

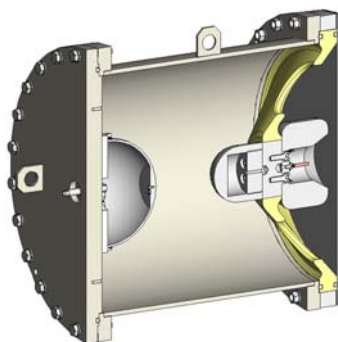
Data Sheet no. 6.12/1

Injection of Calibration Pulses

Application

Usually a PD measuring circuit is calibrated according to the IEC Standard 60270: 2000 by a low-voltage calibrator (see Data Sheets 6.33 and 6.44) before the high-voltage is applied. For some applications, especially if the measured PD value is the criteria in an acceptance test, it might be helpful to have the calibration pulse also during the PD measurement at high voltage. In such applications the capacitor of the low-voltage calibrator is replaced by a high-voltage capacitor in parallel to the test object.

A further application is with completely metal-enclosed HV test systems, e.g. for testing GIS and their components. There is no possible contact to the conductor carrying high-voltage. In such cases the well-defined high-voltage capacitor must be built into the metal-enclosed test system in parallel to the output of the test system.



Realization

The necessary low-voltage calibrator has an output of a well-defined voltage step ΔU (rise time < 60 ms) instead of a current. The precise capacitance C_i of the HV injection capacitor must be known to calculate the calibration charge $q_i = \Delta U * C_i$.

Calibrators of type CAL (Data Sheet 6.33) generate a voltage step and can all be used for calibration pulse injection. The type CAL1C is especially designed for that application. Also calibrators of the type LDM (Data Sheet 6.44) can be modified for that application.

The necessary **injection capacitor** for open PD circuits is a capacitor of relatively low capacitance, e.g. 100 pF. It can be chosen from the available types WC in **Data Sheet 1.31**.

In metal-enclosed test systems HIGHVOLT designs a special gap of a capacitance of few nF (Fig. 1) which is precisely measured and combined with an appropriate low-voltage step generator. Depending on the requirement of test voltage and PD sensitivity the gap will be designed according to the special conditions.

Fig. 1: Gap as a HV injection capacitor for metal-enclosed SF₆-insulated AC test systems

For further information please contact

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