

Specification of Digital Insulation Tester

Scope :

This specification covers Design, Manufacture, Testing, Supply and Delivery of Digital Insulation Tester and associated accessories suitable for measuring insulation resistance and Polarization Index of the equipments.

Functional Requirement :

1. The instrument should be suitable for measuring insulation resistance and Polarization Index, in live switchyard upto 765 kV level, as per applicable standard testing procedure of KPTCL.
2. The test results should have repeatability, consistency & immunity to electromagnetic interference in live switchyard upto 765 kV level.
3. The instrument should automatically discharge the energy transferred to test specimen at the end of test.
4. The instrument should have Guard Terminal to eliminate the effect of surface leakages etc.
5. Provision to be made to enter the details of specimen under test in the kit.
6. The instrument shall have the following modes .
 - Auto ranging of Resistance Value
 - Automated Polarization Index calculation
 - Automated Dielectric Absorption Ratio calculation
 - Step Voltage test
 - Capacitance Measurement
 - Leakage Current Measurement
 - AC / DC Voltage Measurement
 - Output Voltage Measurement

Output : Voltage: 0-5 kV in steps of 500Volts (Digital)

Direct selection of voltage 500V-1KV-2.5KV-5KV with One button selection.
short Circuit Current min. 2mA

Accuracy : 1. IR : ± 05 % of reading

2. Voltage: ± 05 % of reading

Measurement Range: Insulation Resistance: 0 - $1T\Omega$ (auto ranging & digital) or higher value is preferred.

Test Modules: Auto IR, Polarization Index, Dielectric Absorption Ratio(DAR), capacitance measurement up to 15 micro farads.

Test Leads and Accessories :

Two complete set of screened cables, each of 3m and 15m with suitable clamps & connectors, compatible with the instruments should be provided for successfully carrying out the test in KPTCL S/S. Additionally all the required accessories should be provided for the smooth functioning of kit. Further hard carrying case (which should be robust/ rugged enough) for ensuring proper safety of the kit during transportation shall have to be provided.

Design/Engineering :

The complete equipment along with complete accessories must be designed / engineered by Original Equipment Manufacturer.

Data Storage : 4000 Readings

Data output : USB interface shall be provided. Provision shall be made for suitable converter cable to convert to USB along with driver software if any other interface other than USB is provided.

Applicable Standards :

EN 61010-1 and 2, EN 61326-1, IEC 61000-4-3, IEC 1000-4-2, CAT-III 600V, CE Marking

Power Supply :

Built in rechargeable battery pack.

Charger : 100V to 240V 50Hz +/- 5%

Operating Temperature : 0 to +50 deg C

Relative Humidity : Max. 90% non-condensing

Software : Software and operational manual shall be provided.

Protection /Control :

The kit shall have protection against short circuit, over load, induction, transient surges etc. Also the instrument should have facility of discharging the specimen when test is completed or when current cable is accidentally disconnected or when instrument power supply is lost. The kit should have built in rapid discharge circuit for automatically discharging the stored energy in the transformer at the end of each test. The kit should have the indication of showing the status of discharge.

Also the kit should have facility of stopping automatically on power failure as well as interlock for HV.

Weight :

It should be easily portable

Display/ Control : Digital LCD/Keypad

Printer : Internal Thermal Printer

Environment : The test kit shall be compatible for EMI/EMC environment required for EHV switchyard as per IEC61000.

Guarantee/Warranty :

Kit shall be guaranteed for the manufacturing defects for minimum 36 months from date of successful demonstration at site. If the kit needs to be shifted to supplier's works for repairs, supplier will have to bear the cost of spares, software, transportation etc., of kit for repair at test lab/works. The commencement of warranty period will start after the successful and final demonstration, inclusive of repetitive if any, of kit at site. All the materials, including accessories, cables, laptops (wherever supplied) etc. are to be covered under warranty/ guarantee period.

1. If any problem in the kit is reported in the guarantee period, then the kit shall be collected by the firm within ten days of the report of problem for free repairs and the transportation/transit insurance cost shall also be borne by the supplier.
2. Repair period shall be maximum of one month from the date of kit collected by the firm.

Any period over and above (as 1 & 2 above), stipulated time shall be liable to extend the guarantee period for the delay period for which firm shall arrange to extend the Bank Guarantee.

Calibration Certificate :

Unit shall be duly calibrated before supply and the date of calibration shall not be older than two months from the date of supply of Kit.

After Sales Service :

Bidder will have to submit the documentary evidence of having established mechanism in India for prompt services. The service support including supply of spares shall be ensured for a period of minimum 10 years.

