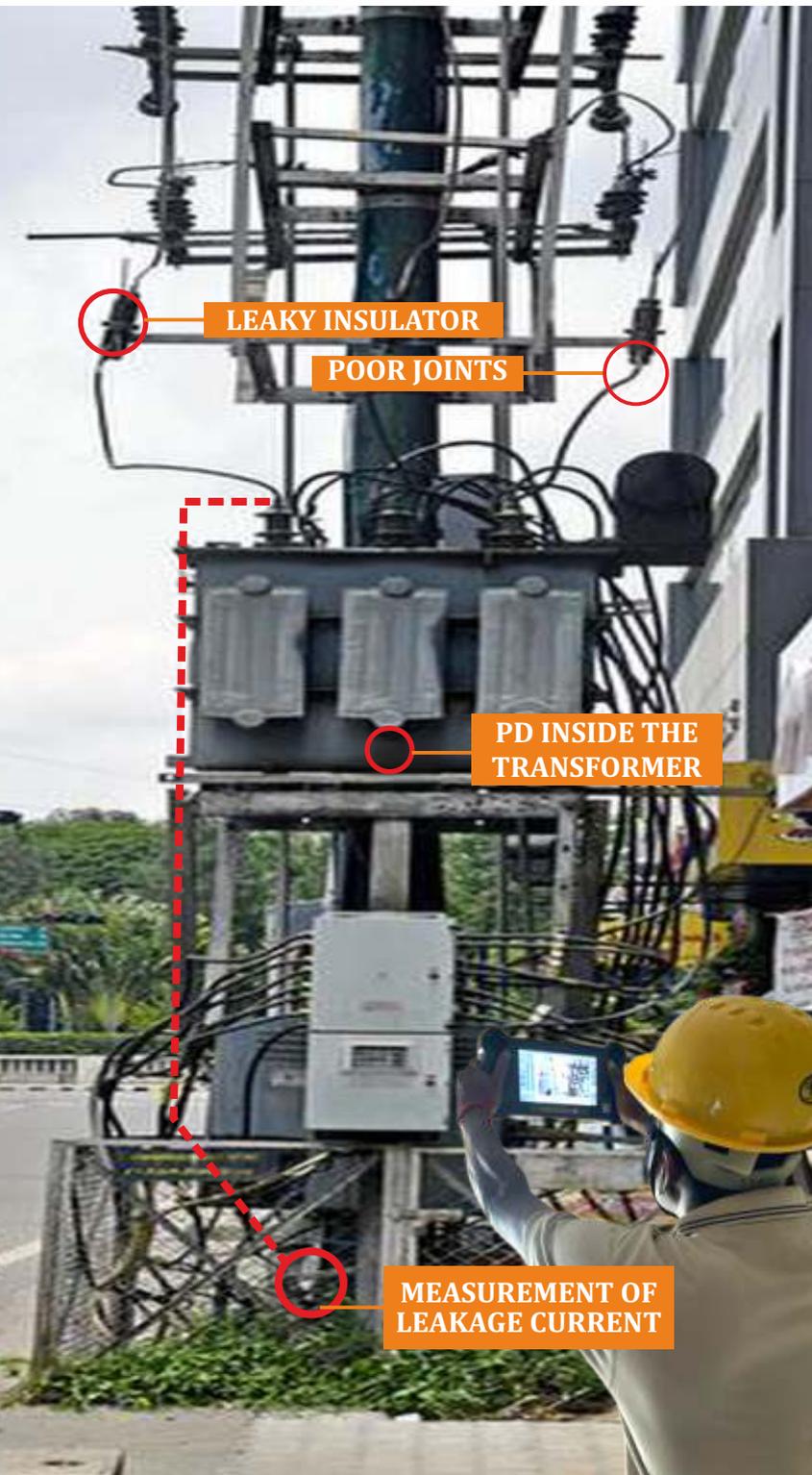


LID DRS

LEAKY INSULATION DETECTION  
ULTRA SOUND PARTIAL DISCHARGE DETECTOR WITH VIDEO PD

Monitor Pole-Mounted Transformers & Distribution Lines



PORTABLE ONLINE CONDITION DETECTING SYSTEM OF COMPLETE DISTRIBUTION NETWORK  
*LEAKAGE AND PARTIAL DISCHARGE DETECTION WITH VIDEO PD*

## LEAKY INSULATION DETECTION ULTRA SOUND PARTIAL DISCHARGE DETECTOR WITH VIDEO PD



**Effective** : Unique combined Solutions to identify & detect “**Leaky Assets**” by specialised CT, Ultrasound & Partial Discharge along with OLPD Software, Video PD Detector.

**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.

## INNOVATIVE TOOL FOR PREDICATIVE TESTING

### Application

- Identify early stage of leaky insulation using hall effective sensors on pole earthing.
- Higher leakage current it is indication of poor insulation
- Further testing of all the insulators to identify surface leakage, Tracking, Arcing and IR using PD IR Device of LID
- Test and analyse the pole mount transformer for internal PD (Busing Winding and Joint)
- Trend analysis using user friendly software.

