

Transformer Winding Resistance & On-Load Tap Changer Test Set



TWRM-10

The Eltel Transformer Winding Resistance Meter – **Model TWRM-10** is designed to measure the winding resistance of highly inductive transformers quickly and accurately. The test set can measure the winding resistance of any transformer, single-or-three phase, delta or wye configured. Two independent displays allow the testing of any two windings simultaneously, saving time.

The winding resistance meter's wide resistance range gives optimum resolution even for the lowest winding resistance.

FEATURES

- Light weight and portable
- Direct digital reading; no conversion scales required
- True four-terminal measurement; no lead compensation required
- Inductive voltage kickback suppressed by instrument protection
- Suitable for energised switchyard condition
- Operates even when one end of the winding is grounded
- Two displays; The resistance of two windings can be shown simultaneously
- Protected against current lead disconnection while in use
- Stabilised output current; no adjustment required
- Overcomes high inductance of transformers quickly to allow fast measurement to be taken
- Ratiometric measurement allows accurate resistance determination at current level
- Line power; No batteries required

APPLICATIONS

- Measurement of proper operation of On-load Tap Changer
- Measurement of Transformer Winding Resistance
- Measurement of Reactor Winding Resistance
- Measurement of Generator & Motor Winding Resistance
- Measurement of Busbar Contact and Joint Resistance
- Measurement of Power Cable Resistance

SPECIFICATIONS

Current Supply Principle	: Switch Mode Power Supply
Input	: 230V ± 10%, 50Hz, 175VA
Test Current Ranges	: 0.01A, 0.1A, 1.0A, 10A continuous on all ranges
Indication	: LED indication of current flow; output current displayed in percent on channel 1
Displays	: Two 4½ digit LCD displays showing 1999.9 at full scale. Reading rate is approximately one per second. Power 'ON' indication is provided.
Resistance Measurements Inputs	: Two isolated high impedance inputs, each with separate range controls and protection for inductive kickback
Measurement Principle	: Electronic Thompson type circuit
Accuracy	: ±0.5% of rdg. ± 5 counts at 10A, 1A and 0.1A ranges ±1.5% of rdg. ±5 counts at 10mA range ± 2.5% of rdg. ± 5 counts for resistance values above 200 ohms
Over range	: Indicated by all zeros

OTHER PRODUCTS

- Manual & Automatic Transformer Ratio Meters.
- Automatic Transformer Winding Resistance & On Load Tap Changer Test Set.
- Digital Micro Ohm Meter with builtin 100A DC Source.
- Automatic CT/VT Test Sets & System.
- Automatic & Semi-Automatic HV Capacitance & Tan Delta Test Sets.
- Manual & Automatic Tan Delta & Resistivity Test sets for Transformer Oil.
- Manual & Automatic Portable LV Capacitance & Tan Delta Test Sets.
- Relaying Current Transformer Analyser.

RANGES

Nominal (Ohms)	Resolution (Ohms)	Maximum Display (Ohms)
2 m	0.0001 m	1.9999 m
20 m	0.001 m	19.99 m
200 m	0.01 m	199.99 m
2	0.0001	1.9999
20	0.001	19.999
200	0.01	199.99
2000	0.1	1999.9

Current Range	Resistance max
10A	2 Ω
1 A	20 Ω
0.1A	200 Ω
10mA	2000 Ω

TAP CHANGER APPLICATION

The design features of TWRM-10 makes the instrument especially useful in checking the proper operation of ON-Load tap changers on Power Transformers. The instrument can be left ON while changing the tap. This allows the operator to take measurements very quickly without discharging, then re-charging the transformer for every tap. The Transformer Winding Resistance Meter will re-balance after every tap change. If the tap is defective or if there is even a fraction of time where the tap is open, the instrument will automatically go into discharge cycle. This gives the operator a clear indication of a proper make-before-break operation of the tap changer. During any OPEN condition, the transformer will not be damaged by the instrument's DC current.

STANDARD ACCESSORIES

- Set of leads including:
 - Two sets of 15m Potential leads
 - One set of 15m Current lead
 - A 5m shorting lead
 - AC Power cord
 - Transport case
 - Operation Manual
- Temperature : 0 to 50° C
 Humidity : 0 to 90% non-condensing
 Weight : Approximately 12 kgs
 Dimensions : 450mm x 200mm x 250mm (LxHxB)



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(SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE)

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