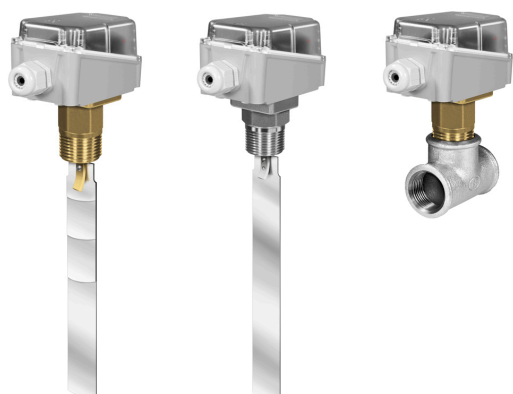


SF

LIQUID FLOW SWITCHES



- heating and air conditioning systems
- refrigeration systems
- heat pumps

Function

Flow control of water and aggressive media (depending on model). Alarm signal of flow shortage. Available in brass, suitable for normal media, and in stainless steel AISI316L for aggressive media.

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.

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Technical data

Contacts	dust-tight microswitch with switching contacts SPDT
Switch capacity	15 (8) A, 24...250 Vac
Working	-40...+85 °C 10...90% r.h. (without condensing)
Max liquid temperature	-40...+120 °C
Max pressure	11 bar (SF2: 30 bar)
Flow rate	see flow rate schedule 1-2-3
Connection	standard R1" (DIN 2999) for series SF1 and SF2
Body	see the following schedule
Paddles	stainless steel 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	680 g (stainless steel version: 900 g)

H₂O FLOW RATE SF1K/SF1E/SF2E

Table 1

Pipe connector	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	6,1(8,0)	17,3(18,4)
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)

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

Note: the value indicated on schedule have been measured with the flow switch mounted on horizontal position.

H₂O FLOW RATE SF1RE/SF2RE

Table 2

Pipe connector	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 (19,6)
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
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)

Note: the value indicated on schedule have been measured with the flow switch mounted on horizontal position.

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

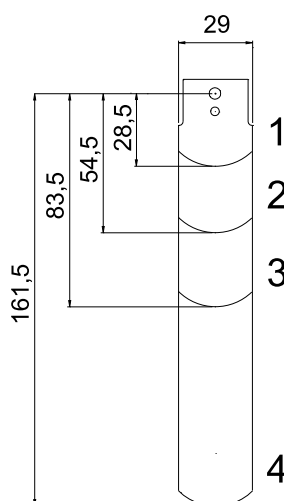
Table 3

SF-	Pipe connector with "T" pipe fitting	Min. adjustment m ³ /h cut-off (cut-in)	Max. adjustment m ³ /h cut-off (cut-in)
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.

Note: the value indicated on schedule have been measured with the flow switch mounted on horizontal position.

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



This product carries the CE-mark. More information is available at www.industrietechnik.it.

Models

TYPE	PIPE	MAX PRESSURE bar	NORMAL MEDIA (body in brass)	AGGRESSIVE MEDIA (body in stainless steel AISI 316L)	BODY WITH PIPE FITTING	PROTECTION	TABLE NUMBER
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

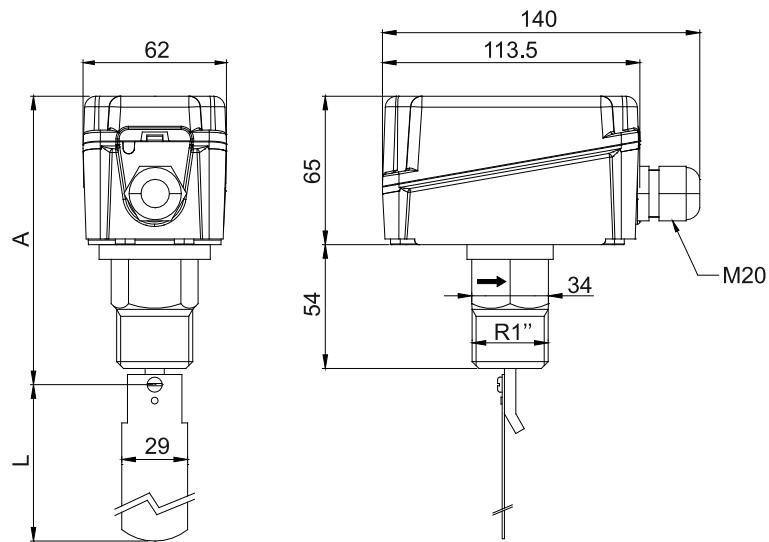
* models with TÜV approval

Accessory

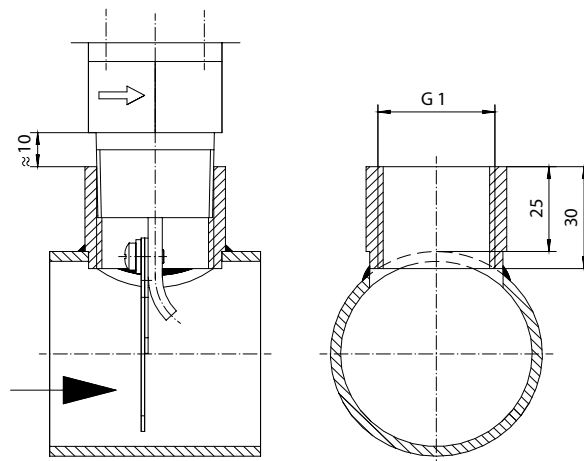
Article	Description
DBZ-09	Stainless steel AISI 316L for a kit of 4 paddles and scrow for liquid flow switch

Dimensions

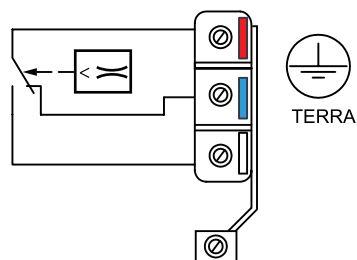
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Mounting instruction



Wiring



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.

Documentation

All documentation can be downloaded from www.industrietechnik.it.

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SF

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