Self-monitoring
low water level limiter SMLC1

Application and function

The SMLC1 is a failsave self-monitoring low water level limiter for use with the level probe type EL 030 resp. EL 19-2 or with the multiple probe MS015-A, MS015-B and EL963-..
It was developed according to DIN EN 50156-1 and the German rule “Wasserstand 100”.
The integrated Self-Monitoring-Control System (SMC) is capable of detecting every failure in the moment of its occurrence what will result in an immediate power down of the safety contact and a subsequent burner cut-off.
The product according to PED directive 97/23/EEC annex VII (Module B+D, category IV) has the CE-mark no. 0035 of the notified body.
Applied rules as per TRD, AD2000 and “Wasserstand 100”.

Function SMLC1

The green LED **"UB"** is lit when the SMLC1 is connected to the mains and it indicates the general function of the limiter.
Two special processes of failure detection are running continuously. The first process, checking the proper behaviour of the output circuit, which is responsible for the safety contacts, is performed every 40 ms. The second process, simulating a low water level, is performed every 120 seconds and additionally indicated by the yellow LED **"TEST"** being lit. This main-test takes about 0,8 seconds.
A successful test is indicated by a short flash of the red LED **"STÖRUNG"**.
In the case of an unsuccessful test the acknowledge-flash is missing and the next main-test will performed already within the next 30 seconds. After 30 repetitions of this fast test cycle with unsuccessful results the safety contacts will be powered down and a burner cut-off will be forced.
To protect the relay’s contacts, the SMLC1 got an internal fuse (4 A/T).
Under normal conditions, only the green LED **"UB"** is lit permanently and the yellow LED **"TEST"** is lit every 120 seconds for about 0.8 seconds followed by a short flash of the red LED **"STÖRUNG"**. The safety contact is kept energised to maintain the burner protection circuit and the contact "Indication" is open.

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- Baumuster geprüft
- EG Baumuster geprüft
- Fertigung überwacht

Function SMLC1

If the limiter has either detected a failure or the probe's tip is exposed for more than one second, the LED **"STÖRUNG"** is lit and the contact "Indication" is closed. After a total adjustable delay of 4, 8, 12, 16 seconds, the relays of the safety contact are deactivated and the burner is cut-off.
The time delay is preset on 4 seconds. A circuit to keep the burner from restart is not implemented in the SMLC1 and shall be installed by the customer.

Technical basic equipment

- SMLC1 is delivered in a plastic plug-in housing for installation in control panels
- Fixation on standard rail 35 mm according to DIN EN 50022 or directly screwed to chassis plate

Technical data

Component mark	TÜV ID : 00000006173	
EG-component test	EL030; EL19-2	CE 0035-BN0104
	EL963	CE 0035-BO014
	MS015A	01 202 931-B-03-0010
	MS015B	01 202 931-B-04-0010
Power supply	230V ± 15% / 50-60 Hz	
Input	ca. 4,5 VA	
Fuse	80 mA/T	
Protection as per DIN EN 60529	IP40 [1)]	
All. ambient temperature	0-60° C	

[1)] according to the German regulations VdTÜV-Wasserstand 100, 4.90
a protection of IP54 has to be maintained in the boiler area

Max. operating data of potential free contacts		
Burner cut-off	Voltage	max. 250 Vac
	Current	max. 4 A ohmsch
		max. 0,75 A inductiv φ 0,5
Auxiliary relay	Voltage	max. 250 Vac
	Current	max. 8 A ohmsch
		max. 0,75 A inductiv φ 0,5
Electrical conductivity of the liquid	5 µs/cm ≤ æ ≤ 10.000 µS/cm	
	0,5 µs/cm ≤ æ ≤ 2.000 µS/cm	
Length of connection line	max. 100 m at 5 – 10.000 µS/cm	
	max. 30 m at 0,5 – 2.000 µS/cm