

Utilities

Partial Discharge Condition
Monitoring of HV Networks

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 **HVPD**

Helping to Optimise Asset Management Decisions

The consequences of high voltage (HV) electrical equipment failures can include:

- safety of staff
- stability of the network
- reputation of the asset owner

With ageing asset populations comes increasing likelihood of failures but with increasing pressures to lower costs by extending asset lives, effective monitoring of the condition of HV assets is key to optimise asset management decisions.

Partial Discharge Monitoring Across the Asset Life Cycle

On-line Partial Discharge (PD) monitoring provides the best early warning indicator of electrical insulation degradation in HV electrical assets operating at 3.3 kV and above.

With our range of PD condition monitoring products, along with our expert knowledge, Asset Managers can make confident decisions about where and when to make investments to optimally manage the risk of their networks.

What is Partial Discharge?

"PD - A localised electrical discharge that only partially bridges the insulation between conductors and which can or cannot occur adjacent to a conductor."

- IEC 60270 Definition

PD is caused by defects and degradation of HV electrical insulation. PD activity will eventually lead to complete insulation failure and a fault between phases or to ground, causing an unplanned outage and downtime.

How is PD Caused?



Poor design, manufacture or installation errors.
Contamination, third-party damage/external influences.
Lack of maintenance and/or servicing.

How is PD Identified?



Passive sensors are attached to detect electrical charges, EM radiation or acoustic waves.

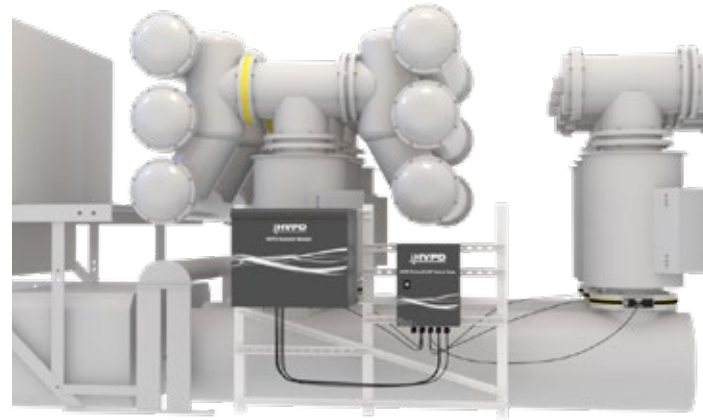
How is PD Located?



Phase Resolved PD (PRPD),
Waveshape Analysis,
Time of Flight (TOF),
On-line Cable PD Mapping.

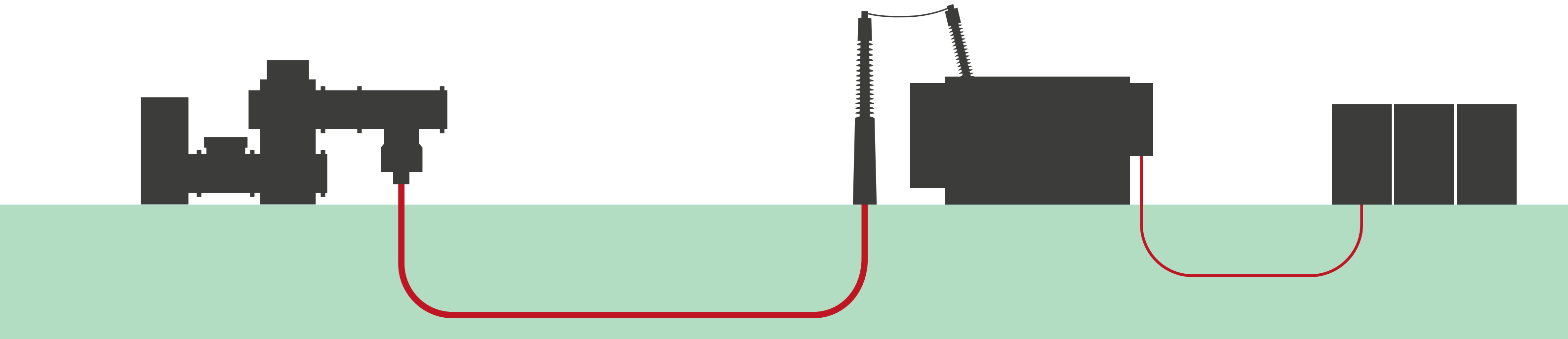
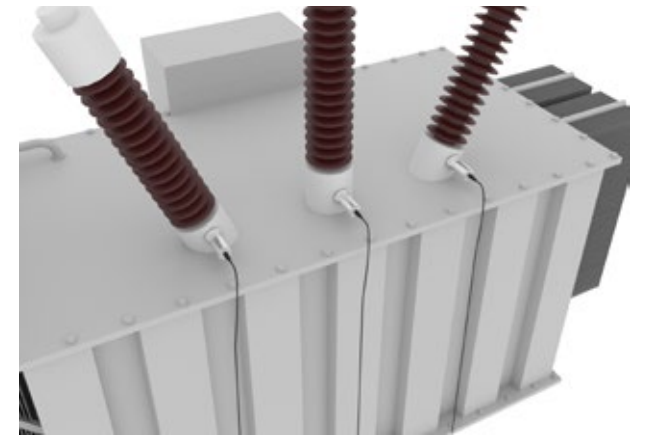
Complete Network Monitoring

