

Electrical Test & Measurement Instruments





5K PI

Diagnostic Insulation Tester

CAT III	CAT IV	IP	CE	Bluetooth
600V	600V	65		

5K PI Diagnostic Insulation Tester is designed to conduct various diagnostic tests on electrical apparatus like Transformers, Cables, Bushings, Insulator, Switchgears, Lightning Arrester/Surge Arrester and Rotating Machines etc. 5K PI comes in three ranges of short circuit current of 3mA, 5mA and 6mA. Designed & developed indigenously at the state of the R&D laboratory, the 5K PI is a microprocessor based instrument deployed with latest technology and very high speed data sampling to give correct, repetitive and durable performance under harsh conditions. It is operated through mains and (as well as) the battery, weighing 4 Kgs Approx making truly light weight & compact insulation resistance tester for outdoor applications. Our Insulation Tester's 3mA and 6mA variants are equipped with a self-replaceable battery. Thus, there is no need to send the tester to the supplier for battery replacement; in turn reducing the downtime of the instrument. The instrument is specially designed to suit operator's ease and test requirement, also certified as per relevant IS/IEC standards. The instrument features a large, white, backlit LCD that displays test information, including insulation resistance value, test voltage, leakage current, capacitance, battery status, and timer, along with other indications. Equipped with three programmable timers, which provides to conduct various tests like Polarization Index (PI), Dielectric Absorption Ratio (DAR), Dielectric Discharge (DD), Step Voltage (SV) test and Breakdown Voltage (BDV) test. The instrument has the automatic capacitive load discharge at the end of the test.

5K PI has Bluetooth connectivity module that allows remote access to testing data via the MOT-WARE mobileapp, as well as cloud integration for further analysis and record-keeping

Features

- ✓ Available in three variants : 3mA, 5mA and 6mA
- ✓ Self-replaceable battery
- ✓ Compatibility under heavy induction environment.
- ✓ Programmable Test Voltage: 250V, 500V, 1000V, 2500V, 5000V
- ✓ Insulation Resistance up to 50TΩ
- ✓ Three Programmable Timers: T1, T2, T3 respectively
- ✓ Modes for conducting IR, Leakage current, PI, DAR, DD, SV and BDV test
- ✓ Mains & Battery Operation
- ✓ 1000 test results storage
- ✓ Optically Isolated RS-232 port & USB port
- ✓ AC/DC Voltage Measurement
- ✓ LCD Display with backlight
- ✓ Interference rejection of 1mA RMS per 250V test voltage, up to a max. of 8mA
- ✓ Bluetooth enabled for MOT-WARE Mobile App

Applications

The Insulation Resistance Test is an essential test that helps to verify the condition of electrical insulation. Insulation resistance quality of an electrical system degrades with time, environment condition i.e. temperature, humidity, moisture and dust particles. The instrument is designed for routine and diagnostic testing like IR, PI, DD, DAR, SV & BDV of high voltage electric apparatus like transformers generators, motors, cables, bushings, LA's, switchgear, etc. and is temperature independent. It can be operated in 220 kV, 400 kV and 765 kV* switchyards. Trending of data can reveal vital information about insulation quality and enables the user to take informed decision.

* Applicable for 5K PI 6mA only

Technical Details	5K PI			
	5K PI 3mA	5K PI 5mA	5K PI 6mA	
TEST SPECIFICATIONS				
Diagnostic Modes		IR, PI, DD, DAR, SV & BDV		
TEST VOLTAGE				
Programmable Test Voltage		250V, 500V, 1000V, 2500V, 5000V		
Lock Test Voltage		250 V to 5 kV in 50V steps		
Voltage Accuracy		± 5%		
RESISTANCE RANGE				
Analog & Digital Display	1KΩ to to 10TΩ		1KΩ to to 50TΩ	
Accuracy	±(5% of reading + 5 digits) upto 1 TΩ		±(5% of reading + 5 digits) upto 1 TΩ	
	±(10% of reading + 5 digits), for 1 TΩ to 10 TΩ		±(10% of reading + 5 digits), for 1 TΩ to 50 TΩ	
Guard Resistance		300kΩ ± 10%		
Indication		Audio-visual warnings available		
SHORT CIRCUIT CURRENT				
Current Range	Up to 3mA	Up to 5mA	Up to 6mA	
AC/DC VOLTAGE				
Voltmeter Range	0 - 600 AC/DC			
Voltmeter Accuracy	±(5% of reading + 5 digits); input resistance: 100MΩ Approx			
CAPACITANCE MEASUREMENT				
Capacitor Charging Time	≤ 5 sec per μF			
Capacitor Discharge Time	≤ 2 sec per μF			
Capacitance Range	1nF to 50μF; Measuring range C: 50 μF*			
Capacitance Measurement Accuracy	±(10% of readings + 5 nF)			
INTERFERENCE REJECTION	1mA RMS per 250V test voltage up to a max. of 4mA		1mA RMS per 250V test voltage up to a max. of 8mA	
TIMER				
Programmable timer from 0 sec to 99 minutes				
MEMORY				
Internal Memory storage of 1000 readings				
INTERFACE				
Bluetooth Communication				
Galvanically isolated RS232 and USB ports; remote operation via PC using either RS232 or USB cable				

