

14. Assetguard PDM (1/3) GIS 부분방전 검출장치



Assetguard PDM



Partial Discharge Monitoring
(for high voltage Gas-Insulated Switchgear)

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Introduction

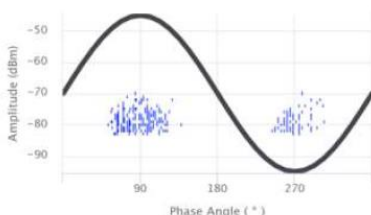
The majority of failures at GIS are in coincidence with partial discharge from an early stage of the particular failure. Detecting and analyzing those partial discharges via the emitted UHF signals is the method of choice for failure detection in gas-insulated switchgear.

Siemens Assetguard PDM is a highly accurate online condition monitoring system for GIS, analyzing the UHF signals for severity and type of fault, providing a comprehensive early warning system for GIS failures and is compliant with "IEC TS 62478: High Voltage Test Techniques – Measurements of partial discharges by electromagnetic and acoustic methods".

Features

Assetguard PDM is a modular system to cover all sizes and manufacturers of GIS substation. It can operate with internal and external UHF sensors, has superior qualities regarding environmental, electromagnetic and ingress protection - so is perfect for retrofit or new switchgear, indoor or outdoor installation.

Assetguard PDM performs the UHF signal analysis in terms of observing the intensity



as well as providing diagnostic results

regarding the source of partial discharge by usage of the built-in neural network for pattern recognition.

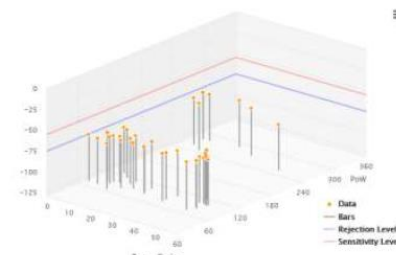
Besides alarming using state-of-the-art communication protocols, an individual and interactive single-line diagram allows to quickly localize and qualify those alarms - facilitating the web based user interface. Furthermore the alarms are easily forwarded to Siemens Customer Support Center for expert involvement.

The web-based user interface presents its information, including live data and diagnostic results simultaneously for various users on different locations even on mobile devices.

Partial Discharge experts can use the built-in user interface features to assess historical data. This data can also be exported and provided to a remote expert from Siemens for asset condition reports or on-site condition assessments.

Benefits

- Early warning in case of evolving dielectric failure



- Expert system that gives diagnostic of reason for partial discharge sources
- Avoidance of unplanned outages and support of maintenance planning
- Facilitate the integration (e.g. in SCADA Systems or Asset Management Platforms) and usability in current utilities networks;
- Easy involvement of Siemens Customer Support
- Seamless combination with Assetguard products for gas density and circuit breaker monitoring

