



LSG 3-E

Arc stabilizing Unit

Benefits

- ▶ Active ARM faultlocation with own impulse generation
- ▶ Prelocation with surge generator or direct for LV fault location
- ▶ Operates with all surge generators and reflectometers

Application

The arc stabilizing unit LSG 3-E provides short-term stabilization of an arc at a high resistance fault in a cable. This enables a prelocation of high resistance faults in power cables to be carried out by means of a conventional reflectometer Teleflex M in a standing arc. The arc is ignited by means of a shock discharge generator (SWG), whereby surge voltages of up to 32 kV are permissible.

One of the main advantages of the patented method incorporated in the LSG 3-E is the elimination of high impedance in the current circuit (resistance or inductance), thus enabling full use to be made of the good ignition characteristics of the shock discharge generator. This is essential in the case of long cables, those with poor transmission characteristics, or cables with faults in extremely wet conditions.

Even extremely long ignition delay times (up to 500 ms!) do not pose a problem for the LSG 3-E. The measurement of the Teleflex M is always triggered at the right point in time through a trigger pulse from the LSG 3-E.

Ignition voltages of up to 2 kV can be generated in the LSG 3-E itself by operating the key „LSG-SURGE“. Hence, when using the arc reflection method in low voltage systems, a separate shock discharge generator can be dispensed with. This also precludes that a voltage of more than 2 kV is put on the cable.

After completion of the prelocation and prior to the commencement of the acoustic pinpoint location, the LSG 3-E has to be switched off! No other switching operations are necessary. Also, other than the instruments shown in figure 1, no additional components like switches etc. are required for the execution of the arc reflection method. This goes for both test van and mobile applications.

The test method

At first, a flashover is generated at the fault by means of the shock discharge generator or with the LSG 3-E itself (ignition voltage 2 kV). Before the arc extinguishes, it is supplied with energy and stabilized by the LSG 3-E for a short time. Now, the impedance at the fault is very low, due to the physical characteristics of the arc. Correspondingly high is the reflection coefficient at the fault during the pulse reflection measurement in the standing arc. The fault is now „visible“. A comparison with the trace of the cable with the arc extinguished (or a subtraction) makes a fault location possible.



Technical Data

Application	Location of high resistance faults in high and low voltage cables
Test method	Arc reflection method
Max. voltage of the external surge generator	32 kV
Voltage of the internal surge generator	2 kV
Energy of the internal surge generator	640 Ws/2 kV
Stabilization time	approx. 20 ms
Interval	20 s
Mains supply	110 V/220 V/230 V/240 V 50 Hz/60 Hz
Power consumption	350 VA/2 sec. 100 VA „ready for switching on“ (red lamp lights)
Dimensions (L x W x H)	560 x 520 x 430 mm
Weight	47 kg

Measurement set-up/required instruments

For the application of the arc reflection method, apart from the LSG 3-E one normally requires a controllable shock discharge generator (SWG) and a reflectometer Teleflex M. The circuitry is shown in figure 1. This configuration is suitable both for installation in a cable test van as well as for mobile use.

