



Automatic Oil Resistivity & Dissipation Factor (Tan-Delta) Test System

PE-AORDF-1

PE-AORDF-1 Fully Automatic Oil Resistivity & Tan-Delta tester is an integrated unit, consisting of Heater unit and Measuring Bridge. The Stainless Steel oil cell is to be mounted inside the HF Induction heater cubicle, and HV is engaged to it automatically. Measuring Bridge consists of AC/DC high voltage supply, Tera-Ohm meter, and precision electronic bridges to measure and derive readings for :

- Resistance
- Resistivity
- Capacitance
- Power Factor
- Tan-delta
- Watt-loss
- Dielectric Constant
- Temperature

Pre-programmed international test methods compliant to:

ASTM-D924-04, ASTM-D1169, IEC-60247, IEC-61620, IS-6262/6103, NBR 12133, VDE-0380-2, BS-5737



SPECIFICATION

INPUT

- Power Supply- Single Phase 220V AC 50 Hz \pm 10%
- Input pin type- Round 3-pin (L, N, E). European, Australian, US pin types available on request
- Measuring Bridge VA- max 500VA
- Heater VA- max 500VA



TEST VOLTAGE

- For Dielectric Constant & Tan-Delta- 60V to 2000V AC (in steps of 1V)
- For DC Resistivity- 100V to 2000V DC (in steps of 1V)
- Accuracy of Voltage setting- + (1% of set value + 10V)

ATMOSPHERIC

- Storage Temp- minus 20°C to +60°C
- Operating Temp- minus 10°C to +50°C
- Humidity- < 90% non-condensing

HEATER

- Temperature Range- ambient to 110°C, resolution 0.1°C
- Temperature error- 0.5 °C (max)
- Time to 100°C- < 20 mins

MEASURED PARAMETERS

- Tan Delta range- 0 to 4
- Tan Delta resolution- 0.000001 (10⁻⁶)
- Tan Delta Accuracy- 1 % of reading + 0.00005
- Capacitance range- 15.0 pF to 1000 pF
- Capacitance resolution- 0.1 pF
- Capacitance Accuracy- 0.1% of reading + 0.5pF
- Dielectric Constant range- 1 to 20 when using a typical test cell (C ~ 50-60pF)
- Dielectric Constant resolution- 0.001
- Dielectric Constant Accuracy- + 0.1 %
- Resistance Range- 1 MΩ to 10 TΩ (not calibrated above 10TΩ)
- Resistance Resolution- 4 digits
- Resistance Accuracy- 5% of reading over entire range, 10% beyond 1TΩ
- Resistivity Range- 500 MΩ cm to 10000 TΩ cm (for type C empty – 55pF)
- Resistivity Resolution- 4 digits
- Resistivity Accuracy- 5% of reading over entire range, 10% for > 500TΩcm

FEATURES

- Complete automatic test procedure. Once test voltage is selected, it applies excitation to the 3-terminal Oil cell, measures R, C, DF, F, V, and then displays and prints the results on integrated printer
- High Accuracy, Best resolution in its class
- Pure Sine test operation for AC measurements and <0.1% ripple for DC measurements>
- Heater interfaced with main unit for temperature set, control and display
- Multiple temperature set values programmable
- Programmable cell constant for Resistivity and Dielectric Constant
- SF6 Gas Capacitor integrated inside for standard reference
- 7" color TFT display with touch screen with wireless keyboard for user convenience
- Integrated Programmable AC & DC test voltages
- Thermal printer for immediate printing
- Pre-programmed 9 test sequences, and user-programmable 10 test sequences
- USB 2.0 interface for PC
- PC software for control and display of test results
- On-site calibration possible for yearly schedule
- Optional Bluetooth / RS485 / RF interface with user definable config, for Automated Laboratory setup



OPERATIONS

The PE-AORDF-1 has been designed to be used in extreme atmospheric conditions and rough handling by experienced but unskilled persons. The user interface is either through a touch panel graphical LCD, or through the PC software. Parameters can be set on both sides, and display and printing of test results can too be done either side. The user has to either select from an array of pre-programmed test options including most international standards, or his own customized test sequence. He has to then load the Oil cell with Oil and put it in the heater compartment, connect the HV, LV and GND wires to the Oil test cell and the main equipment, and then press the Start Test button on the display. The user can then rest while the equipment controls the Heater to take it up to the programmed elevated temperature and upon reaching that temperature, measures all the necessary readings. Exception is only in the case of measuring Dielectric Constant, whereby user has to first load a clean empty test cell, and then upon prompting by the equipment, reload it with an oil filled test cell. Depolarization is done automatically between AC and DC measurements to avoid faulty readings. The test results are then automatically stored in the internal memory with the unique ID that was allotted at the time of start of test. The synopsis of the test results is automatically printed on the integrated thermal printer. The user can anytime access the last 99 stored records on the internal nonvolatile memory of AORDF-1 thro a PC, and print them on the local printer or store them for future reference

SAFETY

User safety has been given paramount importance while designing, followed by instrument safety. Integrated interlocks have been designed to make sure that despite connection errors, the automatic systems prevent the user and instrument from any hazards. Important safety features that have been incorporated are:

- **Ground Open interlock.** The set will not function ahead unless a proper Gnd is provided to the instrument
- **Different pin systems** on test leads and terminals for Temp & LV connection, that cannot be mated together
- **Ultra fast blow fuse** installed internally to avoid accidental short-circuit
- **High-Voltage suppressor** and **line filters** integrated to avoid supply fluctuation and effect
- Completely **shielded test leads**, tested with 1.5 times test voltage to avoid shock hazard to user
- **Automatic discharging** of test object (Oil cell) after test completion to avoid residual charge impact on user
- Heater incorporated with **Fire retardant** materials to restrict hazards



STANDARD ACCESSORIES



CLOSED CUP SS OIL CELL

- Test equipment- 1 no*
- Heater unit- 1 no
- Closed cup SS Oil cell- 1 no
- Printer roll- 1 no (already loaded), plus 1 spare roll
- Connecting AC mains cable- 1 no
- Connection test leads- 1 set
- User manual (Video CD)- 1 no
- Test certificate- 1 no
- Warranty Certificate- 1no (Standard warranty 1 yr)

Our Products



OIL BREAKDOWN VOLTAGE TEST SYSTEMS



OIL DISSIPATION FACTOR & RESISTIVITY TEST SYSTEMS



CAPACITANCE & TAN DELTA TEST SYSTEMS



HIGH VOLTAGE TEST SYSTEMS
AC/DC HI-POT TESTER



CALIBRATORS



TUNABLE RESONATING INDUCTOR

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