Notes: **1)** The Instrument is accompanied with Test & Calibration sheet. **2)** Test Facilities can be provided at the factory with the available test set-ups only. **3)** The company's policy includes continuous improvement of its product. We, therefore, reserve the right of any deviation from illustration or specifications without notice. **4)** Stated accuracies are valid from 10% of the range to 95% of the range. **5)** Accuracy specified for temperature range of 25°C ± 5°C & 55% RH ± 10%. **6)** Image & weight are subjected to change.

Technical Details		5K PI			
		5K PI 3mA	5K PI 5mA	5K PI 6mA	
POWER SUPPLY					
Mains Input Voltage		100-230V, Frequency 50/60Hz			
Battery Type	4 x Replaceable Battery Li-ion 3.7v 3200mAh, INR18650MH1		Rechargeable Battery 14.8V, 2600mAh	4 x Replaceable Battery Li-ion 3.7v 3200mAh, INR18650MH1	
Battery Life		Approx. 5 hours of continuous testing at 5kV on 250 MΩ load			
Battery Charging Time		3 hours approx. (95% Charged)			
Auto Power Off	NA		NA	Instrument turns off after 5 minutes of non-use to conserve battery life	
ENVIRONMENTAL CONDITION					
Operating Temperature Range		0°C to 55°C			
Storage Temperature Range		-20°C to + 70°C			
Humidity		< 95% RH Non-Condensing			
SAFETY					
		Safety in accordance with EN 61010-1			
		Safety of test lead in accordance with EN61010-031			
		Measurement CAT III 600V / CAT IV 600V			
		EMC in accordance with EN 61326-1			
		CE Certified			
		Ingress Protection IP 65			
PHYSICAL SPECIFICATIONS					
Dimensions		190mm X 285mm X 365mm (Approx.) (H x W x L)			
Weight		4 Kg (approx) (Without Accessories)			
		9 Kg (approx.) (With Accessories)			
ACCESSORIES					
Standard		Optional			
■ 3m Test lead Set (3mA & 5mA)		: 01 Set.	■ 15m Test lead Set		: 01 Set.
■ 10m Test lead Set (6mA)		: 01 Set.	■ Bluetooth Software		
■ Mains Power Cord		: 01 Set.	■ MOT-WARE Desktop Application		
■ Mains Protected Fuse 2A, 250V, Fast Blow		: 02 Nos.			
■ Communication cable RS232 male to female serial cable 9 pin		: 01 No.	ORDERING INFORMATION		
■ Instruction Manual		: 01 No.	Product	Order Code	
■ Test & Calibration Certificate		: 01 No.	5K PI with 3mA	109394K10	
■ Carry Case		: 01 No.	5K PI with 5mA	109394R10	
■ Pen Drive		: 01 No.	5K PI with 6mA	109394Z10	
■ USB 2.0 A/B cable 1.5 mtr long		: 01 No.	with Standard Accessories		

Notes: **1)** The Instrument is accompanied with Test & Calibration sheet. **2)** Test Facilities can be provided at the factory with the available test set-ups only. **3)** The company's policy includes continuous improvement of its product. We, therefore, reserve the right of any deviation from illustration or specifications without notice. **4)** Stated accuracies are valid from 10% of the range to 95% of the range. **5)** Accuracy specified for temperature range of 25°C ± 5°C & 55% RH ± 10%. **6)** Image & weight are subjected to change.

Contact Details

THE MOTWANE MANUFACTURING CO. PVT. LTD.

**Regd. Office & Factory :**

Gyan Baug Nashik Road, Nashik, 422101 Maharashtra, India

**Pune Unit :**

Unit No. 07 & 08, Electronic Sadan No. 2, MIDC, Bhosari, Pune - 411 026



www.motwane.com



Nashik Head Office : 91-0253 -2463752 / 53

Pune Office : 91-20-27122936, 27123176



<https://www.linkedin.com/company/motwanemanufacturing>

Scan the QR code to visit
Motwane's website

