

LID^{UPD}

LEAKY INSULATION DETECTION WITH ULTRA SOUND PARTIAL DISCHARGE DETECTOR



**PORTABLE ONLINE
CONDITION DETECTING
SYSTEM OF COMPLETE
NETWORK OF THE
EHV SUBSTATION ASSETS**

**LEAKAGE AND PARTIAL
DISCHARGE DETECTION**



PREDICTIVE
TECHNOLOGY | DATA | ANALYTICS

LEAKY INSULATION DETECTION WITH ULTRA SOUND PARTIAL DISCHARGE DETECTOR (LID_{UPD})



Effective : Unique combined Solutions to identify & detect “**Leaky Asset**” by specialised CT and Ultrasound & Partial Discharge along with OLPD Software.

Online Testing : Test substation asset under charged condition.

Safety : The equipment are operated at safe distance.

Accurate : The modern Technology used to capture accurate data.

Quick : Designed portable, user friendly.

ON LINE PORTABLE PD DETECTOR



The LID_{UPD} is a portable on-line PD detection unit for condition-based maintenance and substation access safety.

To reduce the down time screen for partial discharge

Partial Discharge

As per IEC 60270, Partial discharge is a localised electrical discharge that only partially bridges the insulation between conductors and which can/cannot occur adjacent to a conductor. PDs normally develop in air gaps or on insulation surfaces, due to defects in the insulation system. Because PDs are correlated to insulation ageing, they are the cause and effect of insulation degradation.

Innovative Technology of insight to address detection of PD

FOR QUICK IDENTIFICATION OF PARTIAL DISCHARGE

The LID_{UPD} is a portable on-line PD detection unit for condition-based maintenance and substation access safety.

Simple to use, this handheld unit can be placed in the palm of your hand for safe, reliable testing of electrical assets.

The Phase Resolved Partial Discharge (PRPD) feature in the LID_{UPD} eliminates misleading background noise from the true partial discharge sources, which will help you to avoid in-service failures and costly, unplanned outages.



SWITCHGEAR



CABLES



TRANSFORMERS




OLPD Manager™ App

For benchmarking and trending of the data.




PRPD

This feature eliminates misleading background noise from true PD sources.



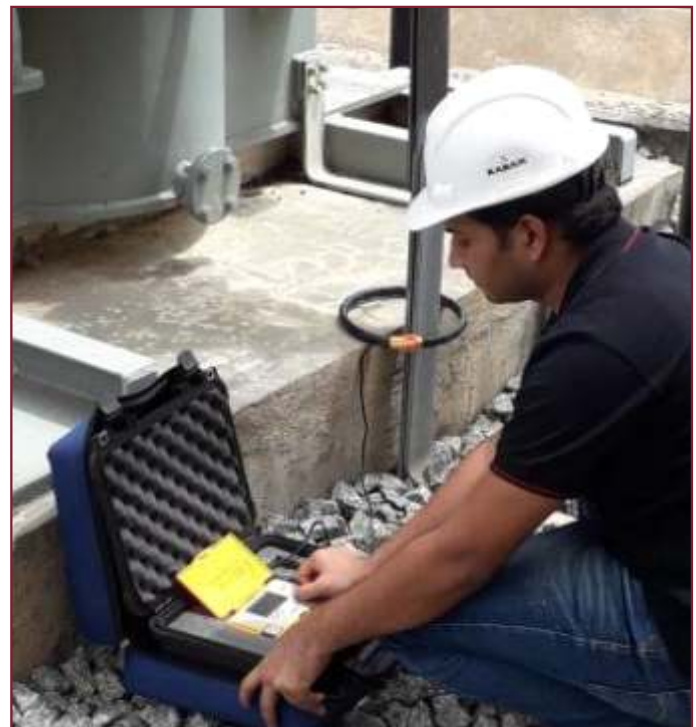
Store Test Results

Uses an in-built barcode scanner in conjunction with the app to link the assets under test to each POA labels.



OLPD Manager™ for Windows

Measurement results from a test can be synchronised from the handheld or tablet to a Windows PC for analysis, benchmarking and trending.



In this equipment the flexible smart CT sensor is specially designed to measure the line and leakage current in HVAC/HVDC Substation assets like Transformer, CT, PT, LA, Isolator etc. failure of insulation leading to leakage which will flow to ground either from earthing or structure.

Abnormal leakage current indicates defect due to partial discharge. In case abnormal leakage current measured at any components this is to be diagnosed for further partial discharge.

Keeping the big size earthing structure the equipment is designed sensor around 200 / 400 mm dia.

