

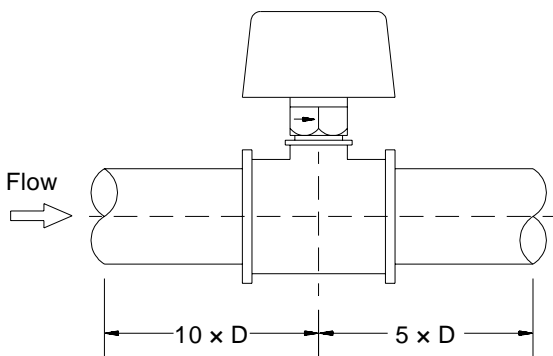


# INSTRUCTION MANUAL FOR MODEL CM ... M ... FLOW SWITCHES

Switzer Flow Switch style CM ... M ... is designed for non aggressive fluids. A microswitch mounted outside the flow stream is actuated by a metallic bellows sealed pivoted paddle. The instrument is weatherproof to IP:52 only when the cover and a suitable cable gland are properly fixed.

### Location / Mounting

Flow Switch should preferably be mounted in a horizontal section of pipe where there is a straight horizontal run of at least 10 pipe diameters on upstream side and 5 pipe diameters on downstream side of the flow switch. It is

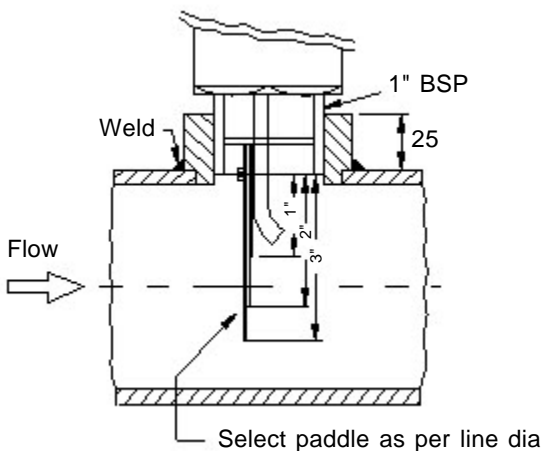


**Fig.1**

suggested that the flow switch be located in the suction side of the piping where less turbulent flow conditions exist. Avoid mounting in pipe zones with vibration and shock.

### Installation

Weld a boss as per Fig.2 with 1" BSP(F) thread. Please ensure that the boss is exactly vertical to the centre of the pipe and the boss height is 25 mm as shown.



**Fig.2**

Adjust the flow switch in position such that the paddle is at right angles to the flow and the arrow mark shown on the body is in the same direction of flow.

### Commissioning

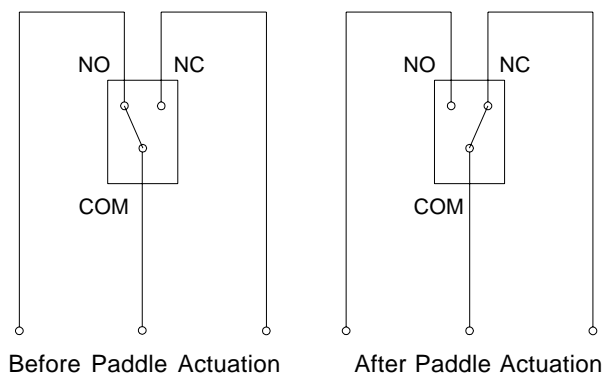
1. Check operation of flow switch to ensure that the paddle is free to move inside the pipe and does not rub the sides.
2. Prior to operation fill the system completely with process fluid and eliminate air.
3. Check wiring according to diagram (Fig.3).
4. Ensure that the control circuit does not over-load the contacts of the microswitch.
5. Ensure that the minimum and maximum pressures and operating temperature are well within the specified limits.
6. Ascertain the availability of minimum flow required for proper operation.
7. Replace cover after commissioning.

### Maintenance

No specific maintenance is required. Check contacts of wires connected to the microswitch terminals, smear a little of grease where the microswitch lever screw touches the balancing arm once in six months. Keep, the cover screw always tight. Ensure that the cable gland being provided by you is tight.

### Electrical Data

The microswitch is in the actuated condition when the flow switch is in non-operated condition. Hence the NO and NC marking appearing on the microswitch are in fact in reverse position. (i.e., NO is NC and NC is NO).



