



The surge wave generator for prelocation and pinpointing

Special features

- High surge energy up to 3500 J
- Fast surge rate
- Voltages between 2 and 32 kV

Description

Surge wave generators (SWG) are in addition to reflectometers a central component of the cable fault location process. They are used for both prelocation and pinpointing.

Application of surge wave generators

Prelocation

For the prelocation, surge wave generators (SWG) provide the required surge voltage to cause a flashover at the fault. In connection with prelocation technologies such as ICE or passive or active ARM, the fault can be located.

With the current decoupling technology ICE, the breakdown resulting from the flashover causes a transient wave which is inductively decoupled in the SWG. The Teleflex reflectometer records the transient wave and displays the fault distance. The length of a full oscillating wave corresponds directly to the fault distance.

For arc reflection-based technologies such as the passive or active ARM, the SWG discharge generates an arc at the fault position, which makes the position become temporarily low resistive. With the Teleflex reflectometer and a passive or active ARM filter, this low resistive condition (fault trace) is recorded and compared to a previously recorded „Reference Trace“. The point where both traces split is the fault position.



Pinpointing

Since the prelocation with the Teleflex reflectometer indicates only the absolute distance to the fault, pinpointing is absolutely necessary. Moreover, the position and underground route of the cable are known only to a limited extent. Consequently, the fault position is also known only approximately.

To limit expensive excavation work and resulting surface damage to an absolute minimum, pinpointing is essential. The direct powerful discharge of the SWG produces a loud flashover sound inside the fault. This sound is then received at the surface and precisely located by an acoustic receiver such as the digiPHONE⁺, for instance.

Technical data

SWG 1750 C	
Voltages	0 ... 8, 16, 32 kV
Surge levels	3
Surge rates	2.5 ... 10 Sek, single shot
Surge energy	1750 J
Capacities	54.4; 13.6; 3.4 µF
I _{max}	210, 105, 53 mA
Dimensions W x D x H	520 x 430 x 630 mm
Weight	97 kg

SWG 1750 CD	
Voltages	0 ... 8, 16, 32 kV
Surge levels	3
Surge rates	2.5 ... 10 Sek, single shot
Surge energy	3500 J
Capacities	109; 27.2; 6.8 µF
I _{max}	210, 105, 53 mA
Dimensions W x D x H	520 x 430 x 630 mm 520 x 270 x 410 mm
Weight	97 + 30 kg

SWG 1750 C4		
Voltages	LV	0 ... 2, 4 kV
	HV	0 ... 8, 16, 32 kV
Surge levels		5
Surge Rates		2.5 ... 10 Sek, single shot
Surge energy	LV	1150 J
	HV	1750 J
Capacities	LV	566; 142 µF
	HV	54.4; 13.6; 3.4 µF
I _{max}	LV	3650, 1850 mA
	HV	210, 105, 53 mA
Dimensions B x T x H		520 x 430 x 630 mm
	2 parts	520 x 270 x 460 mm
Weight		104 + 69 kg

Scope of delivery

- » SWG 1750
- » Set of cables



Since the flashover volume and the discharge energy are directly proportional to each other, it is always important to use the maximum available surge energy. All SebaKMT SWG surge wave generators have switchable surge stages. The basic equation of the surge energy is: $W = 0,5 \times C \times U^2$

There are three versions of surge wave generators to be installed in the Variant system:

- » the **SWG 1750 C** with 0 ... 8, 16, 32 kV and 1750 J surge energy (basic version)
- » the **SWG 1750 CD** with 0 ... 8, 16, 32 kV and 3500 J (optional version)
- » the **SWG 1750 C4** with 0 ... 2, 4 kV and 1150 J and 0 ... 8, 16, 32 kV with 1750 J (optional version)