

# **GEOLUX<sup>®</sup> GL 660-1**



**Earth Contact  
Locating System**  
for location of earth faults in  
unearthed control and signal  
systems and for fault location  
on single core airfield apron  
lighting cables.

**sebaKMT**

# GEOLUX® GL 660-1

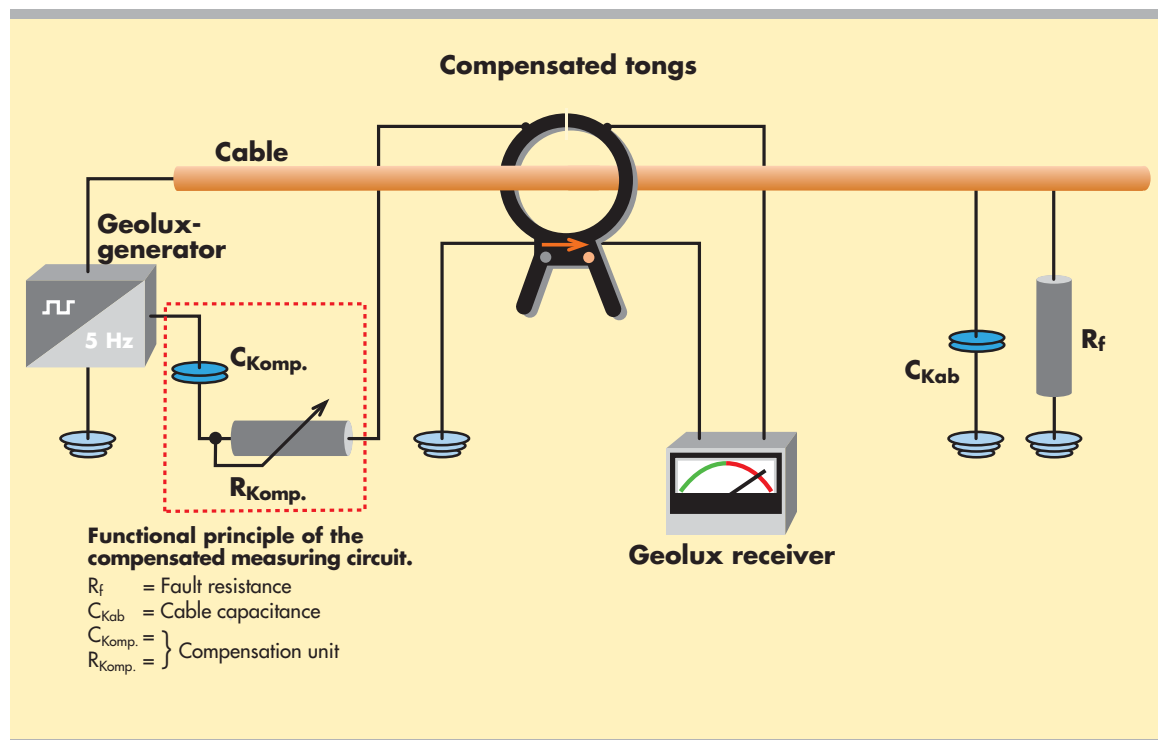
## for location of earth faults on cable systems up to 660 V and unearthed control and signal cable installations

Important control, signal and supply cable systems are monitored by so-called earth fault indicators in order to ensure uninterrupted operation. The response threshold of these indicators is largely variable. Normally, a single core earth contact does not cause any service interruption. In the event of a second earth fault however, the danger of a partial or total breakdown of the installation exists. For this reason, single core earth faults have to be located as quickly as possible. Several years ago, Seba Dynatronic developed the GEOLUX® system GL 660 specially for this application. The new GL 660-1 is a mark II version of the GL 660 permitting fault location up to fault resistances of 150 kOhms. Additionally, the new GEOLUX system features a compensation facility for measurements in cable systems with a high capacitance.

This makes the test equipment suitable for large enterprises and power plants, as well as for use in feed control and signal cable networks of the railways and public utilities. It can also be used for fault location in single phase airfield apron lighting cable networks.

When using the GEOLUX® system, a very low frequency current (5 Hz) is coupled directly to the fault conductor. The electromagnetic field of this signal current, which does not disturb the operation of the cable system, is picked up by an inductive probe leading to an exact location of the earth fault. For easier identification, the signal current can be transmitted at a certain clock rate whereby the transmission time of the generator is indicated on the receiver through a synchronizing circuit. With the help of a newly developed circuit, the cable capacitance can be compensated, making the location of faults with resistances of up to 150 kOhms possible.

The following diagram shows the principle of operation with compensation.



