

Flow switch for water-based media

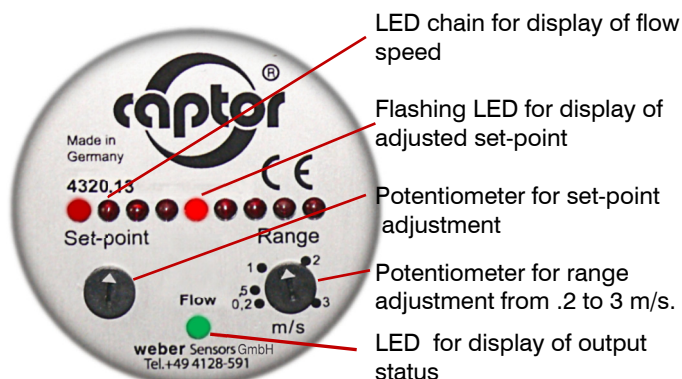
flow-captor 4320.1x/xx

The flow-captor type 4320.1x/xx is a flow monitor which is used in automation processes and other industrial applications where liquid media need to be monitored. The 432x-series offers "inline-models" that have been specially designed for installation in smaller pipe diameters. The sensor works according to the calorimetric measuring principle. The detection takes place inside the inline tube, whereby the sensor measures the flow velocity of the medium and converts it into an electrical signal.

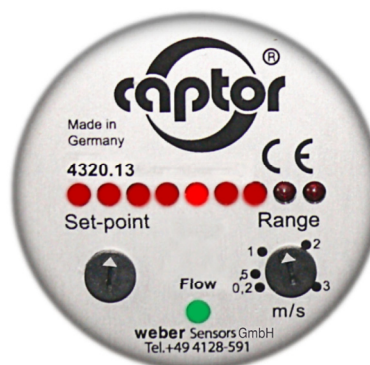
- for small pipe sizes from OD6 up to OD28
- precise switching flow sensor with high accuracy even with slower flows
- separate adjustment of flow range and switching point
- analogue display of flow condition and adjusted switch-point via LED chain
- electronic function without any mechanically moved parts
- robust industrial design (special potting)
- **ISO 9001:2015**



Control and display panel



example of operation

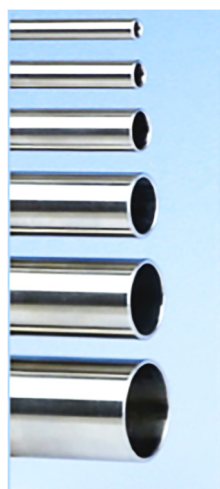


Measuring range adjusted to 3 m/s = 100 % (9. LED)

Set-point adjusted to 50 % of end value (5. LED)

Flow speed equates 75 % (7. LED)

Green LED is **ON**:
Flow rate is above the adjusted set-point



The sensor tube

The sensor tube (length 200 mm) is made of stainless steel 316Ti and is an integral part of the inline flow-captor.

This series is available with sensor tubes in different sizes as 6 x 1, 8 x 1, 12 x 1, 18 x 1,5, 22 x 1,5 as well as 28 x 1,5 mm.

For aggressive media other materials can be offered on request.



Free flow

The sensor element of the inline flow-captor is fitted to the out-side of the sensor tube. Since there is no element inside the tube, the sensor is non-intrusive to the flow. The robust housing is constructed of glass fibre reinforced PBTP (Ultradur®). The electronics housing includes a full resin encapsulation.

Mechanical connection

Cutting ring couplings, to be ordered separately, have proven their value when mounting the sensor into pipe systems. By slightly tightening the swivel nut the v-shaped ring inside of the coupling cuts into the sensor tube wall and thus ensures a dense and reliable form closure.



