

Liquid Flow Switch

This Electro Controls liquid flow switch is used in the measurement and control of liquid in a pipe, as well as in applications that require cut out protection. Our liquid flow switches use a micro-SPDT switch and have both open and closed contacts, to which the user can select as required.

Fully compliant to IP65, these flow switches are manufactured with a hard wearing plastic shell and contains brass components, and has been designed to withstand use in a variety of applications.

Technical data

Pipe size (in")		Required to actuate switch (m3/hr)									
		1	1-1/4 ^a	1-1/2 ^a	2	2-1/2 ^b	3	4	5	6	8
Min. adjustment	Flow increase R to B closes	0.95	1.32	1.70	3.11	4.09	6.24	8.4*	12.9*	16.8*	46.6*
	Flow decrease R to Y closes	0.57	0.84	1.14	2.16	2.84	4.32	6.1*	9.3*	12.3*	38.6*
Max. adjustment	Flow increase R to B closes	2.00	3.02	4.36	6.59	7.84	12.00	18.4*	26.8*	32.7*	94.3*
	Flow decrease R to Y closes	1.93	2.84	4.09	6.13	7.30	11.40	17.3*	25.2*	30.7*	90.8*

KEY:

- ^a- These flow values reflect when the 2" paddle is trimmed to match the pipe size as per the template overleaf.
- ^b- These flow values reflect when the 3" paddle is trimmed to match the pipe size as per the template overleaf.
- * - The flow values for 4" and 5", reflect when the 6" paddle is trimmed to match the size of the pipe as per the template overleaf. The 6" and 8" flow values reflect when the 1", 2", 3" and 6" paddles are used.

Flow values shown in the table apply only to standard size water pipes.

- Liquid temperature range -25 to +120°C
- Ambient temperature range -20 to +60°C
- Max liquid pressure 1.5MPa
- Max allowable flow rate 3m/sec
- Contact capacity 230V AC 8A
110V AC 16A

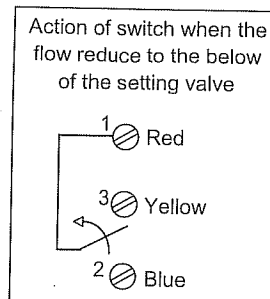


Diagram 1

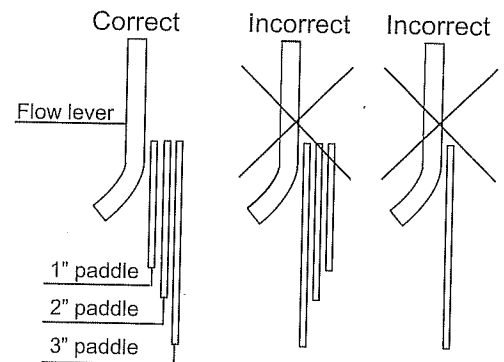


Diagram 2

Installation

1. Micro switches in the flow switch are SPDT type with contact function shown in Diagram 1. Micro-switch terminals are coated in red, yellow and blue casing. The red is common side; when connected to the blue side, the flow is increased, and when connected to the yellow side, the flow is decreased.
2. The flow switches are supplied with 4 flow paddles, which can be installed as required. If additional sizes are needed, the paddles can be trimmed as per the template overleaf. For example: If using a 3" pipeline, the 1", 2" and 3" paddles need to be installed. If using a 1-1/2" pipe, you need to trim the 2" flow paddle to the appropriate length as per the template overleaf. For 4", 5" and 6" pipelines, install the 1", 2" and 3" flow paddles and trim the 6" paddles accordingly. For 8" pipelines, install all the 1", 2", 3" and 6" paddles. See Diagram 2 for the correct way to fit the paddles.
3. The following must be noted when installing the flow switch in a pipeline:
 - a) The flow switch must be installed in a straight pipe, where A (pipe height) must be available at least 5 times in the length of the pipe either side (See Diagram 3).
 - b) The flow switch should only be installed in horizontal pipes or vertical pipes of upward flow. The flow switch should not be installed in vertical pipes of downward flow. When installed in vertical pipes of upward flow, taking into consideration the effect of gravity, the flow switch should be adjusted to slightly above the typical flow value as per the table above. This can be done by turning the adjustment screw clockwise.
4. To prevent damage during installation, ensure that all 4 screws are tightly secured into the shell of the unit.

