



## Inline Paddle Wheel Flow Switch

- Economic integration in pipe systems without any additional piping
- Magnetic measuring principle
- Mechanical adjustment of setpoint

Type 8010 can be combined with...



Valve



Alarm



PLC

The Inline flow sensor/switch Type 8010 is specially designed for use in pure and water resembling fluids, free from air bubbles and magnetizable particles, to monitor minimum/maximum values of flow.

The sensor/switch is made up of a sensor fitting (Type S010) and an electronic module (Type SE10), quickly and easily connected together by a Quarter-Turn.

The 8010, which is uni-directional, should be mounted in respect of the arrow that indicates the flow direction. The device indicates the presence of a flow in the pipe by switching the Reed contact contained in the electronic module. The switching points min./max. for rising and falling velocities can be set with a screw within a defined range.

The SE10 electronic module is available in two versions:

- Normally open (NO): The flow switches on the contact.
- Normally closed (NC): The flow switches off the contact.

These S010 sensor fittings are available in two versions:

- with a short blade "Range 1" fitted for the fittings DN15...DN40.
- with a long blade "Range 2" fitted for the fittings DN32...DN50.

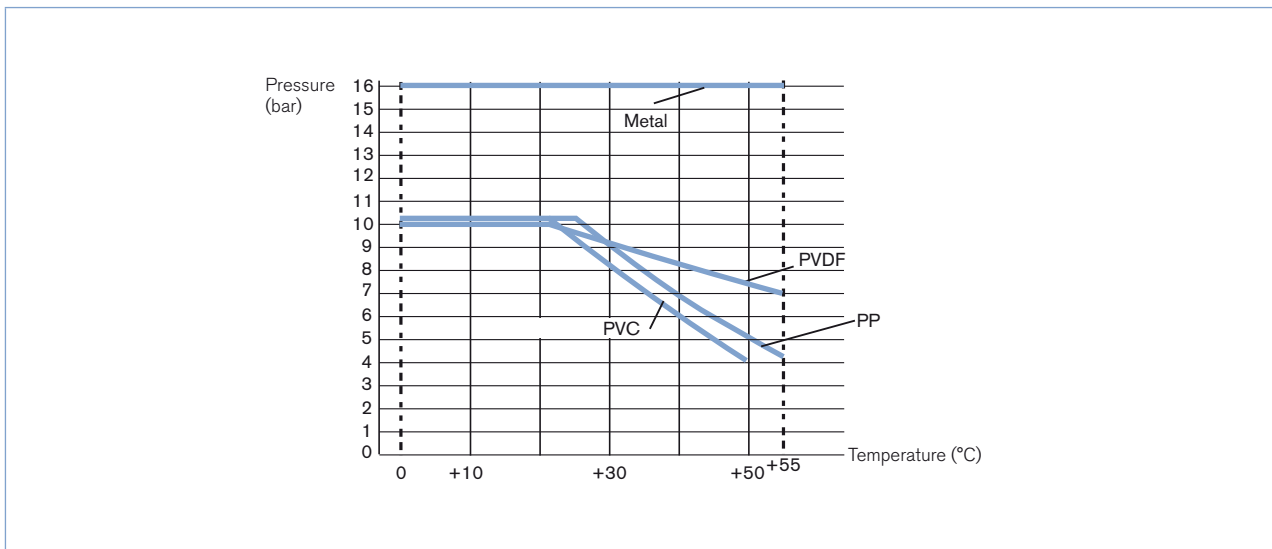
General data	
<b>Compatibility</b>	With sensor fittings S010 Inline (see ordering chart)
<b>Sensor element</b>	Blade with magnet, Reed contact
<b>Fitting process connections</b>	Internal or external thread, weld ends, clamp or flange True union, spigot or external thread
<b>Materials</b>	Housing, cover: PC, + 20% glass fibre reinforced Setting screw: Plated brass Cable plug: PA Materials wetted parts: Brass (CuZn39Pb2), stainless steel (316L - 1.4404), PVC, PP, PVDF Fitting, sensor holder: PVDF Blade: Stainless steel (316L) / FKM (EPDM on request) Axis / Seal: FKM (EPDM on request)
<b>Electrical connection</b>	Cable plug: EN 175301 - 803 (provided)
<b>Connection cable</b>	0.14 ... 0.5 mm <sup>2</sup> cross section; max. 100 m length
Complete device data (sensor fitting + electronic module)	
<b>Pipe diameter</b>	DN15...DN50
<b>Switching range</b>	4.7 ... 75.4 l/min (see selection table - on page 3)
<b>Flow velocity max.</b>	10 m/s
<b>Medium temperature</b>	with sensor fitting in PVC: 0 ... + 50 °C (+ 32 ... + 122 °F) PP, PVDF, brass, stainless steel: 0 ... + 55 °C (+ 32 ... + 131 °F)
<b>Medium pressure max.</b>	PN10 (with plastic sensor fitting) - PN16 (with metal sensor fitting) see pressure/temperature chart, next page
<b>Viscosity / Pollution</b>	100 cSt. max. / max. 1% (particle size max.: 0.5 mm)

