

Transformer PD monitoring

Power View HFCT Transformer PD



Pioneering the future of power testing and monitoring

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HFCT PD monitoring for Power Transformers

POWER VIEW Transformer HFCT sensors are designed to detect high-frequency electromagnetic emissions associated with PD activity in power transformers. These sensors comprise a high-frequency coil wound around the transformer's grounding strap or core, allowing them to pick up electromagnetic signals induced by PD events. The high sensitivity of HFCT sensors enables the detection of subtle PD activity, even in the presence of significant background noise.

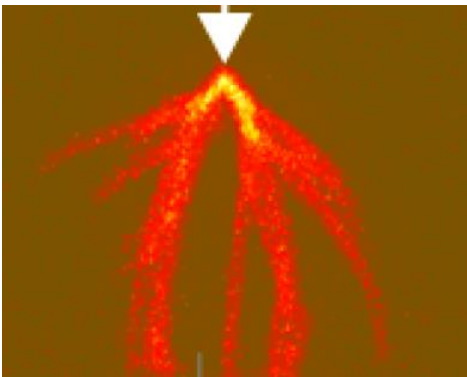
Partial discharge monitoring with HFCT sensors represents a valuable tool for enhancing power transformer reliability and mitigating the risks associated with insulation degradation. By leveraging the sensitivity and non-intrusive nature of HFCT sensors, utilities and operators can detect PD activity in real-time, enabling proactive maintenance interventions and optimizing transformer performance. Despite challenges, the adoption of HFCT-based PD monitoring is essential for ensuring the resilience and longevity of power transformer assets in modern electrical power systems.

By installing HFCT sensors at the grounding conductor of transformer main tank, utilities can continuously monitor PD activity and assess insulation condition in real-time.

The integration with advanced monitoring systems enables remote data acquisition, analysis, and trend monitoring, facilitating proactive maintenance and decision-making.

Benefits of HFCT-Based PD Monitoring.

Additionally, HFCT sensors offer non-intrusive monitoring capabilities, minimizing downtime and operational disruptions during installation and maintenance



Understanding Partial Discharge in Power Transformers

Partial discharge is a localized breakdown of insulation within power transformers, typically caused by imperfections or defects in insulation materials.

These PD events generate high-frequency electromagnetic emissions, which propagate through the transformer windings and can be detected using sensitive sensors. Continuous or intermittent PD activity, if left unchecked, can lead to insulation degradation, insulation failure, and ultimately, transformer breakdown.

Therefore, timely detection and analysis of PD phenomena are essential for preventing catastrophic failures and ensuring transformer reliability.





HFCT PD monitoring



Suitable for deployment at any scale



Affordable sensors offering cost-effective solutions



Can be installed live without causing any downtime



Features a comprehensive web interface



Continuous monitoring of partial discharge 24/7



Alerts available locally and remotely via email, SMS, web, and Substation Digital app Supports up to 4 input channels



Utilizes an efficient noise rejection algorithm



Rugged IP 68 protection

Advancements with Power View PD HFCT Partial Discharge Monitoring:

Power View's HFCT-based PD monitoring represents a significant advancement in the field, offering several key benefits:

1.High Sensitivity and Accuracy:

POWER VIEW HFCT sensors are specifically designed to detect and capture high-frequency PD signals with exceptional sensitivity and accuracy. This enables early detection of insulation defects, even in noisy environments typical of power transformers environment.

2. Non-Intrusive Installation:

Unlike conventional sensors, HFCTs can be installed non-intrusively around the Power Transformer grounding conductor, eliminating the need for Transformer de-energization during installation and maintenance. This minimizes downtime and operational disruptions, enhancing overall system reliability.

3. Advanced Signal Processing Algorithms:

Power View HFCT PD monitoring systems utilize sophisticated signal processing algorithms to analyze captured data in real-time. These algorithms help distinguish PD signals from background noise, enabling reliable detection and localization of potential insulation faults.

4. Remote Monitoring and Analysis:

POWER VIEW's HFCT PD monitoring system features remote monitoring capabilities, allowing operators to access real-time data and analysis remotely via web interfaces on the Substation Digital dedicated software platform. This facilitates proactive maintenance planning and decision-making, optimizing asset management strategies.

5. Scalability and Adaptability:

POWER VIEW's HFCT PD monitoring systems is scalable and adaptable to various Power Transformer configurations and deployment scenarios. Whether monitoring a single Transformer or an entire fleet, these systems can be tailored to meet specific requirements and accommodate future expansion.

Predictive Modeling: Advanced computational models and algorithms are used to analyze the data collected from sensors and dynamically predict the health POWER Transformer in real time. By combining real-time data monitoring, predictive modeling, electrical testing , thermal and corona inspections and advanced analytics, the system enables utilities to optimize the performance, efficiency, and reliability of Power Transformers while ensuring safe and resilient grid operations.

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High accuracy

Good linearity and high accuracy.