- Immediate notification of concerning insulation degradation in critical HV assets on the network
- User interface collates insulation condition for all monitored assets
- Cloud integration, SCADA interface and remotely accessible



Permanent PD Sensor Installation

- Sensors installed to facilitate On-line PD spot testing and monitoring of all HV assets
- Avoids the need for outages to temporarily attach and remove sensors for On-line PD spot test measurements



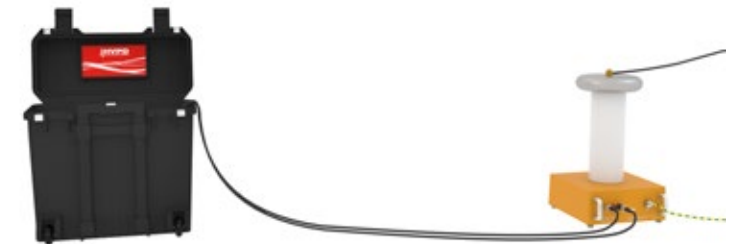
On-line PD Spot Testing

- Detect the early stages of insulation deterioration with routine spot testing throughout the transmission and distribution networks
- Pinpoint and locate any issues for further investigation and remedial actions



Offline PD Testing

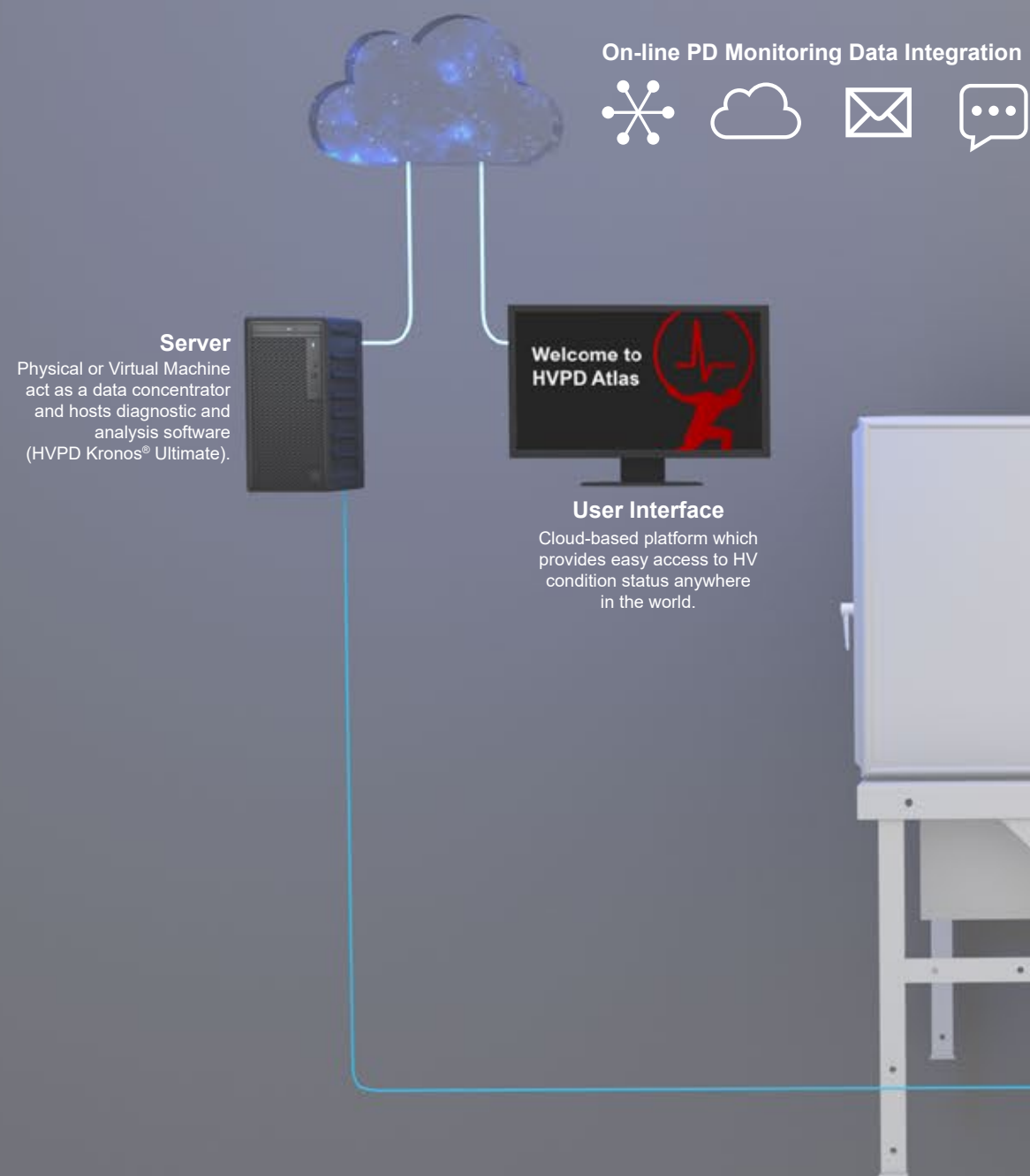
- Testing during commissioning, maintenance and after repair to ensure installation integrity
- Monitored withstand tests with PD measurement to identify insulation defects



Continuously Monitor Asset Health

Our comprehensive asset health tracking system is available at the touch of a button.

