

SP-GA liquid flow switch

Manual



Function

The SP-GA liquid flow switch SP-GA is designed for controlling and monitoring fluid flows. The function is based solely on the flow of the liquid and is not affected by the system's static pressure; however, the system should have a basic pressure in excess of 1 bar.

The switch is customised for applications where alarms for low flows are required while large flows can pass through without any increased fall in pressure. The switch has a variable through-flow area that increases as the flow increases.

The through-flowing liquid lifts a membrane. The shaft on which the membrane is mounted is mechanically connected to a lever that moves a built-in micro-switch. The contact changes position at the alarm point, which, upon request is factory-set to any flow from 3 l/min to 70 l/min.

If, for example, the switch is used to start a high-pressure pump or to open a valve, the flow may be allowed to increase significantly across the alarm point since the flap in which the membrane is enclosed is lifted higher and the through-flow area then increases even more. There is almost free flow once the flap is opened. It is subsequently mounted in the incoming line before the pump, and we recommend that a check valve be installed after the pump in order to provide protection against any pressure surges. Conversely, the switch can be installed in a flow system to e.g. provide protection against the dry running of a pump. Normally, at high flows, the fall in pressure across the flow monitor is negligible. Nevertheless, the low flow alarm can be set to as low as 3 l/min since the through-flow area continues to decrease as the flow decreases and the flap with the membrane moves downwards.

Those parts that come into contact with the liquid are manufactured in dezincification-resistant brass and stainless steel.

Synthetic rubber membrane and gaskets.

SP-GA designs

In the standard design, the SP-GA, DN40 model has a 1 ½" female connection. Optionally, the flow monitor can be supplied with bushings for DN32 1 ¼" or DN25 1" connections.

The SP-GA has a built-in micro-switch with an alternating contact function.

A straight through-flow allows for installation in both horizontal and vertical pipelines.

SP-GA installation instructions

- Refer to the type plate and check that the desired alarm point in l/min and the liquid (e.g. water or oil) are correct.
- Check that the amperage does not exceed the maximum load according to the switch contact specifications.

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- Make sure that the arrow on the flow monitor housing is pointing in the direction of the flow.
- Make sure not to exceed the maximum operating pressure of 25 bar.
- Make sure the liquid temperature does not fall below the minimum temperature or exceed the maximum temperature: $-20\text{ }^{\circ}\text{C}$ to $+90\text{ }^{\circ}\text{C}$ (optional $+120\text{ }^{\circ}\text{C}$)
- The switch can be mounted in any position. Given that condensation can occur in the electrical junction box, care should be taken to mount the switch so that any condensate is diverted through the drainage holes in the junction box.
- If there is a risk of freezing, the outlet side connection should point downwards in order to allow for drainage.
- The electrical wires are inserted through the compression gland and connected to a 3-pole terminal in the junction box. Make sure that the circuit-breaking capacity of the switch is not exceeded. Earth connection in the plate.
- No straight sections are required upstream or downstream.
- Install a dirt filter at the front if there is a risk of clogging.
- Remove the plug on the goods during on-site adjustment of the signal point (see picture under “Dimensions and weight” at the end of this manual). There is an adjusting screw inside the plug. It is not graduated and we recommend that you make small adjustments, e.g. one $1/4$ of a turn at a time. Turn anti-clockwise to decrease and clockwise to increase. Leakage may occur if there is excessive unscrewing.

SP-GA specifications

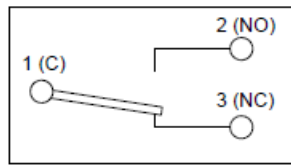
Flow range:	0 – 300 l/min. Max. flow limited by pump capacity and acceptable pressure drop.
Alarm point:	Min. 3 l/min, max. 70 l/min. Unless otherwise stated, SP-GA is delivered set at 3 l/min, descending flow.
Connections:	1 ½” BSP female, can be reduced to 1 ¼” and 1”.
Pressure:	Min 1 bar, Max 25 bar
Max. fluid temperature:	90 °C (optional 120 °C)
Min. liquid temperature:	$-20\text{ }^{\circ}\text{C}$
Protection class:	IP 43 (NEMA 3R) with M16 GR cable gland included.
Wetted materials:	Dezincification-resistant brass and stainless steel 316. Nitrile (HNBR)/EPDM seals Optional: FPM (Viton)
Enclosure material:	Polycarbonate (Lexan®)
Micro-switch:	SPDT, 1-pole 2-way connector. In the standard design, the contact surfaces are silver-plated. Max. load 250 V/8 A Nominal, 250 V/10 A Thermal.
Hysteresis:	+/- 10%
Pressure drop:	Approx. 0.075 bar/3 l/min

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Electrical data

SP-GA switch

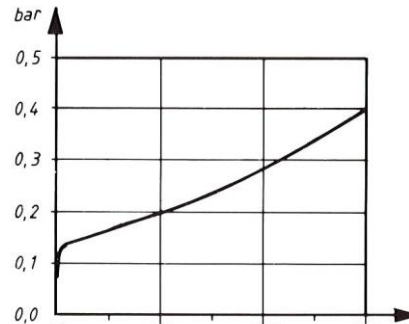
Contact function 1-pole, 2-way



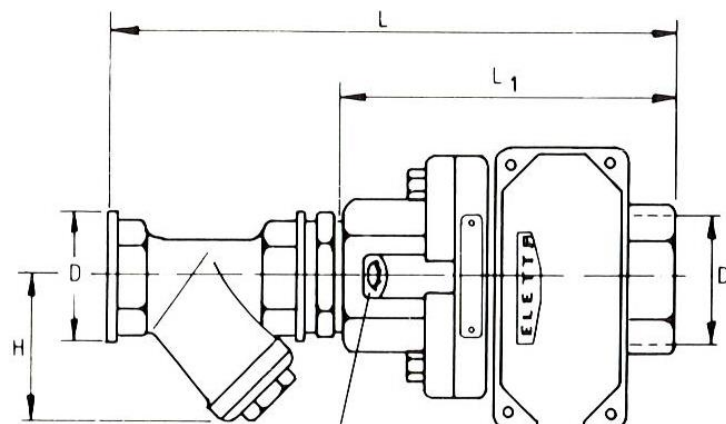
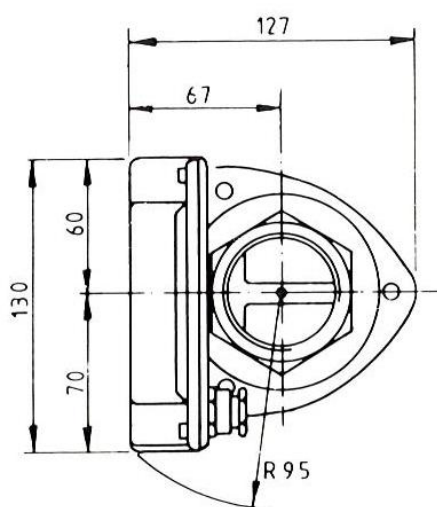
1: Black
2: Blue
3: Brown

Pressure drop

Approximate pressure drop at different flow rates.



Dimensions and weight



Dirt filters are not included.

Adjustment screw for the function point inside this plug.

Weight: 3.2 kg

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