

TRT

Standard Series



TRT03, TRT33, TRT63

Three test-voltage levels, one shared cable set with the TWA

TRT

Three-phase turns ratio measurement with $\pm 0.03\%$ accuracy

amperis

www.amperis.com

 C/ María Barbeito, 14
27003, Lugo, Spain

 Contact

T [+34] 982 20 99 20
info@amperis.com | www.amperis.com

General description



Front view of the TRT Standard Series, with keypad and LCD display.

Test technology

TRT Standard is based on the most advanced technique available for testing single-phase and three-phase transformers, with or without a tap changer, under IEC 60076-1. For a three-phase measurement the instrument is connected to all three phases of the transformer at once; once the corresponding vector diagram is selected, it runs the specific test for each connection type - star-delta, delta-delta, star-zigzag, etc. - without changing the test leads.

Deviation calculation and result interpretation

The operator enters the nameplate voltages and the instrument automatically calculates the ratio deviation, comparing the result with the nameplate value and printing the percentage error for each test. Operating-condition messages flag incorrect tests, wiring faults or possible transformer problems immediately, thanks to a very efficient filtration of the electrostatic and electromagnetic interference present in HV electric fields.

Connection to the transformer

Using two sets of four cables, all bushings on the primary and secondary sides are connected in a single step, on both three-phase transformers and three-phase autotransformers defined by the IEC, IEEE and ANSI standards. Although a three-phase device, TRT also tests single-phase transformers and autotransformers by reusing part of the same cable set, as well as current transformers, connecting the "X" leads to the primary side of the CT or sliding them through its window when no primary terminals exist.



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Applications and software



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Connection panel of the TRT Standard Series (top view).

Applications

- Commissioning and periodic maintenance of power and distribution transformers, with or without an on-load tap changer.
- Ratio and polarity verification of current transformers, with test voltages from 1 V AC.
- Testing of special transformers: phase-shifting, rectifier and arc-furnace units.
- Automatic vector group detection and magnetic balance test on three-phase units.

Cables shared with the winding analyzer

TRT Standard uses the same H and X cable set as the TWA Three-Phase Winding Analyzer, so a single connection to the bushings chains the turns ratio test with winding resistance, on-load tap changer DVtest and demagnetization, without rewiring the transformer.

PC software

A Windows-based PC software, included in the purchase price with free updates, controls every TRT function from the computer: creating and recording test plans, downloading results from the internal memory, and displaying every measurement numerically and graphically. Customised reports export to spreadsheet, text document or PDF.

Accessories: H and X test lead sets in several lengths, cable cases, TRTC verification calibrator, cable bag, Bluetooth module and, as an option, a built-in 58 mm thermal printer.



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TRT – MEASUREMENT DATA

Turns ratio range	0.8 - 50,000 (5-digit resolution)
Accuracy at maximum voltage (250 V AC)	±0.03% (0.8-999); ±0.05% (1,000-19,999); ±0.1% (20,000-50,000)
Accuracy at minimum voltage (1 V AC)	±0.05% (0.8-999); ±0.1% (1,000-4,000)
Excitation current range	0 - 2 A; resolution from 0.1 µA to 100 µA depending on range
Excitation current accuracy	±(0.25% of reading + 0.5 mA)
Phase angle range	0 - 360°; resolution 0.01°; accuracy ±0.05°

Accuracy depends on the selected test voltage; the highest- and lowest-voltage cases available are shown (see per-model specifications).
Data valid at +25 °C with standard accessories (manufacturer's current datasheet).



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TRT – TECHNICAL SPECIFICATIONS

	TRT63	TRT33	TRT03
Voltage source	Single-phase and true three-phase	Single-phase and true three-phase	Single-phase
Test voltage	1-250 V AC	1-100 V AC	8-100 V AC
Input power	250 VA	200 VA	200 VA
Display	Backlit LCD, 20×4 characters	Backlit LCD, 20×4 characters	Backlit LCD, 20×4 characters
Internal memory	10,000 test records	10,000 test records	10,000 test records
Interface	USB; RS-232 optional	USB; RS-232 optional	USB; RS-232 optional
Dimensions (W×H×D)	478 × 194 × 390 mm	478 × 194 × 390 mm	478 × 194 × 390 mm
Weight	9 kg	8 kg	8 kg

A/B/C mains variants depending on the test voltage available in each country (manufacturer's datasheet).
 Common environmental conditions: operation from -20 to +60 °C, storage from -40 to +70 °C, relative humidity up to 95% non-condensing.
 Standards: safety EN 61010-1; electromagnetic compatibility EN 61326-1; IEEE C57.12.90. Specifications valid at +25 °C.



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