

SHICO. PADDLE TYPE FLOW SWITCH

MODEL : SFS Series

■ GENERAL DISCRPTION

- Flow switch SFS series are used for controlling water flows as a general shut off & water saving relay for air-purifiers, water purifying equipments and other equipments.

■ FEATURES

- Apply for pipe diameter : 3/4B to 6B
- Apply wide range of fluids
- Metal classification - Copper alloy, Stainless steel
- Various size / kind (by the class of waterproofing capacity)
 - Open shape, Anti-frost, Anti-rain shape (Waterproof), Anti-explosive foam shape
- It could be used to attached to the various Sight Glasses and can adjust fluid's level/amount by section when this is being attached on the T-shape Flange on the pipe.

■ SPECIFICATION

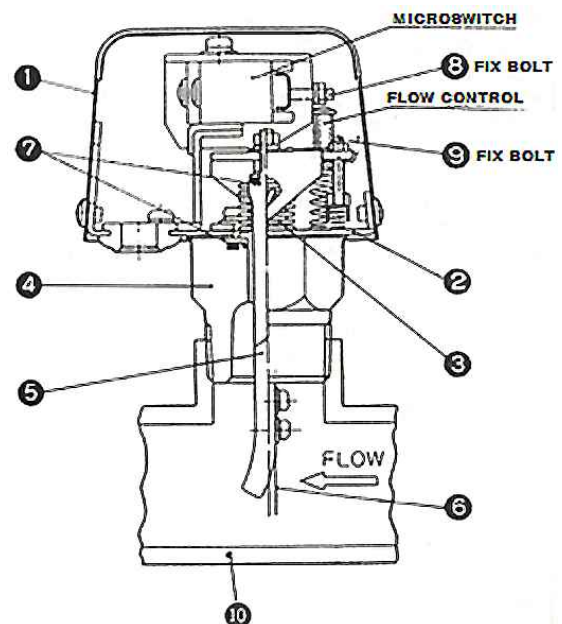
Fluid	Copper alloy	Water & Anti-corrosive fluid
	SUS304	Fluid which won't corrode SUS304
Pressure	MAX. 9.9Kg/cm ² (9.9bar)	
Inner water pressure	17.5Kg/cm ² (17.5bar)	
Insulation resistance	Over 100 mega ampere (by DC 500 Mega)	
Withstanding voltage	AC 1500V for 1 min.	
Interface	1ab	

■ APPLICATIONS

- Pump staging or failure
- Pipeline flow detection
- Valve failure
- Loss of pipeline flow
- Pipe blockage/rupture
- Pump inlet flow protection
- Check valve blockage/leakage
- Alarm on eyewash or shower safety station



■ CONSTRUCTION DIAGRAM



■ PARTS LIST

NO	DESCRIPTION	MATERIAL		
		SFS30	SFS31	SFS32
1	COVER	SPCD	SPCD	AC3A
2	BRACKET	SPCC	SS304	SS304
3	BELLOWS	PBP or SS304L		
4	BODY	BsBFD or SS304L		
5	PROBE	BsBFD or SS304L		
6	PADDLE	PBP or SS304L		
7	RING	NBR or Flouric rubber		
8	BOLT	SS41 or SS304		
9	BOLT	SS41 or SS304		
10	VALVE	SC49 or BC3		



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■ Micro Switch Rate

Voltage	Load Current	Leading load cos ϕ =0.4	Motor/Lamp load Current	
			N.C	N.O
AC125V	15A	10A	3A	1.5A
AC250V	15A	10A	3A	1.5A
DC125V	0.5A	-	-	-
DC250V	0.25A	-	-	-

■ Fluid temperature & the range of the applied surrounding temperature

MODEL	TYPE OF SHAPE	Set-up	Connect
SFS 300-06	Open shape	All	PT 3/4
SFS 310-06	Anti-frost/Anti-rain shape		
SFS 320-06	Anti-explosive foam shape		
SFS 301-10	Open shape (no waterproof)	Small	PT 1
SFS 303-10		Large	
SFS 311-10	Anti-frost/Anti-rain shape	Small	
SFS 313-10		Large	
SFS 321-10	Anti-explosive foam shape	Small	
SFS 323-10		Large	

■ CAUTION FOR INSTALLATION

■ Attachment, Wiring

- Tighten a screw by flow direction. Depth should be 9mm+/-1.2mm on 3/4B.
- Install far from Elbow and Valve which disturbs fluid's flowing, and should have an about 5 times bigger straight pipes than pipe's own diameter before and after installation.
- Install vertically on a horizontal tube.
- There are 3(three) paddles included, install 1(one) piece of paddle, which will be fitted to the pipe's size(diameter).
- Apply different sized(diameter) TEE on 3/4B to 3B when seal the pipe joint.
- Make sure when wire the Micro Switch, it should be wired by the matching symbols which is written on the insulator's cover. (It is the reverse symbols of the Micro Switch button symbol. Buttons are Screwed buttons.)

