

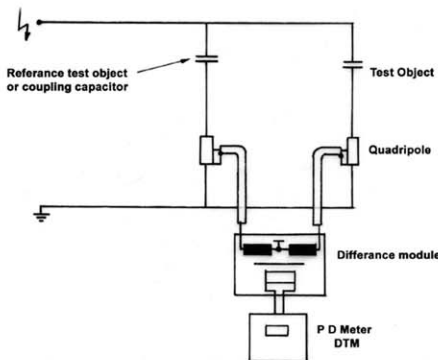
DIFFERENCE MODULE (DV)

For the suppression of interference during partial discharge measurement.

1.General

Sensitive partial discharge measurements outside screened rooms, without filtered voltage supply are very often affected by a high background noise level of some 10pC to some 100pC. Sometimes, it is not at all possible to perform partial discharge measurements under such conditions.

A considerable improvement of the measurement sensitivity and a remarkable suppression of interference from outside can, however be achieved with the difference module. This device automatically eliminates interference appearing both in the test object and a partial discharge free reference object, which cannot then deteriorate the measurement results. These measures allow to perform partial discharge measurements in unscreened test laboratories and even on site in high-voltage switch-gear.



The reference test object can be an identical unit to the real test object, which should be checked for the absence of partial discharges before it is introduced in the test circuit. Also, a partial discharge free reference capacitor can be used which has previously been tested in a laboratory.

2.Function

In partial discharge differential measurement, wire-bound interference will appear in the same way on the quadripole of the test object and reference unit and are eliminated to a far extent by subtraction. To this effect, the differential module contains an adjustable HF differential transformer to whose two input windings the quadripole for the test object and the reference unit are connected. As far as this circuit corresponds with the method of partial discharge measurement in a bridge circuit according to IEC 270. However, in the case of conventional measuring instruments for partial discharge measurements in a bridge circuit, the test object and the reference unit must have approximately the same capacitance. This problem is solved for the difference module with its built-in adjustment circuit. The difference module allows also to measure a test object and reference unit having different capacitance up to a ratio of 1:3 or 3:1.

After adjustment for maximum suppression of interference, the correction factor for the partial discharge measuring circuit can be determined in an easy manner by feeding a known charge quantity in parallel to the test object.

TECHNICAL DATA:

The difference module is installed in a aluminum housing. The gang operated switches brought out on the front side of the housing provides for the coarse and fine adjustment.

CMR Damping	: > 40 db for
-Reference Capacitance CR	: 100 to 1000 pF
-Test Object Capacitance CX	: 0.3 CR £ CX £ CR
-Dimension	: 118 X 58 X 93 mm

W.S. TEST SYSTEMS LIMITED