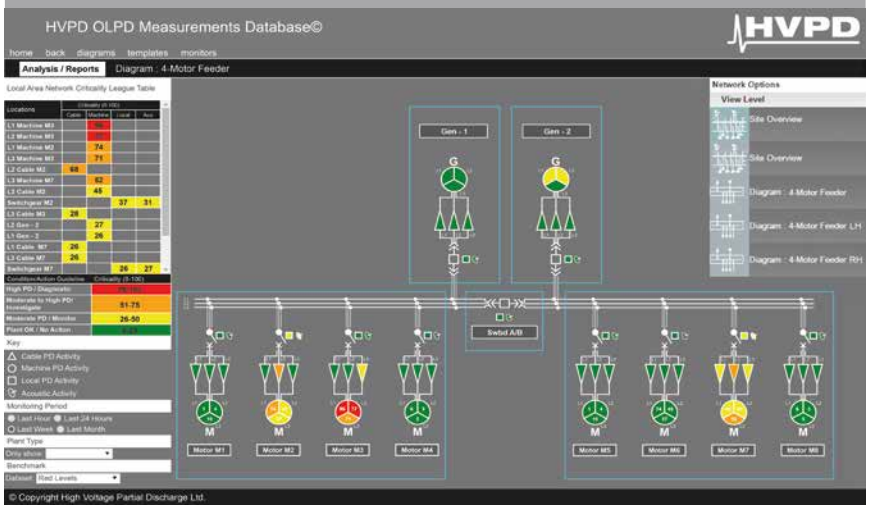


HVPD Kronos®

Permanent Monitor

4

MANAGE

HVPD

www.hvpd.co.uk

HVPD Kronos® Permanent Monitor

4

Continuous, synchronous, on-line partial discharge (OLPD) monitoring

The **HVPD Kronos® Permanent Monitor** is an OLPD insulation condition monitoring (CM) system suitable for the long-term, continuous monitoring of complete HV networks of 3.3 kV and above. The 24-channel HVPD Kronos® Monitor captures up to six (6) signal channels synchronously using its unique full cross point Smart Multiplexer and provides information to help network operators avoid unplanned outages.

All HVPD Kronos® monitors distributed across the network communicate back to the central **Partial Discharge Monitoring Server (PDMS)** for co-ordination and organisation of data. The insulation condition data is then uploaded to the central **HVPD OLPD Measurements Database©** installed at the customer's control centre, for logging, benchmarking and trending. HVPD Kronos® Monitor is expandable and can be installed both indoor and outdoor. We supply HVPD Kronos® Monitors with a range of condition monitoring service contract options and sensors.

Features and Benefits

- Supports condition based maintenance (CBM) schemes reducing unplanned outages, downtime and maintenance costs.
- Alerts via SMS texts or emails with flagged partial discharge activity and advice on timely remedial action.
- The 24-channel HVPD Kronos® Monitor captures up to six (6) signal channels synchronously using its unique full cross point Smart Multiplexer.
- With 24 sensor inputs, a single HVPD Kronos® Permanent Monitor covers up to four HV motors.
- All HVPD Kronos® monitors are networked and communicated back to the central Monitoring Server (PDMS) for coordination and organisation of data.
- Advanced OLPD identification and noise separation is achieved through synchronous data capture on multiple channels.
- Remotely accessible via a wide range of industry communications standards, including Modbus and DNP3.

Compatible Sensors:

HVCC	**SMART-TB3™**
HFCT	**Rogowski Coil**
TEV	**Bushing Tap**

HVPD 4-Phase Asset Management

MANAGE

OLPD Condition Monitoring & Service Contract

Partial Discharge Monitoring Server (PDMS)

The HVPD Kronos® monitoring systems communicate back to a central **Partial Discharge Monitoring Server (PDMS)** located at the control centre for co-ordination and organisation of data, supervisor interface and management, and for upload to the secure HVPD OLPD Measurements Database©.

The system can accurately identify and locate insulation faults thanks to the advanced statistical waveshape analysis algorithms of the HVPD Kronos®. The PDMS acts as data concentrator for a network of nodes providing a single point of access for all partial discharge data.

Features

- View real-time data for a particular node.
- View events and trend data for individual channels.
- Display 2D / 3D events data.
- Regenerate trend lines and reclassify PD retrospectively (within the training period).
- Adaptively configure the smart multiplexer to perform precedence and/or coincidence measurements using a fixed array of sensors. This vital feature enables next generation noise discrimination and incipient fault location.

