Features

- Dissipation Factor, Volume Resistivity, Dielectric Constant (Permittivity), Watt Loss
- Inbuild test cell heating and cooling systems with precise temperature control
- Test Cell according to IEC 60247 help for easy assembly and Cleaning
- Preprogrammed & Customized Test Sequences
- Inbuilt Thermal Printer
- Internal memory stores up to 250 test results
- USB Interface
- Portable Calibrator
- Oil Auto Drain Facility
- Auto Sequence Test
- Bluetooth enabled for Motware Mobile App
- Calibration certified to ISO 17025

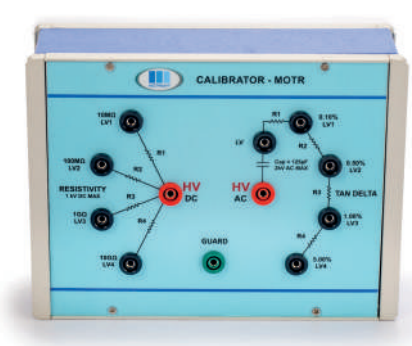
MOTR

Connected to Cloud

Oil Tan Delta & Resistivity Tester

CAT III	IP
600V	54

Motwane's MOTR is a microprocessor-based compact designed for precise measurement of the dissipation factor and volume resistivity of insulating oils. MOTR is built in a single unit and on boarded with international test standards for automatic measurement of all parameters and also available with customized test sequences to conduct tests as per the user's requirement. The test cell is designed as per IEC 60247 with precise control for measuring dissipation factor and resistivity at 27°C & 90°C. MOTR also has an auto drain facility. It is provided with internal memory & printer for on-field reports and also has a USB interface available for data transfer. The calibrator with standard dissipation factor & resistivity ranges are available for validating the performance of MOTR.



Calibrator

Test Cell

Applications

The dissipation factor indicates the dielectric loss of the liquid and, consequently, its dielectric heating. The dissipation factor test is widely used as both an acceptance and preventive maintenance test for insulating oil.

The dissipation factor of new oil should not exceed 0.05%. During service, it can gradually increase to a value as high as 0.5% in most cases, which may indicate deterioration and/or contamination with moisture, carbon, varnish, glyptal, sodium soaps, or other deterioration products.

Used oil with a dissipation factor of less than 0.5% is usually considered satisfactory for continued use. A dissipation factor between 0.5% and 2% should be considered questionable, and further investigation is recommended. If the dissipation factor exceeds 2.0%, the oil may pose an operational hazard and should be reconditioned or replaced.

Useful for measuring the quality of insulating oil used in electrical apparatus such as:

- Power & Distribution Transformers
- OLTC
- HV Cables
- Switchgear
- Capacitor
- Bushing
- Instrument Transformer

Technical Details	MOTR

Technical Specification

Measuring Parameter	Dissipation factor, volume resistivity, dielectric constant, and watt loss
Tan Delta Measurement or Dissipation Factor range	1 x 10^{-6} to 4.0
Resolution	1 x 10^{-6}
Accuracy	±1% of reading ± 0.0001 (1 x 10^{-4})
Relative Permittivity or Dielectric constant Measurement Range	1 to 30
Resolution	0.001
Accuracy	±0.1% ± 10 digits
Volume Resistivity Range	10^{6} ΩCm to 10^{15} ΩCm
Resolution	0.001
Accuracy	±2% at 10^{6} to 10^{13} ΩCm ±5% at 10^{13} to 10^{14} ΩCm ±10% above 10^{14} ΩCm
Measured Dielectric Loss Range	0 to 10 Watts
Resolution	0.001mW
Accuracy	±1% of reading ± 10^{-5} W
AC Voltage	200V-2400V
DC Voltage	100V - 1000V
Resolution	1V
Accuracy	±1%
Results Frequency	45Hz to 65Hz (56Hz)

Test Cell

Cell Constant	620 Nominal
Capacitance	55pF ± 1pF
Insulation	Teflon (PTFE)
Electrode Spacing	2 mm
Volume of Oil	60ml

Heater:

Temperature Range	20°C - 150°C
Accuracy	±0.5°C
Resolution	0.1°C
Temperature Control	One set point (max 110°C)
Heating Element	Induction Type
Sensor	Solid state (Pt100)

Environmental Specifications

Operating Temperature Range	0°C to 50°C
Storage Temperature Range	-10°C to 55°C
Humidity	Non-condensing 95% RH
Dimensions	510mm(L) x 320mm(W) x380mm(H)
Weight Instrument	24 Kg (Approx.)
Interface	USB Type B
Test Standards	IEC 60247, VDE 0380, BS 5737, ASTM D924, ASTM D1169, JISC2101:2010
Display	Alphanumeric LCD Display
Printer	Inbuilt Thermal Printer
Memory	250 Tests
Power Supply	110/230V ±15% AC, 50Hz/60Hz, single phase
Power Consumption	< 250VA @ 230V / 50Hz
IP Rating	IP54 with Carrying Case
EMC	IEC61010-1, IEC61326-1
Oil test cell heater	Induction type

Optional Auto Drain Feature provided

Safety-1	Interlock provided in heating chamber to connect the oil cell
Safety-2	Emergency stop provided on front panel

Technical Details	MOTR

Accessories

Standard

- Test Lead : 1 Set.
- Oil Test Cell with 3 terminals : 1 No.
- Standard Calibrator : 1 No.
- Pen Drve with PC Communication software : 1 No.
- USB Cord : 1 No.
- Test & Calibration Certificate : 1 No.
- Instruction Manual : 1 No.

Optional

- Oil Auto Drain Facility

Note:

- Bluetooth Software (Optional)
- Motware Desktop Application (Optional)

ORDERING INFORMATION

Product	Order Code
MOTR with Standard Accessories	**109614010**