## LEAKAGE CURRENT

In this equipment the flexible smart CT sensor is specially designed to measure the line and leakage current in Distribution Network assets like Distribution line poles, Transformers, 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.



## VIDEO PARTIAL DISCHARGE DETECTOR

The Portable Video PD is online PD Detection kit used to do the condition based monitoring of Distribution line Assets for identifying the Surface/ External Partial Discharge.

Video PD - Handheld acoustic camera generates acoustic images from both the audible and ultrasound frequency range. The device locates sound sources in real time and displays the results immediately on the screen.



### KEY FEATURES

- 24 bit resolution, 176 micro phone inside
- Video detection of PD and IR in built
- Real-time acoustic results at 100 fps
- Sampling rate of 200 kHz
- Wide frequency range: 10 Hz to 100 kHz
- Optical camera
- Integrated data acquisition and analysis software
- Handheld device with IP54 protection
- Integrated LED lights
- 8 configurable buttons for fast control
- Low weight and small size

## ULTRASOUND PARTIAL DISCHARGE DETECTOR



- Measure and Detect internal partial discharge using PD T.E.V SENSOR by just touching the body of the transformer.
- use the HFCT Sensor at grounding wire to understand between winding insulation in pC.
- Analyse the bushing using powerful acoustic sensor.
- Inside the RMU, junction box test the asset to identify leakage PD and IR.

## OLPD SOFTWARE



### OLPD Manager™ App

For benchmarking and trending of the data.

- user friendly analysing software to detail study of the fault provide with laptop.
- Detail training will provided make use the software.



**LEAKAGE CURRENT DETECTOR**



**PD T.E.V SENSOR**



**AA SENSOR**



**HF CT**



**VIDEO PD SENSOR**

## 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)	200 pC/cycle - 20,000 nC/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

## 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" Window laptop (minimum specification)

Processor	i3-core processor
Display	14" LED WXGA (1280 x 800)
Camera	2 MP
RAM	4 GB
On-board Memory	256 GB
Charging/PC Connection	Micro USB B
Communications	Bluetooth®, Wi-Fi (WLAN802.11 b/g/n)
Battery Life	Up to 8 hours

## OLPD Manager™ Application

Operating System	Windows® 7/8/10 (PC) Bluetooth® synchronisation with PDS Insight™
Functionality	USB synchronisation with PDS Insight (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
Multiple Languages	Yes

## Video PD IR Software

Operation System	Linux (camera), Windows (Laptop/PC)
HMI	Touchscreen, headphones, buttons
Protection	Password (unauthorized access protection)
Online Performance	"Up to 100 acoustic fps, up to 50 optical fps; Acoustic pictures, optical pictures, FFT and spectrogram; Listen to local sound (broadband or frequency filtered); Place marker while measuring; Buffer recording, trigger recording (SPL or frequency); Long term measurements (average and peak-hold); Time weighting: fast, slow, impulse
Offline Features	View acoustic results frame by frame; Save and reload; Replay in real-time or slow motion; Listen to local sound
Export	Screenshots, video, sound
Intuitive Usability	Distance settings; Frequency filters (narrow band, 1/3-octave and octave) Dynamic filter and low cut-off; 3 scaling modes: off, auto, smart (crest factor)

## Hardware Features

Operation	One or two-handed
Battery	Life~ 3.5h; fully charged in 1.5h
Buttons	8 configurable, power on/off

## Display

Size	7 inch / 15.5 cm x 8.6 cm
Resolution	800 px x 480 px
Touch	10 finger capacitive touch

## Embedded Controller

Processor	ARM A53 4x1.2 GHz with 1 GB RAM
Internal storage	32GB

## Internal storage

Processor	ARM A53 4x1.2 GHz with 1 GB RAM
Internal storage	32GB
OS	Linux for ARM

## Interfaces

USB	For data export
Ethernet	LAN (for running software on laptop/PC)
Audio	3.5mm for headphones

## Optical Sensors - PD

Microphones	176 digital MEMS
Frequency Range	From 1 Hz up to 100kHz
Sample Rate	200 kHz
Sound Pressure	Max. 120 dB
Resolution	24 bit
Detection Range	Up to 150m
Camera Type	Digital
Optical Camera	640 x 480 @ 56 frame rate
Lighting	4 LEDs
Aperture Angle	70° (FoV horizontal)
Shutter	Global Shutter
Storage	1 TB
Display (In Built IR Focus)	1280 x 800 Pixel

## Optical Sensors - IR

Sensor Technology	Microbolometer
Spectral Range	Long-wave infrared, 8 µm to 14 µm
Resolution	160 × 120 px
Effective Frame Rate	8.7 Hz
Thermal Sensitivity	<50 mK
Measurement Range	-10 °C to 400 °C (Room temperature)

## Power Supply

Battery	Li-ion rechargeable battery (48 Wh); Work and charge simultaneously
Input	19V with power adapter



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