C : COMMON
A : NORMALLY OPEN
B : NORMALLY CLOSED

■ Adjustment / Control

- Flow control will be performed when turn the Flow Control Screw by screwdriver.
(Turn-Right : Increase set-up fluid level,
Turn-Left : Decrease set-up fluid level)

- Links between Fluid Control Screw's rpm and fixed ON fluid level are as follow;

(This is an average rate, therefore we recommend it should be measured by a flowmeter for accurate result.)

- Do not touch or unscrew following screws :
Fixed screw number 8 and 9

Flow Control Screw rpm	0	1	2	3	4	5	6	7	8	9	10	11	12
Fixed On fluid level													
Maximum On fluid level	30%	40%	50%	59%	68%	74%	80%	85%	89%	93%	96%	98%	100%



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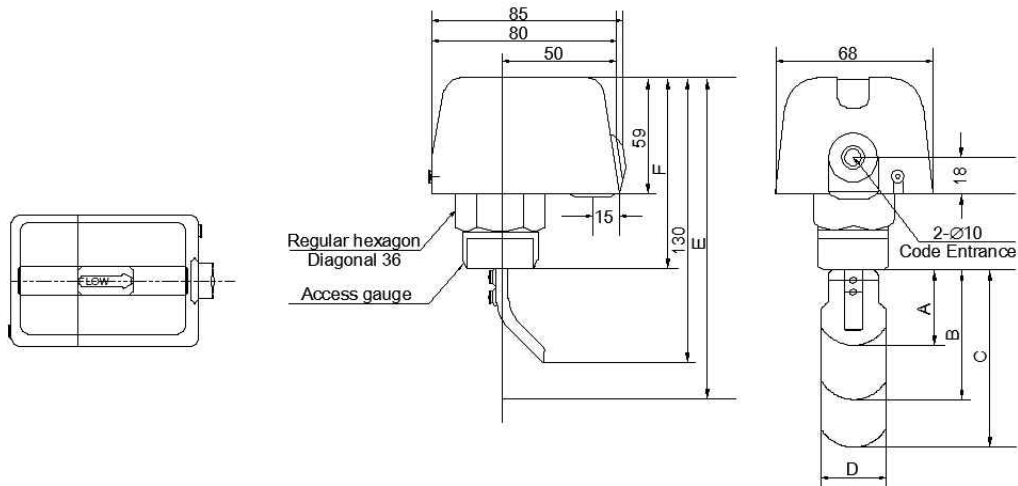
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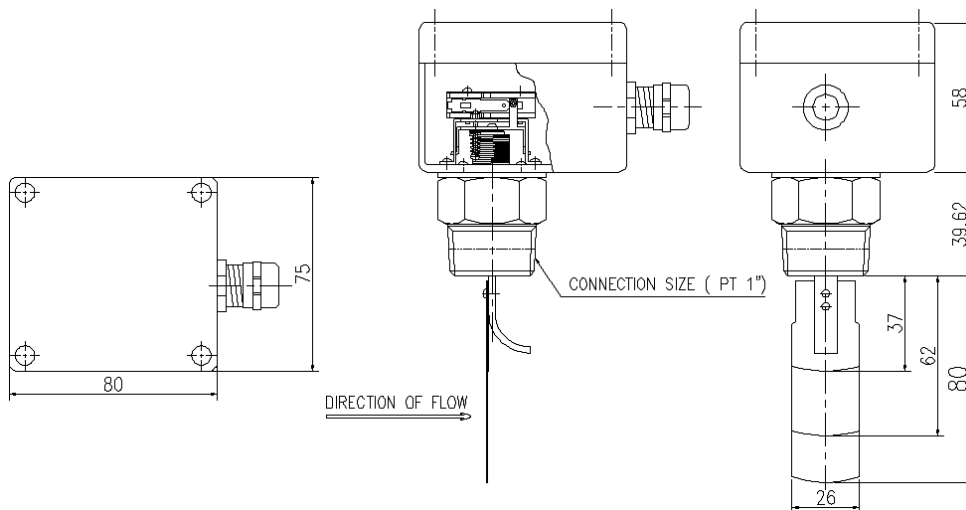
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MODEL : SFS Series

