



## Inline Paddle Wheel Flow Switch

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

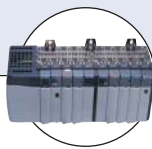
Type 8010 can be combined with...



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.

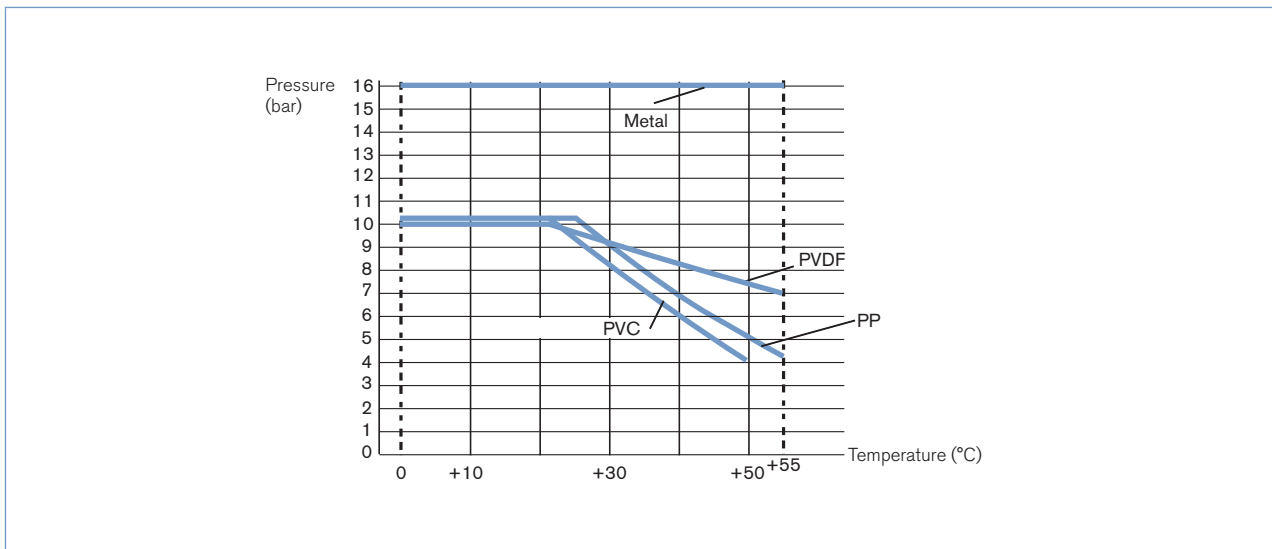
General data	
<b>Compatibility</b>	With sensor fittings S010 Inline (see ordering chart)
<b>Sensor element</b>	Blade with magnet, Reed contact
<b>Fitting process connections</b>	Internal or external thread, weld ends, clamp or flange True union, spigot or external thread
<b>Materials</b>	Housing, cover: 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</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



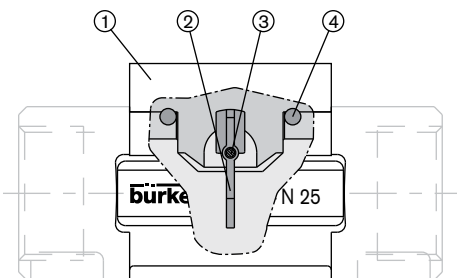
### Design, inner materials and principle of operation



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

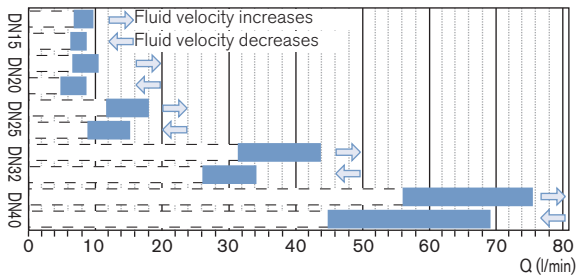


### Switching threshold and sensor fitting DN selection chart

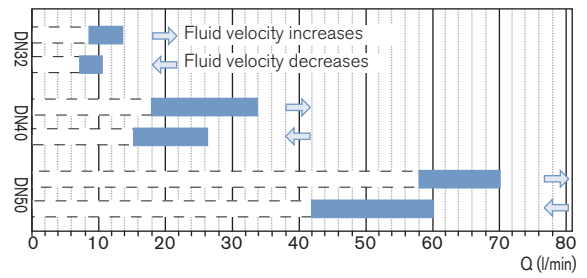
The type of blade (Range 1 or 2) and the sensor fitting DN define the flow range on which the switching thresholds can be adjusted. The table below shows the switching end values depending on the selected model of type 8010.