**Fig.3 : Wiring Diagram**

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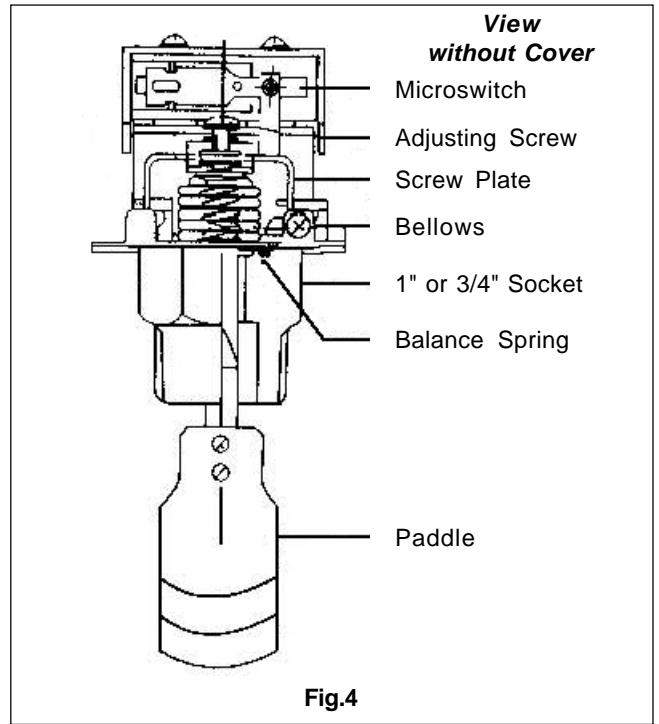
### Switch Setting

The flow switch is preset at factory prior to despatch if specified in the purchase order. In case the order does not specify the actuation point, it is necessary to set the range spring for the desired flow, no-flow condition at site as below.

To change the setting of the switch in the field, follow the procedure below. Refer Fig.4

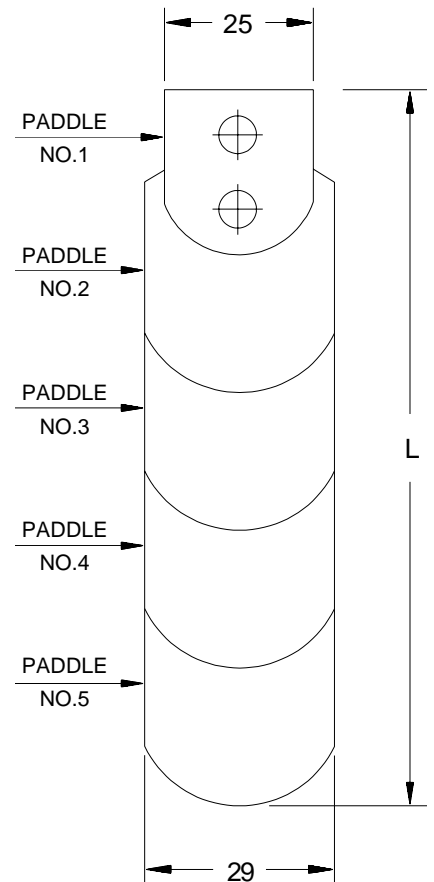
- a. Remove cover
- b. Allow fluid to flow through the pipe line and monitor the volume following over a period of time. From this arrive at flow rate in litres per minute (LPM).
- c. Regulate flow to desired limit. For falling flow the flow switch should actuate when rate of flow comes down from above the limit and vice versa for rising flow.
- d. Turn adjustment screw clockwise to reduce actuating point and anti-clockwise to increase setpoint.
- e. After setting the switch re-confirm by increasing and decreasing flow a few times.
- f. Replace cover.

Now the flow switch is in service.



### FLOW RANGES AND PADDLE DETAILS

LINE SIZE NB mm	PADDLE LENGTH 'L' mm	Switching Range LPM + 10% of FSR				Max. Flow (LPM Water) at Velocity 2 Mtrs / Sec
		'ON' Falling Flow		'ON' Rising Flow		
		MIN.	MAX.	MIN.	MAX.	
015 ①	Special Paddle with Integral Tee	3	9	8	12	21
020 ①		4	11	9	14	38
025 ①		10	30	16	32	60
032	34	12	50	22	52	100
040	34, 40	14	54	28	58	150
050	34, 50	20	72	40	76	250
065	34, 50, 65	30	110	60	120	400
080	34, 65, 80	55	165	100	170	600
100	34, 65, 80	140	380	220	400	1000
	34, 65, 100	75	265	165	285	
125	*	300	730	420	750	1500
	*	130	390	260	420	
150	*	440	1000	620	1120	2000
	*	150	460	350	500	
200	*	1000	2200	1300	2300	3700
	*	500	1300	900	1500	
250	*	1500	3160	2000	3400	6000
	*	1000	2200	1600	2500	
300	*	2000	4000	2650	4250	8000
	*	1600	2600	2500	3200	



**Notes** ① For line sizes 15 mm, 20 mm, 25 mm NB Integral Tee is a must. Direct on line mounting with threaded or flanged connections are not available for these sizes.

\* For line sizes 125 mm to 300 mm NB, factory will provide paddle set of suitable length depending upon High or Low range selected.