■ Open shape : 300, 301, 303



■ Anti-frost, Anti-rain(Waterproof) shape : 310, 311, 313



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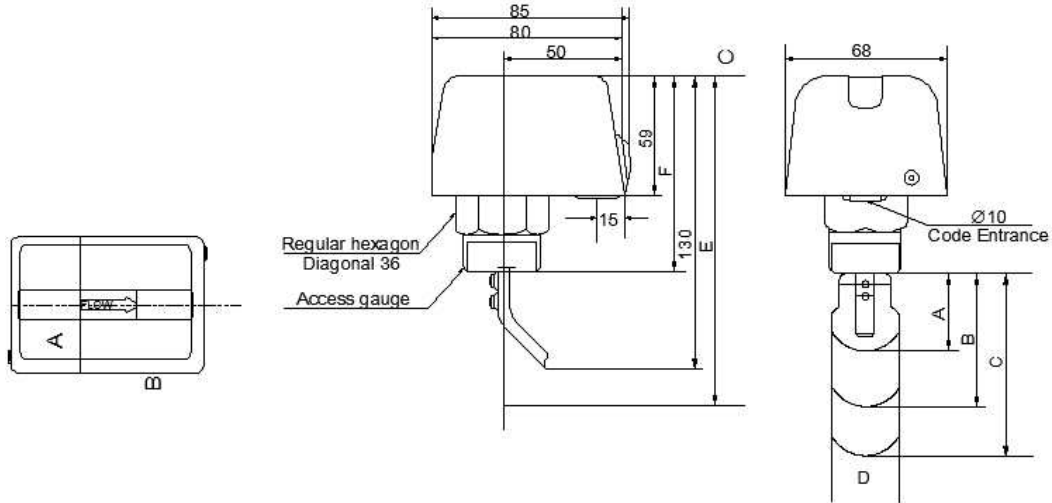
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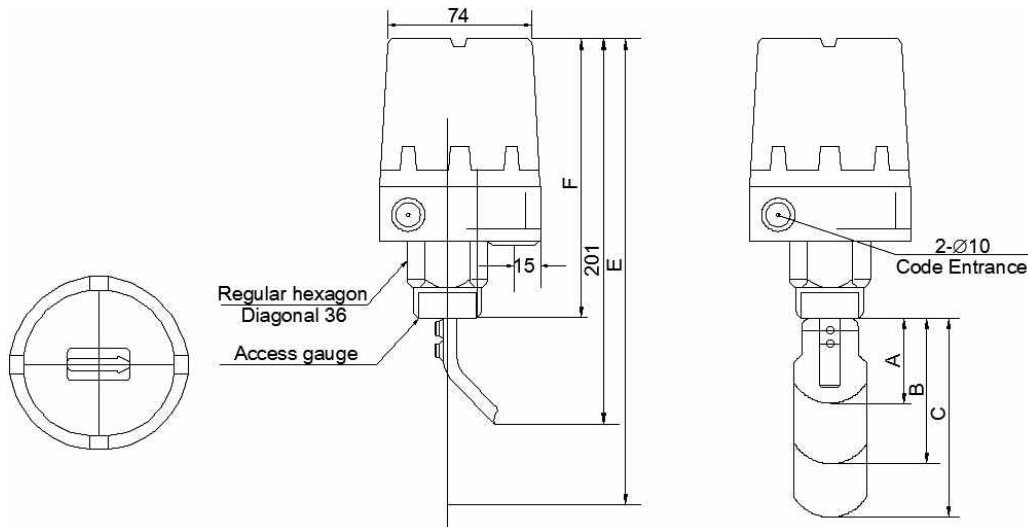
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MODEL : SFS Series