Gain a better understanding of the condition of your network, adding PD parameters to your existing condition-based maintenance (CBM) indicators. Using HVPD Kronos® PD monitoring technology, we can provide you with a complete view of the condition of your assets.

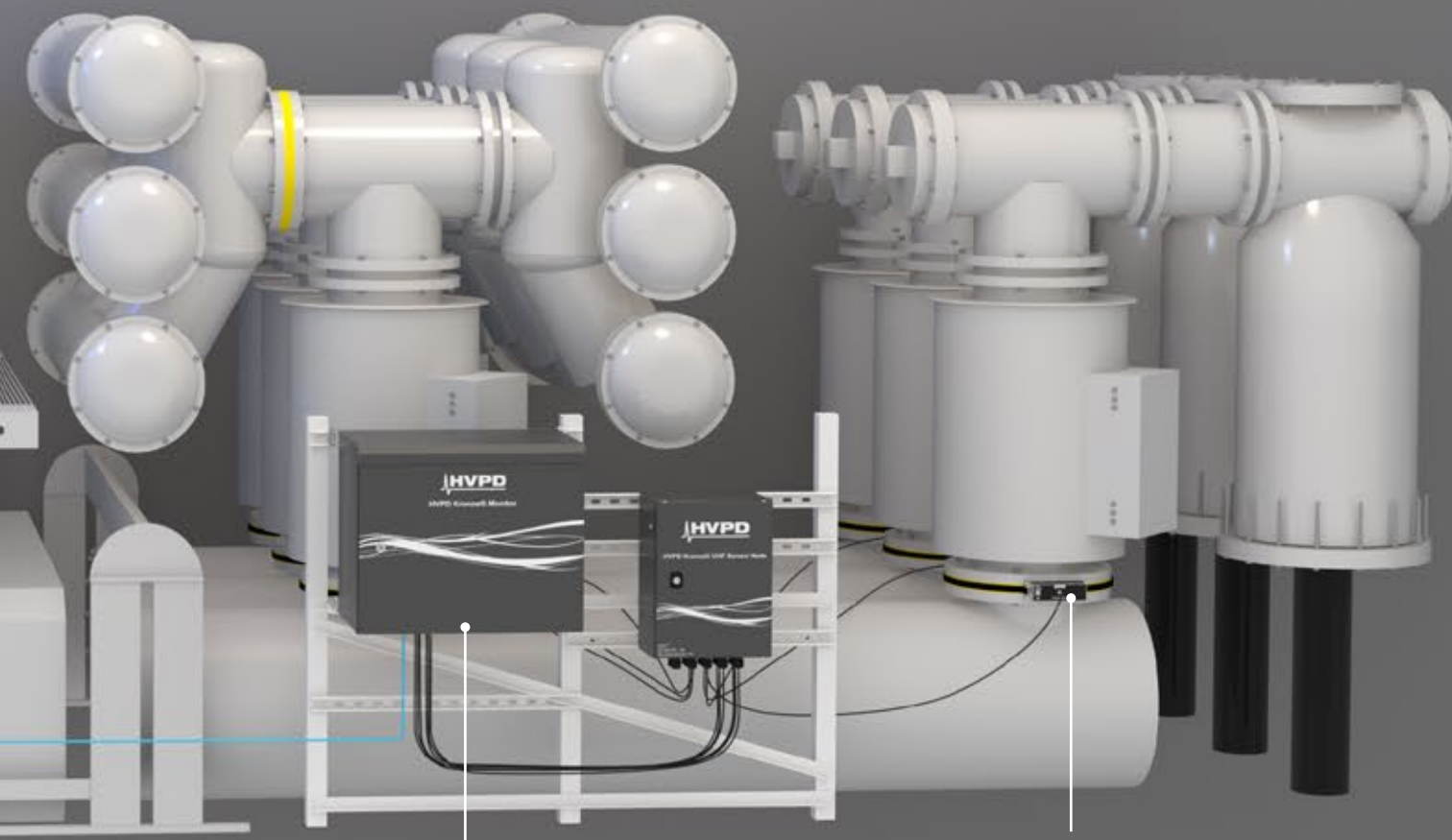


Remote Site Management

A key component of HVPD's PD monitoring solutions is delivering real-time insulation condition data.

SCADA integration via protocols such as DNP3, Modbus, OPC, etc. Data can be transferred to the cloud for remote access, and email or SMS alerts can be sent upon alarm.

PD can be detected across these assets:



Monitoring Unit
The HVPD Kronos® Monitor records real-time PD activity and allows comparison of data from different sensors using synchronised channels.

Sensors
Detect PD signals which are passed to the HVPD Kronos® Monitor.

Get In Touch

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Our Locations

