Advanced measuring system for the analysis of dielectric parameters including PD events
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ABSTRACT
For preventive diagnosis of HV equipment different measuring procedures are in use, such as the detection and analysis of PD phenomena as well as the measurement of the capacitance and loss factor. The submitted paper reports on the integration of such different measuring systems to a common, compact and computer based device. This offers for the first time the possibility of a simultaneous measurement of both, impedance-parameters of HV insulation and partial discharges. Simultaneously PD faults can be located. For analyzing characteristic PD types a database expert system is integrated. So the global insulation condition can be assessed in a complex manner.

1. INTRODUCTION
Both, the loss factor / impedance measurement and the partial discharge measurement are accepted techniques for investigations on the dielectric properties of high voltage insulation materials. For this purpose, the presented new developed system combines the technology of both proved methods. Caused by the difference of these methods regarding to the appropriate usage most often are both [1] applied in order to get comprehensive test results. On the one hand the integral overall state of a system and on the other hand the differential local insulation system fault analysis is of interest to estimate the condition of HV systems [2]. Only, when applying both diagnostic methods, a meaningful criterion of the tested insulation system can be found [1]. For obvious reasons, the combination of both measurement techniques into one integrated system gains a high benefit.

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The system is characterized by a general modular conception. It is designed to implement most of the functionality in digital components, exclusively. Analog parts are used only on a small indispensable scale.

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