## Special characteristics of the GEOLUX® system:

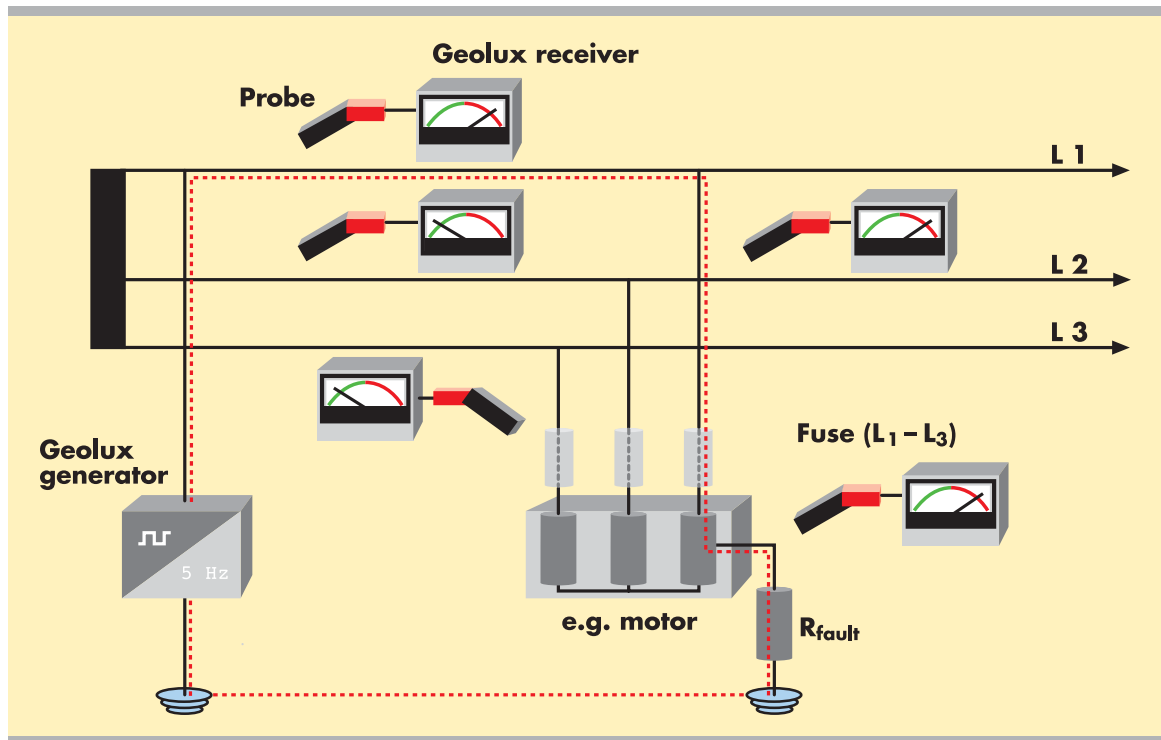
### Generator GLS 660-1:

- Low-pass filter for direct coupling to live cables up to 660 V AC and 660 V DC.
- Built-in analog voltmeter for identification of the faulty conductor.
- Pulsed output current for easier detection of the test signal.
- Synchronisation facility for synchronisation of the pulsed signal with the indication on the receiver.
- Connection facility for compensated tongs and probes.

### Receiver GLE 660-1:

- Highly selective amplifier with 10 sensitivity stages.
- Analog meter for indication of the measured value and for battery check.
- Rotary control with numerical display of the set value for compensating the capacitance of the cable installation.
- Pilot lamp for indication of the clock pulse operation mode of the generator.
- Notch filter for suppression of interference signals for the frequencies 50 Hz and  $16\frac{2}{3}$  Hz.

## Measuring principle without compensation





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## Technical data:

### 1 Receiver GLE 660-1

Amplification:	70 dB ... 100 dB	Capacitive current compensation:	Current feedback with tongs AZK 12, AZK 100 and GSK 1
Filter:	16.66 Hz notch; 50 Hz notch;		
Power supply:	8 x 1.5 V Mignon (LR 6) battery check	Max. cable capacitance that can be compensated:	50 µF
Operating time:	approx. 40 hours	Operating temperature:	-10 °C up to +50 °C
Indication (analog meter 0 ... 10):	relative fault current	Storage temperature:	-25 °C up to +70 °C
Earth fault measuring range:	with tongs: $R_{\text{fault}} \leq 150 \text{ k}\Omega$ with probe: $R_{\text{fault}} \leq 20 \text{ k}\Omega$	Max. rel. humidity:	80%
LED:	1.) Pulsed signal indication (green) 2.) Stray current too high (red)	Weight:	approx. 1.2 kg
		Dimensions:	220 x 100 x 130 mm



### 2 Transmitter GLS 660-1

Power supply:	mains 230 V, 45–60 Hz battery (rechargeable) 12 V/2.4 Ah	Charging indication:	LED (red)
Charging time:	4 hours	Operating temperature:	-10 °C up to +50 °C
Operating time at 80 V:	approx. 5 hours	Storage temperature:	-25 °C up to +70 °C
Transmitter frequency:	5 Hz +/- 0.1 Hz	Max. rel. humidity:	< 80%
Output:		Weight:	approx. 12 kg
Voltage withstand	660 V AC 660 V DC	Dimensions:	366 x 183 x 260 mm
Output voltage/ short circuit current:	range 1 10 V > 5 mA range 2 20 V > 10 mA range 3 40 V > 18 mA range 4 80 V > 34 mA (approx. 70 V > 24 mA on battery operation)	<b>Standard accessories:</b>	
Clock pulse:	5 sec. ON, 2 sec. OFF	<b>3</b> Identifications tongs	AZK 100, 100 mm
Clock pulse indication:	LED (red)	<b>4</b> High voltage lead	HSK 7-B
Analog voltage indication:	range 1000 V at 50 Hz range 100 V at 5 Hz range 1000 V at DC	<b>5</b> Connection lead	VK 50, 10 m
		Power supply lead	
		<b>6</b> Probe	GSK 1
		<b>Special accessories:</b>	
		Cable drum with connection lead	KTG 50, 50 m
		Identification tongs	AZK 12, 12 mm
		Carrying case	GLT 660
		Probe for earth cable	GS 5

Alternatively: **GEOLUX GL660-F** earth contact locating system without compensation

DIN ISO 9001

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Technical data subject to change without notice.

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