The Semi-Automatic Surgeflex Series
Portable, modular fault location systems for low and medium-voltage cables

- **High performance fault location systems**
- **0.1% accuracy**
- **Removable, battery-operated reflectometer**
- **Sophisticated ARM®-Multishot technology**
- **HV and LV prelocation in one modular unit**
- **High surge energy**
- **Multi-stage surge capacitors**

DESCRIPTION

The semi-automatic Surgeflex (SFX) series consists of portable fault location systems designed for various applications: cable testing, prelocation, fault conditioning, pinpointing, and sheath fault location.

The systems include **two modules**:

- an HV surge unit with DC testing/burning capabilities, plus selectable voltage levels up to 32 kV

- a high-performance time domain reflectometer (TDR Teleflex SX) with up to 400 MHz sampling rate

Using innovative time domain reflectometry techniques, the SFX systems reduce troubleshooting time, improve work efficiency, and guarantee quick and reliable fault location in even very long cables.

Operation
The HV surge unit is operated directly from its front panel. The Teleflex SX is operated by either the touchscreen or the JogDial, and has two operation modes: easyGO and Expert.

The **easyGO** mode is the perfect choice for inexperienced users. It suggests the next logical operating step and sets all important system parameters.

The **Expert** mode is for experienced operators. It provides free access to all parameters and enables comprehensive fault location even under difficult conditions.

The SFX systems feature various **prelocation methods** such as the ARM (Arc Reflection method), ICE (Impulse Current Equipment), Decay, IFL (Intermittent Fault Location), step potential method, and burning.

In connection with an acoustic fault pinpointer or an earth fault locator (digiPHONE+ or ESG NT recommended), **pinpointing** becomes quick and easy.

The SFX systems come in a trolley with big wheels. This provides comfortable transportation and makes them suitable for field use. All HV and LV connection **cables are included in the scope of delivery**.

TECHNICAL DATA

- **DC Testing up to 32 kV**
- **Prelocation**
  - Reflection measurement
  - ARM (Arc Reflection Measurement)
  - Decay (Voltage Decoupling)
  - ICE (Impulse Current Equipment)
  - IFL (Intermittent Fault Location)
- **Fault conditioning (burning) up to 32 kV**
- **Pinpointing**
  - Distance and acoustic measurement
  - Sheath fault location
  - Audio frequency methods (optional)
- **Tracing (optional)**

TECHNICAL DATA
HV SURGE & TEST UNIT

All units have continuously adjustable voltage.

Product*	8 kV	12 kV	16 kV	32 kV		
	SPG 8-1000	SPG 12-1100	SPG 16-2000	SPG 32-1750	SPG 32-3500	SPG 32-1750 C4
Surge steps / surge energy in every step	3 / 1000 J	3 / 1100 J	3 / 2000 J	3 / 1750 J	3 / 3500 J	1 / 1200 J (4 kV step) 3 / 1750 J
Surge voltage (kV) / Capacitance (µF)	0 … 2 / 500 0 … 4 / 125 0 … 8 / 31,2	0 … 3 / 250 0 … 6 / 62,5 0 … 12 / 15,6	0 … 4 / 250 0 … 8 / 62,5 0 … 6 / 15,6	0 … 8 / 54,4 0 … 16 / 13,6 0 … 32 / 3,4	0 … 8 / 108,8 0 … 16 / 27,2 0 … 32 / 6,8	0 … 4 / 150 0 … 8 / 54,4 0 … 16 / 13,6 0 … 32 / 6,8
Surge rate (sec)	single pulse, 2 … 6	single pulse, 3 … 10				
DC-test (kV) / I_{max} (mA)	0 … 2 / 1400 0 … 4 / 700 0 … 8 / 350	0 … 17 / 1,0	0 … 24 / 1,4	0 … 32 / 1,8		
Burning voltage (kV) / I_{max} (mA)	0 … 2 / 1400 0 … 4 / 700 0 … 8 / 350	0 … 3 / 200 0 … 6 / 100 0 … 12 / 50	0 … 4 / 200 0 … 8 / 100 0 … 16 / 50	0 … 8 / 200 0 … 16 / 100 0 … 32 / 50		
Sheath fault location (kV) / I_{max} (mA)	no	0 … 5 / 120		0 … 5 / 160		
Pulse ratio (sec)	no	1:3 – 1:10				
Prelocation (kV)	ARM & ICE: 0 … 2 / 4 / 8	ARM & ICE: 0 … 3 / 6 / 12 Decay: 0 … 17	ARM & ICE: 0 … 4 / 8 / 16 Decay: 0 … 24	ARM & ICE: 0 … 8 / 16 / 32 Decay: 0 … 32		ARM & ICE: 0 … 4 / 8 / 16 / 32 Decay: 0 … 32
Leakage current display (mA) in DC-test	no	0 … 2 0 … 0,2				
Display	analogue					
Power input (max.)	2,3 kVA	2 kVA				
Dimensions W x D x H (mm)	790 x 770 x 1185	790 x 715 x 1160			602 x 780 x 1180	602 x 690 x 1180
Weight (kg)	164	203			252	212
HV test lead	4 m	7 m				
Ground lead	5 m					
Mains lead	2.5 m					
Operating temperature	- 10 °C … + 50 °C					
Storage temperature	- 20 °C … + 60 °C					
IP class	IP 20					
Mains supply	230 V; 50 / 60 Hz (110 V optional – StepUp Trafo)					

Megger.

