

Limit Switch

Manual

SMW

SMW-S / SMW-P / SMW-H

SMW-I



Automatisierungstechnik

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Installation-Notes



In the choice of the conductive material, the installation, the fuse protection and the connection of the device, the relevant technical regulations or the appropriate country-specific regulations are to be observed. The electrical connection may only be made by qualified personnel.

- Protect the device during the installation and operation from electrostatic discharge.
- The device is not suitable for the installation in explosion-prone areas.
- The device must be installed with a provided process adapter sleeve.
- The connected load circuit must be protected to the maximum output current to prevent a defect in the output in case of a short circuit. No more loads. Do not connect any additional loads to the terminals for the power supply of the device.
- Disconnect the device two-pole when live parts can be contacted at work.
- The supply is not electrically isolated from the sensor ground.
- An incorrect installation as well as incorrectly set parameters of the device can affect the application in its proper function or lead to damages. Therefore independent safety device should always be available. Settings must be performed only by qualified personnel.

- During external cleaning with high-pressure cleaners do not direct the diffuser spray directly to the electrical connection.

The DIN-61000-4-Part 5: Surge is not completely met because of the product geometry, so we recommend an additional protective element (e.g. varistor) with connecting cables larger than 10 meters or the supply through a protective 24V/DC switching power supply.

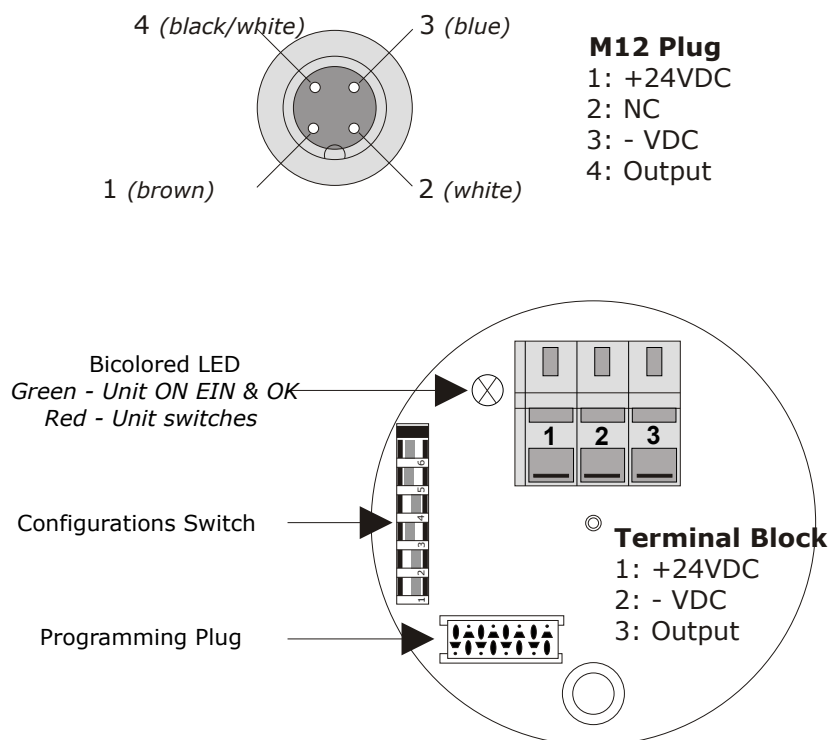
Please note when using our welding sleeves the instructions in the data sheet "process adaptation + Accessories".

Commissioning

Note:

The output voltage is proportional to the input voltage!

Example: At a supply voltage of 20VDC, the output signal has a voltage of <20VDC. It should be noted that the output can only switch the positive side of the supply voltage (max. 50 mA). To switch a load to ground is not possible!



*(**SMW-PA-M12 + ST-M12-MM**)
Art.Nr. S1061-00042 + S1061-00043

Setting Options

The switching behavior of the sensor can be defined via the configuration switch. It is possible to set the logic, a time delay and the switching thresholds. There is also the possibility to connect the sensor to a PC-software by means of which the readings of the process can be followed “online”. This has the advantage that the switching thresholds can be adapted to the respective process conditions individually.

Switch 1

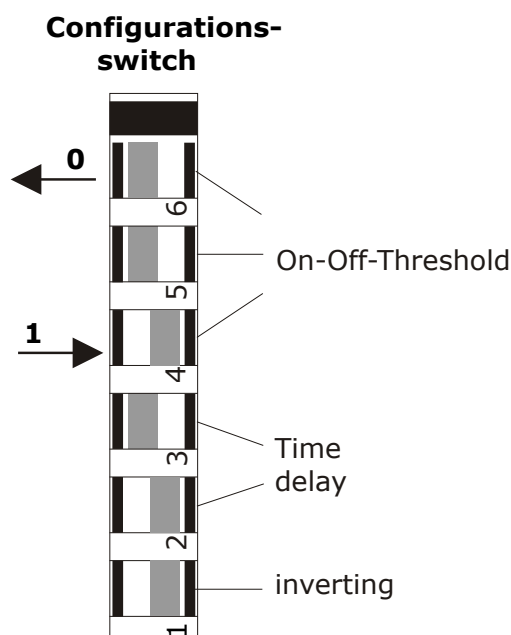
Position 0: level indicator, output is activated if sensor tip is covered with a medium.

