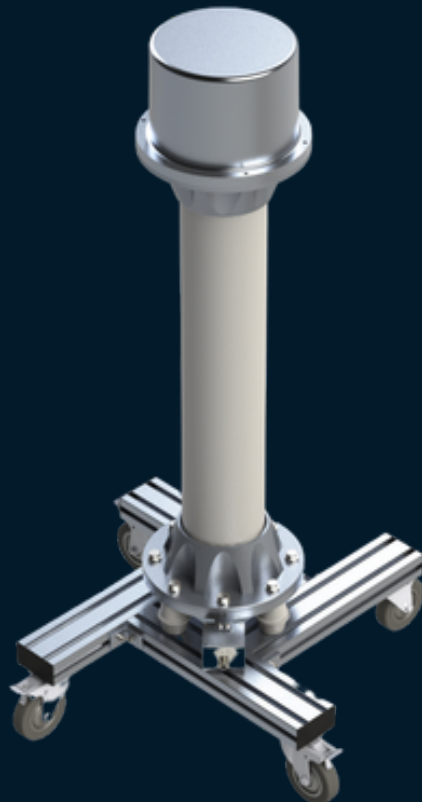


PD AND RIV SENSOR

PARTIAL DISCHARGES (PD) AND RADIO INFLUENCE VOLTAGE (RIV) MEASUREMENT SYSTEM

Standards

IEEE Std C57.124, IEEE Std C57.113, IEEE Std 1434, IEC 60270, IEC 60060, IEEE Std. 400 and NBR 5356



PD AND RIV SENSOR

Description

HVEX's solution for evaluating PDs and RIV in an asset consists of a unique equipment that reads through oil or epoxy-insulated capacitors, for internal or external use, with phase voltages ranging from 13.8 kV to 500 kV. The measurement system features PDMS dedicated software and enables the acquisition of signals at high frequencies and high vertical resolution.

Applications:

- Generators
- Transformers
- High-voltage cables
- Reactors
- Circuit breakers
- Capacitors

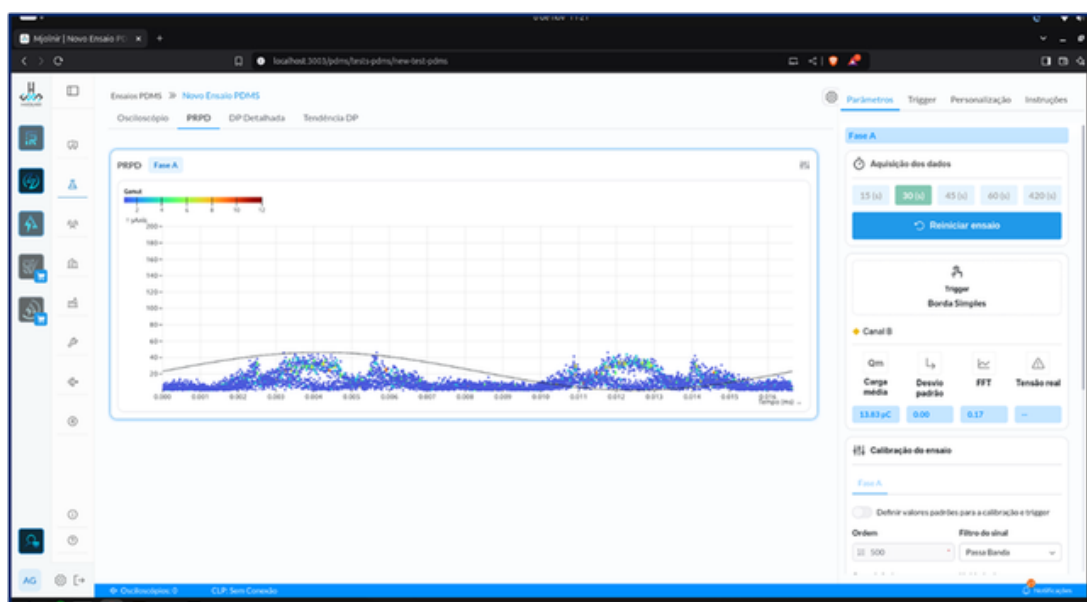
HVEX is the only national manufacturer of this type of equipment and allows product customization according to the customer's application.

It uses the electrical method for detecting partial discharges, which is non-invasive and allows for earlier diagnosis of a possible decrease in the dielectric withstand of the assets.

Operation

The foundation of electricity manipulation deals with the conducting and dielectric capacity of conductive and insulating materials. Dielectric materials, however, have relative insulation, meaning their dielectric can be breached when exposed to electrical stresses such as high voltages or prolonged periods of time. Because of this, partial discharges may occur when the dielectric is partially breached, further stressing the material.

The PD sensor is a device that assesses the presence and severity of partial discharges. It can be connected to a transformer bushing through a coupler for capacitive tapping or adapted to evaluate different equipment. The partial discharge measurement carried out by HVEX involves the capacitive electrical method, where a set of discrete pulses provide feedback based on the equipment's response, which, after being filtered and processed, presents the result of the presence and severity of partial discharges. The radio influence voltage (RIV) test measures radio interference emitted by the test object while the test voltage is applied. The measurement system captures and quantifies the signal through the coupling circuit and appropriate instrumentation, allowing comparison with the limits and test conditions specified for the equipment under test.



Technical Specifications

Standards	IEEE Std C57.124, IEEE Std C57.113, IEEE Std 1434, IEC 60270, IEC 60060, IEEE Std. 400 and NBR 5356
Voltage of tested equipment	13,8 kV to 500 kV
Connections	Coaxial cable Wireless
Communication protocol	DNP3.0, IEC 61850 and Modbus
Method for detecting partial discharges	Electric (Capacitive)
Radio influence voltage measurement range	100 μ V to 2.000mV
Coupling capacitor insulation	Oil or epoxy
Coupling capacitance	80 pF to 10 nF
Sampling ratio	2.5 GSa/s
Vertical resolution	12 bits
Graphical interface	Sine Lissajous figure FFT Wavelet PRPD (Phase-Resolved Partial Discharge)
Filters	High pass, band pass, low pass
Filtering mode	Digital
Cut-off frequency	10 kHz to 100 Mhz
Report file formats	.pdf, .doc
PD Calibrator: • Pulses • Frequency	5 pC, 10 pC, 50 pC, 100 pC, 500 pC and 1000 pC 100 Hz and 120 Hz
Dimension	7,5 x 15 x 20 cm

Technical Specifications

Operating temperature	Up to 40 °C
Relative humidity	<90% non-condensing

We provide solutions for improvement of electrical energy generation, transmission and distribution efficiency, quality and reliability. With a highly specialized and experienced team in research, development and innovation, HVEX develops tailor-made solutions for Brazilian and foreign markets. Wide range of products with solutions focused on signal transduction, measurement, monitoring and protection.



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