

Applications - Transformers



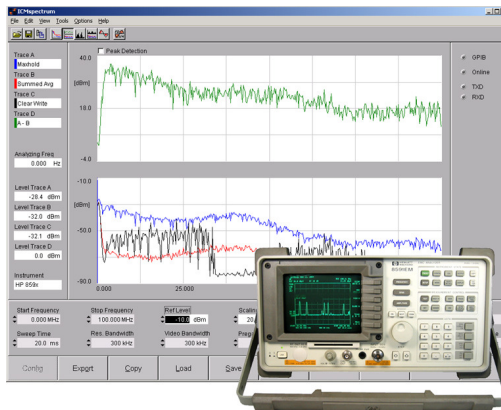
Partial discharge measurements on power and distribution class transformers are a proven tool to identify and locate defects within the insulation system of bushings, windings, or accessories. Besides PD acceptance test equipment for the testing labs in a factory Power Diagnostix offers a wide range of instruments for on-site on- and offline tests, and for monitoring.



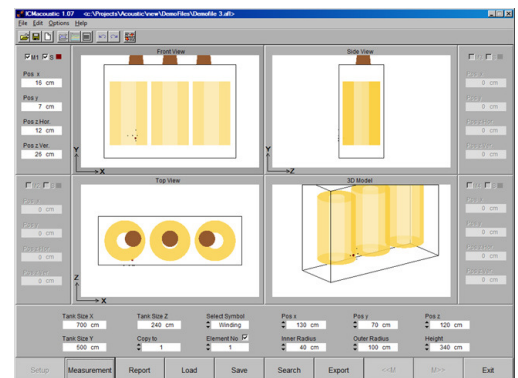
ICMsys8

The ICMsys8 greatly simplifies the PD acceptance tests on large power transformers. With its true parallel acquisition of the PD activity on eight channels, the overall testing period is substantially shortened. E.g. the cross coupling matrix for the different phases is done automatically while calibrating the test setup.

An advanced PD analysis system consists of an ICMsystem for PD pattern acquisition, a built-in or external spectrum analyzer for frequency domain analysis, a standard oscilloscope for the evaluation of the time domain signals, and an acoustic measurement system incl. triangulation software. The ICMspectrum software was developed to simplify the use of an external spectrum analyzer in conjunction with the PD measurement. Critical frequencies can easily be detected and filters can be set for in-depth analysis.

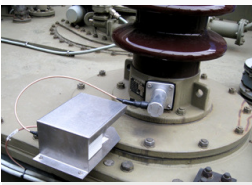


Remote SW with HP spectrum analyzer

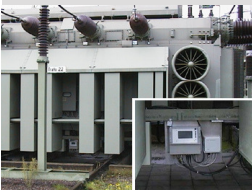


ICMacoustic software, analysis panel

The ICMacoustic software provides graphical and mathematical evaluation tools to precisely locate internal PD failures.



Bushing adapter



Transformer monitoring

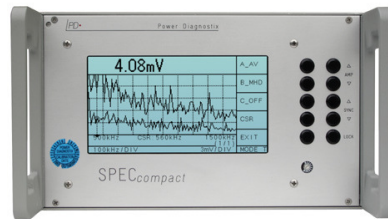


Advanced PD test system



HV control room

The *SPECcompact* comprises a spectrum analyzer and a partial discharge detector in one instrument. This allows PD measurements even in noisy environments like non-shielded test areas. Especially for testing distribution class transformers the *SPECcompact* allows measurements with a background noise below the demanded acceptance level.



SPECcompact

In addition to the noise suppression functions of the instruments, Power Diagnostix offers a wide range of high voltage filters for induced or applied voltage testing.

PD Monitoring

Partial Discharge Monitoring has become increasingly important in the past few years. Besides other parameters like gas in oil analysis, temperatures, vibrations, or load conditions, etc., the PD trending information completes a full set of monitoring data of a transformer in the field. A series of standard bushing adapter (BA) is available to connect the measurement system to the test tap of a transformer bushing. For condition based maintenance, a portable instrument like the *ICMsystem* can be used on-site for temporary measurements. For continuous monitoring, an instrument such as the *SPECmonitor* or the

ICMmonitor can be considered. Acoustic sensors in combination with one of the mentioned PD instruments can be used to locate a PD fault more precisely.

Typical Packages

Set for Power Transformer Acceptance Testing in a Test Bay:

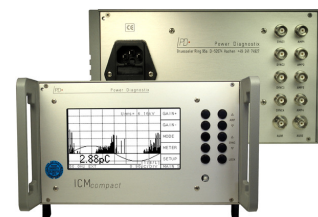
- 1 x *ICMsys8* (built-in modem opt.)
- 1 x GPIB interface
- 1 x Software *ICMsystem*
- 1 x Impulse calibrator CAL1D
- 9 x Preamplifier RPA1
- 8 x Quadropole CIL4M/V0 μ 5/2 μ 0
- 3 x Quadropole CIL5M/V4 μ 0

Set for Distribution Transformer Acceptance Testing in a Test Bay:

- 1 x *ICMsys4* or *ICMcompact/MUX4*
- 1 x GPIB Interface (with *ICMsys4*)
- 1 x Software *ICMsystem*
- 1 x Impulse Calibrator CAL1D
- 4 x Preamplifier RPA1
- 3 x Coupling Capacitor CC100B/V

Optional Items:

- RIV measurement
- Built in spectrum analyzer
- Scope with remote control software
- Acoustic Sensors and Preamplifier
- CT1 or CT100 for gating purposes
- HV Filter
- External spectrum analyzer



ICMcompact with Multiplexer

Partial discharge testing on power transformers is an efficient tool to evaluate the condition of the complex insulation system. Power Diagnostix offers various optimized instruments and accessories for laboratory tests, field measurements, and continuous monitoring.