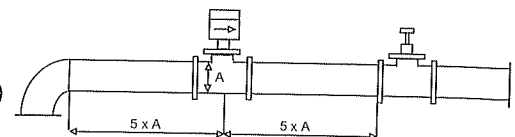


Diagram 3

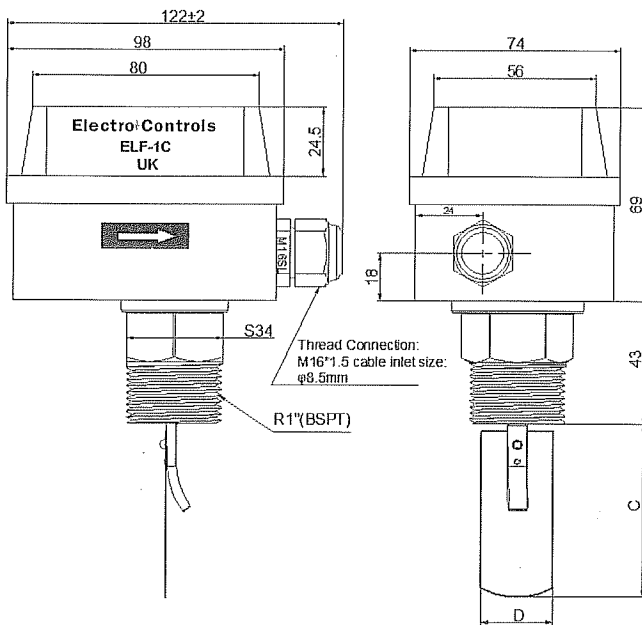
- When connecting the flow switch unit to the tee, ensure the projection plane of the paddles are perpendicular to the flow direction and connected tightly. Additionally, ensure the direction of the flow arrow on the shell of the switch is also facing the same direction as the flow.
- The flow switches have been factory set to a minimum flow value. To avoid switch failure, do not adjust the switch to below this minimum flow value.
- Ensure the adjusting screw on the micro switch is secure prior to installation to avoid switch failure.

Adjustments

- To adjust, remove the flow switch cover via the 4 screws. To increase the flow rate value, turn the adjustment screw **clockwise**. To decrease the flow rate value, turn the adjustment screw **anticlockwise**.

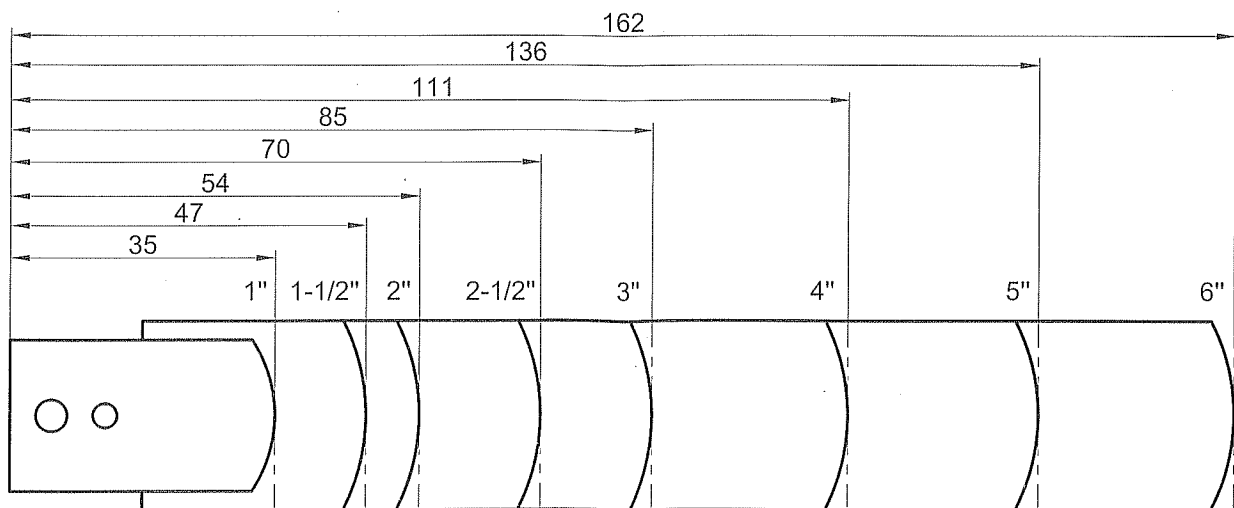
Trouble shooting	
Problem	Resolution
Bellows damaged, fluid enters the shell	The unit will need replacing
Impurities stuck to the switch, prevent switch from working	Gently clean the unit, removing the impurities
Switches ineffective	Check switch wiring
Switch does not operate	Check whether the paddles touch the pipe
The switch does not return	Check the mounting orientation of the switch is correct
No movement when the flow is increased	Check if the paddles are broken. If so, replace paddles

Dimensions



Paddle length and diameter guide

Pipe Diameter (inches)	C (Paddle length)	D (Paddle width)
1	35	20
2	54	25
3	85	25
4	111	25
5	136	25
6	162	25



Paddle cutting template

Electro Controls

A Watts Water Technologies Company

Colmworth Business Park, Eaton Socon, St Neots, Cambridgeshire PE19 8YX

Tel: +44 (0)1480 407074

Fax: +44(0)1480 407076

Email: sales@electrocontrols.co.uk

Web: www.electrocontrols.co.uk