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| Technical data | | | | | | |
|---|--|-----------------------|-------------------------|---------------------------|-------------------------|---------------------------|
| Type | 4320.1x/xx | | | | | |
| Medium | water-based | | | | | |
| Sensor data | | | | | | |
| Measuring range | 0 - 20 cm/s to 0 - 300 cm/s, continuously adjustable* | | | | | |
| Flow volume* at 300 cm/s related to tube inner diameter | 6 x 1 mm 2.25 l/min | 8 x 1 mm 5.1 l/min | 12 x 1 mm 14.1 l/min | 18 x 1.5 mm 31.8 l/min | 22 x 1.5 mm 51 l/min | 28 x 1,5 mm 88.4 l/min |
| Set-point range | approx. 15 % - 90 % of measuring range setting | | | | | |
| Medium temperature | -20 °C to +80 °C | | | | | |
| Ambient temperature | -20 °C to +70 °C | | | | | |
| Pressure | max. 30 bar (3000 kPa) | | | | | |
| Response time | 2 sec. to 10 sec. (according to range setting) | | | | | |
| Linearity deviation | < 5 % * | | | | | |
| Repeatability | < 2 % | | | | | |
| Hysteresis | ca. 10 % | | | | | |
| Temperature drift | < 0.3 % K | | | | | |
| Mechanical data | | | | | | |
| Protection rate | IP65 | | | | | |
| Material housing | PBTP, glass fibre reinforced (Ultradur ®) | | | | | |
| Material inline tube | stainless steel 316Ti (other material on request) | | | | | |
| Torsion between pipe and housing | ≤ 10 Nm | | | ≤ 80 °C | | |
| Pipe sizes OD x wall thickness | 6 x 1 mm | 8 x 1 mm | 12 x 1 mm | 18 x 1,5 mm | 22 x 1,5 mm | 28 x 1,5 mm |
| Electrical connection | Integrated plug connection with PG9 coupling, 2 m oiflex cable 3 x 0,5 mm ² (M12-coupling on request) | | | | | |
| Sensor dimensions | see drawing on next page | | | | | |
| Electrical data | | | | | | |
| Operating voltage | 18 to 30 VDC, incl. residual ripple | | | | | |
| Current consumption | max. 150 mA (pulsed) | | | | | |
| Power consumption | approx. 1 W | | | | | |
| Switching current | ≤ 400 mA | | | | | |
| Circuit protection | reverse polarity / short circuit / overload | | | | | |
| Voltage drop | < 2 V at max. load | | | | | |
| State of readiness | approx. 10 sec. after connection of power | | | | | |
| Electrical output Switching state at zero flow | 4320.12 PNP current-carrying (opener / n. c.) 4320.13 PNP currentless (closer / n. o.) | | | | | |
| High temperature version | | | | | | |
| Type | 432x.1x/xx S107 | | | | | |
| Medium temperature in relation to ambient temperature | Medium temperature max. | | | Ambient temperature max. | | |
| | 130 °C | | | 30 °C | | |
| | 120 °C | | | 40 °C | | |
| | 110 °C | | | 50 °C | | |
| | 100 °C | | | 60 °C | | |
| | 90 °C | | | 70 °C | | |
| | Medium temperature min. | | | Ambient temperature min. | | |
| | - 20 °C | | | - 20 °C | | |
| | - 30 °C | | | - 10 °C | | |

