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TECHNICAL SPECIFICATIONS OF 10 kV DC DIGITAL INSULATION RESISTANCE TESTERS

Sl. No.	Description	Vendor Compliance/Remarks
1	The test set should be fully automatic and suitable for finding out the Insulation resistance of Power Transformers (up to 315 MVA, 220/400 kV Class), OIP Bushings (up to 400 kV class) and Dry type transformer (15 MVA, 33kV Class), CT's (up to 400 kV class) & PT's (up to 400 kV class).	
2	The test set should be able to give direct readings of Insulation resistance of the test object automatically on digital & analogue scale without any bridge balancing method involved.	
3	The test set should be able to take the measurements automatically and should have provision for displaying the following electrical parameters. • Display of Insulation Resistance • Display range analogue scale (10 kΩ to 10 TΩ) • Display range digital value (10 kΩ to 35 TΩ) • Display of Insulation leakage current • Display of test voltage • Display of elapsed test time as digital timer	
4	Display: Large Screen LED/LCD display Display Insulation resistance value in digital & Analogue form.	
5	Degree of protection	IP 65 / Relevant IS-IEC
6	Input Supply: Instrument must be mains as well as internal battery operated i.e measurement can be done either from internal battery or from mains supply. Input supply: Single phase 230 V±10%, Freq-50 Hz±3% Chargeable Li-ion battery meets relevant IEC standard (IEC-62133). Battery operated charging circuit should be built in with input supply single phase 230 V± 10% & Freq-50Hz±3%. During battery operated instrument permanent on screen display of battery status to be provided. Full Battery Charging Time : 2:30 Hrs (Approx.) Battery life 3:30 Hrs approx. at continuous testing at 10 kV at any load.	
7	The test voltage to be applied on the object under test should be independent of the supply frequency to avoid any variation in the frequency during the testing.	

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8	The test voltage should be automatic up to the preset value, which shall be determined by the person carrying out the test.	
The ranges of the test set for different parameters should be at least as per the points mentioned below		
9	The Voltage Range: 500V, 1000V, 2500V, 5000V, 10000V DC, User selectable Lock Test Voltage: 50V -1kV in 10 V steps : 1kV -05 kV- 10kV @25 V steps Voltage Accuracy : (±) 3.0 % voltage for Load > 100 MΩ	
10	Insulation Resistance Range:10 kΩ ---15 TΩ @ 5kV :10 kΩ ---35 TΩ @10kV Accuracy :(±) 5.0 % rdg (from 1MΩ to 2 TΩ) or better	
11	Leakage Current Measurement at full voltage level	
12	Short Circuit Current: 06 mA Charge Current : 02 mA High Noise immunity-8mA of noise rejection	
13	Capacitor charge battery power Capacitor charge AC power Capacitance Range at full voltage level Capacitor discharge time } Vendor to specify	
14	Timer: Digital timer, User selectable, 0-99 min 59 Sec in form mm:ss m=minute, s=second Test to be terminated automatically at the end of preset time and discharge automatically.	
15	The test set should be able to operate in an environment of temperature 0 to 50°C & humidity of 10-85% RH (Non condensing)	
16	The instrument should have detachable test leads for avoiding damage to the cables as well as to the instrument. The test set should have audio/visual alarm while test is under progress.	
17	The test kit shall meet all the relevant international safety specifications	
The Test equipment shall be offered complete with the items mentioned below:		
18	Main equipment with following... • Power supply cord • High voltage lead, Low voltage lead, Guard lead/Earthing Lead. (minimum 3.0 meter lead set x 3, with large Insulated Clips) • Tough Carrying case for test leads and accessories.	

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19	**Additional Accessories: HV Test Leads** 15 Meter Lead set x 3, bare clips. **Price of one set of spare HV Test leads to be quoted separately and shall also be in scope of supply.**	
20	Two sets of operating and maintenance manuals in English language. Original technical catalog to be included along with technical bid.	
21	Three sets of calibration reports with following data Calibration date, periodicity, calibration validity duration & next calibration due date. At least 20 sample calibration results of which minimum 5 results at 10 KV voltage range with different resistance value. Traceability details of standard used for calibration. All documents should be endorsed by authorized signature	
22	**Installation/Commissioning/Acceptance:** Installation/Commissioning of the instrument to be done at BHEL Jhansi works by supplier's representative. Commissioning charges shall be assumed 5% approx of the total value and period shall be within 15 days after giving the commissioning call. Demonstration of all features of offered 10 kV Digital Insulation Tester & its all accessories to satisfaction of BHEL for their efficient and effective use. Instrument shall be accepted only after successful calibration at our end.	
23	**Spares:** All types of spares of 10 kV Digital Insulation Tester and its accessories should be available at least five years for trouble free operation to be included after supply of the instrument. The vendor shall provide list of spares and drawing of parts/details of spares. Supplier should also provide any other attachment /accessories required for smooth functioning of the instrument.	
24	**Performance & Warranty Certificate:** The Supplier shall guarantee the product performance for 24 months from the date of successfully commissioning at our works and shall provide spares and services during guarantee period to maintain the offered meter in working condition.	
25	**Live Demonstration:** Live demonstration of offered meter is to be given by supplier at BHEL Jhansi works if same is asked during technical evaluation. No additional charge will be applicable for live demonstration.	

Note:
Supplier should submit point wise technical compliance/comments against each of the above points in above format. Technical bid without complete technical compliance sheet will not be considered for technical evaluation.

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