

Blanking Device (AE)

1.Application

A main problem of partial discharge measurement is the suppression of pulses and interference, which do not originate from partial discharge of the test object and hence may affect a sensitive measurement.

The blanking device AE primarily serves to blank periodically recurrent interference pulses (originating, for instance, from thyristor control circuits) from the oscilloscope display and to eliminate their evaluation in the partial discharge meter DTM. At the same time, the power frequency test voltage can be displayed with the partial discharge pulses in an elliptical shape.

The blanking device AE is a 1/6 - 19" plug-in module (four unit of height).

2.Principle of function

2.1.Pulse blanking

Two time windows, which are adjustable with respect to their width and phase position, are synchronised by means of the power-frequency test voltage (supplied from the DSM) fed into the blanking device.

A signal being generated which serves to blank the pulses in the window and prevents an evaluation of the pulses in the display of the partial discharge meter DTM during this time.

A further signal serves to display the blanked oscilloscope section (eg by blanking of the beam in the pre-set section) when connecting the AE on the Z-input of the oscilloscope.

Ellipse display

The ellipse supplies a still picture of the 50 Hz power frequency test voltage with the superimposed partial discharge pulses. The power frequency test voltage (0-150 V rms.) is fed into the integrated PLL circuit of the blanking device AE which in turn produce, by means of an additional IC, a constant voltage that is then fed into the oscilloscope for X-deflection (refer to operating manual of oscilloscope).

Recommendation for oscilloscope

In order to be able to use the blanking device, an oscilloscope is necessary, as this is the only way to make the point of blanking visible with regard to the AC test voltage and the PD-pulses. Two ways of display are possible.

When using a 2-channel oscilloscope, on channel 1 the AC test voltage with the superimposed partial discharge pulses can be shown as usual. On channel 2 the signal for blanking (square shaped signal) can be given where both signals can be written superimposed or with a vertical distance.

Much more elegant is the display by means of an oscilloscope with z-mode input, for the duration of blanking the beam can be blanked out or intensified which clearly shows the time of blanking during the course of the signal.

TECHNICAL DATA :

DESIGN : 1/6-19" Plug-in unit with four units of height

DIMENSIONS (WXHXD) : 71 X 173 X 284 mm

POWER SUPPLY : 220 V, 50 Hz, 150 mA

AC SIGNAL SYNCHRONISATION : 30 Hz TO 300 Hz

SIGNAL INPUT : 0 - 150 V (rms)

OUTPUT : THE OUTPUT OF SIGNAL SHOWN IN OSCILLOSCOPE WITH ELLIPTICAL DISPLAY AND 2 WINDOWS WILL BE USED TO SELECTING OR BLOCKING SIGNAL ON ANY PHASE OF THE INPUT WAVE.