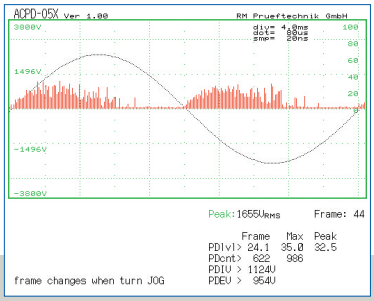
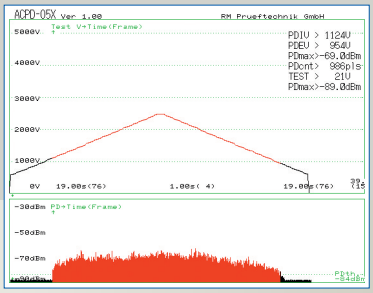
AC High Voltage Partial Discharge Tester

ACPD-05X

High efficient PD test system
for laboratory and manufacturing



PD phase resolved characteristic graph



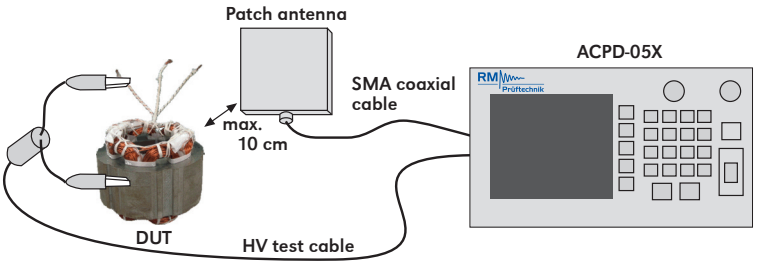
Applied voltage PD characteristic graph

- **AC high voltage source 5 kV/100 mA**
- **Microwave PD sensor with patch antenna**

In this new and worldwide unique insulation test system, a digital programmable AC high voltage supply is combined with a simple to use PD test system, which does not demand for special conditions of the test environment. Classical PD systems with capacitive signal coupling typically need a "Faraday cage" for the DUT which is not an economical solution i.e. under production conditions. Through the special filter method with narrow band filter in 1.7 GHz band, all relevant noise frequencies are carefully eliminated and the PD signal is recorded via patch antenna, which detects the accompanying micro waves, and the evaluation unit with graphical user interface.

RM Prüftechnik

Prüfsysteme für elektrische Maschinen und Wicklungen



Visualisation of the PD effects

The signal of the AC source is displayed in real time which allows phase resolved display of the PD characteristic. Several graphical screens allow pin-pointing and complete evaluation of the PD effects and the condition of an insulation.

Stable testing at very high repeatability

Since the non-contact patch antenna only detects the microwaves which appear during PD and through the active high pass filtering in GHz range, the recorded signal is practically noise free and allows evaluation with high sensitivity. Therefore it is usable under nearly all environmental conditions.

Cost efficient design

The relatively simple but highly sensitive circuit composition allows a cost efficient design and assembling of the instrument in opposite to classical systems. A Faraday Cage becomes obsolete.

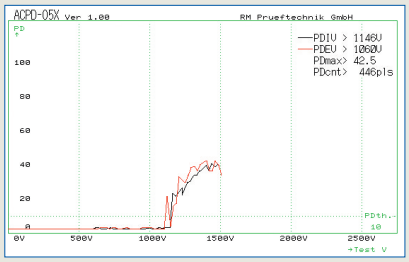
Equipped with valuable and useful test functions

In addition to the possible AC breakdown voltage, the PD inception voltage and PD extinction voltage as well as the PD level, the relative PD amount and density are evaluated and graphically displayed.

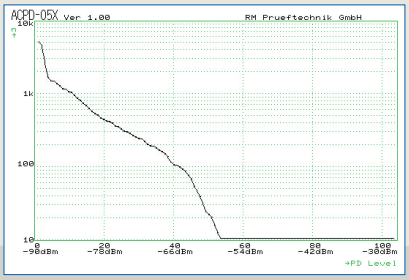
Characteristics

- By putting the antenna close to the DUT, a high sensitivity of the PD signal is guaranteed.
- Because the system is easy to handle, it allows integration in production lines.
- A fully automatic testing is possible by means of tolerance parameters.
- All relevant parameters of PD testing are supported and evaluated against thresholds: Partial Discharge Inception Voltage (PDIV), Partial Discharge Extinction Voltage (PDEV), relative PD level (PD peak), PD pulse (PD occurring probability) etc.
- Through the graphical display of all parameters, a visualised check of the condition of the DUT is possible.

Specification	
HV Power Supply Voltage/power Min. Inverter step Test frequency	digital AC inverter power supply max. 5 kV_{rms}, 500 VA, 100 mA 2 V/1 digit 50 Hz (50 – 200 Hz, 1 Hz step setting)
PD detection Sensitivity Result display Detection range Antenna cable	Microwave by plane patch antenna -90 ~ -30 dbmW -90 ~ -30 dbmW relative to 100% relative level more than 50 pC standard 2 m (SMA coaxial cable)
Voltage measurement Voltage display Display accuracy	digital sampling of applied voltage 0 ~ 5000 V_{rms} within ±5% of full scale
Leakage Current detection Cut off current	auto cut off test by over current 1 – 25 mA, 100 mA selectable
Input power	AC 100 – 240 V ± 10%, 50 Hz/60 Hz, 10 A
Environment	20 °C ± 5 °C, 20% ~ 80% RH
Dimensions	43 x 20 x 40 cm (W x H x D), 22 kg



Applied voltage Qmax (PD Level) graph characteristic



PD density accumulation graph

Application

- Electrical machines, frequency controlled drives, electric mobility, automotive products
- Transformers of any kind, chokes, solenoids and other electromagnetic components
- Power Semiconductors, insulation materials of any kind

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