Electrical data	
<b>Operating voltage</b>	Without
<b>Outputs</b>	
Reed Contact	Potential free, forme A, switch off or switch on
Switching voltage	150 V DC/250 V AC max.
Switching Current	0.8 A max.
Switching power	50 W max., 50 VA
Carrying current	2.5 A
Environment	
<b>Ambient temperature</b>	0 ... +55 °C (+32... +131 °F) (operating and storage)
<b>Relative humidity</b>	≤ 80 %, without condensation
Standards, directives and certifications	
<b>Protection class</b>	IP65 with connector plugged-in and tightened
<b>Standard and directives CE</b>	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of 2014/68/EU directive*

\* For the 2014/68/EU pressure directive, the device can only be used under following conditions (depending on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
<b>Fluid group 1, article 4, §1.c.i</b>	DN ≤ 25
<b>Fluid group 2, article 4, §1.c.i</b>	DN ≤ 32 or PN*DN ≤ 1000
<b>Fluid group 1, article 4, §1.c.ii</b>	DN ≤ 25 or PN*DN ≤ 2000
<b>Fluid group 2, article 4, §1.c.ii</b>	DN ≤ 200 or PN ≤ 10 or PN*DN ≤ 5000

### Pressure/temperature chart



### Design, inner materials and principle of operation

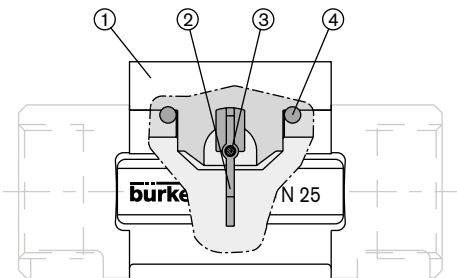


The S010 Inline sensor fitting is made up of a blade with a magnet.

The SE10 module contains a rocker arm with a magnet on each end. When liquid flows through the pipe, the blade rotates and, by magnetic adherence, actuates the rocker arm.

**⚠ The arrows on the S010 Inline and on the SE10 must correspond to the flow direction.** With this rotation, the upper magnet switches the Reed contact opening or closing the circuit. The switching points can be set with a screw within a defined range

No.	Description	Materials
1	Sensor holder	Brass, stainless steel, PVC, PP or PVDF
2	Blade	PVDF
3	Axis	Stainless steel
4	O-Ring	FKM or EPDM

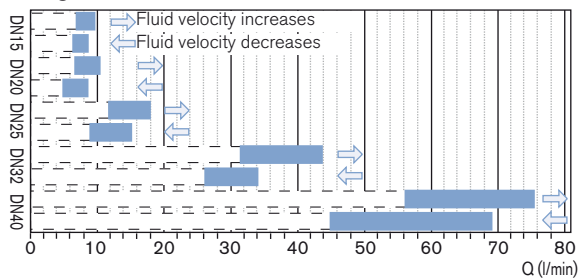


## Switching threshold and sensor fitting DN selection chart

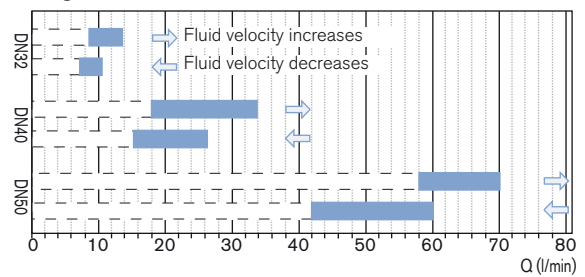
The type of blade (Range 1 or 2) and the sensor fitting DN define the flow range on which the switching thresholds can be adjusted. The table below shows the switching end values depending on the selected model of type 8010.

