

## INSTRUCTION MANUAL

### SANITARY LEVEL SWITCH Type "FLX"



#### **APPLICATION:**

The Sanitary, Electronic Level Switch is used for level indication in all liquids with conductivity from infinite to 25  $\mu$ S. Possible applications are:

- Overfill protection of tanks/vessels
- High and low level signal in tanks
- Automatic filling and emptying control in tanks
- Registration of conductivity changes in liquids
- Foam detection

#### **LIMITATIONS:**

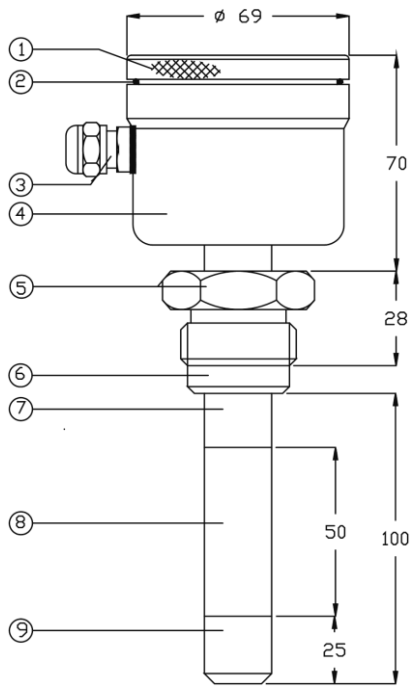
- High-viscous liquids which causes a film (coating) on the sensor.
- In case of very high concentrations of chemical vapours.

#### **DESCRIPTION:**

The FLX is based on the well proven technology of measuring the conductivity between the electrode tip and the reference part of the electrode, or tank wall. The level switch is built-into the tank/vessel so that the electrode point is flush with the level to be registered. A weak current is applied between the electrode point and the conductive tank/vessel wall. In non-conductive tanks/vessels a small current is applied between the electrode point and the reference part of the electrode.

As long as the electrode point does not touch the conductive fluid, there will be no current. When the liquid reaches the electrode a weak current is applied. The FLX is available with a PNP output, electronic module SMC-9 and a built in selector switch.

**DIMENSIONAL DRAWING:**



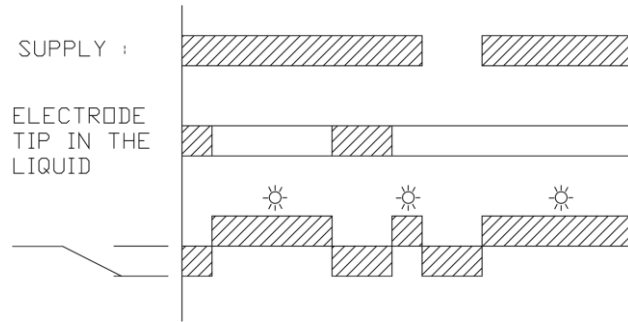
**PARTS DESCRIPTION**

1. Cover
2. O-ring
3. PG9 Cable Gland
4. Electronic Housing
5. 1" BSP Nipple, SW 41
6. Sanitary process part
7. Sensor ( $\varnothing 19$  mm)
8. Insulation part ( $\varnothing 19$  mm)
9. Sensor tip ( $\varnothing 19$  mm)

