

TANGENT DELTA MEASUREMENT PORTABLE SYSTEM

TECHNICAL SPECIFICATIONS

1. The test set should be able to measure Dissipation Factor and Capacitance of solid and liquid insulation materials (Capacitors, Power Transformers, Bushings 150-400kv, Current and Voltage transformers, Circuit breakers, Surge Arrestors etc.) grounded (GST, GSTg) or ungrounded (UST) test mode.
The test set should be designed to operate in heavy electromagnetic fields such as in power plants and substations and must be:
 - Flexible and not heavy (less than 50 kg)
 - The measuring unit and the bridge should be integrated in one compact unit.
 - Equipped with appropriate filters to eliminate interference from the heavy electromagnetic fields.
2. The system is equipped with built-in computer of suitable memory and interfaces (USB or RS 232) ports to enable easy exchange of measurements results to data base and to print test reports.
3. The system automatically should display on an LCD screen the procedure and the test results, measured *tand*, automatically (apparatus temperature) corrected at 20°C the *test voltage*, *frequency*, *dielectric-loss current*. The results must be stored in the systems memory.
4. The system should also be equipped with easy and friendly software. The automatic test mode performs complete automated test sequences for every type of measurement and apparatus.

MEASURING RANGES

5. Capacitance (with internal standard element).
From 1 pF to 1 μF in multiple ranges. Accuracy at least $\pm 0.5\%$ F.S.
6. $\text{Tan}\delta$
From 0.01% to 100%. Accuracy at least $\pm 0.5\%$.
7. Test voltage
From 0 to 10 KV or higher in multiple ranges and accuracy $\pm 1\%$.
8. Test frequency
47 \div 53 Hz independent from the frequency of power supply.
9. Power supply
230 V $\pm 10\%$ / 50 Hz

PROTECTIONS - TECHNICAL FEACHURES

10. Protection of electronic circuit and the operator against the high voltage, the disruptive discharges and the stray magnetic fields on the test specimen. The system is also equipped with safety switch to manually cut power and ground earth relay interlock.
11. Protection of electronic circuit of the bridge when the specimen is short circuited.
12. An ambient temperature sensor is integrated to the system for the correction of the measured *tand* values.
13. Operating temperature $-5^{\circ} - 45^{\circ}$ C.
14. Built-in standard capacitor 100 pF, 10 KV or similar built-in standard element.
15. High – Voltage Supply $0 \div 10$ KV + 20% or higher range, to supply the specimen with the selected voltage, with maximum step voltage 500 V, minimum power 3 KVA and its control unit.
16. **Two sets** special shielded High and Low voltage cables with respective plugs connecting to the bridge, and **detached** terminals connecting to the test specimen . Cables' length must be at least 10 m.
17. All simply assembled units with all the necessary accessories, to form a complete system ready for measurement.
18. Robust carrying cases for the units of the system, suitable to carry the units on site.
19. Calibration test of the bridge and type tests of the H.V. unit by official Bureau of State.
20. Complete operation details in English and Greek translation of the basic operational modes.
21. Suppliers shall state in their offer the guaranteed period of the system (at least one year).
22. Reference list to prove that the offered system has been sold in sufficient quantities in European Union countries, USA, Canada, Australia, Japan and South Korea (except the country witch produces it) and operate without problems at least for two years.
23. Along with their offers Bidders must submit the confirmation with each one paragraph of the present specification and any deviation of the present specification has to be stated clearly.