TECHNICAL DATA*

Teleflex SX

Distance range	20 m ... 160 km at v/2 = 80 m/µs
Pulse width	20 ns ... 10 µs
Pulse amplitude	10 ... 50 V
Resolution	0.1 m at v/2 80 m/µs
Sampling rate	Up to 400 MHz (real sampling rate)
Amplification	- 37 ... + 37 db
De-attenuation	0 ... +22 dB for ProRange (adjustable from 0 to 100%)
Transit time setting v/2	10 ... 149.9 m/µs, ft/µs or nvp
Dynamic response range	> 80 dB
Output impedance	50 Ω
Adjustment	8 Ω ... 500 Ω, adjustable
ARM trigger	Automatic adjustment with ΔU trigger
Blind spot	No
Withstand voltage	< 400 V, operation only with separation filter
Display	10.4" colour TFT XGA 1,024 x 768, capacitive touchscreen, 600 cd/m², LED backlight
Memory	4 GB mSATA for program and data
Connections	Ethernet, USB, BNC, CAN (LON optional)
Protection class	IP 65 enclosed, IP 54 open
Supply	Battery operation 4 h, 110 ... 240 V, 50/60 Hz, 30 VA, 10 V ... 17 V DC, 3,8 A
Dimensions (W x H x D)	362 x 195 x 195 mm (option 19" plug-in, 6 HE)
Weight	10 kg
Operating temperature	- 10 °C ... + 50 °C
Storage temperature	- 20 °C ... + 60 °C

SFX 8-1000

SFX 32

With state-of-the-art touchscreen technology

ORDERING INFORMATION

Product	Order no.
Surgeflex 8-1000	**SFX8-1000-P-SX-N**
Surge Unit 2/4/8 kV 1000 J incl. set of cables, trolley, ARM Unit 8 kV, TFX SX, separation transformer 2 kVA	
Surgeflex 12-1100	**SFX12-1100-P-SX-N**
Surge Unit SPG 12, 3/6/12 kV, 1100 J with ARM & ICE 12 kV, set of cables, trolley, separation transformer 2000 VA, TFX SX	
Surgeflex 16-2000	**SFX16-2000-P-SX-N**
Surge Unit SPG 16, 4/8/16 kV, 2000 J with ARM & ICE 16 kV, set of cables, trolley, separation transformer 2000 VA, TFX SX	
Surgeflex 32-1750	**SFX32-1750-P-SX-N**
Surge Unit SPG 32, 8/16/32 kV, 1750 J with ARM & ICE 32 kV, set of cables, trolley, separation transformer 2000 VA, TFX SX	
Surgeflex 32-1750 C4	**SFX32-1750-P4-SX-N**
Surge Unit SPG 32, 4/8/16/32 kV, 1750 J with ARM & ICE 32 kV, set of cables, trolley, separation transformer 2000 VA, TFX SX	
Surgeflex 32-3500	**SFX32-3500-P-SX-N**
Surge Unit SPG 32, 8/16/32 kV, 3500 J with ARM & ICE 32 kV, set of cables, trolley, separation transformer 2000 VA, TFX SX	
digiPHONE+ – Surge wave receiver	**1003316-S**
Display unit, sensor unit, telescope handle, connection lead, measuring tip 18 mm, measuring tip 75 mm, tripod, ground plate, headphones, soft carry bag with mold insert, batteries	
ESG NT – Earth fault locator	**1004629-S**
Display unit, earth spike (2 pcs), test lead red, test lead black, contact sponge (2 pcs), soft carry bag with mold insert, batteries	
digiPHONE+ NT – Surge wave receiver and earth fault locator combi-unit	**1003317-S**
Display unit, sensor unit, telescope handle, connection lead, measuring tip 18 mm, measuring tip 75 mm, tripod, ground plate, headphones, earth spike (2 pcs), test lead red, test lead black, contact sponge (2 pcs), soft carry bag with mold insert, additional bag for earth spikes, batteries	
Ferrolux System – Line locator system 10 W	**813123**
AF Generator 10 W, AF Receiver, set of cables, carry bag, charger for AF generator, batteries, headphones	
Ferrolux System – Line locator system 50 W	**813134**
AF generator 50 W, AF receiver, set of cables, carry bag, batteries, headphones	
External safety equipment	**128309600**
(Req. acc. to BGI 891 and DIN EN 50191/VDE0104)	
Emergency off button with 4 m cable	**810399**

digiPHONE+
Surge wave receiver

ESG NT
Earth fault locator

Ferrolux
Line locator

External safety unit

* We reserve the right to make technical changes.

Megger