

True Three Phase Turns Ratio Tester



TR 300

- Selectable test voltages: 4, 40, 100 & 250 VAC (optional)
- Measurement range 0.8 – 50 000 with 0.1% accuracy
- Built in 3.5" thermal printer
- True three-phase voltage measurement
- Stores up to 128 test results with up to 99 readings for each test (10,000 test results)
- Automatic vector group detection
- Built-in tap changer control
- Battery backup for up to 4 hours of operation

Introduction:

The TR 300 is a true three-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 300 generates its own three-phase excitation test voltage which is applied to the three phases of the transformer's primary windings. The three-phase secondary voltages are measured to calculate the turns ratio. The TR 300's measuring range is 0.8-50,000 : 1. In addition to measuring turns ratio, the TR 300 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.

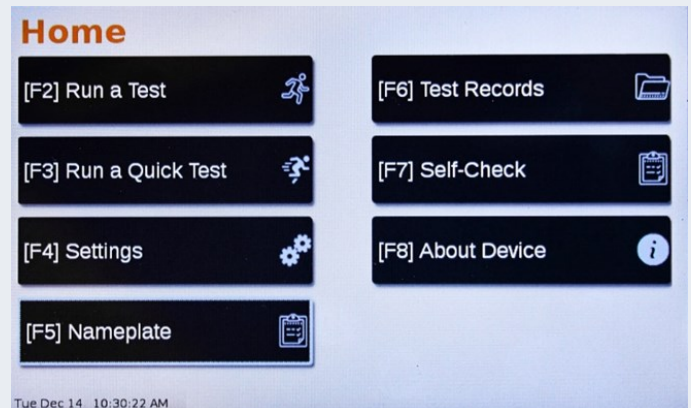
Higher Test Voltages for increased accuracy

The TR 300 offers selectable test voltages of 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 300 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 300 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 300 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 300 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 TR300 features a built-in 3.0" thermal printer for quick printout of results in the field.

Data Storage and Analysis

The TR300 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.

Technical specifications : TR300

Input Power	
Operating Voltage	90 – 240 Vac, 50/60 Hz
Measuring Method	ANSI/IEEE C57.12.90
Battery	7 Ah, 12 V for three hours of operation
Turns Ratio Accuracy	
	4 Vac: 0.75 – 14,999 : ±0.1%, 15,000-50,000: ±0.3%
	40 Vac: 0.75 – 14,999 : ±0.1%, 15,000-50,000: ±0.25%
	100 Vac: 0.75– 14,999 : ±0.1%, 15,000 – 50,000: ±0.2%
	250 Vac: 0.75– 14,999 : ±0.1%, 15,000 – 50,000: ±0.15%
Phase Angle Measurement	
Range	0 – 360 degrees
Accuracy	±0.1 degree (±1 digit)
Polarity Reading	In-phase or out-of-phase indication
Tap Changer Contacts	240 V AC, 2A
USER INTERFACE	
Printer	3" Thermal printer
Display & keyboard	Color touch-screen LCD (800 x 480 pixels) & "QWERTY"-style keyboard
Software	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 99 results per record (8000 test records)
External Test Record Storage	USB Flash drive interface to copy test records and firmware updates
Operating/Storage Temperature	
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	21" w x 8" H x 17" D (53 cm x 20.5 cm x 43 cm)
Weight	Weight without Battery: 24 lbs. (11 Kg), Weight with Battery: 26 lbs. (12 Kg)
Test Cables	One 15' (4.57m) sing-phase cable set, one 15' (4.57m) 3-phase cable set, one safety ground cable, one USB cable, cable bag
Warranty	2 years on parts and labor