

# LID-UPD 900

## LEAKY INSULATION DETECTION

### ULTRA SOUND PARTIAL DISCHARGE DETECTOR WITH VIDEO PD



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

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 Asset**” 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.

## ON LINE PORTABLE PD DETECTOR



The PDS Insight™ 2 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

## LEAKAGE CURRENT

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.



## VIDEO PARTIAL DISCHARGE DETECTOR

The Portable Video PD is online PD Detection kit used to do the condition based monitoring of Substation and Transmission line Asset 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
- 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

## OLPD SOFTWARE

The Phase Resolved Partial Discharge (PRPD) feature in the PDS Insight™ 2 eliminates misleading background noise from the true partial discharge sources, which will help you to avoid in-service failures and costly, unplanned outages.



### 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.

## SONASCREEN PC SOFTWARE

The SONASCREEN unique Intuitive features for Frequency filter and Dynamic filter Selection. Online Place marker, Buffer recording, Trigger recording, Long term measurement & View acoustics results frame by frame helps in identifying the defective asset.



**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

## Sonascreeen 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

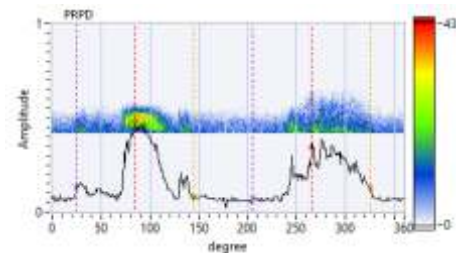
USB	For data export
Ethernet	LAN (for running software on laptop/PC)
Audio	3.5mm for headphones

## Optical Sensors

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

## Power Supply

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



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