Single-phase, Hand-cranked TTR®
Transformer Turns Ratio Test Set

- **Used for testing single phase power and distribution transformers**
- **Design based on precision bridge measuring technique**
- **Unmatched accuracy (±0.1%) in a portable design**

DESCRIPTION

The Single-phase TTR® Transformer Turns Ratio Test Set measures the turns ratio and exciting current of windings in power, potential and current transformers. Deviations in turns ratio readings indicate problems in one or both windings or the magnetic core circuit.

The TTR test set aids in identifying:

- Shorted coils
- Open circuits
- Incorrect connections
- Internal faults or tap-changer defects in step regulators as well as in transformers.

The single-phase, hand-cranked model measures highly sensitive turns ratios of up to 129.99:1 with accuracy of ±0.1%. An optional auxilary transformer extends the ratio range to 329.99:1.

The TTR set operates on the principle that the voltage ratio of the transformer at no load is practically equal to the true turns ratio.

The major source of error in a transformer is a primary impedance drop due to magnetizing current, which is kept to a minimum by excitation at a fraction of rated voltage. By employing a design that meets both of these conditions along with the use of a null balance system, the turns ratio of a transformer can be determined accurately.

When measuring the turns ratio of distribution and power transformers, the accuracy is well within 0.1%.

APPLICATIONS

The single phase model is primarily used for testing single-phase power and distribution transformers, for low-ratio readings up to 129.99:1, or up to 329.99:1 with an auxiliary transformer. It can be used to test three-phase transformers by connecting and testing each phase separately.

FEATURES AND BENEFITS

- Provides unmatched accuracy (±0.1%) in a portable design.
- Packaged in a rugged, compact case.
- Measures highly sensitive turn ratios up to 129.99:1. An optional auxiliary transformer extends this ratio range to 329.99:1.

SPECIFICATIONS

Output
8 V, 50/60 Hz

Metering
Four decade dials

Turns Ratio Range
0.001 to 129.999

Exciting Current
0 to 1 A (divide by 5 switch for increased resolution)

Accuracy
±0.1%

Dimensions
7.5 H x 14 W x 12 D in. (189 H x 353 W x 302 D mm)

Weight
16 lb (7.3 kg)

OPTIONAL ACCESSORIES

Auxiliary Transformer

An auxiliary transformer extends the ratio range of single-phase models to 329.99:1. Turns ratio is 100:1 and 200:1, and is accurate to within ±0.1%.

The auxiliary transformer includes all the necessary cables for connection to the TTR set and the transformer under test.

Dimensions
8 H x 13 W x 10 D in. (203 H x 330 W x 254 D mm)

Weight
13 lb (5.9 kg)

Calibration Reference Transformer

Calibration reference transformers are available for hand-crank TTRs. They provide a reference standard for periodic calibration checks to document proof of calibration.

A Calibration Certificate of turn ratio accuracy traceable to the NIST is furnished with each calibration reference transformer, providing accuracies of ±0.05%.

Dimensions
13 L x 9.25 W x 7 H in. (330 L x 235 W x 178 H mm)

Weight
19 lb (8.6 kg)

ORDERING INFORMATION

Item (Qty)	Cat. No.
Single-phase, Hand-cranked TTR	550005B
Included Accessories	
Cable assembly	19494
With C-clamps for X (low-voltage) winding, 10 ft (3 m) [2]	
With spring clips for H (high-voltage) winding, 13 ft (4 m) [2]	
All cables are permanently connected to the test set.	
Instruction manual	AVTM55JD
Optional Accessories	
Auxiliary transformer	550030
Calibration reference transformer	550050

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ISO STATEMENT
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