Liquid Flow Switch

SF

FUNCTION

Alarm signal of flow shortage. Made in brass, suitable for normal media.

APPLICATIONS

Well-suited in pipes of general industrial plants:

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

MODEL	PIPE Ø	MAX. PRESSURE PSI (bar)	NORMAL MEDIA (body)	PROTECTION	FLOW RATE
SF1K-US	1...8"	159.5 (11)	Brass	IP65	See Table

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

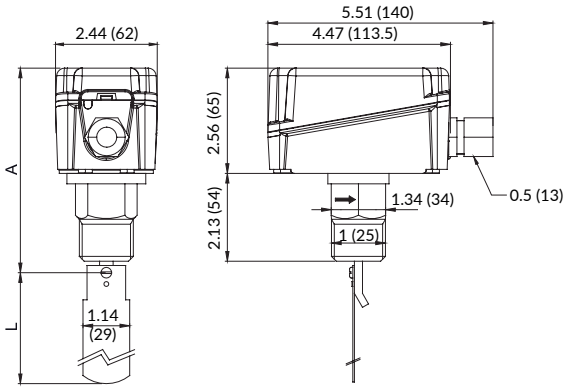
Note: The flow switch is supplied with paddles model DBZ-09.

TECHNICAL DATA

Contacts:	Dust-tight microswitch with SPDT contacts (NC/NO)
Switch capacity:	15 (8) A, 24...250 VAC
Working:	-4°F to 149°F (-20°C to 65°C) 10...90% RH (non-condensing)
Contact to fluid:	104°F to 185°F (40°C to 85°C)
Max liquid temperature:	-40°F to 248°F (-40°C to 120°C)
Max pressure:	159.5 PSI (11 bar)
Flow rate:	See Flow Rate Table
Pipe fitting:	1" NPT
Conduit connection:	1/2" NPT
Body:	Brass
Paddles:	Stainless steel AISI 316L
Housing:	Base in ABS, transparent PC cover
Storage:	-40°F to 185°F (-40°C to 85°C) < 95% RH
Protection:	IP65, Class I
Size:	5.51 x 2.44 x 2.56 in (140 x 62 x 65 mm)
Weight:	2.1 lbs (0.95 kg)

DIMENSIONS

in (mm)



ORDERING INFORMATION

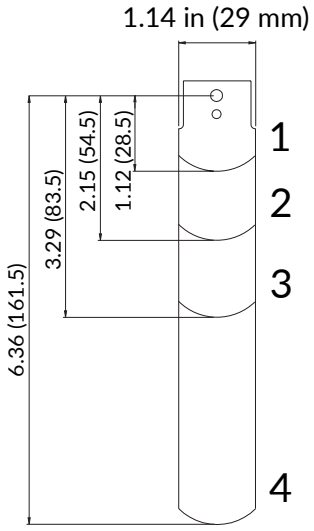
PART NUMBER	DESCRIPTION
SF1K-US	Liquid flow switch, for use in 1 to 8 inch pipe, SPDT, 15 (8), 24..250 VAC contact rating, -4°F to 149°F / 10 to 90% RH non-condensing operating, includes DBZ-09 paddles, 1" NPT pipe fitting, 1/2" conduit connection, IP65