■ Anti-frost, Anti-rain(Waterproof) shape : 310, 311, 313



■ Anti-explosive foam shape : 310, 311, 313



MODEL	Joint caliber	A	B	C	D	E	F
SFS 300	PT $\frac{3}{4}$ "	28	31	34	22	137	101
SFS 301	PT 1"	37	62	89	28	188	98
SFS 303	PT 1"	29	39	56	28	155	98
SFS 310	PT $\frac{3}{4}$ "	28	31	34	22	137	101
SFS 311	PT 1"	37	62	80	26	188	98
SFS 313	PT 1"	29	39	56	28	155	98
SFS 320	PT $\frac{3}{4}$ "	28	31	34	22	256	220
SFS 321	PT 1"	37	62	89	28	307	217
SFS 323	PT 1"	29	39	56	28	274	217



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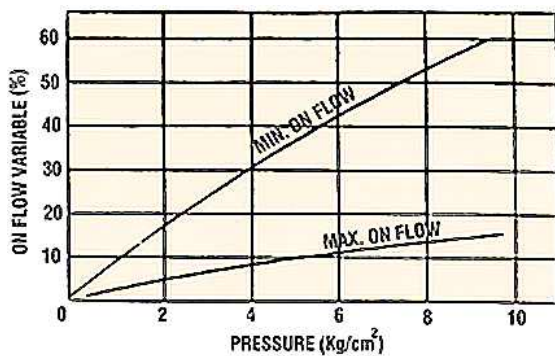
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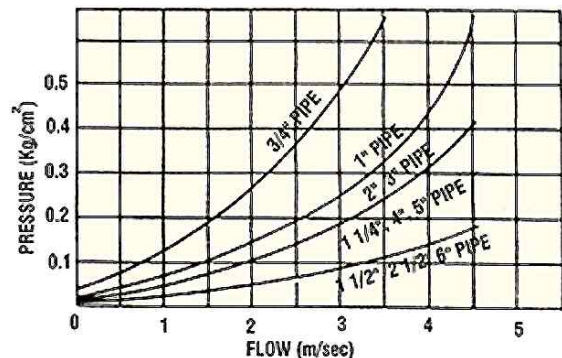
■ Table of Flow measurement trait

FLOW SWITCH	Installation classification		Control (adjustment) range for fixed flow rate ℓ/Min						Fixed speed range for ON flow rate (m/s)
	Pipe	Paddle	Minimum		Medium		Maximum		
			ON Flow rate	OFF Flow rate	ON Flow rate	OFF Flow rate	ON Flow rate	OFF Flow rate	
SFS 3#0-06 all types	$\frac{3}{4}$	9	14	7	26	20	38	33	0.66 ~ 1.79
	$\frac{3}{4}$	8	18	9	34	27	50	44	0.85 ~ 2.36
	$\frac{3}{4}$	9	22	11	140	31	60	53	1.04 ~ 2.83
SFS 3#1-10 small type	1	1	20	10	40	34	60	55	0.56 ~ 1.67
	$1\frac{1}{4}$	1	34	17	70	60	100	90	0.57 ~ 1.67
	$1\frac{1}{2}$	1	52	26	110	90	160	140	0.63 ~ 1.95
	2	2	45	23	90	75	140	125	0.34 ~ 1.06
	$2\frac{1}{2}$	2	90	45	180	150	280	250	0.41 ~ 1.29
	3	3	80	40	170	140	250	220	0.26 ~ 0.81
	4	3	170	85	360	290	550	480	0.33 ~ 1.05
	5	3	300	150	650	510	1,000	870	0.37 ~ 1.24
SFS 3#3-10 large type	6	3	460	230	1,000	780	1,500	1,300	0.40 ~ 1.32
	1	4	36	18	75	63	110	100	1.00 ~ 3.05
	$1\frac{1}{4}$	4	54	27	110	90	160	140	0.90 ~ 2.67
	$1\frac{1}{2}$	4	90	45	180	140	270	230	1.10 ~ 3.29
	2	5	90	45	180	140	270	230	0.68 ~ 2.05
	$2\frac{1}{2}$	5	160	80	330	240	500	420	0.74 ~ 2.30
	3	6	160	80	330	240	500	420	0.52 ~ 1.63
	4	6	320	160	700	500	1,000	800	0.61 ~ 1.91
5	6	560	280	1,200	830	1,800	1,450	0.69 ~ 2.23	
6	6	800	400	1,700	1,100	2,600	2,000	0.70 ~ 2.28	

■ Changing rate of ON flow level by pressure



■ Flow level-Pressure falling curves



- Above table shows how active flow level changes by fluid's pressure changes.
- It depends on the depth and the direction of screw when you install, therefore it should be used as an example.



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