Data Sheet no. 1.57/1

Breakdown Detection Unit, Type BDC 1, for AC Test Systems

Application

In case of a disruptive discharge of the test object (breakdown, flashover, puncture), usually the HV source should be switched off immediately to avoid the heavy damages of insulating or electrode materials. HIGHVOLT offers two solutions for that purpose:

- *This breakdown detection unit, type BDC1*, registers the fast transients connected to the disruptive discharge and supplies a switch-off signal to the circuit breaker in the switchgear cubicle. The time to interruption is mainly determined by the parameters of the circuit breakers and reaches 20 to 100 ms.
- The *fast switch-off circuit* for AC test systems with transformers reduces the supply power remarkably by the application of a thyristor switch which decreases the impedance on the feeding side of the test transformer. By this method the interruption of the disruptive arc can be reached within about 1 ms. For details see Data Sheet 1.59.

For many applications the breakdown detection unit type BDC-1 is considered as sufficient. It is described below.

Operation

The breakdown detection unit, type BDC 1, consists of the following distributed components with the following tasks:

- **Impulse detection module, type H371,**
  Detects the fast transients of a disruptive discharge and supplies a related electric signal. It should be installed directly into the circuit of the disruptive current, this means in the grounding connection of the test object or a coupling capacitor, voltage divider or similar.
- **Electro-optic converter, type H372,**
  Converts the electric signal of the detection module into an optical one and includes a fibre optical link (15 m) to the next component on the switchgear cubicle. The converter should be arranged as near as possible to the detection module.
- **Signal receiver, type H407,**
  Converts the optic signal back to an electric one and activates a relay output for about 1 second. Power supply: 24 V DC

The relay output is as follows:
- 2 potential-free NO-contacts (rail mounting)
- 1 potential-free NO-contact (panel mounting)
- maximum 48 V DC (each)
- maximum 500 mA (each)

For further information please contact:

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