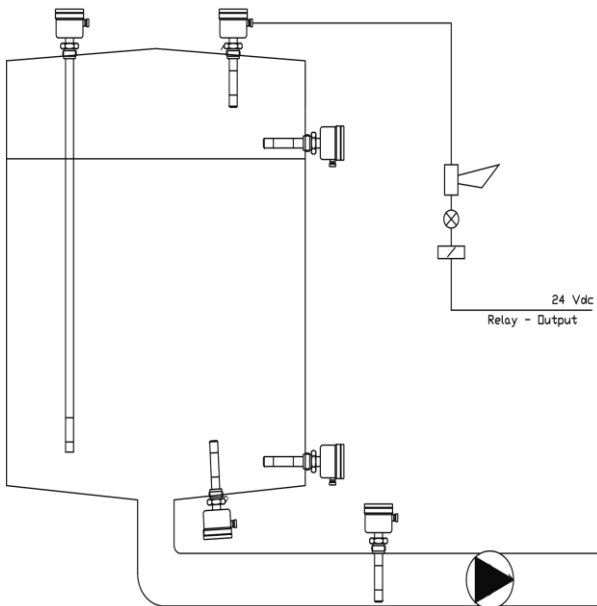
**MATERIAL**

- AISI 304
- EPDM
- AISI 304
- AISI 316
- AISI 316
- AISI 316
- PEEK
- AISI 316

**Functional Diagram:**

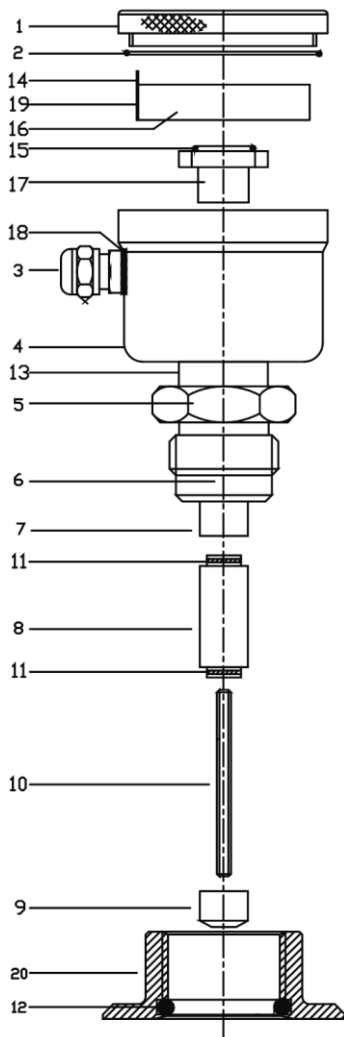


**INSTALLATION:**



**TECHNICAL DATA:**

- Sensitivity Range: Adjustable between 3 to 65 K Ohm (= 33 to 1.5  $\mu$ S)
- Hysteresis: 10% of adjusted range
- Excitation Current:  $\leq 0.4$  mA, 2 kHz
- Power Supply: 20...28 V DC
- Power Consumption: Max. 1.8 VA
- Ambient Temperature:  $+10^{\circ}\text{C}$  ...  $60^{\circ}\text{C}$
- Relay-output: Single pole change-over contact  
Max. 220 V AC, 50 VA or 300 V DC, 25 W
- Reaction time: Approximately 50 m sec
- Process Pressure: Max. 10 bar
- Process Temperature:  $-30^{\circ}\text{C}$  ....  $+90^{\circ}\text{C}$   
Up to  $130^{\circ}\text{C}$  during 15 min. (cleaning)  
Option:  $200^{\circ}\text{C}$  (on request)
- Length Electrode: Standard 100 [mm]
- Process Connection: Standard 1" BSP  
(other connections on request)



**PARTS DESCRIPTION**

**PART No.**

1. Cover	10241
2. O-ring	11029
3. PG9 Cable Gland	10138
4. Electronic Housing	10234
5. 1" BSP Nipple, SW 41	10272
6. Sanitary process part	10243
7. Sensor (Ø19 mm)	10235
8. Insulation part (Ø19 mm)	20040
9. Sensor tip (Ø19 mm)	10239
10. Treaded Joint	10249
11. O-ring (2x)	11041
12. O-ring	11043
13. Connecting Piece	10244
14. Earth Connection	10251
15. O-ring	11042
16. Electronics	192
17. Nut of Synthetic material	20037
18. Seal	20025
19. Type sticker	20523
20. Weld-on nipple (1" BSP)	10197

## CONTROL UNIT – SMC-9

### TECHNICAL DATA

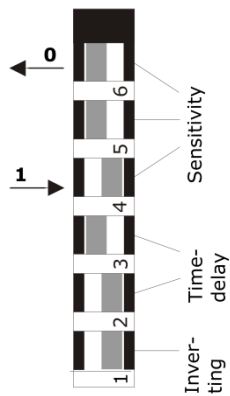
Design	Ø 44.50mm
Operating Voltage	24V(DC)+-20% (18V...30V)
Power Requirements	<30mA
	-10°C till +70°C
Storage temperature	-20°C till +85°C
Humidity	0 till 90% (without condensation)
Inputs	1 Electrode
Sensitivity	0,2KOhm; 10KOhm; 9,9KOhm...999KOhm arbitrary
Output	1x Electronic output; 30mA ; PNP invertible short-circuit-proof
Time-delay	0,0 up to 99,9sec ; arbitrary
Start-delay	<0,3s
Response-time	<0,07s (10KOhm) <0,15s (1MOhm)



### CONFIGURATION

Switch				
6	5	4	ON	OFF
0	0	0	Adjustable by SMCsoft (Default 2KOhm)	
0	0	1	3KOhm	2.5KOhm
0	1	0	5KOhm	4.5KOhm
0	1	1	6KOhm	5.5KOhm
1	0	0	8KOhm	7.5KOhm
1	0	1	100KOhm	70KOhm
1	1	0	250KOhm	220KOhm
1	1	1	500KOhm	470KOhm

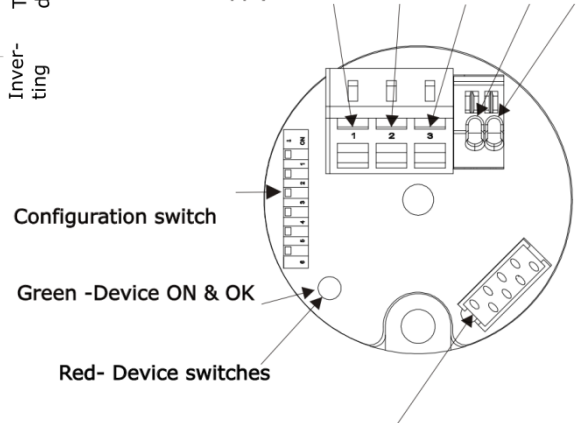
Configuration-Switch



### DELAYS

Switch	Delay in sec.
3 2	
0 0	(0 sec) adjustable via SMCsoft
0 1	2 sec
1 0	4 sec
1 1	8 sec

Supply 24VDC GND OUT GND IN



Programming connector

**!Caution!**

The lug of the programming connector points to the fastening screw.

### !Caution!

When installing or using the device it must be protected from electrostatic discharge. An incorrect installation or parameters which are adjusted incorrectly can interfere with the correct function of your application or can cause damages. Therefore independent safety equipment should be available at any time. Adjustments must only be conducted by qualified personnel. All necessary adjustments are to be made by the configuration switches or the SMC software. If there are difficulties during the start-up, please do not manipulate the device in any incorrect way. Otherwise the warranty expires. If the dewpoint is reached, condensation may destroy the module.

Manufactured by

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