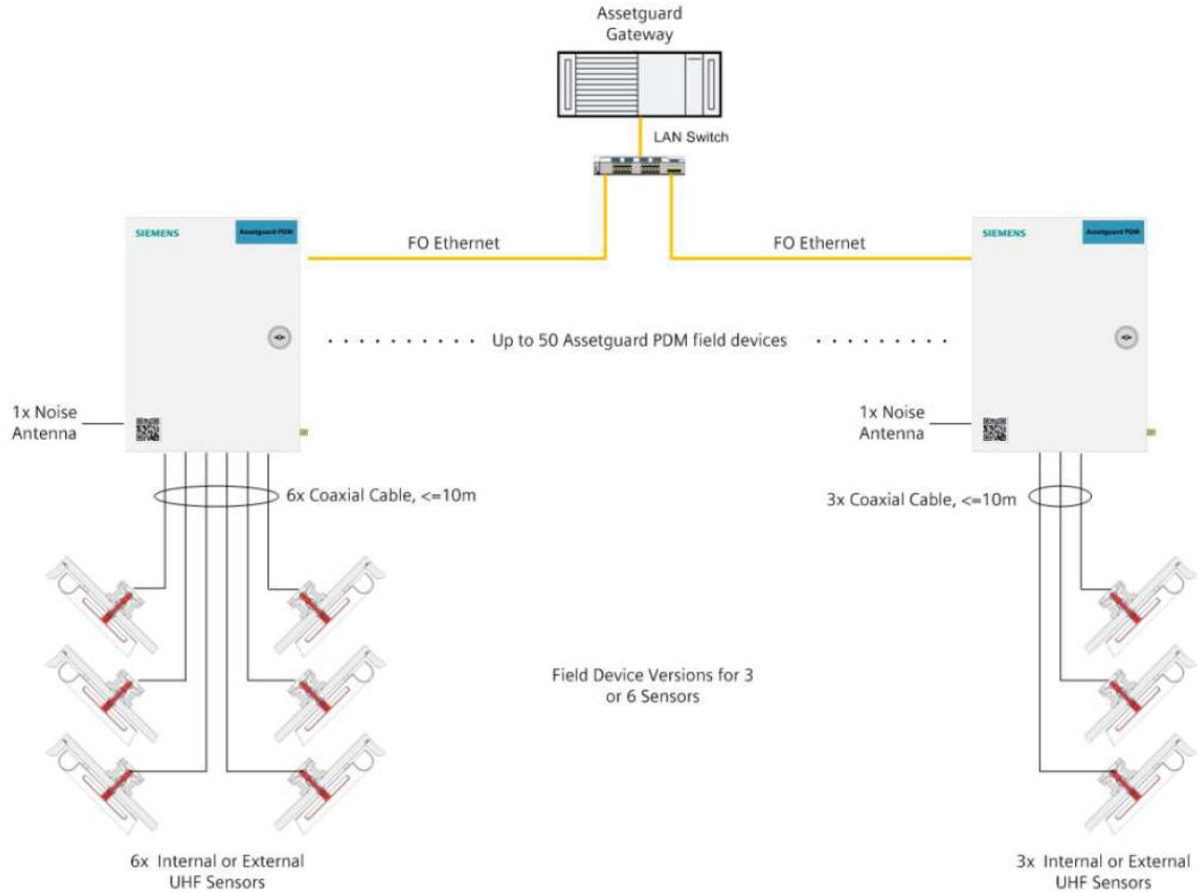
Scope of Work / Deliverable

- Optional external UHF sensors for retrofit installations
- Assetguard PDM field devices for signal acquisition
- Assetguard Gateway to integrate the data from the PDM field devices and optional gas density or circuit breaker field devices
- Web based user interface
- Central cubicle containing Assetguard Gateway and further needed network and communication components



14. Assetguard PDM (2/3) GIS 부분방전 검출장치

Technical Details



Measurement Characteristics		Field Device Properties	
UHF detection sensitivity	-85 dBm	Input Channels	3 or 6 PD UHF channels and 1 noise detection input
Dynamic Range	60dBm typical	Enclosure Dimensions	400 x 300 x 225 mm
Frequency response	145MHz to 1700 MHz, selectable Gain and Filter Bands	Environmental Conditions	Operating temperature -25°C to +55°C Humidity: <=93%RH non-condensing
Acquisition	12-bit A/D resolution @ 5kS/s	Shock resistance	Vibration (1g) and shock (15g) tested
PD event type analysis	Neural Network with pattern recognition	EMC Standards	Immunity for usage in power station or substation environment, IEC 61000-6-5
Noise Management	Noise cancellation and Noise pattern recognition	Ingress Protection Rating	IP 54
Self-Test	End-to-end signal chain self test and cable detection		
Selected Gateway Features			
Communication Protocol	IEC 61850, DNP3, Volt-Free Contact, API		
Historical Data Storage	Min. 2 Years		
PD analysis Features	Web based user interface: PRPD heatmap & 3D view, trend analysis, multi-channel comparison		

Partial Discharge Sensor

14. Assetguard PDM (3/3) GIS 부분방전 검출용 UHF Sensor



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Assetguard PDM

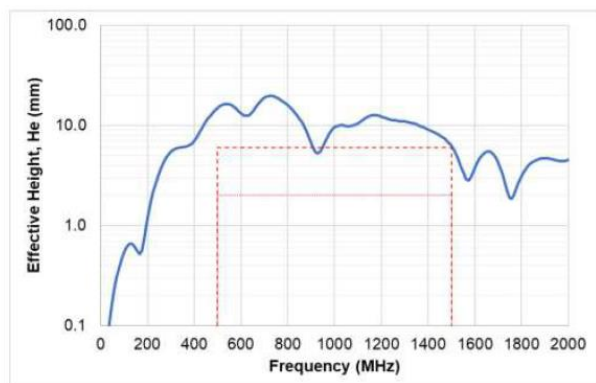


Partial Discharge Monitoring
UHF Sensor

Specification

Requirement

Frequency Range	500MHz – 1500MHz
Mean Effective Height	12mm
Ingress Protection Rating	IP65
Output Connector	N-type, 50Ω
Temperature Range	-30°C to +70°C
Maximum Working Humidity	100%
Weight	1 kg
Dimensions	169mm x 78mm x 57mm



For more information
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