



PDWatch

Partial Discharge Assessment For GIS up to 800 kV

Grid Solutions, a GE and Alstom joint venture, makes the most of 50 years of experience in design, material selection, development, engineering, manufacturing, servicing of Gas-Insulated Substations (GIS) and Lines (GIL).

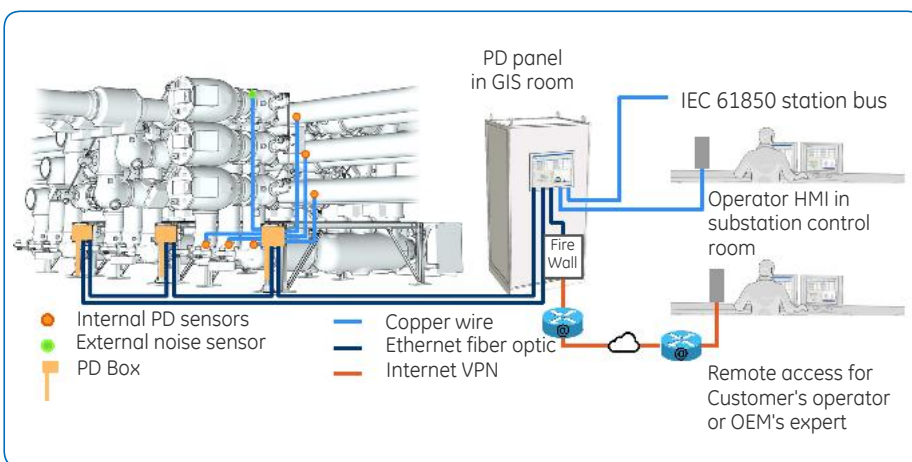
PDWatch monitors partial discharges via expert analysis of Ultra High Frequency (UHF) signals, during commissioning, operation and maintenance.

Superior Efficiency

- Noise filtering (external antenna, exclusion bands) and phase comparison for spurious alarm prevention
- Band scanning and factory calibration of shipping units for increased accuracy

High Reliability

- Self-healing optical communication thanks to redundant design



Long-Term Supplier Experience

- More than 4,800 sensors connected to PDWatch systems (online)
- Unique knowledge of critical defects with extensive pattern library
- Optimum sensor design and positioning

Smart Grid Features

- Also valid for green gas for grid - g³
- IEC® 61850 capabilities
- Possible coupling with BWatch (digital bay monitoring system)

Customer Benefits

- Early defect detection
- Expert signal processing
- No spurious alarm
- Ready for Asset Health Index
- Auto-test
- User-friendly HMI
- Remote access for customer's and OEM's experts

PDWatch Features and Options

	Portable	Online
Internal PD sensor	√	√
External noise sensor	√	√
UHF modules integrated in	Portable PDWatch	PD box (or LCC)
Acquisition mode		
Frequency domain	√	√
Time domain	√	√
Monitored data		
Single line diagram	-	√
Trend curves	-	√
Event historical recording	-	√
Signals	√	√
Alarm generation	-	√
Remote access	-	√
PD panel	-	√
Record manager with automatic report generation	√	√
Expert system	-	Optional
Maximum number of sensors simultaneously displayed in real time	3	9



Internal PD sensor



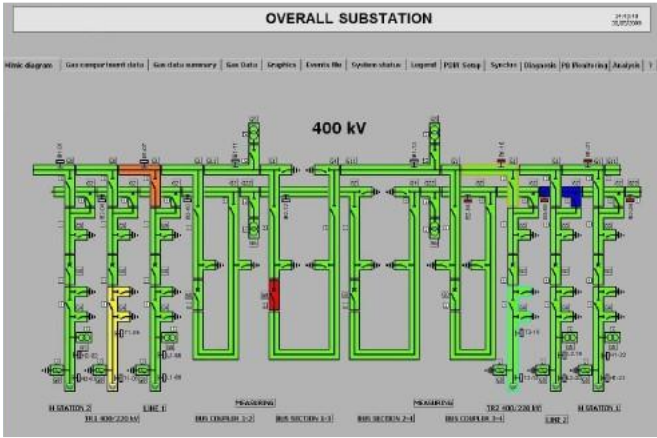
External noise sensor



PD box



Portable PDWatch



Combination of PDWatch and BWatch on the same single line diagram



Neighbouring sensors monitored in the same view

Frequency Band Scanning

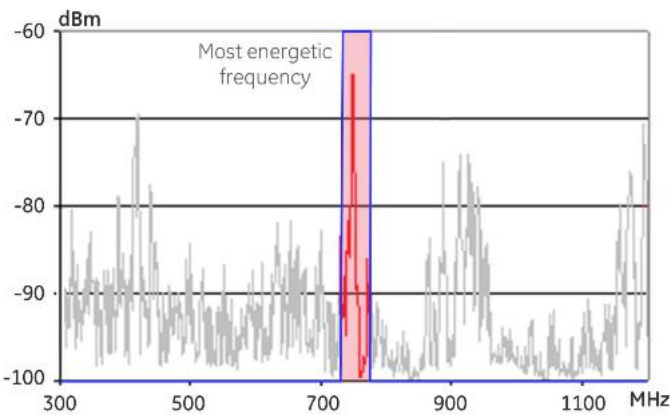
Steps

- Acquisition in frequency domain
- Identification of the most energetic band
- Acquisition in time domain at selected frequency only