* related to water

weber

Sensors GmbH Strohdreich 32

Sensors Ltd. 66 Eastbourne Road, Southport

Sensors LLC. 4462 Bretton Court, Building 1, Suite 7

DE-25377 Kollmar, Germany

Merseyside PR8 4DU, UK

Acworth, Georgia 30101, USA

Tel.: +49 (0)4128 - 591 · Fax: - 593

Tel.: +44 (1704) - 551684 · Fax: - 551297

Tel.: +1 (770) 592 - 6630 · Fax: - 592 6640

www.captor.de

info@captor.de

sales@captor.co.uk

sales@captor.com

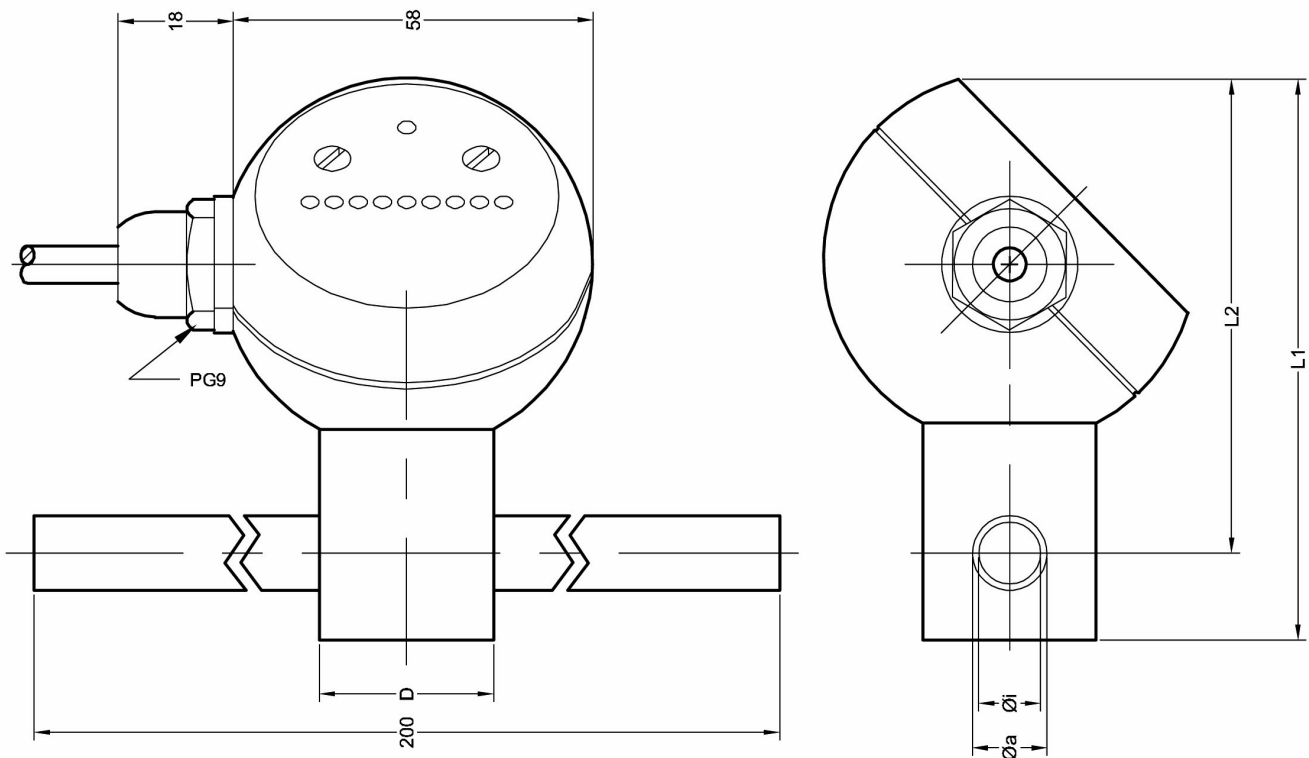
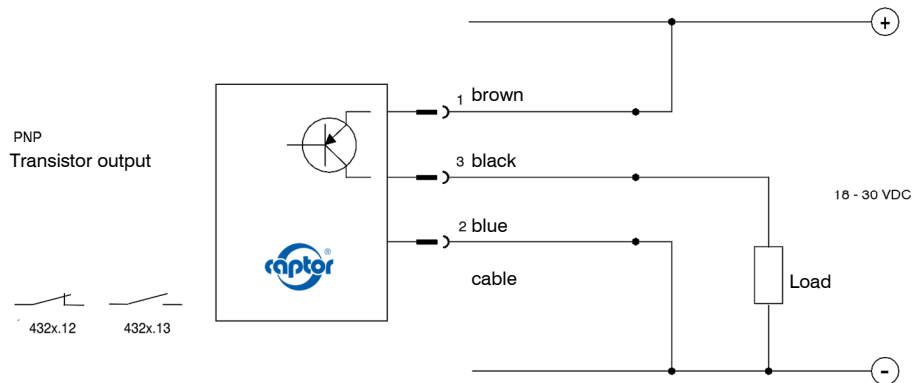
Technical data subject to alteration! Rev. AL 06.11.18

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Connection diagram



Maße / dimensions in mm

| da | di | L1 | L2 | D |
|----|----|------|------|----|
| 6 | 4 | 84.5 | 71.5 | 30 |
| 8 | 6 | 85.5 | 72.5 | 30 |
| 12 | 10 | 88.5 | 74.5 | 30 |
| 18 | 15 | 94 | 77 | 30 |
| 22 | 19 | 99 | 82 | 30 |
| 28 | 25 | 96 | 74 | 38 |

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Sensors GmbH Strohdeich 32
 Sensors Ltd. 66 Eastbourne Road, Southport
 Sensors LLC. 4462 Bretton Court, Building 1, Suite 7

DE-25377 Kollmar, Germany Tel.: +49 (0)4128 - 591 · Fax: - 593
 Merseyside PR8 4DU, UK Tel.: +44 (1704) - 551684 · Fax: - 551297
 Acworth, Georgia 30101, USA Tel.: +1 (770) 592 - 6630 · Fax: - 592 6640

www.captor.de
info@captor.de
sales@captor.co.uk
sales@captor.com

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