NENUTEC®

INNOVATIVE MEMBER OF SWISSTEC

SF – liquid flow switches

liquid flow switches for applications in pipelines of industrial plants





The appearance of the product may differ from the illustration. Technical specifications are subject to change.

SF SERIES

APPLICATION

Flow control of aggressive media, water and standard media (depending on model).

Alarm signal for flow shortage (safety switch).

Available in brass, suitable for normal media, and in stainless steel AISI316L, suitable for sea water and aggressive media.

APPLICATIONS

Well-suited in pipes of general industrial plants:

- heating and air conditioning systems,
- refrigeration systems,
- sprinkler or fire protection systems,
- heat pumps,
- devices for oil monitoring,
- lubrication circuits.

Type	PIPE Ø	Max. pressure [bar]	STANDARD MEDIA (body in brass)	AGRESSIVE MEDIA (body in stainless steel AISI 316L)	Body with pipe fitting "T"	Protection class	Flow rate
SF1K	1…8"	11	•			IP65	1
SF1E*	1…8"	11	•			IP65	1
SF1RE	1…8"	11	•			IP65	2
SF2E**	1…8"	30		•		IP65	1
SF2RE	1…8"	30		•		IP65	2
SF3E	1/2"	11	•		•	IP65	3
SF4E	3/4"	11	•		•	IP65	3
SF6E	1"	11	•		•	IP65	3

Accesories DBZ-09 – Stainless steel AISI 316L paddles for liquid flow switch

NPT 1" NPT connector

* models with TÜV approval

** models with TÜV approval

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Technical specifications

Contacts:	dust-tight microswitch with SPDT contacts (n.c./n.o.)
Switch capacity:	15 (8) A, 24...250 V_{AC}
Working conditions:	-40...+85°C
	10...90% rH (non condensing)
Max liquid temperature:	-40...+120 °C
Max pressure:	11 bar (SF2: 30 bar)
Connection:	see flow rate schedule
Body:	see schedule above
Paddles:	stainless steel AISI 316L
Housing:	base in ABS, PC transparent cover
Protection:	IP65, class 1
Dimensions:	140x62x65 mm
Weight:	950 g

① WATER FLOW RATE SF1K/SF1E/SF2E

Pipe connector	Recommended flow Q_{max} [m^3/h]	Min. cut-off (cut-in) set point [m^3/h]	Max. cut-off (cut-in) set point [m^3/h]
1"	3.6	0.6 (1.0)	2.0 (2.1)
1 1/4"	6.0	0.8 (1.3)	2.8 (3.0)
1 1/2"	9.0	1.1 (1.7)	3.7 (4.0)
2"	15.0	2.2 (3.1)	5.7 (6.1)
2 1/2"	24.0	2.7 (4.0)	6.5 (7.0)
3"	36.0	4.3 (6.2)	10.7 (11.4)
4"	60.0	11.4 (14.7)	27.7 (29.0)
4" Z	60.0	6.1 (8.0)	17.3 (18.4)
5"	94.0	22.9 (28.4)	53.3 (55.6)
5" Z	94.0	9.3 (12.9)	25.2 (26.8)
6"	120.0	35.9 (43.1)	81.7 (85.1)
6" Z	120.0	12.3 (16.8)	30.6 (32.7)
8"	240.0	72.6 (85.1)	165.7 (172.5)
8" Z	240.0	38.6 (46.5)	90.8 (94.2)

② WATER FLOW RATE SF1RE/SF2RE

Pipe connector	Min. cut- for off (cut-in) set point [m^3/h]	Max. cut- for off (cut-in) set point [m^3/h]
1"	0.2 (0.6)	1.0 (1.1)
1 1/4"	0.25 (0.9)	1.4 (1.6)
1 1/2"	0.5 (1.2)	1.6 (2.2)
2"	0.9 (2.3)	3.6 (4.1)
2 1/2"	1.2 (3.1)	4.9 (5.5)
3"	2.1 (4.9)	7.4 (8.2)
4"	4.9 (11.3)	17.1 (19.1)
4" Z	3.3 (7.7)	11.6 (13.0)
5"	9.7 (22.4)	34.0 (37.9)
5" Z	5.0 (11.5)	17.5 (19.6)
6"	13.6 (31.5)	47.6 (53.2)
6" Z	6.1 (14.1)	21.4 (23.9)
8"	25.7 (59.6)	90.1 (100.7)
8" Z	21.7 (36.5)	55.3 (61.8)

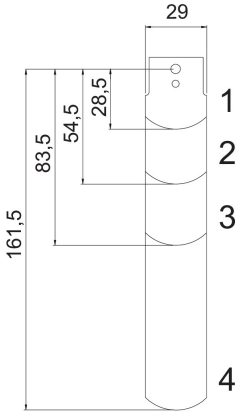
For models with suffix "Z" the longest paddle must be used to obtain the values indicated on the table.
Pressure drop at the maximum flow (Qmax): 0.08 bar