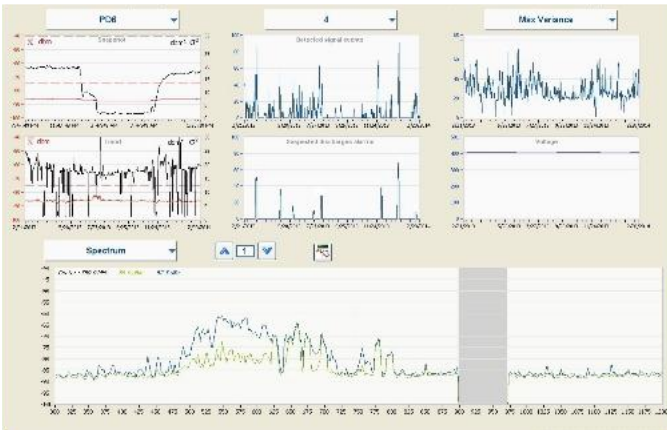
Benefits

Best signal acquisition in time domain for clear PD pattern recognition thanks to

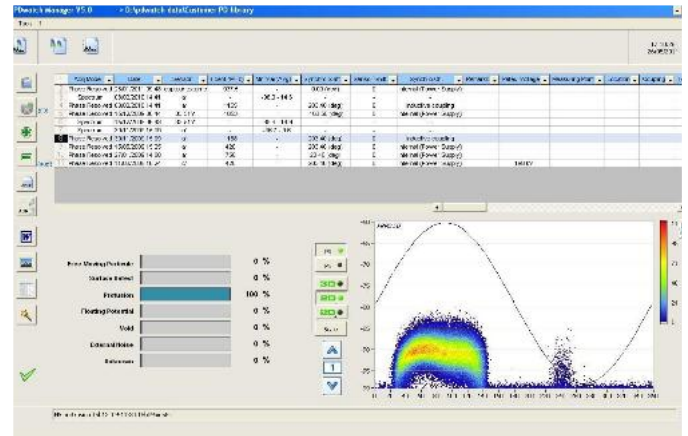
- Accurate frequency spectrum
- High UHF signal-to-noise ratio



Frequency band scanning



Frequency domain acquisition with band exclusion, trend curves, mean values, standard deviation, events, statistical indicators and busbar voltage



Time domain acquisition for pattern recognition with «PDWatch manager»

Technical Specifications

Portable

Online

General Ratings

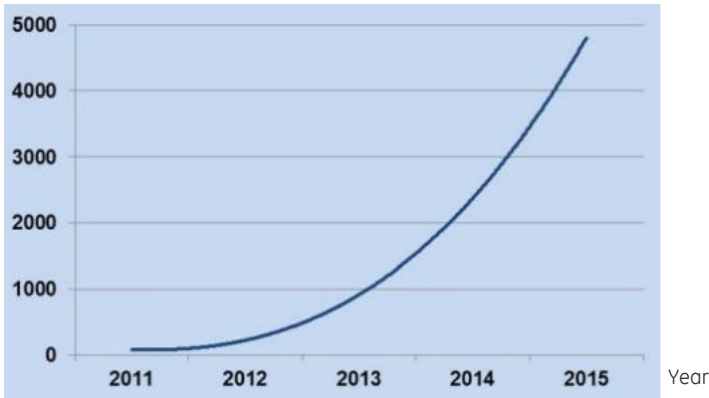
EMC immunity standards		IEC 61000-4-2, 3, 4, 5, 6, 8, 9, 10, 12, 18, 29	
Emission standard		CISPR 22 / A1	
Main supply	VDC / VAC	- / 110 - 240	90 - 250 / 110 - 240
Power consumption	W per UHF module	55	30

UHF Module Ratings

Inputs	UHF / noise sensor	6 / 1	
Amplitude resolution	amplitude levels	256	
Overall signal range	dBm	-100 to -30	-90 to -30
Spectrum analysis			
-Bandwidth	MHz	300 to 1,200 (*)	
Resolution	MHz	2.5	
Band-pass filtering		on central frequency during time domain acquisitions	
Coupler test		through UHF cable	
Synchronisation signal		main supply, voltage transformer or capacitive coupler	
Operational limits			
Temperature	°C	-25 to +45	-25 to +55
Protection		IP43	IP54 indoor IP66 outdoor
EMC compliance		√ (completely protected electronics)	

* most relevant frequency range for accurate PD assessment

Number of UHF sensors with online monitoring



Online PDWatch success testifies to customers' satisfaction

For more information please contact
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imagination at work