leads, the TR 100 outputs a low-level test voltage to verify the hookup condition before applying the full test voltage to the transformer. Higher test voltages allow the TR 100 to test CT's and PT's, as well as power transformers.

User Interface

The unit's back-lit color LCD touchscreen (800 x 480 pixels) is viewable in bright sunlight and low-light and provides an intuitive menu structure where running a test is just few taps away. The full-sized industrial keyboard makes data entry quite easy for information such as nameplate and setting information.



Built-in Thermal Printer

The TR100 features a built-in 2” thermal printer for quick printout of results in the field.

Data Storage and Analysis

The TR100 can store up to 128 test results internally. Test results can be transferred to a PC via the unit's USB Flash drive interface (Flash drive not included) or directly via the USB 2.0 PC interface. The provided PC software can be used for analysis and report generation.

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Technical Specification : TR 100

Input Power	
Operating Voltage	90 ¬ 240 Vac, 50/60 Hz
Measuring Method	ANSI/IEEE C57.12.90
Battery	7 Ah, 12 V for four hours of operation
Turns Ratio Accuracy	
	1 Vac: 0.75¬ 3,999 : ±0.25% **(optional)**
	4 Vac & 12 Vac: 0.75¬ 2,999 : ±0.1%, 3,000 ¬ 30,000: ±0.25%
	40 Vac: 0.75¬ 2,999 : ±0.1%, 3,000 ¬ 30,000: ±0.25%
	100 Vac: 0.75¬ 2,999 : ±0.1%, 3,000 ¬ 30,000: ±0.25%
	250 Vac: 0.75¬ 2,999 : ±0.1%, 3,000 ¬ 30,000: ±0.25% **(optional)**
Accuracy	
Phase Angle Measurement	±0.5 degree (±1 digit)
Polarity Reading	In-phase or out-of-phase indication
Excitation Current Range	0 ¬ 2 Ampere; Accuracy: ±0.1 mA, ±1% of reading (±1 mA)
USER INTERFACE	
Printer	2" Thermal printer
Display & keyboard	Color touch-screen LCD (800 x 480 pixels) & "QWERTY"-style keyboard
Sofware	Transfer test records to PC via USB 2.0 and report generation
DATA STORAGE AND ANALYSIS	
Internal Test Record Storage	Up to 128 records with max 33 results per record (4000 tets results)
External Test Record Storage	USB Flash drive interface to copy test records and firmware updates
Operating/Storage Temparature	
Temperature	Operating: -10°C to +50°C (+15°F to +122°F) Storage: -30°C to +70°C (-22°F to +158°F)
Humidity	90% RH @ +40°C (+104°F)
Physical Specifications	
Dimensions	14.75"L x 12” W x 7.25"H (37.5 cm x 30.5 cm 18.5 cm)
Weight	Weight without Battery: 12 lbs. (5.5 Kg), with Battery : 14 lbs. (6.4 Kg)
Test Cables	
	15' (4.6m) single phase cable, power cord, USB cable, 10’ ground cable and cable bag
	Optional 25' extension cable or custom length cable
Warranty	2 years on parts and labor

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