Handheld Turns Ratio Tester TRT-H

- Unique handheld instrument on the market
- Measures 3 transformer parameters:
  - Turns ratio
  - Excitation current
  - Phase angle
- Single-phase test voltage up to 40 V AC
- Turns ratio accuracy up to ±0.1%
- Extremely lightweight – only 1.4 kg / 3.1 lbs
- Battery-powered
- Tests single-phase and three-phase transformers

Description

TRT-H is a handheld, battery operated, fully automatic test set specially designed for turns ratio, excitation current and phase shift measurements of transformers.

Transformer turns ratio is determined by applying AC voltage across high voltage winding, accurately measuring AC voltage across the corresponding unloaded transformer winding, and then displaying the ratio of these voltages.

User can enter a transformer's nameplate voltages, so that turns ratio deviation can be calculated. This feature eliminates any error otherwise caused by an operator's manual calculation. TRT-H compares measured turns ratio with the nameplate ratio and prints out the % of error for each test.

Application

The list of instrument application includes:

- Turns ratio measurement of distribution transformers
- Turns ratio verification of instrument transformers
- Turns ratio deviation calculation
- Excitation current measurement of distribution and instrument transformers
- Phase angle measurement of distribution and instrument transformers
- Polarity check of instrument transformers

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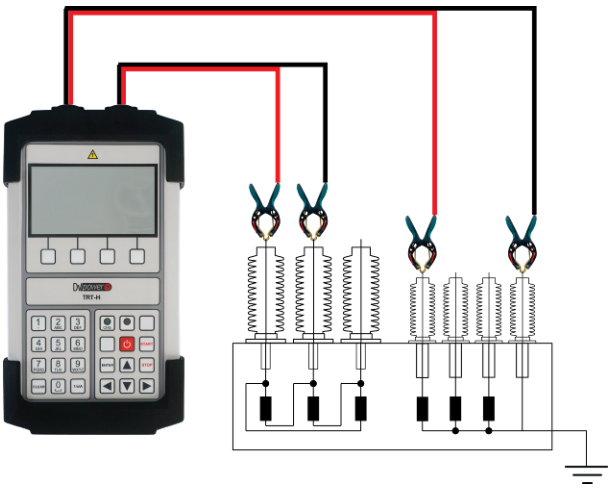
Connecting TRT-H to Test Object

Distribution Transformer

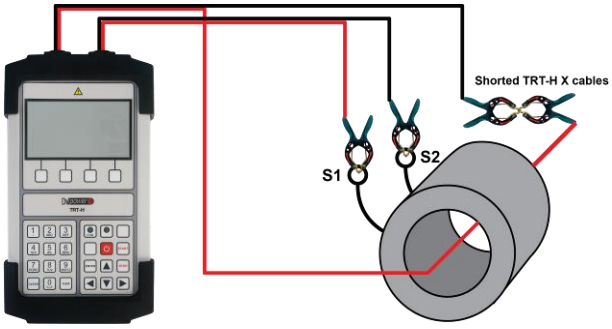
Using two sets of cables, TRT-H can be connected to one phase at transformer HV side, and one phase at transformer LV side, simultaneously.



Connecting TRT-H to a three-phase distribution transformer

Current Transformer (CT)

TRT-H can be connected to both primary and secondary side of a current transformer (CT) simultaneously. CTs are specially constructed transformers – they are instrument transformers with only one, or occasionally two primary turns. Larger number of turns is on the “X” (secondary) side of CTs. For that reason, when verifying CTs, the TRT-H “X” test cables must be connected to the primary of a CT. If there are no primary terminals, the TRT-H “X” cables should be slid through the CT core and short-circuited.



Connecting TRT-H to an unmounted current transformer (CT)

Benefits and Features

Internal Battery

TRT-H is powered by internal, user-replaceable, rechargeable Li-Ion battery. A full day of testing can be performed with fully charged battery. TRT-H can also be operated while connected to mains power supply.

Memory

TRT-H has 100 transformer records. Up to 15 results can be stored in each transformer record.

DV-Win Software

All results from TRT-H internal memory can be easily transferred to a DV-Win software via Bluetooth communication. This allows user to analyze results in the office, to print them, or to create customized test reports. The software is included in the purchase price.

