

# LID-UPD STD LEAKY INSULATION DETECTION WITH ULTRA SOUND PARTIAL DISCHARGE DETECTOR



ONLINE HETERODYNE  
DIELECTRIC TESTER  
FOR DISTRIBUTION  
NETWORK

## LID-UPD STD is the tri functional asset testing solution to detect defective insulation

### Advantages

**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.

### LEAKAGE MEASUREMENT

1st Function of the Equipment is Measure the Leakage of the asset using special Hall Effective CT unit.

- Any Electrical Assets getting weaker it loose its insulation properties
- Weak Insulation start leaking the current slowly
- Leakage will be non linear and non uniform
- Current will be mix of Low and High frequency
- If the leakage is more there is deterioration of insulation properties

In this equipment the flexible smart CT sensor is specially designed to measure the line and leakage current in line structures, poles 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 designed sensor is around 200mm dia.



### DIELECTRIC DEFECT TEST ON LINE INSULATORS

2nd function of the equipment to detect the partial discharge detection (PDD 100 STD) on line.

#### Advantages of Ultra Sound Testing - PDD 100 STD

**Improved safety when testing with ultrasound** : The PDD 100 STD is designed to test high voltage insulators and transformers for internal & external arcing and corona partial discharge safely. The PDD 100 STD can also be used to test critical equipment from a safe area. You can improve your safety practices as well as locate potential points quickly.

**Find arcing and corona partial discharge** : You can indicate and locate the ultrasound produced by arcing and corona discharge easily using the PDD 100 STD. In many cases, ultrasound is produced before heat. Therefore, you can implement a early cost effective routine monitoring program.

**Performs better** : The PDD 100 STD have been tested on numerous occasions along side competitive technologies. The PDD 100 STD detects with ultrasound technology with better accuracy from greater distances than other devices.

**Improves power transmission testing** : You can increase the amount of electricity that reaches your customers and decrease power grid failure by using the PDD 100 STD to routinely monitor power transmission / distribution lines and transformers.



## PD DETECTION FOR POLE MOUNTED TRANSFORMER

3rd function of the equipment is to measure weak insulation with various sensors called UPD.

The UPD function of the equipment has three intelligent sensors TEV, HFCT and Acoustic.

- 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.
- All measurements can be downloaded into a CSV file to enable report writing and analysis.
- The peak graph recorded with the PDS can be displayed and recalled on the tablet.



SWITCHGEAR



CABLES



TRANSFORMERS

### Advantages of UPD Detection

- Identify weak bushings and insulator of transformer and other asset
- Identify Internal leakage of Transformer, CT, CB, LA etc.
- Identify PD due to loose connection at various asset like junction, panel board etc.
- Early Detection of pole transformer defect
- Single instrument to test all the asset of the substation like stethoscope.

### PDS Software

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

### Benefits by Practising LID-UPD STD

- Single equipment solution to address all asset monitoring.
- Early Detection of defect helps to prevent major failure in later.
- Unplanned break down can be avoided.
- Revenue saving is possible to maintain the uptime.
- Safety of men and machine by avoiding accidents.
- Inventory planning can be effective by practising this solution.
- Systematic data management for future analysis.
- Easy to use light weight and portable.

### FEATURES

- 3 in 1 equipment designed user friendly.
- Design as per IEC 60270.
- Tested as per IEC Standards
- Engineer friendly software
- Detailed report in the software itself
- Effective technology using 5 sensors hardware and software
- Made suitable for LV, HV and EHV application.



#### PRPD

This feature eliminates misleading background noise from true PD sources.



#### 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.

## TECHNICAL SPECIFICATION

### Hall Effect Sensor

Type of CT sensor	: Flexible Split-Core with in built shielding
Inside Diameter	: $\Phi$ 200 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	: $\pm$ 5% of reading at Lower range
Display	: LCD max. 3200 reading with Annunciators
Measurement	: AC leakage current, DC leakage current
Resolution	: 1mA

### Heterodyne Tester

Display	: 5 Inch Display with Multi Touch with WVGA 800X480 Pixel
Processor	: ARM Cortex, Dual Core 1.2GHZ : Intuitive Web or App Concept
Data Points	: Level Graph (only the "Main" Level – highlighted, freely selectable) Level Wheel and Level Bars (instantaneous Level only) L – Instantaneous Level LF – Instantaneous Level with Time Weighting Lp – Peak Level Leq – Equivalent continuous Sound Level Lmin – Minimum Value of instantaneous Level Lmax – Maximum Value of instantaneous Level
Audio/Video Part B	: 5-Megapixel Camera on the Back of the Device Integrated Microphone & Integrated Position Sensor
Memory	: 8 GB Flash System Memory 16 GB Flash Internal Measurement Data Memory 2 GB SDRAM for Part B
Operating Modes Part b:	Live – Display of current measured Values. Recording – Display and saving of current measured Values. Playback – playing of saved measured data values.
Transmitter	: Provided with Multiple frequency selection to check the functional aspects of the acoustic function.

### Heterodyne Sensor

Sensor	: Ultrasonic LEMO
Frequency Band	: 15kHz to 128kHz

Measurement Range	: 0 - 70 dBmV (Peak)
Measurement Range	: 0 – 3,50,000 mV/cycle (Cumulative Activity)
Frequency Response	: 5 - 60 Mhz
Resolution	: 1 dB
Accuracy	: $\pm$ 1 dB

### HFCT Sensor

Measurement Range	: 200 pC/cycle - 20,000 nC/cycle
Frequency Response	: (-3 dB response) 100 kHz - 20 Mhz
Dia	: 95 millimeter
Resolution	: 1 dB
Accuracy	: $\pm$ 1 dB

### AA Sensor

Measurement Range	: 0 - 70 dB $\mu$ V
Centre Frequency	: 40 kHz
Resolution	: 1 dB
Accuracy	: $\pm$ 1 dB
Gain Stages	: 1

### Phase Resolved PD (PRPD)

Synchronization Methods	: Optical/Mains Field Detector/BNC input
PRPD Plot Types	: 2D & 3D, severity level in color code Green, Yellow, Orange and Red (4 color Indication) non-editable
Bar code	: Bar code scanner to load the details of substation and asset minimum 200 per unit
Flash memory	: 8 GB Internal for part B

### Operating Environment

IP Classification	: IP54
Temperature	: -20°C to +55°C
Humidity	: 0 - 90% RH Non-Condensing

### OLPD Manager™ Application

Operating System	: Windows® 7/8/10 (PC) Bluetooth®
Functionality	: USB Synchronisation with PD device (PC), associate POA barcodes to physical plant
Results Display	: Graphical representation of PD levels in the substation, trending graphs, summary tables, PRPD patterns
Report Format	: Microsoft Excel and PDF
Type test	: As per IEC slandered to be Complied



Innovative Technologies  
An ISO 9001 : 2015 Company

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