

Liquid Flow Switches

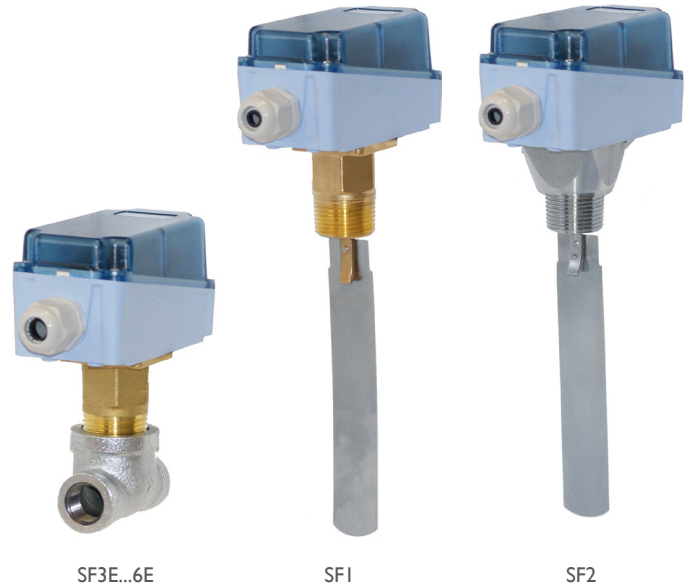
Function

Flow control of aggressive media, water and normal media (depending on model).
Alarm signal of 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 anti-fire systems;
- heat pumps;
- devices for oil monitoring;
- lubrication circuits.



Type	Pipe Ø	Max pressure Bar	Normal media (body in brass)	Aggressive media (body in stainless steel AISI 316L)	Body with pipe fitting "T"	Protection	Flow rate
SF1K/RL	1...8"	11	•			IP65	1
SF1E/RL*	1...8"	11	•			IP65	1
SF1RE/RL	1...8"	11	•			IP65	2
SF2E/RL**	1...8"	30		•		IP65	1
SF2RE/RL	1...8"	30		•		IP65	2
SF3E/RL	1/2"	11	•		•	IP65	3
SF4E/RL	3/4"	11	•		•	IP65	3
SF6E/RL	1"	11	•		•	IP65	3
Accessories	DBZ-09 - Stainless steel Aisi 316L paddles for liquid flow switch						

NPT 1" NPT connector

* models with TÜV approval

** models with TÜV approval

Technical features

Contacts:	dust-tight microswitch with switching contacts (n.c./n.o.)	
Switch capacity:	15 (8) A, 24...250 Vac	
Working:	-40...+85 °C	10...90% r.h. (without condensing)
Max temperature	-40...+120 °C	
Max pressure:	11 bar (SF2: 30 bar)	
Fitting:	see flow rate schedule	
Body:	see schedule above	
Paddles:	stainless steel INOX AISI 316L	
Housing:	Base in ABS, transparent PC cover	
Storage:	-40...+85 °C	< 95% r.h.
Protection:	IP65, class I	
Size:	140 x 62 x 65 mm	
Weight:	950 g	

Installation

The flowswitch can be 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 slugs, 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.

Wiring diagram

Diagram during flow presence.

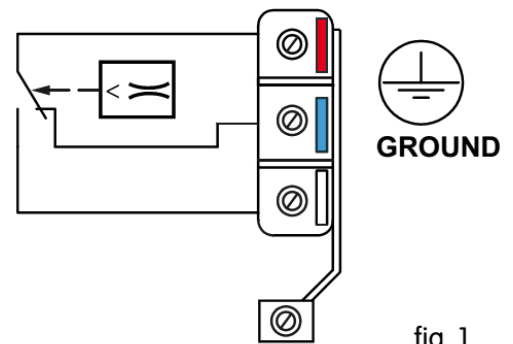


fig. 1

Connect to red and to 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.

Note

The flowswitch is factory calibrated at its min. sensitivity.

To increase the set value turn clockwise the adjustment screw.

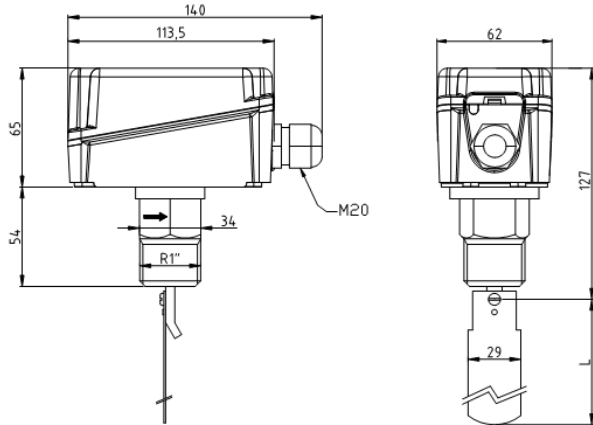
The cut-out value must be >- the minimum flow necessary to guarantee the protection of the plant. The units without "T" fittings are supplied with 4 paddles, which must be cut off according to the pipe.

All devices can be supplied with "T" connection on request as schedule indications.

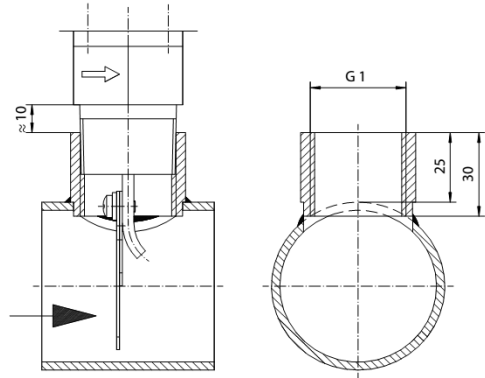
Attention

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

Dimensions (mm)



Mounting instructions



1- H₂O Flow rate SF1K/SF1E/SF2E

Pipe connector Ø	Q _{max} . m ³ /h recommended	Min. adjustment m ³ /h cut-off (cut-in)	Max. adjustment m ³ /h cut-off (cut-in)
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- H₂O Flow rate SF1RE/SF2RE

Pipe connector Ø	Min. adjustment m ³ /h cut-off (cut-in)	Max. adjustment m ³ /h cut-off (cut-in)
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)

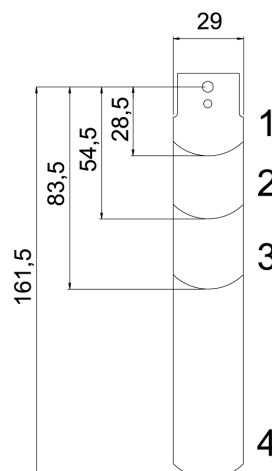
For models with suffix "Z" the longest paddle must be used to obtain the values indicated on the table. Pressure drop at the maximum flow (Q_{max}): 0,08 bar

3- Flow rate with "T" pipe fitting SF3E /4E /6E

SF-	Pipe connector with "T" pipe fitting Ø	Min. adjustment m ³ /h cut-off (cut-in)	Max. adjustment m ³ /h cut-off (cut-in)
SF3E/RL	1/2"	0,174 (0,48)	0,846 (0,948)
SF4E/RL	3/4"	0,138 (0,408)	0,768 (0,858)
SF6E/RL	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