H2O FLOW RATE SF1K					
Pipe Connector Ø	Qmax GPM (m³/h) Recommended	Min. Adjustment GPM (m³/h)		Max. Adjustment GPM (m³/h)	
		Cut-Off	Cut-In	Cut-Off	Cut-In
1"	15.9 (3.6)	2.6 (0.6)	4.4 (1.0)	8.8 (2.0)	9.2 (2.1)
1 1/4"	26.4 (6.0)	3.5 (0.8)	5.7 (1.3)	12.3 (2.8)	13.2 (3.0)
1 1/2"	39.6 (9.0)	4.8 (1.1)	7.5 (1.7)	16.3 (3.7)	17.6 (4.0)
2"	66.0 (15.0)	9.7 (2.2)	13.6 (3.1)	25.1 (5.7)	26.9 (6.1)
2 1/2"	105.7 (24.0)	11.9 (2.7)	17.6 (4.0)	28.6 (6.5)	30.8 (7.0)
3"	158.5 (36.0)	18.9 (4.3)	27.3 (6.2)	47.1 (10.7)	50.2 (11.4)
4"	264.2 (60.0)	50.2 (11.4)	64.7 (14.7)	122.0 (27.7)	127.7 (29.0)
4" Z	264.2 (60.0)	26.9 (6.1)	35.2 (8.0)	76.2 (17.3)	81.0 (18.4)
5"	413.9 (94.0)	100.8 (22.9)	125.0 (28.4)	234.7 (53.3)	244.8 (55.6)
5"Z	413.9 (94.0)	40.9 (9.3)	56.8 (12.9)	111.0 (25.2)	118.0 (26.8)
6"	528.3 (120.0)	158.1 (35.9)	189.8 (43.1)	359.7 (81.7)	374.7 (85.1)
6" Z	528.3 (120.0)	54.2 (12.3)	74.0 (16.8)	134.7 (30.6)	144.0 (32.7)
8"	1,056.7 (240.0)	319.6 (72.6)	374.7 (85.1)	729.6 (165.7)	759.5 (172.5)
8" Z	1,056.7 (240.0)	170.0 (38.6)	204.7 (46.5)	399.8 (90.8)	414.8 (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 (Qmax): 1.2 PSI (0.08 bar)

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

WIRING DIAGRAM

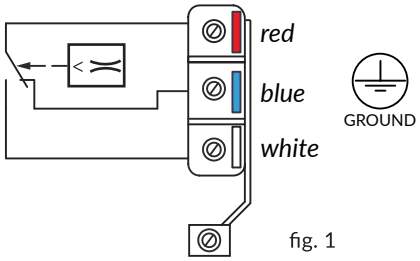


fig. 1

Connect to red and to white contacts of the micro switch (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.

INSTALLATION

The flow switch may be positioned with the casing above in horizontal or in vertical position far from elbows or narrowing and the arrow must be oriented downstream. If pipe is vertical, reset range to balance paddle weight. If the device is toward bottom take care of slags, and apply it in a straight pipe upstream and downstream at least five times the tube diameter, far from filters, valves, etc. The device will be delivered in the minimum cut off condition. After succeeded installation must be check if the paddle moves freely into the tube. On the minimum necessary flow its requested to set the regulation screw until the electrical circuit turn off.

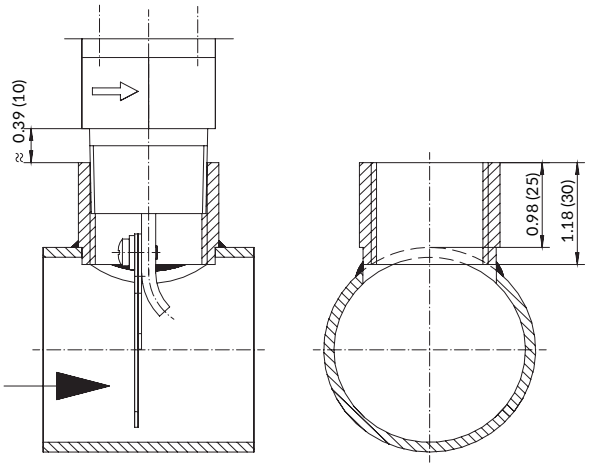
NOTES:

- *The cut-off value must be ≥ of the minimum necessary flow to guarantee the protection of the system.*
- *After the recalibration and the verification of the switch point on the site it's requested to seal the regulation screw and take note of the value.*
- *In case that the flow switch is used as a flow limiter, it is necessary to add another device downstream for alarm condition activation. The controller must be conform the requirements of the DIN EN 50156-1 :2016-03.*
- *Admitted gaskets and threads according DIN EN 10242 only.*

ATTENTION

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

MOUNTING INSTRUCTIONS



The threaded tube connection to weld must be mounted per above. Keep attention that the connector doesn't come out of the internal circumference of the pipes.

After succeeded installation must be check if the paddle moves freely into the tube. With a screwdriver press lightly up to obtain the click of the micro switch. With the presence of flow to the admitted minimum range, regulate the screw C up to obtain the opening of the red/ white contact.