Wide frequency range

Wide working frequency range, 300kHz-100MHz.



Easy installation



Quick Response

Quick response, ns grade.



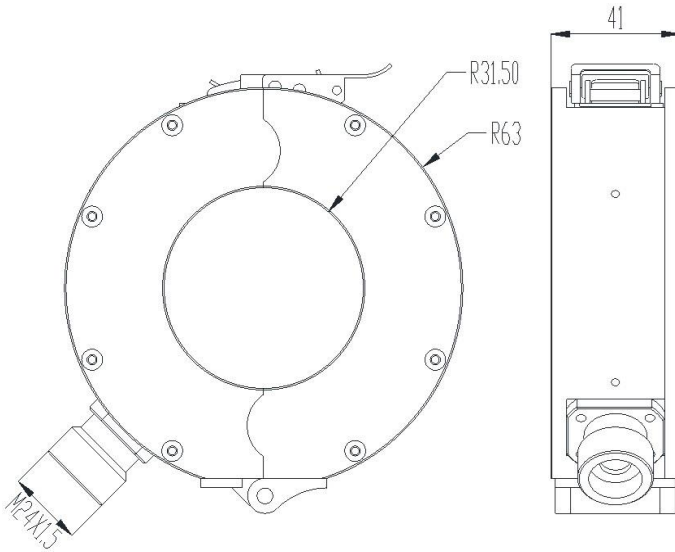
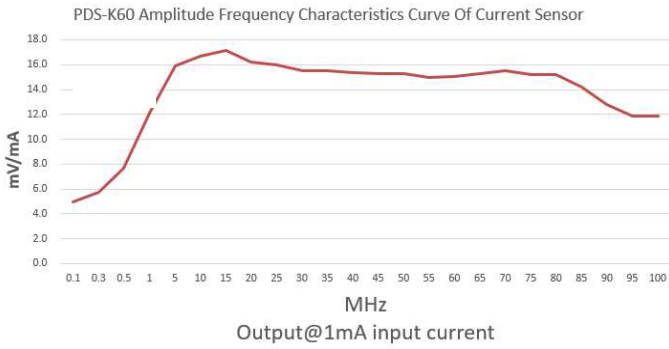
Application

Grounding of power transformer



Protection

Protection grade IP68 for waterproof, both indoor and outdoor application.



Technical Parameters		
F	Working Frequency Range	0.3MHz~100MHz
S	Sensitivity	≤5pC
ZC	Transmission Impedance	17mV/mA
RM	Matching Impedance	50Ω
TA	Working Temperature	-40°C~+85°C
TS	Storage Temperature	-40°C~+100°C
O	Output Interface	BNC or TNC
P	Protection Grade	IP68
φ	Window ID	Φ63mm
W	Weight	1200 gr



Controller specification

HFCT Channels	Configurable from 1 to 3 channels
Number of sensors needed for each transformer	The system typically requires 1 HFCT and 1 measurement for a power transformer
HF bandwidth	0.3MHz~100MHz
Power Supply	24 VDC
Operating temperature	-40°C to 85°C
Alarm Threshold	Units comes with Preset alarm levels . However, these are User-adjustable for each channel in terms of level and Rate of change
Alarm Reporting	SCADA, Substation Digital alarming, SMS, e-mail
Noise mitigation	High-frequency noise mitigation based on amplitude and repetition rate
Software	Substation Digital (International Organization for Substations Digital Development)
Connectivity	Wireless Long range, Modbus RT
IP rating	IP68 with dust boots installed
Weight	0.9 kg (1.98 lbs)
Dimensions	150 x 177 x 95 mm

The POWER VIEWHFCT PD monitoring signal processing

The system utilizes sophisticated signal processing algorithms to analyze captured data in real-time. These algorithms help distinguish PD signals from background noise, enabling reliable detection and localization of potential insulation faults.

Remote Monitoring and Analysis:

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Scalability and Adaptability

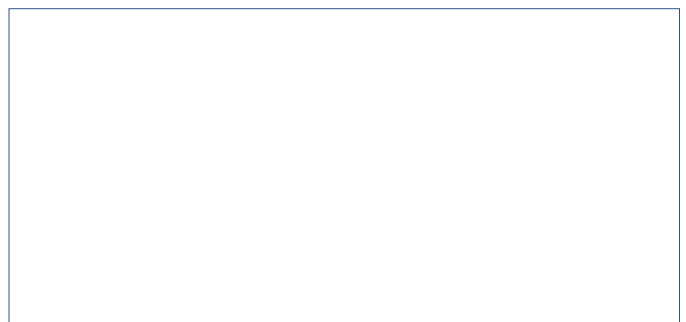
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Office: 2416 Main street
Vancouver
BC V5T 3E2
Canada

Tel: + [1 \(778\) 8194363](tel:17788194363)
Fax+ [1 \(778\) 8194363](tel:17788194363)
Email: info@powerview-energy.com
Web: www.powerview-energy.com

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