

# Flow switch for oil-based media

## flow-captor 4321.1xM/xx

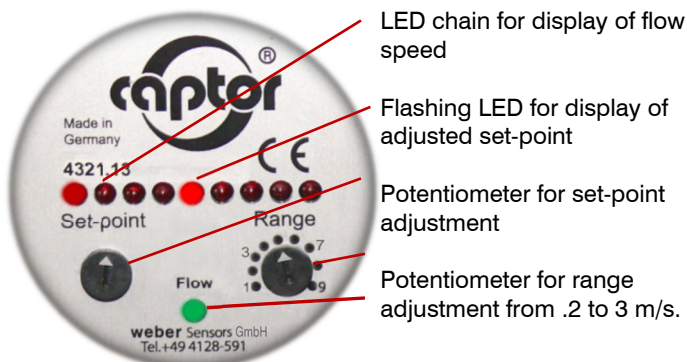


The flow-captor type 4321.1xM/xx is a flow monitor which is used in automation processes or other industrial applications where liquid media need to be monitored. The 4320.1x-series offers inline models which have been specially designed for installation in smaller pipe diameters. The sensor works according to the calorimetric measuring principle. The detection takes place inside the in-line 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
- fully electronic
- separate adjustment of flow range and switching point
- no mechanically moved parts
- separate adjustment for "range" and "set-point"
- analogue flow display and indication of the adjusted set-point via LED chain.
- LED for output status
- ISO 9001 : 2015



### Control and display panel



LED chain for display of flow speed

Flashing LED for display of adjusted set-point

Potentiometer for set-point adjustment

Potentiometer for range adjustment from .2 to 3 m/s.

### 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)

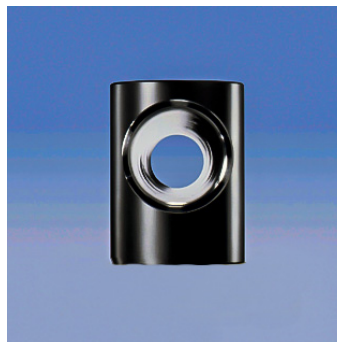
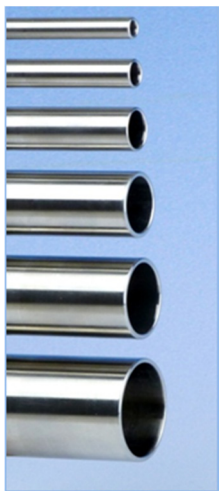
Green LED is ON:  
Flow rate is above the adjusted set-point

### 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 special sensor tube materials as Titanium and Hastelloy can be offered.



### 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 inline tube is made of stainless steel AISI 316Ti. The electronics is completely resin encapsulated.

### 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.



**weber**

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Technical data subject to alteration! Rev. AF 14.06.18

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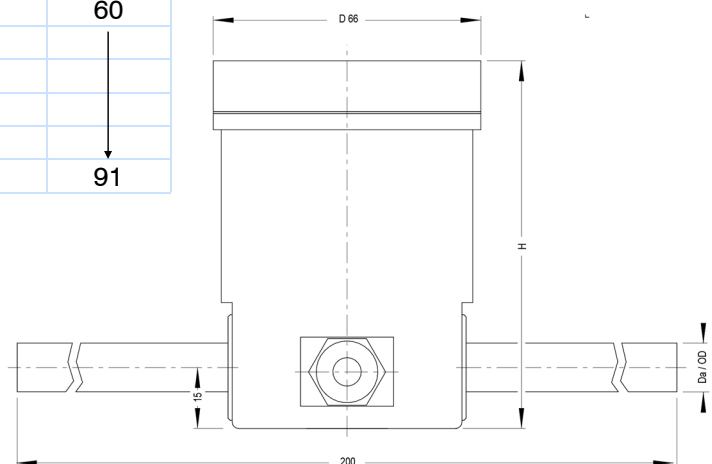


Technical data						
Type	4321.1xM/xx					
Medium	oil-based					
Sensor data						
Measuring range	0 - 30 cm/s to 0 - 300 cm/s, cont. adjustable *1					
Flow volume at 300 cm/s	8 x 1 mm 5.1 l/min	12 x 1 mm 14.1 l/min	18 x 1.5 mm 31.8 l/min	22 x 1.5 mm 51 l/min		
Measuring range	0 - 30 cm/s to 0 - 200 cm/s, cont. adjustable *1					
Flow volume at 200 cm/s	6 x 1 mm 1.51 l/min		28 x 1.5 mm 58.9 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 % *1					
Repeatability	< 2 %					
Hysteresis	ca. 10 %					
Temperature drift	< 0,3 % K					
Mechanical data						
Protection rate	IP67					
Housing material	stainless steel 316 Ti					
Sensor material	stainless steel 316Ti (other material on request)					
Pipe sizes	8 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
OD x wall thickness						
Connection	4-pin M12-coupling (cable type 4940 must be ordered separately)					
Dimensions of housing in mm	see drawing					
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	4321.12M/xx PNP current-carrying (opener / n. c.)					
Switching state at zero flow	4321.13M/xx PNP currentless (closer / n. o.)					

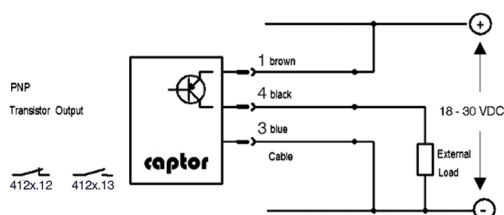
\*1 calibrated with insulation oil type "Shell Diala S4 ZX-I"

Da / OD (mm)	H (mm)
6	60
8	
12	
18	
22	
28	91

### Dimensions:



### Connection diagram



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