Range	Sensor fitting DN	Fluid velocity (water) [m/s]			Flow rate			
		min.	max.	Variation way	l/min		m <sup>3</sup> /h	
1	15	0.65	0.90	increasing	6.9	9.5	0.41	0.57
		0.60	0.80	decreasing	6.4	8.5	0.38	0.51
	20	0.35	0.55	increasing	6.6	10.4	0.40	0.62
		0.25	0.45	decreasing	4.7	8.5	0.28	0.51
	25	0.40	0.60	increasing	11.8	17.7	0.71	1.06
		0.30	0.50	decreasing	8.8	14.7	0.53	0.88
	32	0.65	0.90	increasing	31.4	43.4	1.88	2.61
		0.55	0.70	decreasing	26.5	33.8	1.59	2.03
	40	0.75	1.00	increasing	56.5	75.4	3.39	4.52
		0.60	0.90	decreasing	45.2	67.9	2.71	4.07
2	32	0.18	0.28	increasing	8.5	13.5	0.51	0.81
		0.15	0.22	decreasing	7.0	10.5	0.42	0.63
	40	0.25	0.45	increasing	18.8	33.9	1.13	2.04
		0.20	0.35	decreasing	15.1	26.4	0.90	1.58
	50	0.49	0.59	increasing	58.0	70.0	3.48	4.20
		0.36	0.51	decreasing	42.0	60.0	2.52	3.60

Range 1



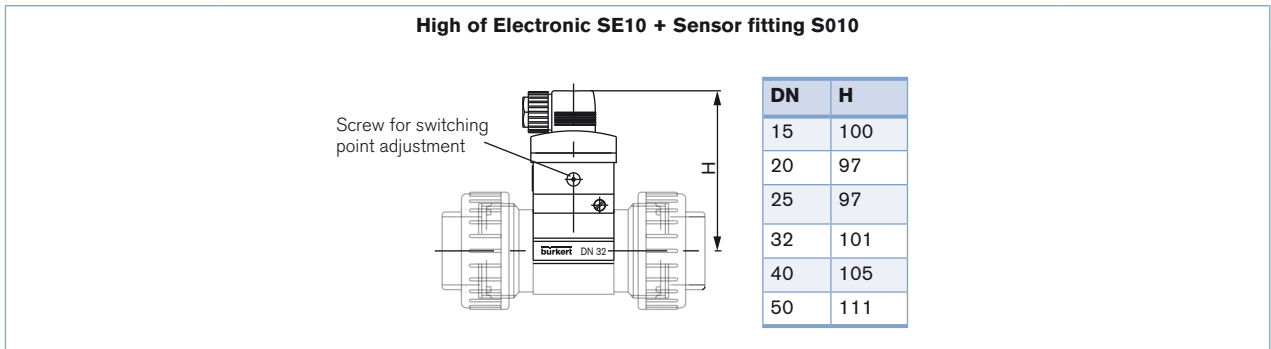
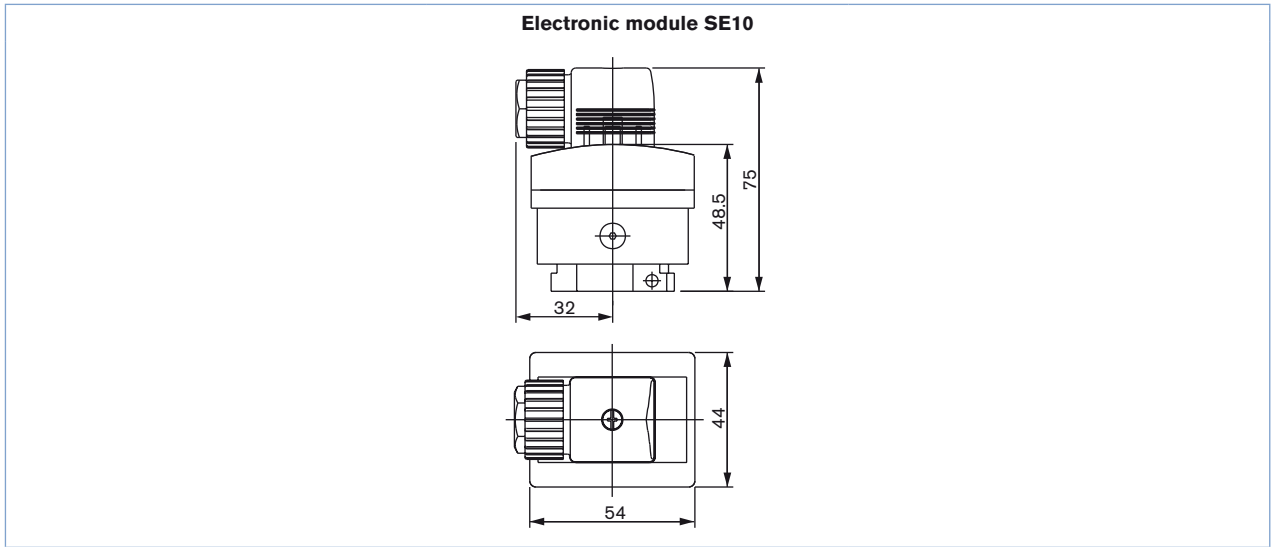
Range 2



### Attention!

The sensor fitting with nominal diameters of 32 and 40 mm are designed for two different switching range (1 and 2) in relation with flow velocity and equivalent flow values. For all other sizes, there is only one switching range (1 or 2).

