

Liquid Flow Switches

DBSF

DESCRIPTION

Watertight liquid flow switches.

APPLICATION

Control and monitor liquid flow of boilers, pumps, etc., of heating, cooling, and air conditioning equipment.

FEATURES

- NEMA 1 & 4 housing
- Stainless steel paddle
- Setpoint adjustable
- Brass material

SPECIFICATIONS

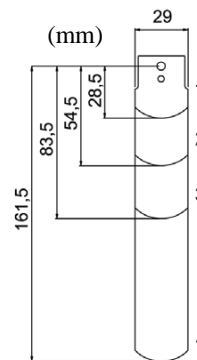
Type of operation	On/Off, single-stage, micro switch
Output	1 SPDT, or 2 SPDT, 24/250 VAC, 15 (8) A
Flow rates	See flow rate table
Flow rate setting adjustment	Internal screw
Sensing element	Paddle
Paddle sizes	- Factory mounted - Included
Pipe connection	3 inch for 1 to 3 inch pipes 6 inch for 4 to 8 inch pipes
Liquid applications	NPT 1 inch Hot, chilled, well, pool and sea water, brine or ethylene glycol
Parts material in contact with fluid	Brass
Paddle material	Stainless steel, V4A
Liquid pressure	Maximum 160 PSI (1103 kPa)
Liquid temperature	-40°F to 248°F (-20°C to 120°C)
Permissible ambient temperature	
- Housing	-40°F to 185°F (-40°C to 85°C)
Permissible ambient humidity	10...90% RH, non-condensing
Wire	
- Connection	Terminal with wire retaining screws
- Size	Maximum 14 AWG (2.5 mm ²)
Cable entry	M20 fitting, replaceable by 1/2" conduit connector
Housing	
- Material	Base: Steel, galvanized
- Color	Cover: ABS, fire retardant
- Protection	Dark gray/blue
- Dimensions	NEMA 1 (IP 40), or NEMA 4 (IP 65) 4.3 x 2.8 x 2.8 in. (108 x 70 x 72 mm)
Installation	Pipe mounted
Ship weight	2.2 lb (1.0 kg)



certified
ISO 9001



Paddles (models without "T" pipe fitting)



Install Paddle	
Pipe	#
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

Part Numbers

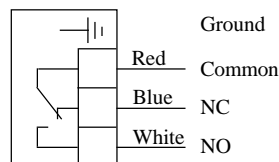
1 SPDT, NEMA 1	DBSF-1KPLN-1US
1 SPDT, NEMA 4	DBSF-1KPLN-4US
2 SPDT, NEMA 1	DBSF-1KPLNB-1US
2 SPDT, NEMA 4	DBSF-1KPLNB-4US

WIRING DIAGRAM

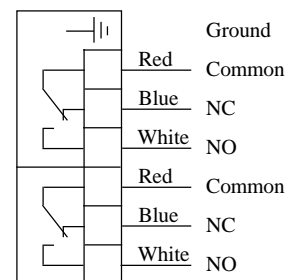
Increased flow and attained setpoint:
Red & White connected

Decreased flow and attained setpoint:
Red & Blue connected

DBSF-1KPLN



DBSF-1KPLNB



Liquid Flow Rate Table															
DBSF - 1KPLN Flow Rates: GPM (m ³ /hr) required to actuate switch															
Line Pipe Size (inch)		1	1-1/4	1-1/2	2	2-1/2	3	4	4Z	5	5Z	6	6Z	8	8Z
Min.*	Flow Increase Red & Wht Connected	4.2 (1.0)	5.8 (1.3)	7.5 (1.7)	13.7 (3.1)	17.6 (4.0)	27.5 (6.2)	64.7 (14.7)	35.2 (8.0)	125.0 (28.4)	57.01 (12.9)	90.0 (43.1)	74.0 (16.8)	374.7 (85.1)	204.7 (46.5)
	Flow Decrease Red & Blue Connected	2.5 (0.6)	3.7 (0.8)	5.0 (1.1)	9.5 (2.2)	11.9 (2.7)	19.0 (4.3)	50.1 (11.4)	26.9 (6.1)	101.0 (22.9)	41.0 (9.3)	158.0 (35.9)	54.0 (12.3)	319.7 (72.6)	170.0 (38.6)
Max.	Flow Increase Red & Wht Connected	9.2 (2.1)	13.3 (3.0)	17.6 (4.0)	26.9 (6.1)	30.8 (7.0)	50.2 (11.4)	127.6 (29.0)	81.0 (18.4)	245.0 (55.6)	118.0 (26.8)	374.7 (85.1)	144.0 (32.7)	759.5 (172.5)	415.0 (94.2)
	Flow Decrease Red & Blue Connected	8.1 (2.0)	12.5 (2.8)	16.3 (3.7)	25.1 (5.7)	28.6 (6.5)	47.1 (10.7)	122.0 (27.7)	76.2 (17.3)	234.7 (53.3)	111.0 (25.2)	359.7 (81.7)	134.7 (30.6)	729.6 (165.7)	400.6 (90.8)

Note: For flow rates with suffix "Z", the 6-inch paddle must be installed.

* Factory calibrated at minimum flow level / high sensitivity.
 To adjust for less sensitivity / higher flow rate, turn adjustment screw located below switch clockwise .

INSTALLATION

The flow switch 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 that is far from filters, valves, etc., with length at least 5 times the diameter of pipe upstream and downstream the unit.

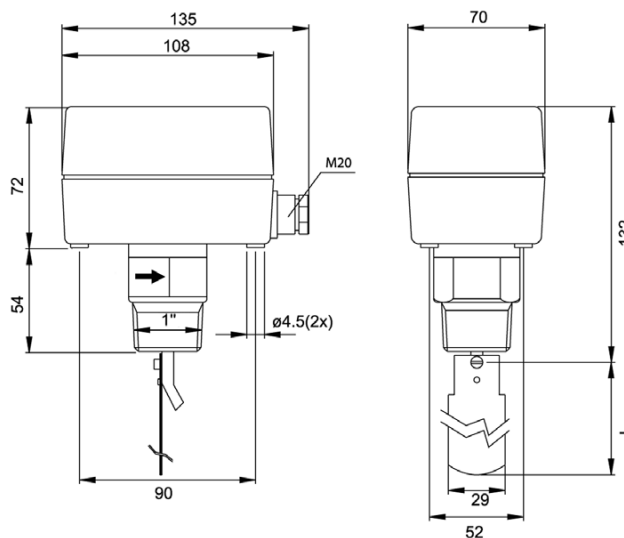
NOTE

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

ATTENTION

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

DBSF DIMENSIONS (mm)



L changeable length (see drawing of the paddles)

Authorized Distributor:
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