

## Inline Wheel Flow Switch



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

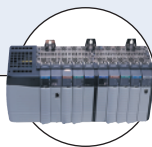
Type 8010 can be combined with...



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 version:

- 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 «Range1» fitted for the fittings DN15 to DN40.
- with a long blade „Range2» fitted for the fittings DN32 to DN50.

### General data

<b>Compatibility</b>	With sensor fittings S010 INLINE (see ordering chart)
<b>Sensor element</b>	Blade with magnet, Reed contact
<b>Materials</b>	
Housing, cover	PC, +20% glass fibre reinforced
Setting screw	Plated brass
Cable plug	PA
Materials wetted parts	
Fitting, sensor holder	Brass (CuZn39Pb2), stainless steel (316L - 1.4404), PVC, PP, PVDF
Blade	PVDF
Axis / Seal	Stainless steel (316L) / FKM (EPDM on request)
<b>Electrical connection</b>	Cable plug: EN 175301-803 (provided)
<b>Connection cable</b>	0.14 to 0.5 mm <sup>2</sup> cross section; max. 100 m length

### Complete device data (sensor fitting + electronic module)

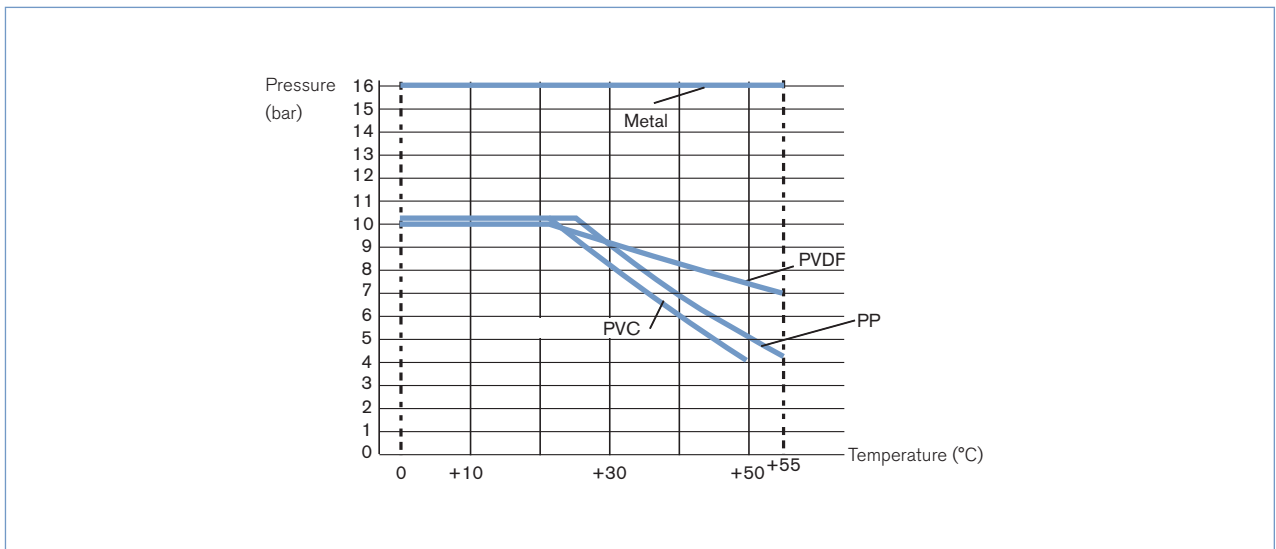
<b>Pipe diameter</b>	DN15 to DN50
<b>Switching range</b>	4.7 to 75.4 l/min (see selection table - on page 3)
<b>Flow velocity max.</b>	10 m/s
<b>Medium temperature</b>	
with sensor fitting in	
PVC	0 to 50°C (32 to 122°F)
PP, PVDF, brass, stainless steel	0 to 55°C (32 to 131°F)
<b>Medium pressure max.</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 to +55°C (32 to 131°F) (operating and storage)
<b>Relative humidity</b>	≤ 80%, without condensation
Standards, directives and approvals	
<b>Protection class</b>	IP65 with connector plugged-in and tightened
<b>Standards, directives</b>	
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

\* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	DN ≤ 25 only
Fluid group 2, §1.3.a	DN ≤ 32 or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 200

### Pressure / temperature chart



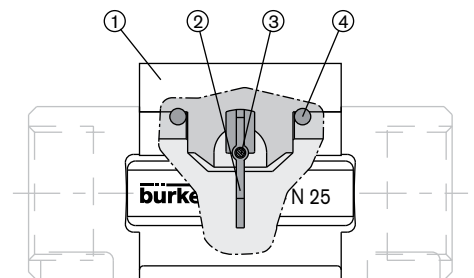
### Design, inner materials and principle of operation



