

# Digital Transformer Ratiometer DTR® Model 8500



The DTR® Model 8500 from AEMC® Instruments is a portable digital transformer ratiometer designed for on-site testing of power, potential and current transformers. When connected to a non-energized transformer, the DTR® Model 8500 accurately measures primary to secondary turns ratio, while simultaneously displaying polarity and excitation current.

The DTR® is fully automatic and uses an ANSI/IEEE compliant test method. No user calibration, range selection, hand cranking or tedious balancing is required. At each measurement, the DTR® automatically self-calibrates and checks for open windings/connections/ circuit breakers, short circuits (excess excitation current),

incorrect test lead placement, and reverse polarity. Measurements are displayed quickly and accurately.

The DTR® Model 8500 is designed with operator safety in mind. Tests are performed at low voltage and, unlike other ratiometers, step-down excitation is employed. This method, in conjunction with an integral H/X reverse protection circuit, guards against the generation of hazardous test voltages normally associated with transformer ratio measurement instruments.

A large, dual line alpha-numeric LCD display with adjustable contrast and backlight guarantees day/night readability. Power is supplied by integral

NiCD battery (included) or by AC line. Batteries are charged automatically during AC operation.

Both rugged and reliable, the DTR® Model 8500 is built into an attractive, sealed structural polypropylene case designed to withstand the rigors of utility and industrial field use.

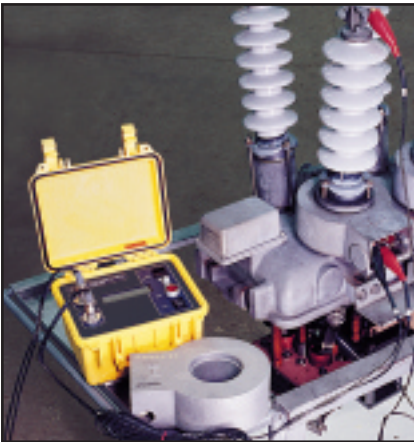
Constructed using only the highest quality electrical and mechanical components, the DTR® Model 8500 sets the standard in advanced design, engineering and workmanship, and it will provide the user with years of accurate and reliable measurements.

## Features

- Designed for Power Transformers, VTs, PTs and CTs
- Direct readings from 0.8000:1 to 1500.0:1
- Display Turns Ratio, Polarity and Excitation Current simultaneously
- Dual power supply and operation: integrated rechargeable NiCD battery and AC supply
- Display warnings of incorrect lead connections, reverse polarity, open and short circuits
- Easy connection and test setup: no calibration or balancing required
- Large dual line display with adjustable contrast and backlight ensures clear day/night visibility
- Low battery indicator
- Includes 15 ft leads

## Applications

- Power transformers
- Potential transformers
- Current transformers



*CT Ratio Measurement*



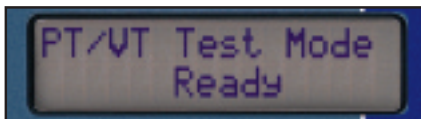
*In the shop or in the field — easy to connect and operate as shown on this 37 KVA transformer (left) and this 3 phase 2000 KVA transformer.*



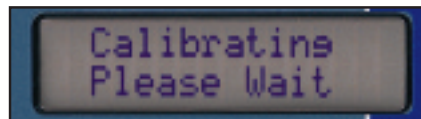
# Specifications

MODEL	DTR® 8500
<b>ELECTRICAL</b>	
Ratio Range	Auto-Ranging, 0.8000 to 1500.0:1
Accuracy*	Ratio <10 to 1: ±0.2% of Reading Ratio ≤10 to 1000 to 1: ±0.1% of Reading Ratio >1000 to 1: ±0.2% of Reading
Excitation Signal	PT/VT Mode: 44Vrms maximum CT Mode: 0 to 1A Auto Level, 0.1 to 5Vrms
Excitation Current Display	Range: 0 to 1000mA; Accuracy: ±2% of Reading ± 2mA
Excitation Frequency	70Hz
Display	LCD Character, 20 x 2, large format, LED backlight, day/night visible
Measurement Method	In accordance with ANSI/IEEE C57.12.90
Power Source	Dual operation; rechargeable NiCD battery & 115/230V, 50/60Hz line supply. DTR® may be changed from 115/230V by internal switch at any time. Units available with factory presetting of 115 or 230V.
Batteries	12V, 5 x 2 NiCD packs, 1300mAh, Panasonic P-130SCR or equivalent
Battery Life	Up to 10 hrs continuous operation. May be used while recharging. Low battery LCD indication.
Charging Time	14 hrs typical, C/10 rate
Line Fuse	115V: 1.0A, 5 x 20mm, slow acting 230V: 0.5A, 5 x 20mm, slow acting
Displayed Measurements	Turns ratio; RMS excitation current; polarity
Displayed Messages	Incorrect lead connections; H/X reversal (accidental step-up misconnection); Short (excess excitation current); Open circuits; Circuit continuity & low battery
<b>MECHANICAL</b>	
Connections	Cannon® XLR connectors and large color-coded industrial clips
Leads	15 ft, H x X color-coded, in carrying bag
Display	Dual line alpha-numeric 3.875 x 0.875" with contrast adjustment and backlight
Operating Temperature	32° to 122°F (0° to 50°C), 0 to 90% RH (without condensation)
Case	Heavy duty structural polypropylene (yellow)
Dimensions	13 x 12 x 6" (330 x 305 x 152mm)
Weight	14 lb (6.4kg)

