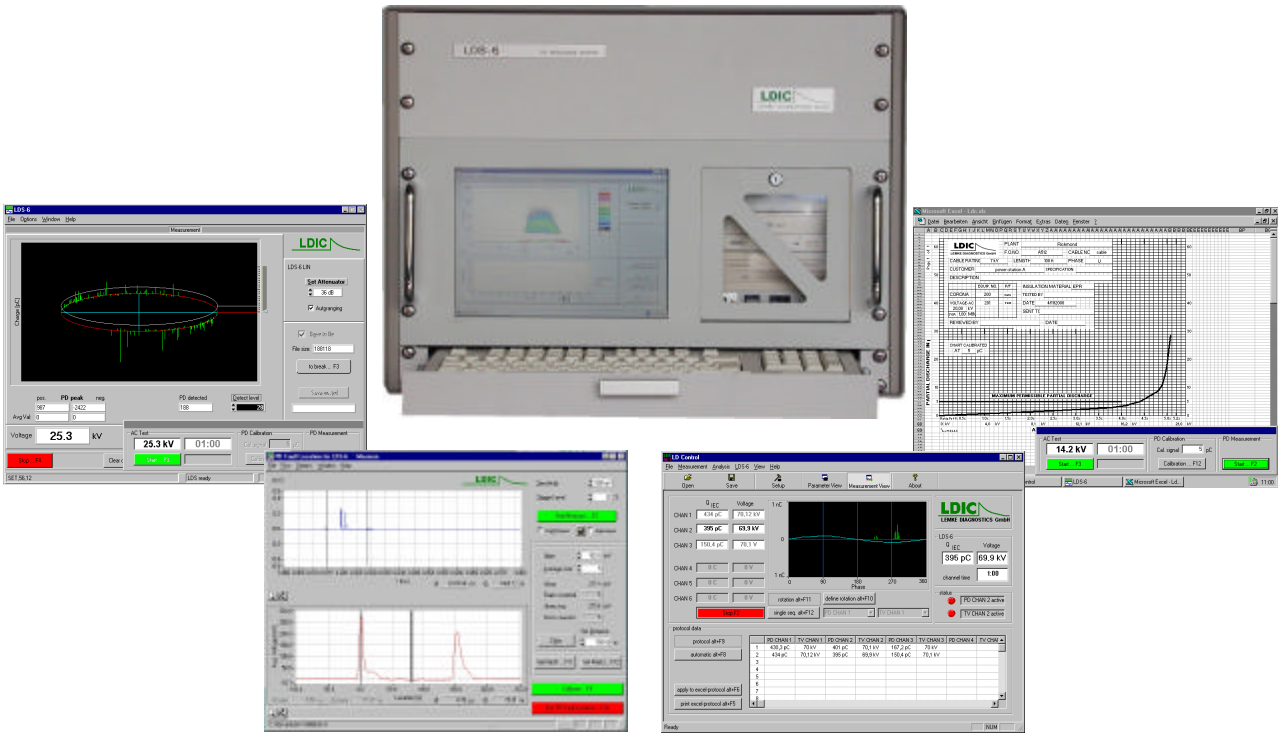
DIGITAL PARTIAL DISCHARGE MEASURING AND

DIAGNOSTIC SYSTEM LDS-6



Field of Application

The LDS-6 is a highly sophisticated digital measuring system for the PD detection according to the standard IEC 60270. It is not only applicable for assurance PD tests of HV apparatus after manufacturing but also for fundamental PD studies in research and for development of HV insulation. Based on the wide-band detection and processing of PD signals, the internal noise suppression features permit an application not only in well screened test laboratories but even under on-site conditions and in non-screened production test facilities. As an option, a PD fault location feature for power cables is available.

Features

- Measuring and evaluation of the characteristic PD quantity „apparent charge“ according to IEC 60270
- Computer-based, phase resolved PD-data acquisition; storage, analyzing and post-processing
- Simultaneous PD data and test voltage acquisition
- Diagnostic tools for PD-failure recognition/statistical data evaluation
- Hardware settings completely software controlled
- Transmission of the PD data via modem
- Polarity recognition of the PD-pulses
- Sensitivity range: 1 pC to 100 000 pC (Auto-ranging 0-93 db)
- Internal 30 MHz wide band pre-amplifier for fault location (optional)
- Double pulse resolution 10 µs
- Minimal Superposition error and single pulse recognition capability up to 100 kHz pulse repetition rate
- Protocol generator for creating customer specific test reports

Display modes
The magnitude of the apparent charge, the phase position and the event-time of each PD signal will be recorded and stored, simultaneously the instantaneous value of the voltage with a very high resolution up to 12 bit. In this way a continuous monitoring can be done in real time mode. Furthermore, the PD events can be visualized and analyzed in the replay-mode based on the stored PD data without any loss of information. By using highly sophisticated and user-friendly software tools the stored PD data can also be post-processed and displayed in 2D- and 3D-graphs. Additional software tools are implemented for statistical evaluation and for automatic PD fault recognition using a PD data base tool (finger print analysis). As an option, special software for PD fault location on power cables can be provided.

Hardware
- Wide-band PD signal processing in the frequency range 100 - 500 kHz according to IEC 60270
- Narrow-band processing unit, optional
- Wide-band, logarithmic signal processing unit, optional
- Excellent dynamic range, using wide-band, switchable amplifiers / attenuators (0...93 db)
- Efficient noise suppression facility using wide-band PD-processing technology
- High resolution digitalization of the PD-signals and the test voltage (12 bit)
- IBM compatible Personal Computer
  Intel Pentium® processor/32 Mbyte RAM/Data Acquisition Card/VGA graphic card/TFT active matrix color display
- 19" industrial PC- or desktop design

Software
- LDS-6 software with PD measuring and analysis incl. 3D representation, Statistics and Diagnosis
- Operating system MS Windows® 95/NT
- Interface to other Windows®-Applications possible

Program overview

Setup	setup window for default settings of the measuring system (password protected)
Calibration	automatic PD calibration of the measuring circuit and display of the measuring signals (oscilloscope mode: line, x-y mode)
Measurement	online measurement, display (phase resolved) and data storage
Analysis	extensive possibilities of replay, display and evaluation incl. Graphical presentation of different functions of the stored data
Statistics	display and processing of the stored data using different statistical methods
Diagnose	PD failure type recognition with user expandable PD-reference database of typical fingerprints

Specification

• Minimum detectable apparent charge at 50 Ohm matching impedance:	< 1 pC
• Maximum detectable apparent charge:	100 000 pC
• Upper cut-off frequency of the wide-band pre-amplifier:	30 MHz
• Frequency range of the PD signal evaluation	100 - 500 kHz
• Bandwidth of the PD-processing unit:	400 kHz
• Resolution of the digital signal acquisition:	12 bit

Optional peripheral components (not included in the standard version)
- Bridge impedance LDB-5 for PD detection on the basis of balanced bridge (IEC 60270)
- Calibrator LDC-5 for external calibration of the PD measuring circuit in pC of apparent charge up to 500 pC
- Charge Injector LDJ-5 for calibration of the PD measuring circuit with charge magnitudes up to 50000 pC
- Filter LDF-5 for suppression of radio interferences
- Measuring impedance LDM-5 or LDM-5/U, for signal and test voltage decoupling (bandwidth 20 MHz, maximum current 5 A, optional 50 A)
- Extension unit LDM-5/E for matching the voltage measuring adjustment of LDM-5/U to several ranges and different coupling capacitors
- Switching box LDM-5/M6 for channel switching of the PD- and voltage channels (software controlled)
- System printer

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