Range	Sensor fitting DN	Fluid velocity (water) [m/s]			Flow rate				
		min.	max.	Variation way	l/min		m³/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



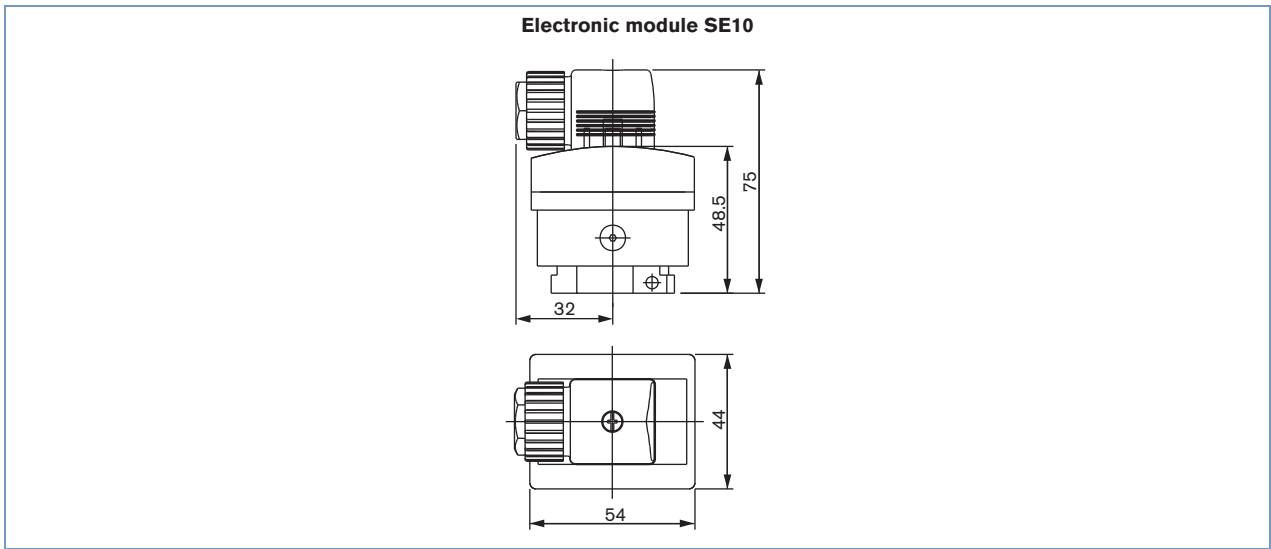
Range 2



**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]

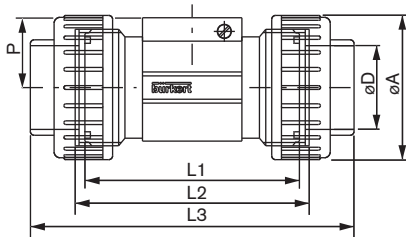


**High of Electronic SE10 + Sensor fitting S010**

DN	H
15	100
20	97
25	97
32	101
40	105
50	111

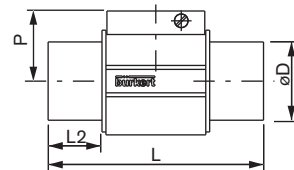
**True union connection - (solvent or fusion spigot)**

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

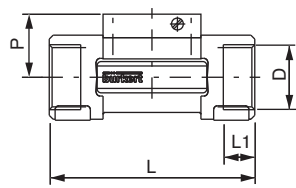


DN	P	True union connection in Plastic									Spigot connection in PVC			Spigot connection in PP or PVDF		
		L1	L2	L3	ASTM*	JIS*	øD	ASTM*	JIS*	øA	L	ø D	L2	L	ø D	L2
15	34.5	90	96	128	130.0	129.0	20	21.3	18.4	43	90	20	16.5	85	20	14
20	32.0	100	106	144	145.6	145.0	25	26.7	26.45	53	100	25	20.0	92	25	16
25	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

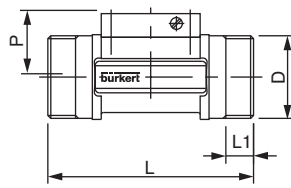
\* only for PVC

Dimensions [mm]

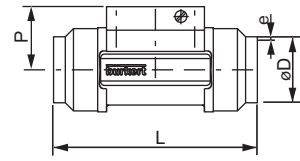
**Internal thread connection**  
G, NPT or Rc