HVPD OLPD Measurements Database© and Service Contract

Diagnostic data from the PDMS is integrated into the **HVPD OLPD Measurements Database©** for logging, benchmarking and trending to identify the worst-performing circuits. It holds data from all types of HV assets derived from over 20 years' experience.

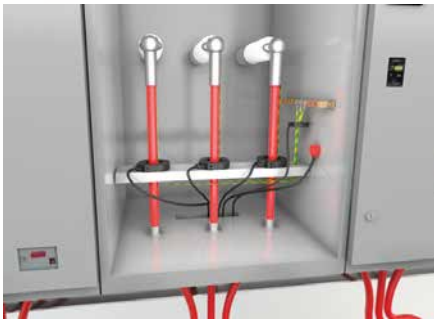
Unique to the market, we provide a dedicated condition monitoring service contract in conjunction with the monitoring technology and database to support condition-based management.

Features and Benefits

- HVPD's condition monitoring service contract includes HVPD OLPD Measurements Database© subscription, software upgrades, extended warranty, engineering support, data analysis, reporting and asset management assistance.
- Based on the single line diagram, a user friendly interface displays data allowing the user to view various levels from a summary of multiple sites, down to individual assets.
- Criticality rating and visualisation of data gives a clear indication of the health and reliability of the network whilst identifying any worst performing circuits.
- HVPD act as an external Decision Support Centre to help our customers make effective asset management decisions.
- Service contract durations are typically 3 or 5 years.
- The monitoring service approach avoids false alarms as any egregious trends are initially flagged and then investigated by our dedicated OLPD monitoring service engineers.

Permanent network monitoring solution

1



Permanent sensor installation

2

Complete circuit monitoring

3

Identification of insulation faults

4

Benchmarking and trending of data with HVPD OLPD Measurements Database©

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Technical Specification

PD Data Capture and Processing System	
Analogue bandwidth	50 MHz
Sample rate	100 MS/s
Sample memory (one channel)	2 MPt
Minimum pulse rise time	10 ns
Frequency range	100 kHz - 50 MHz
Input channels	24 (6x synchronous)
Input connection type	BNC
Input connection internal impedance	50 Ω
Suitable PD sensors	HVCC, HFCT, TEV, AAP, SMART TB3™, Tri-Band, Bushing Tap Sensor
Data capture method	Synchronous acquisition on any 2/4/6x channels (depending on model) to within 10 ns on all channels using SMART Multiplexer
Number of events captured per cycle	500
Trace length in each data capture	20 ms (1x50 Hz power cycle)
Maximum number of record stored	2 years data. Records are automatically downloaded to PDMS
Data capture and processing time (1 channel)	~10 s
Data capture and processing time (All channels)	~60 s
Trigger	Automatic, external or AC line supply
Linearplex™ Airborne Acoustic Module Specifications	
Linearplex™ acoustic bus inputs	2
Linearplex™ sensors per bus	16
Maximum acoustic sensors per HVPD Kronos® main unit / node	32
Detection frequency range	40 kHz
Input connection type	RJ45
Suitable PD sensors	HVPD Linearplex AA sensors
Data capture method	Multiplexed
Acquisition period	Peak hold over 5 seconds
Other Input Channels	
Sensor Type	Temperature & Humidity
Mechanical Specification	
Dimensions (without frame) (Width, Height, Depth)	460 x 300 x 200mm
Weight	Main unit: 11 kg
Environmental	
Operating Temperature Range (Indoor Enclosure)	-20°C – +45°C
Operating Temperature Range (Outdoor Enclosure)	-40°C – +55°C
Indoor Enclosure	IP55
Outdoor Enclosure	IP65
Install Type	Wall mounted, distributed devices, 19" rack-mountable, with distributed node devices, Supplied with the PDMS
Software	
Signal Processing/Noise reduction	Pulses are separated automatically by the knowledge-based, pulse wave shape analysis software into the following four categories: Cable PD, Remote plant/machine PD, Local/switchgear PD, Airborne Acoustic PD, Noise
Data captured/showed	PD Peak Level, Cumulative PD Activity and PD Count , 2D and 3D PRPD, plots, Chart, tables and trend view
Network single-line diagram (SLD) user interface	Yes
Real-time diagnostic acquisition	Yes
Remote options/connectivity	Remote desktop connection with SLD User Interface, HTML Web interface, Ethernet LAN upload to database
Results compared to PD benchmarking database	Yes
Service contract options	Yes

Our Knowledge is Your Power

Certificate Number 9329
ISO 9001, ISO 14001,
OHSAS 18001