③ FLOW RATE WITH „T" PIPE FITTING SF3E /4E /6E

DBSF-	Diameter of pipe connector with „T" pipe fitting	Min. cut- for off (cut-in) set point [m^3/h]	Max. cut- for off (cut-in) set point [m^3/h]
3E	1/2"	0.174 (0.48)	0.846 (0.948)
4E	3/4"	0.138 (0.408)	0.768 (0.858)
6E	1"	0.2 (0.6)	1.0 (1.1)

The "T" connectors have cylindrical GAS thread.

Paddles (models without "T" pipe fitting)



PIPE	PADDLES
1"	1
1 1/4"	1
1 1/2"	1
2"	1.2
2 1/2"	1.2
3"	1,2,3
4"	1,2,3
4" Z	1,2,3,4
5"	1,2,3
5" Z	1,2,3,4
6"	1,2,3
6" Z	1,2,3,4
8"	1,2,3
8" Z	1,2,3,4

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ELECTRICAL WIRING

Diagram during flow presence.

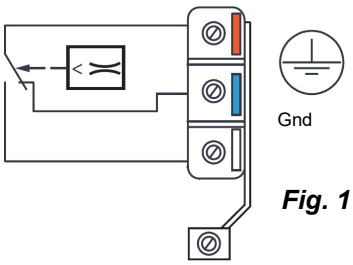
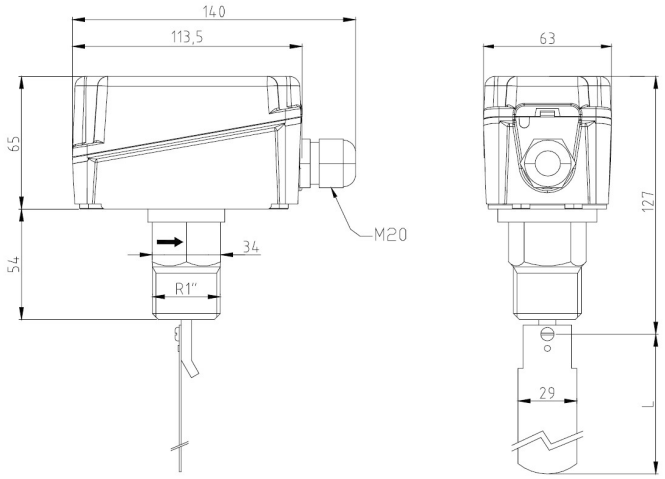


Fig. 1

Adjustment screw for flowrate

Connect the red and the white contacts of the microswitch (fig. 1). The contact red-white opens when the flow drops below the set level. When the flow is missing the contact red-blue closes and can be used as a signal or alarm contact.

DIMENSIONS [mm]



INSTALLATION

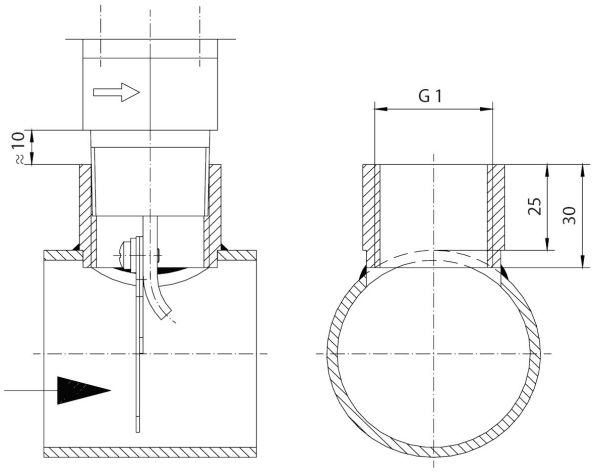
The flow switch can installed in every position far from elbows or throttlings, with arrow on flow direction. If pipe is vertical, recalibrate range to balance paddle weight. If the device is downwards mounted take care to slags, and apply it in a straight pipe far from filters, valves, etc with length at least 5 times the diameter of pipe upstream and downstream the unit.

REMARK

The flowswitch is factory calibrated at its min. sensitivity. To increase the set value turn clockwise the adjustment screw. The cut-out value must be > the minimum flow necessary to guarantee the protection of the plant. The units without "T" fittings are supplied with 4 paddles, which must be cut off according to the pipe. All devices can be supplied with "T" connection on request as schedule indications.

NOTE!

If flowswitch is used as a minimum flow controller, it is necessary to add another device downstream for alarm condition activation.



Due to continuous product improvement, specifications are subject to change without notice.

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