Dimensions [mm]

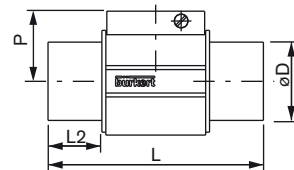
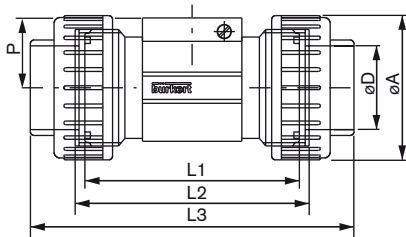


**True union connection - (solvent or fusion spigot)**

DIN 8063, ASTM D 1785/76 or JIS K in PVC,  
 DIN 16962 in PP or  
 ISO 10931 in PVDF

**Spigot connection - (solvent or fusion spigot)**

DIN 8063 in PVC  
 DIN 16962 in PP or  
 ISO 10931 in PVDF



DN	P	True union connection in Plastic									Spigot connection in PVC			Spigot connection in PP or PVDF		
		L1	L2	L3	ASTM*	JIS*	ØD	ASTM*	JIS*	ØA	L	Ø D	L2	L	Ø D	L2
15	34.5	90	96	128	130.0	129.0	20	21.3	18.4	43	90	20	16.5	85	20	14
20	32.0	100	106	144	145.6	145.0	25	26.7	26.45	53	100	25	20.0	92	25	16
25	32.2	110	116	160	161.4	161.0	32	33.4	32.55	60	110	32	23.0	95	32	18
32	35.8	110	116	168	170.0	169.0	40	42.2	38.60	44	110	40	27.5	100	40	20
40	39.6	120	127	188	190.2	190.0	50	48.3	48.70	83	120	50	30.0	106	50	23
50	45.7	130	136	212	213.6	213.0	63	60.3	60.80	103	130	63	37.0	110	63	27

\* only for PVC

Dimensions [mm]

Internal thread connection G, NPT or Rc					External thread connection G			Weld ends connection EN ISO 1127/ISO 4200/DIN 11866 series B		
DN	P	Internal thread connection in stainless steel or brass			External thread connection in stainless steel			Weld ends connection in stainless steel		
		L	L1	D	L	L1	D	L	Ø D	e
15	34.5	85	16.0 17.0 15.0	G 1/2 NPT 1/2 Rc 1/2	84	11.5	G 3/4	84	21.3	1.6
20	32.0	95	17.0 18.3 16.3	G 3/4 NPT 3/4 Rc 3/4	94	13.5	G 1	94	26.9	1.6
25	32.2	105	23.5 18.0 18.0	G 1 NPT 1 Rc 1	104	14.0	G 1 1/4	104	33.7	2.0
32	35.8	120	23.5 21.0 21.0	G 1 1/4 NPT 1 1/4 Rc 1 1/4	119	18.0	G 1 1/2	119	42.4	2.0
40	39.6	130	23.5 20.0 19.0	G 1 1/2 NPT 1 1/2 Rc 1 1/2	129	19.0	M55 x 2	129	48.3	2.0
50	45.7	150	27.5 24.0 24.0	G 2 NPT 2 Rc 2	149	20.0	M64 x 2	149	60.3	2.6

Clamp connection DIN 32676 series B				Flange connection EN1092-1/B1/PN16, ANSI B16-5, JIS 10K						
DN	P	Clamp connection in stainless steel		Flange connection in stainless steel						
		L	Ø D	Standard	L	I	J	M	K	N
15	34.5	130	34.0	EN ANSI JIS	130 130 152	23.5	4 x 14.0 4 x 15.8 4 x 15.0	95.0 89.0 95.0	65.0 60.3 70.0	45.0 34.9 51.0
20	32.0	150	50.5	EN ANSI JIS	150 150 178	28.5	4 x 14.0 4 x 15.8 4 x 15.0	105.0 99.0 100.0	75.0 69.8 75.0	58.0 42.9 56.0
25	32.2	160	50.5	EN ANSI JIS	160 160 216	28.5	4 x 14.0 4 x 15.8 4 x 19.0	115.0 108.0 125.0	85.0 79.4 90.0	68.0 50.8 67.0
32	35.8	180	50.5	EN ANSI JIS	180 180 229	31.0	4 x 18.0 4 x 15.8 4 x 19.0	140.0 117.0 135.0	100.0 88.9 100.0	78.0 63.5 76.0
40	39.6	200	64.0	EN ANSI JIS	200 200 241	36.0	4 x 18.0 4 x 15.8 4 x 19.0	150.0 127.0 140.0	110.0 98.4 105.0	88.0 73.0 81.0
50	45.7	230	77.5	EN ANSI JIS	230 230 267	41.0	4 x 18.0 4 x 19.0 4 x 19.0	165.0 152.0 155.0	125.0 120.6 120.0	102.0 92.1 96.0

