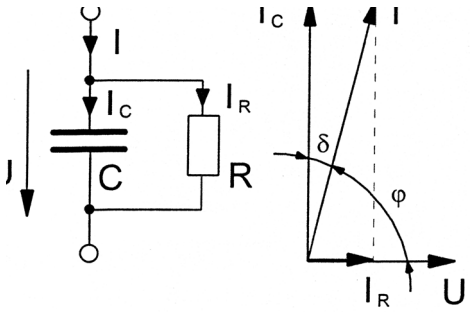
TDA*compact*
Loss factor analyser

The TDA*compact* is a portable capacitance and tan delta analyser. The focus of the instrument's application is on the analysis of the epoxy-mica insulation of rotating machines. Besides this, the unit is applicable for oil-paper insulation systems and especially for mass-impregnated cables.

DISSIPATION FACTOR ANALYSIS

Analysing the dissipation factor (tan delta) is a traditional method to assess the condition of an insulation system. With the analysis of the dissipation factor, emphasis is more put on the overall health of the insulation system, whereas with partial discharge analysis, the focus is on individual defects producing discharge activity. Therefore, the application of tan delta measurements concentrates on insulation systems, which are relatively stable against partial discharge.

Most prominently, the health of an epoxy-mica insulation of a rotating machine can be assessed using a tan delta analyser. Especially, the presence of humidity within the winding, the surface contamination of field grading elements, or the polarisation losses of improperly cured resin, can be detected. Thus, the tan delta analysis is still a good complement to the partial discharge testing.



Dissipation factor

PRINCIPLE OF OPERATION

The TDA*compact* simultaneously samples the AC current drawn by the device under test and the current drawn by a reference capacitor. Subsequently, the two current traces are evaluated and the capacitance, the tan delta, and the level of the high voltage are calculated. The unit continuously displays and refreshes these results.

Therefore, the instrument does not require any user interaction as with the traditional Schering Bridge, nor does the refresh of the display take that long as with automatic adjusting bridge-type analysers. The basic resolution of the tan delta measurement is 10^{-4}, which fulfils the requirements for rotating machine testing as well as for testing on mass-impregnated cables.

MODULAR CONCEPT

Besides the stand-alone field test application of the TDA*compact*, the instrument can also become a part of a larger and automated test system. Using the software HV*pilot*, the instrument will be read according to a pre-programmed test sequence. Besides tan delta measurements, such automated test systems further include partial discharge measurements and so-called step tests.

STAND-ALONE INSTRUMENT

The TDA*compact* is designed as a stand-alone instrument. To measure the two currents the basic configuration of the TDA*compact* comes with a standard capacitor, that has a built-in shunt capacitor, in combination with an external shunt. Optionally, the unit can be supplied with further shunt capacitors.

Generally, the TDA*compact* is with digital fiber-optic links to the precision shunts, which allow operation on any potential including the high voltage connection of the device under test. The measuring frequency can vary between 20 and 500 Hz. Upon request, Power Diagnostix can supply complete portable tan delta testers including the high voltage transformer.

TDAcompact with combined reference and shunt capacitor RC30/SC5B as well as fibre optic transmitter FOT2C