

high performance partial discharge diagnostic system

PD Scope

PD Monitoring Instrument

Accurate knowledge of the condition of electrical assets is essential for the establishment of Condition Based Maintenance (CBM) strategies. In this context, on-line monitoring is getting more and more important since this practice can provide timely information about asset conditions. Partial Discharge (PD) measurement is recognized as the most important test for the assessment of the condition of electrical systems.

As the heart of every permanent monitoring system, the PDScope will be connected to 3 (three) or 6 (six) PD sensors via coaxial cables and will acquire the HV signals coming from the PD sensors. Each PDScope is provided with a 100 MS/s acquisition system, with three independent channels, a synchronization channel and with a standard Ethernet 10/100 Mb interface. The system is based on a large memory large bandwidth digitizer for acquisition purposes. It acquires the entire waveforms of a large number of detected signals, so that the system will be able to characterize pulses, improve signal to noise ratio and derive pulse feature for signal separation purpose.



Specifications

Innovative - instrument for Partial Discharge recording & processing

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Wide band - fast processing and large memory acquisition unit

Flexible - Ideal for periodic or permanent monitoring of 3-phase electrical assets

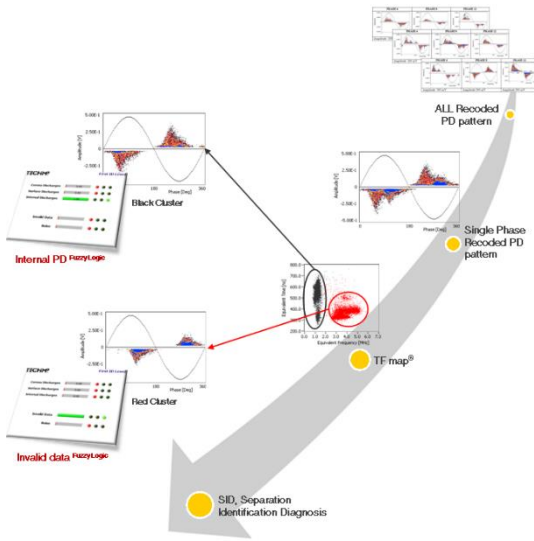
Powerful - PD Pulse detector and Waveform analyzer

Fuzzy logic - diagnostic tools and statistical processing

Compact - 3 simultaneous channels digital acquisition unit

PD Scope

The Ultimate T/F-Map Technology



Techimp TW/TF map technology

Techimp technology (patented) allows different PD phenomena to be classified on the basis of their pulse shape, thus enabling further analysis to be carried out separately on each dataset. PD source identification is, so, highly enhanced and even a non skilled operator will be able to carry it out.

Techimp acquisition technology provides efficient noise rejection as well. As a matter of fact, noise signals have been observed to be very different from PD signals. Techimp classification system is successful in separating PD phenomena from those generated by disturbances. In detail, each PD pulse waveform is acquired and the so-called equivalent time-length and bandwidth are evaluated and plotted on the TF map. Different types of discharges (e.g. PD due to distributed microvoids, slot discharges and noise in a rotating machine) shall group into different clusters in the TW map being characterized by different pulse shapes.

Specifications

Wide Band Acquisition PD channel

PD Technology	UWB - PRPD/TF map
PD Channels	3 based UWB Channels for active sensors power supply (expandable To 6)
Bandwidth	16kHz-30MHz, built in UWB filter
Resolution	10 bit
Dynamic range	75 dB
Maximum sampling frequency	100 MS/s
Input voltage range	1-4000 mVpp
Input sensitivity	< 1.0 mVpp
Input Impedance	50 Ohm
Recording time length	1 μ s (min) 20 μ s (max)
Connectors type	BNC

Synchronization channel

Input voltage range	5 - 200 V _{RMS}
Frequency range	0.1 ÷ 1000 Hz
Input Impedance	10 MOhm
Connector type	BNC

Communications and Connections

Physical Interface	Ethernet 10/100 Mb/sec
External Connections	n° 4 BNC Type connectors n° 1 external synchronous interface for channel expansion multiplexer n° 2 Standard ST FO connectors n° 1 Clean (SPDT) Contact connector
Operating environmental conditions	
Temperature	5÷50°C;
Humidity	90%, not condensing
Altitude	≤2000 meters

Field of applications

PDScope is suitable for periodic assessment or permanent monitoring of:

- Cable and cable accessories (such as joints and terminations);
- Electric Generators & Motors;
- Power and Measurement Transformers;
- Gas Insulated and Air Insulated Switchgears;
- Outdoor Insulators for Overhead Lines (pollution assessment)

Suitable For



Several different sensors are available, fully compatible with Techimp Global Diagnostic platform. They can be freely combined at customer needs provided they can be applied for the specific application.