

Data Sheet no. 6.27/2

Multi-Channel Partial Discharge Detectors, Types ICMcompact MUX and ICMsys8

Application

Multi-channel PD measurement is important for insulation of three-phase power equipment, especially transformers, rotating machines and metal-enclosed switchgear (GIS) or equipment with different taps. The information about measured PD values at different measuring taps at one equipment enables better conclusions for the behavior and location of the PD source.

HIGHVOLT supplies two solutions for multi-channel measurement:

The first solution is based on the standard PD measuring system ICMcompact (see Catalog Sheet 6.21) extended by a multiplexer. Therefore, the different measuring taps of the test object (each with the related coupling capacitor (Data Sheet 6.11), measuring impedance (Data Sheet 6.31) and preamplifier (Data Sheet 6.32) are connected one after the other to the PD detector by the multiplexer. In this case there is no real simultaneous PD measurement.

The second solution enables such a simultaneous measurement by parallel measurement of eight channels. This PD measuring system, type ICMsys8, is the standard laboratory PD detector of a worldwide operating transformer manufacturer.

ICMcompact MUX

The PD detector ICMcompact (see Fig. 1, Catalog Sheet 6.21) is modified for the operation with the multiplexer by:

- a connector for controlling the multiplexer unit RB,
- pushbuttons for the individual selection of channels and setups.

All functions of ICMcompact as described in Catalog Sheet 6.21 remain active, including connection to a computer. Also the related accessories are used.

The multiplexer unit (Fig. 2) is available

- with 4 double channels:
RB2/8 for ICMcompact MUX4,
- with 12 double channels:
RB2/24 for ICMcompact MUX12.

Each double channel contains one PD and one voltage channel. The selected measuring impedances must enable both, PD and voltage measurement (types CIL .../V in Data Sheet 6.31). Also the related accessories are used.



Fig. 1: ICMcompact



Fig. 2: Multiplexer

ICMsys8

The PD measuring system ICMsys8 (Fig. 3) enables true eight-channel PD acquisition.

For each of the eight partial discharge measurement channels an independent measuring impedance, preamplifier and amplifier plug-in is provided. The system controller processes internally the discharge readings acquired for each channel in a true bipolar peak amplitude acquisition. Optionally, the PD readings can be weighted according to IEC 60270: 2000. Besides the eight partial discharge channels, the instrument offers eight independent channels for the measurement and sampling of the AC voltage signal provided by the measuring impedances.

The PD measuring system ICMsys8 is controlled by a Laptop PC. The control software to run the eight-channel ICMsys8 offers manual and automatic modes. In addition to the parallel acquisition of the PD activity in meter and strip chart displays, the software offers the capabilities of the phase-resolved partial discharge analysis for every channel (see Fig. 4).

The parameters of each channel correspond to that of ICMcompact (Catalog Sheet 6.21).



Fig. 3: ICMsys8

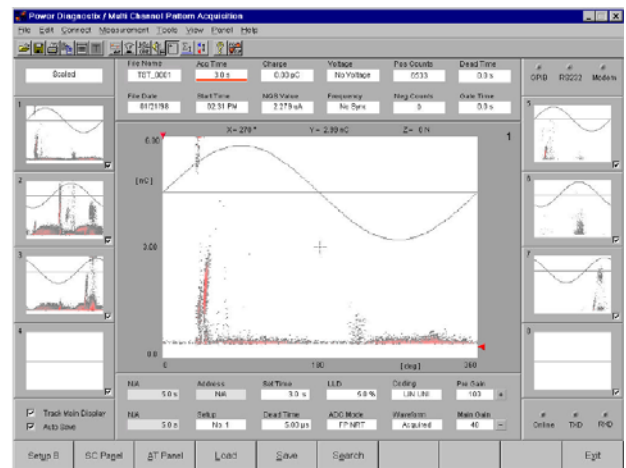


Fig. 4: Control Software for ICMsys8

Components:

- | | | |
|---|--------|--|
| 1 | 1 pc | PD processing unit, type ICMsys8 (Fig. 3) |
| 2 | 1 pc | laptop PC or industrial PC |
| 3 | | software package for ICMsys8 (Fig. 4) |
| 4 | 8 pcs | measuring impedances, types CIL.../V (Data Sheet 6.31) |
| 5 | 8 pcs | preamplifiers, type RPA (Data Sheet 6.32) |
| 6 | 16 pcs | measuring cables between test object and processing unit |
| 7 | 1 pc | calibrator, type CAL (Data Sheet 6.33) |

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