**External thread connection**  
G

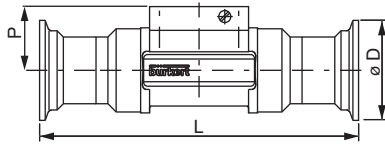


**Weld ends connection**  
EN ISO 1127/ISO 4200/DIN 11866 series B

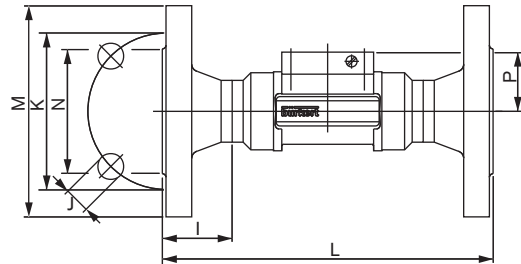


DN	P	Internal thread connection in stainless steel or brass			External thread connection in stainless steel			Weld ends connection in stainless steel		
		L	L1	D	L	L1	D	L	ø D	e
15	34.5	85	16.0 17.0 15.0	G 1/2 NPT 1/2 Rc 1/2	84	11.5	G 3/4	84	21.3	1.6
20	32.0	95	17.0 18.3 16.3	G 3/4 NPT 3/4 Rc 3/4	94	13.5	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	130	23,5	4 x 14.0	95.0	65.0	45.0
				ANSI	130		4 x 15.8		60.3	
				JIS	152		4 x 15.0		70.0	
20	32.0	150	50.5	EN	150	28,5	4 x 14.0	105.0	75.0	58.0
				ANSI	150		4 x 15.8		69.8	
				JIS	178		4 x 15.0		75.0	
25	32.2	160	50.5	EN	160	28,5	4 x 14.0	115.0	85.0	68.0
				ANSI	160		4 x 15.8		79.4	
				JIS	216		4 x 19.0		90.0	
32	35.8	180	50.5	EN	180	31,0	4 x 18.0	140.0	100.0	78.0
				ANSI	180		4 x 15.8		88.9	
				JIS	229		4 x 19.0		100.0	
40	39.6	200	64.0	EN	200	36,0	4 x 18.0	150.0	110.0	88.0
				ANSI	200		4 x 15.8		98.4	
				JIS	241		4 x 19.0		105.0	
50	45.7	230	77.5	EN	230	41,0	4 x 18.0	165.0	125.0	102.0
				ANSI	230		4 x 19.0		120.6	
				JIS	267		4 x 19.0		120.0	

## Ordering chart for flow switch Type 8010

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

Output	Electrical connection	Item no.
Reed contact, NO	Cable plug EN 175301-803	438 087
Reed contact, NC	Cable plug EN 175301-803	438 088

**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	Item 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	438 163	438 164	438 165	438 166	438 167	438 169	438 170	438 171
		NPT	438 172	438 173	438 174	438 175	438 176	438 178	438 179	438 180
		Rc	438 181	438 182	438 183	438 184	438 185	438 187	438 188	438 189
<b>Stainless steel - Temperature max. 55°C, PN16</b>										
Internal thread	FKM	G	438 199	438 200	438 201	438 202	438 203	438 205	438 206	438 207
		NPT	438 208	438 209	438 210	438 211	438 212	438 214	438 215	438 216
		Rc	438 217	438 218	438 219	438 220	438 221	438 223	438 224	438 225
External thread	FKM	G	438 226	438 227	*	*	*	*	*	
Weld ends	FKM	EN ISO 1127/ISO 4200/ DIN 11866 series B	438 235	*	438 237	*	*	*	*	438 243
<b>PVC - Temperature max. 50°C, PN10</b>										
True union	FKM	DIN 8063	438 091	438 092	438 093	438 094	438 095	438 097	438 098	438 099
		ASTM D 1785/76	438 109	438 110	438 111	438 112	438 113	438 115	438 116	438 117
		JIS 10K	438 118	438 119	438 120	*	438 122	*	438 125	438 126
Spigot	FKM	DIN 8063	438 100	*	438 102	438 103	438 104	*	*	*
<b>PP - Temperature max. 55°C, PN10</b>										
True union	FKM	DIN 16962	438 127	438 128	438 129	*	438 131	438 133	*	*
Spigot	FKM	DIN 16962	*	*	438 138	*	438 140	*	*	438 144

\* 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	Item no.
<b>O-ring set</b>	
FKM - for metal sensor fitting, DN15...DN50	426 340
EPDM - for metal sensor fitting, DN15...DN50	426 341
FKM - for plastic sensor fitting, DN15	431 555
FKM - for plastic sensor fitting, DN20	431 556
FKM - for plastic sensor fitting, DN25	431 557
FKM - for plastic sensor fitting, DN32	431 558
FKM - for plastic sensor fitting, DN40	431 559
FKM - for plastic sensor fitting, DN50	431 560
EPDM - for plastic sensor fitting, DN15	431 561
EPDM - for plastic sensor fitting, DN20	431 562
EPDM - for plastic sensor fitting, DN25	431 563
EPDM - for plastic sensor fitting, DN32	431 564
EPDM - for plastic sensor fitting, DN40	431 565
EPDM - for plastic sensor fitting, DN50	431 566
<b>Sensor holder</b>	
Brass with short blade "range 1", seal (FKM), screws for DN15...DN40	561 761
Brass with long blade "range 2", seal (FKM), screws for DN32...DN50	560 906

**i Further versions on request**

**Materials**

Stainless steel sensor holder

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 In case of special application conditions,  
please consult for advice.

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