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

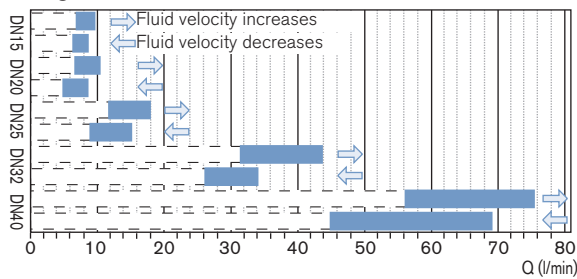


### Switching threshold and sensor fitting DN selection chart

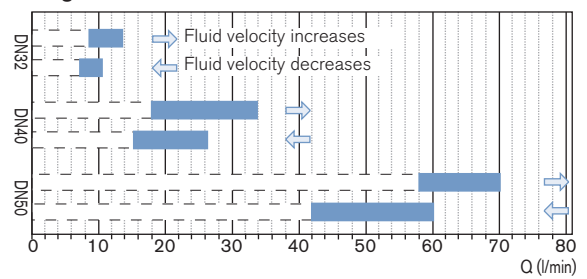
The type of blade (Range 1 or 2) and the sensor fitting DN define the flow range on which the switching thresholds can be adjusted. The table below shows the switching end values depending on the selected model of type 8010

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

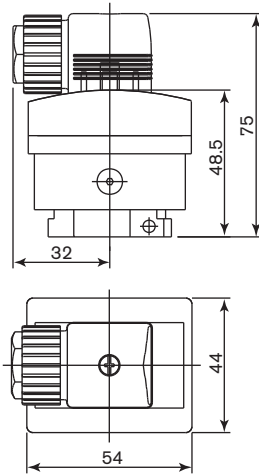


**Attention!**

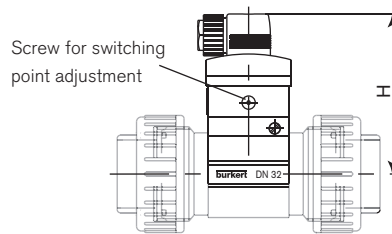
The sensor fitting with nominal diameters of 32 and 40 mm are designed for two different switching range (1 and 2) in relation with flow velocity and equivalent flow values. For all other sizes, there is only one switching range (1 or 2).

Dimensions [mm]

Electronic module SE10

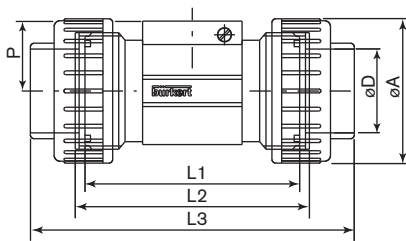


High of Electronic SE10 + Sensor fitting S010

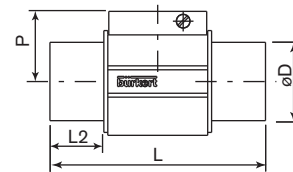


DN	H
15	100
20	97
25	97
32	101
40	105
50	111

True union connection - (solvent or fusion spigot)



Spigot connection - (solvent or fusion spigot)



DN	P	True union connection in Plastic					Spigot connection in PVC					Spigot connection in PP or PVDF				
		L1	L2	L3	DIN	ANSI*	JIS*	øD	ANSI*	JIS*	øA	L	ø D	L2	L	ø D
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			External thread connection			Weld ends connection		
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		Flange connection						
DN	P	Clamp connection - ISO4200 in stainless steel		Flange connection in stainless steel						
		L	ø D	Standard	L	I	J	M	K	N
15	34.5	130	34.0	DIN ANSI JIS	130 130 152	23,5	4x14.0 4x15.8 4x15.0	95.0 89.0 95.0	65.0 60.3 70.0	45.0 34.9 51.0
20	32.0	150	50.5	DIN ANSI JIS	150 150 178	28,5	4x14.0 4x15.8 4x15.0	105.0 99.0 100.0	75.0 69.8 75.0	58.0 42.9 56.0
25	32.2	160	50.5	DIN ANSI JIS	160 160 216	28,5	4x14.0 4x15.8 4x19.0	115.0 108.0 125.0	85.0 79.4 90.0	68.0 50.8 67.0
32	35.8	180	50.5	DIN ANSI JIS	180 180 229	31,0	4x18.0 4x15.8 4x19.0	140.0 117.0 135.0	100.0 88.9 100.0	78.0 63.5 76.0
40	39.6	200	64.0	DIN ANSI JIS	200 200 241	36,0	4x18.0 4x15.8 4x19.0	150.0 127.0 140.0	110.0 98.4 105.0	88.0 73.0 81.0
50	45.7	230	77.5	DIN ANSI JIS	230 230 267	41,0	4x18.0 4x19.0 4x19.0	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	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 (ISO7)	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 (ISO7)	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	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 K	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 8063	438 127	438 128	438 129	*	438 131	438 133	*	*
Spigot	FKM	DIN 8063	*	*	438 138	*	438 140	*	*	438 144

\*

 Further versions on request
**Port connection**

External thread G  
 Weld ends EN ISO 1127/ISO 4200  
 Clamp ISO (for pipe EN ISO 1127/ISO 4200)  
 Flange EN1092-1, ANSI B16-5-1988, JIS 10K  
 True union DIN 8063, JIS 10K  
 Spigot DIN 8063

**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 to DN50	426 340
EPDM - for metal sensor fitting, DN15 to 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 to DN40	561 761
Brass with long blade "range 2", seal (FKM), screws for DN32 to DN50	560 906

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

Stainless steel sensor holder