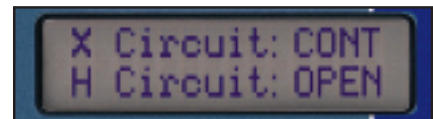
## Simple concise operation - clear informative data displays



Selected mode indication



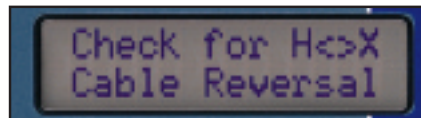
Automatically self-calibrates with every use



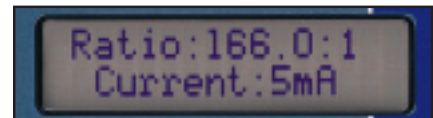
Continuity test option selected



Indicates possible shorts in windings

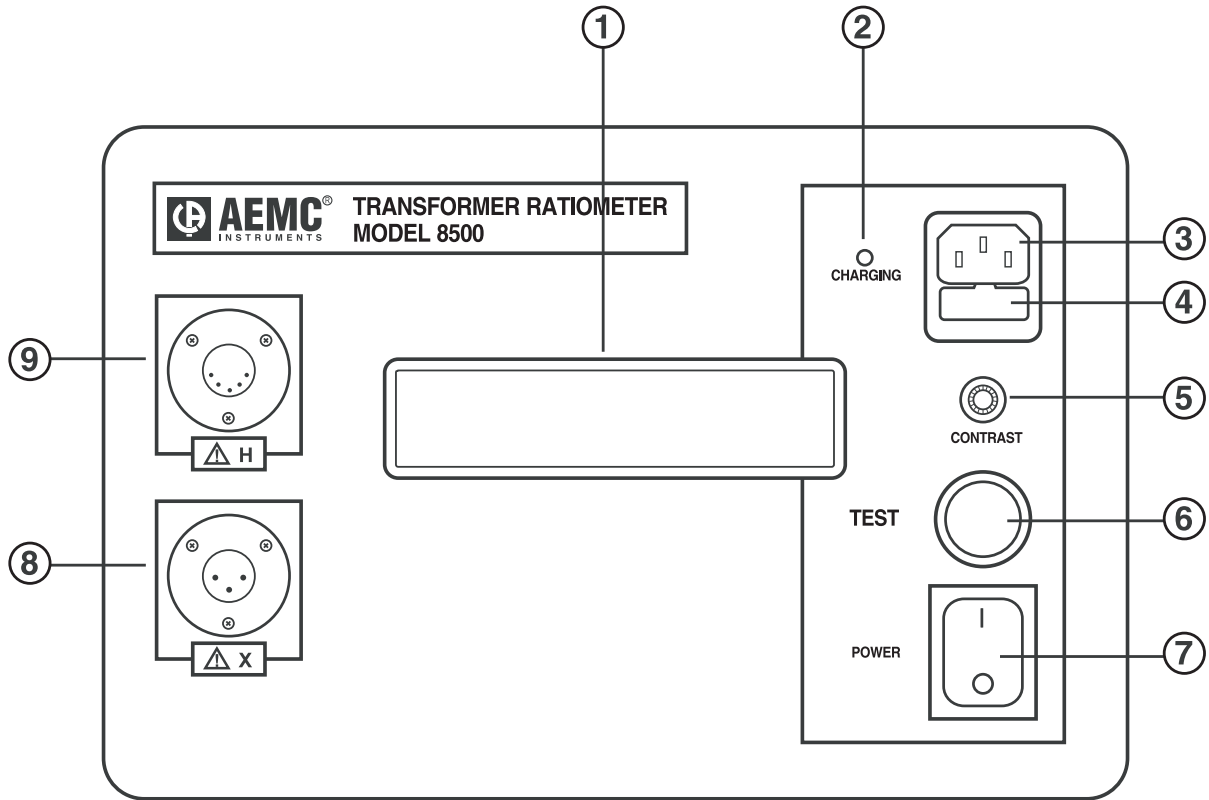


Automatically detects and displays improper cable connections



Displays ratio and excitation current

# Construction



- |                             |                                |   |
|-----------------------------|--------------------------------|---|
| 1. Display                  | 5. Display contrast adjustment | 8. Low-side "X" cable connector (secondary) |
| 2. Battery charge indicator | 6. TEST push button            | 9. High-side "H" cable connector (primary)  |
| 3. AC power inlet           | 7. Main power switch           |   |
| 4. Line fuse tray           |                                |   |

## ORDERING INFORMATION

## CATALOG NO.

**Digital Transformer Ratiometer DTR® Model 8500 (factory preset 115V, 50/60Hz Input)** ..... Cat. #2111.80  
Includes user manual, AC line cord, test lead set (15 ft) in a carrying bag

**Digital Transformer Ratiometer DTR® Model 8500 (factory preset 230V, 50/60Hz Input)** ..... Cat. #2116.21  
Includes user manual, power cord with stripped end (no plug) receptacle, test lead set (15 ft) in a carrying bag

### Accessories

Test lead set (30 ft) in carrying bag ..... Cat. #2118.47

Replacement set of test leads (15 ft) ..... Cat. #2118.48