TECHNICAL SPECIFICATION

TEV Sensor

Measurement Range (Peak)	0 - 70 dBmV
Measurement Range (Cumulative Activity)	0 - 350,000 mV/cycle
Frequency Response	5 - 60 MHz
Resolution	1 dB
Accuracy	±1 dB

HFCT Sensor

Measurement Range (HFCT 100/50, Ztr=3.9)	20 pC/cycle - 1,00,000 pC/cycle
Frequency Response (-3 dB response)	100 kHz - 20 MHz
Resolution	1 dB
Accuracy	±1 dB

AA Sensor

Measurement Range	0 - 70 dBµV
Centre Frequency	40 kHz
Resolution	1 dB
Accuracy	±1 dB
Gain Stages	1

Phase Resolved PD (PRPD)

Synchronisation Methods	Optical/Mains Field Detector/BNC input
PRPD Plot Types	2D & 3D

Flexible CT Leakage Current Tester

Type of CT sensor	Flexible Split-Core with in built shielding
Inside Diameter	φ200 mm
Measuring Function	AC & DC Leakage/Line Current
Measuring Method	Single CT with Dual Integration Mode
Measuring Range	AC & DC 3A/30A/300A/3000A (AC50/60 Hz & DC)
Accuracy	±3% of reading
Display	LCD max. 3200 reading with Annunciators
Measurement	AC leakage current, DC leakage current, DC current in AC circuit
Resolution	1mA

Hardware

Enclosure	Polycarbonate ABS/ TPE
Display	3.5" 320 x 240 65k colour LCD
Control	5 button membrane keypad
I/O Connections	BNC (HFCT), LEMO (external AA) USB Micro B (charger), 3.5mm Jack (headphones)

Operating Environment

IP Classification	IP54
Temperature	-20°C to +55°C
Humidity	0 - 90% RH non - condensing

Power

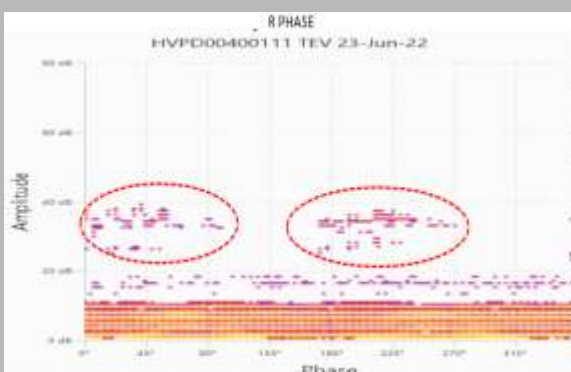
Internal Battery	Lithium-ion, 3.7 V, 4.5 Ah
Operating Time	Approx. 8 hours
Charge Time from Empty	Approx. 4 hours



LEAKAGE



PARTIAL DISCHARGE



ANALYSIS

Battery Charger

Input (V in)	90 - 264 V, AC, 50/60Hz, max: 0.5A
Output (V out)	5 V DC (USB 1x 1A, 1x 2A)
Country Adapters	UK, EU, AU, USA
Operating Temperature	0°C to 40°C
Humidity	10 - 90% RH non- condensing

14" Windows Laptop (minimum specification)

Processor	Quad-core processor
Display	14" LED WXGA (1280 x 800)
Camera	1 MP or Better
RAM	4 GB or Better
On-board Memory	256 GB or Better
Charging/PC Connection	Micro USB B
Communications	Bluetooth®, Wi-Fi (WLAN802.11 b/g/n)
Battery Life	Up to 6 hours

FEATURES

- Compatible with three on-line Partial Discharge sensors: in-built TEV, AA and portable HFCT sensors.
- Detects electromagnetic radiation from PD in metal-clad plant (TEV), current impulses from PD in cables and accessories (HFCT), and ultrasonic radiation from PD into air from air-insulated switchgear (AIS) and other plant (AA)
- Combines PD Level, PD Pulse Count and Cumulative PD Activity measurements across the 50/60Hz cycle.
- Supplied with a Smart Docking Station for charging, data download and function checking of the unit.
- Onboard data storage for quick testing and Bluetooth® communication to the Android Tablet PC for post-test data analysis, benchmarking and trending.
- All measurements can be downloaded into a CSV file to enable report writing and analysis.
- The peak graph recorded with the LID-UPD can be displayed and recalled on the tablet.
- Big size flexible CT is adequate for substation earthing structures including transformer.
- Capable to find out Geo-Magnetic Current.



OLPD Manager™ Application

Operating System	Windows® 7/8/10 PC) Bluetooth® synchronisation with LID UPD
Functionality	USB synchronisation with LID UPD (PC), associate POA bar codes to physical plant
Results Display	Graphical representation of PD levels in the substation, trending graphs, summary tables, PRPD patterns
Report Format	Microsoft Excel
Multiple Languages	Yes

Transmitter	To be supplied with Dual frequency selectable transmitter for lab test condition
Smart Docking	Smart docking to check functionality of inbuilt AA, TEV and external HF CT Sensor to be provided

BENEFITS

- Easy-to-use, lightweight and portable 3 handheld test unit.
- The app on the PC makes it easy to setup a test record and to carry out repeat testing and monitoring.
- Ensures the safe and reliable operation of HV networks, providing an early warning against incipient faults.
- The unit's barcode scanner retrieves sensor location ID from the Point of Attachment (POA) labels automatically.
- Optional accessories include the Outdoor Parabolic Receiver (for detecting corona and surface discharges in outdoor HV switchyards) and the Indoor Acoustic Search Probe (to extend the reach of the unit to detect airborne acoustic activity along the seams/ gaps in MV switchgear.
- Asset operators and managers with multiple sites and multiple LID-UPD units can now back up and share data across all tablets to provide an asset management global view.
- All data between the LID-UPD handheld and the Android tablet is synchronised via Bluetooth®.



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