## Ordering chart for flow switch Type 8010

## Electronic module Type SE10 - for sensor fitting Type S010

Output	Electrical connection	Article no.
Reed contact, NO	Cable plug EN 175301 - 803	438087
Reed contact, NC	Cable plug EN 175301 - 803	438088

**Note:** A complete device Type 8010 consists of a sensor fitting Type S010 and an electronic module Type SE10. Please order the two required units separately.

## Sensor fitting Type S010 (to be ordered separately)

Port connection	Seal	Standard	Article no.							
			Range 1			Range 2				
			DN15	DN20	DN25	DN32	DN40	DN32	DN40	DN50
<b>Brass - Temperature max. 55 °C, PN16</b>										
Internal thread	FKM	G	438163	438164	438165	438166	438167	438169	438170	438171
		NPT	438172	438173	438174	438175	438176	438178	438179	438180
		Rc	438181	438182	438183	438184	438185	438187	438188	438189
<b>Stainless steel - Temperature max. 55 °C, PN16</b>										
Internal thread	FKM	G	438199	438200	438201	438202	438203	438205	438206	438207
		NPT	438208	438209	438210	438211	438212	438214	438215	438216
		Rc	438217	438218	438219	438220	438221	438223	438224	438225
External thread	FKM	G	438226	438227	*	*	*	*	*	
Weld ends	FKM	EN ISO 1127/ISO 4200/ DIN 11866 series B	438235	*	438237	*	*	*	*	438243
<b>PVC - Temperature max. 50 °C, PN10</b>										
True union	FKM	DIN 8063	438091	438092	438093	438094	438095	438097	438098	438099
		ASTM D 1785/76	438109	438110	438111	438112	438113	438115	438116	438117
		JIS 10K	438118	438119	438120	*	438122	*	438125	438126
Spigot	FKM	DIN 8063	438100	*	438102	438103	438104	*	*	
<b>PP - Temperature max. 55 °C, PN10</b>										
True union	FKM	DIN 16962	438127	438128	438129	*	438131	438133	*	*
Spigot	FKM	DIN 16962	*	*	438138	*	438140	*	*	438144

\* on request

### Further versions on request



#### Port connection

















Weld ends SMS 3008, BS 4825 - 1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/ DIN EN 10357 series A  
Clamp DIN 32676 series B, SMS 3017, BS 4825 - 3/ASME BPE or DIN 32676 series A  
Flange EN1092 - 1/B1/PN16, ANSI B16-5 or JIS 10K  
True union ISO 10931  
Spigot ISO 10931



#### Materials

PVDF - Temperature max. 55 °C, PN10

**Ordering chart accessories/spare parts** (to be ordered separately)

Description	Article no.
<b>O-ring set</b>	
FKM - for metal sensor fitting, DN15...DN50	426340 
EPDM - for metal sensor fitting, DN15...DN50	426341 
FKM - for plastic sensor fitting, DN15	431555 
FKM - for plastic sensor fitting, DN20	431556 
FKM - for plastic sensor fitting, DN25	431557 
FKM - for plastic sensor fitting, DN32	431558 
FKM - for plastic sensor fitting, DN40	431559 
FKM - for plastic sensor fitting, DN50	431560 
EPDM - for plastic sensor fitting, DN15	431561 
EPDM - for plastic sensor fitting, DN20	431562 
EPDM - for plastic sensor fitting, DN25	431563 
EPDM - for plastic sensor fitting, DN32	431564 
EPDM - for plastic sensor fitting, DN40	431565 
EPDM - for plastic sensor fitting, DN50	431566 
<b>Sensor holder</b>	
Brass with short blade "range 1", seal (FKM), screws for DN15...DN40	561761 
Brass with long blade "range 2", seal (FKM), screws for DN32...DN50	560906 

 **Further versions on request**
**Materials**

Stainless steel sensor holder

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 In case of special application conditions,  
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