Position 1: empty detector, output is activated if the sensor tip is not covered with a medium (inverted behavior).

Switch 2-3

As indicated in the table “delays” a switch on and off delay of the output signal (both times are identical) can be set. The delay can be ideally used if the sensor tip is not continuously covered with the medium (debouncing).

Example: 4 sec: The output responds only 4 seconds after change in the coverage of the sensor tip. Turbulent water surfaces in tanks can thus be suppressed.



Setting Options

Switch 4-6

By the on and off thresholds the sensor can be adjusted to the respective medium accordingly. The percentage of the measured value is dimensionless. The switch position "4, 5 and 6 = ON" allows the parameterization of a user-specific switching threshold using the PC software.

With the input and output thresholds a hysteresis can be defined whereby safe switching operations can be achieved e.g. with foaming media.

Note: The measured value differs depending on the temperature and the production process of the medium. Thresholds should be therefore provided with tolerances.

Technical Data

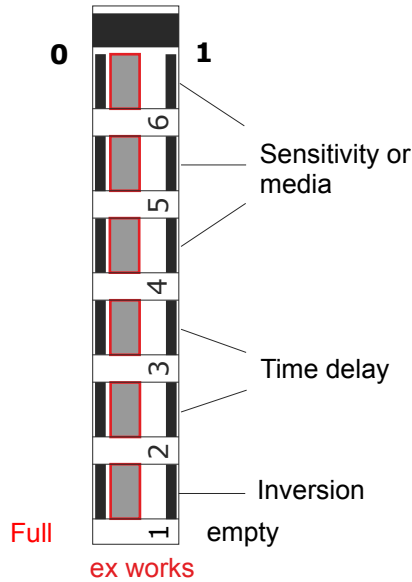
Sensitivity adjustment of various media

Switch			Turn on/off values	
6	5	4	On in0%	Off
0	0	0	86	84
0	0	1	97	96
0	1	0	72	70
0	1	1	60	58
1	0	0	50	48
1	0	1	11	9
1	1	0	5	4
1	1	1	configurable via PC and programming interface (optional)	

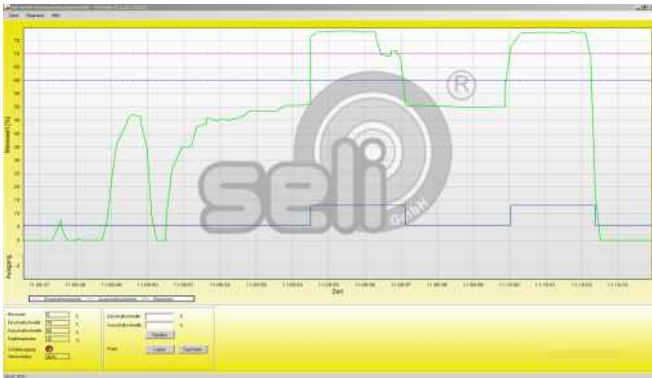
Delay

Switch		Delay in sec
3	2	
0	0	0 sec
0	1	2 sec
1	0	4 sec
1	1	8 sec

Configuration switch



Visualisation via PC-USB interface with software for reading and parameterization of the SMW



ATTENTION!

At lower deviation of dew points water condensation is possible, that can destroy the sensor. At stress with change of temperatures, e. G. a cold water jet on the hot sensor, it can come to absorption of fluids in to the sensor. (Requirements cf. DIN EN 60068-2-14)

At applications with dew point, temperature shock or thermal shock stresses we recommend a part or better to full grouting.

The tightness classification after IP68 does not mean that these parts are suitable! for applications with lower deviation of dew point or temperature shock. (DIN 60068-2-14)

Technical Data

Structure and mode of action

The limit switch SMW is a micro-processor unit with an integrated interface. With this interface it's possible to adjust the sensitivity of the unit to the particular device. Adherence and passing-off characteristics of medias, are visualizable with the software. Process images are visible and adjustable. Turn on and turn off points and first of all the thereby severed adjustment of hysteresis to each other are operative characteristics for the regulation in the process.

The adjusted value is reproducible by taking additional measures, e.g. a dynamic temperature compensation. A further essential advantage to optimize the current processes is the ability to document and to watch processes during a longer period.

The measuring will be made by contact the smw with the medium. This happens by coupling a high frequency alternating field.

This will be brought in to the process by a peek pipe end which is isolated to the process

By those dielectric characteristic of the medium (DK-Wert / ϵ^r), the coupled alternating field changes. This leads to a change in the evaluation of the sensor, and thus to the desired registration of the medium by switching an output.

The integration of the equipment into the process is made by welding sleeves or modular process adaptation.

Notice

Suitable for media (in the appropriate configuration) with $\epsilon^r > 2$, so also chocolate, honey, vegetable oil etc and all watery media.

At sour and watery media faulty measurements are possible because of adhesions or film formations.

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