Technical Data

Battery

- Type: Li-Ion, 14.8 V, 2.9 Ah
- Rechargeable
- User replaceable

Power Supply Adapter

- Input voltage: 90 – 264 V AC, 50/60 Hz
- Output voltage: 12-19 V DC
- Output current: 2 A DC

Output voltages

- 40 V, 10 V, 1 V AC

Turns Ratio Measurement

- Measurement range:
  0.8 – 20 000 @40 & 10 V AC
  0.8 – 4 000 @1 V AC
- Resolution: 5 digits
- Typical accuracy:

@40 V AC	@10 V AC
0.8 – 999: ±0.1%	0.8 – 999: ±0.2%
1 000 – 3 999: ±0.15%	1 000 – 3 999: ±0.2%
4 000 – 14 999: ±0.25%	4 000 – 14 999: ±0.25%
15 000 – 20 000: ±0.3%	15 000 – 20 000: ±0.3%

@1 V AC
0.8 – 999: ±0.2%
1 000 – 4 000: ±0.2%

Excitation Current Measurement

- Measurement range: 0 – 1 A
- Resolution: 0.1 mA
- Typical accuracy: ±(1% rdg + 0.5 mA)

Phase Angle Measurement

- Measurement range: 0 – 360º
- Resolution: 0.01º
- Typical accuracy: ±0.06º

Display

- LCD 4.8” display, 240 x 128 pixels

Interface

- Bluetooth

Internal Memory

- 100 transformer records
- Each record contains up to 30 results

Warranty

- 3 years + additional 1 year upon registration on DV Power official website

Environmental Conditions

- Operating temperature:
  -20 ºC – +55 ºC / -4 ºF – +131 ºF
- Storage & transportation:
  -40 ºC – +70ºC / -40 ºF – +158 ºF
- Humidity: 5% – 95% relative humidity, non-condensing

Dimensions and Weight

- Dimensions (W x H x D):
  170 x 310 x 58 mm / 6.69 x 12.21 x 2.28 in
- Weight: 1.4 kg / 3.1 lbs

Applicable Standards

- Installation/Overvoltage category: II
- Pollution degree: 2
- Safety: LVD 2014/35/EU (CE Conform)
  Standard EN 61010-1:2010
- EMC: Directive 2014/30/EU (CE Conform)
  Standard EN 61326-1:2013

All specifications herein are valid at ambient temperature of +25 °C / +77 °F and recommended accessories.
Specifications are subject to change without notice.

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H winding current and sense cables with TTA clamps

X winding current and sense cables with TTA clamps

Jumper cable with TTA clamps

Power supply adapter

Plastic transport case for TWR-H, TRT-H & RMO-TH

Ordering Info

Instrument	Article No
Handheld Turns Ratio Tester TRT-H	TRTH000-N-00

Included accessories
Windows-based DV-Win PC software
Power supply adapter
Carrying belts

Recommended accessories	Article No
H winding current and sense cables 2 m (6.56 ft), 2.5 mm^2 (14 AWG) with TTA clamps	HCS-02-2MCWC
X winding current and sense cables 2 m (6.56 ft), 2.5 mm^2 (14 AWG) with TTA clamps	XCS-02-2FCWC
Jumper cable 2 m (6.56 ft), 2.5 mm^2 (14 AWG) with TTA clamps	JCX-02-2WCWC
Plastic transport case for TWR-H, TRT-H & RMO-TH	HARD-CASE-TW

Optional accessories	Article No
H winding current and sense cables 1 m (3.28 ft), 2.5 mm^2 (14 AWG) with TTA clamps	HCS-01-2MCWC
X winding current and sense cables 1 m (3.28 ft), 2.5 mm^2 (14 AWG) with TTA clamps	XCS-01-2FCWC
H winding current and sense cables 5 m (16.4 ft), 2.5 mm^2 (14 AWG) with TTA clamps	HCS-05-2MCWC
X winding current and sense cables 5 m (16.4 ft), 2.5 mm^2 (14 AWG) with TTA clamps	XCS-05-2FCWC
H winding current and sense cables 10 m (32.8 ft), 2.5 mm^2 (14 AWG) with TTA clamps	HCS-10-2MCWC
X winding current and sense cables 10 m (32.8 ft), 2.5 mm^2 (14 AWG) with TTA clamps	XCS-10-2FCWC
H winding current and sense cables 15 m (49.2 ft), 2.5 mm^2 (14 AWG) with TTA clamps	HCS-15-2MCWC
X winding current and sense cables 15 m (59.2 ft), 2.5 mm^2 (14 AWG) with TTA clamps	XCS-15-2FCWC
Jumper cable 1 m (3.28 ft), 2.5 mm^2 (14 AWG) with TTA clamps	JCX-01-2WCWC
Li-Ion battery 14.8 V 2900 mAh	LION-BAT-000
Verification Calibrator TRTC	TRTC-05-4800
H winding current and sense cables 1 m (3.28 ft) 2.5 mm^2 (14 AWG) with banana plugs	HCS-01-2MCBP
X winding current and sense cables 1 m (3.28 ft) 2.5 mm^2 (14 AWG) with banana plugs	XCS-01-2FCBP
Cable bag	CABLE-BAG-00

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