

Flow switch for liquid media



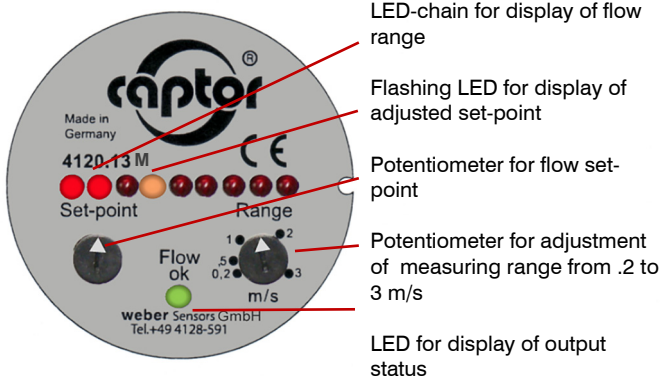
flow-captor 412x.1xM

The flow-captor 412x.1xM is ideally suited for use in automation processes or other industrial applications where liquid media must be monitored. The sensor works according to the calorimetric measuring principle, fully electronic and without mechanically moving parts. The flow-captor detects the flow velocity of the medium and converts it into an electrical signal.

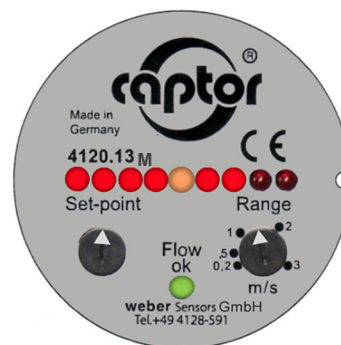
- **robust stainless steel construction** (special encapsulation)
- high switching accuracy even with slower flows
- separate adjustment of set point and range
- display of the flow and the switching point via LED chain
- LED for output status
- precise switching flow monitor
- **ISO 9001:2015**



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**: Adjusted rate is above the set-point.

1/2" BSP thread standard size



The flow-captor 412x.1xM is available with different sensor head versions.

- 1/2" BSP thread – standard size –
- Extended sensor probes with 1/2" BSP thread are available
- NPT thread as option

Sensor heads

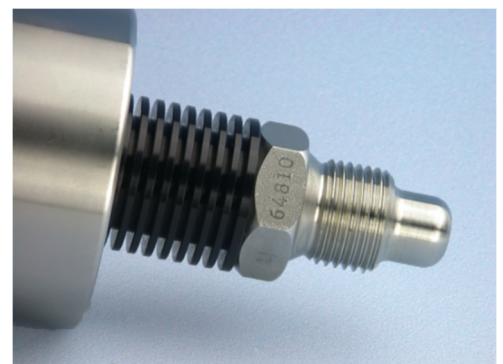
The sensor head is constructed of only one piece of electropolished stainless steel and without any sensor element intruding into the medium. Easy installation by means of T-piece or welded fitting.

For aggressive media special materials can be offered.

The electronics inside is completely epoxy resin encapsulated.

flow-captor 412x.1xMK

Cooling version with heat sink for medium temperature up to 130 °C



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flow-captor 412x.1xM

Technical data		
Type	4120.1xM	4121.1xM
Media	water-based	oil-based
Sensor data		
Measuring range	0 - 20 cm/s to 0 - 300 cm/s, continuously adjustable *1	0 - 30 cm/s to 0 - 300 cm/s, continuously adjustable *2
Set-point range	approx. 15 % - 90 % of range setting	approx. 15 % - 90 % of range setting
Medium temperature	-20 °C to +80 °C	
Ambient temperature	-20 °C to +70 °C	
Pressure	max. 100 bar (1450 PSI)	
Response time	2 sec. - 10 sec. depending on range setting	2 sec. - 15 sec. depending on range setting
Linearity deviation	< 5 % *1	< 5 % *2
Repeatability tolerance	< 2 %	
Hysteresis	approx. 10 %	
Temperature drift	< 0.3 % K	
Mechanical data		
Protection class	IP67	
Material of housing	stainless steel AISI 303	
Material of sensor probe	stainless steel AISI 303 (other material on request)	
Sensor probe sizes		a) flow-captor 412x.1xM/ BSP Length 30 mm, 1/2" BSP
(A): Sensor head AISI 316		b) flow-captor 412x.1xMA/ BSP S110/45 Length 45 mm, 1/2" BSP
(S110/xx): Length from hexagon bolt to sensor tip		c) flow-captor 412x.1xMA/ BSP S110/67 Length 67 mm, 1/2" BSP
		d) flow-captor 412x.1xMA/ BSP S110/90 Length 90 mm, 1/2" BSP
Electrical connection	4-pin M12-coupling	
Connection cable (optional)	PUR-cable type 4940, 3 x 0.34 mm ² with 4-pin M12 plug	
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 and overload	
Voltage drop	< 2,5 V at max. load	
Ready to operate	approx. 10 sec. after applying the operating voltage	
Electrical output		
Switching condition with flow < switching point	412x.12M energized, switched	412x.13M currentless, not switched
LED	off	off
Switching condition with flow > switching point	currentless, not switched	energized, switched
LED	green	green
Cooling version – Temperature data		
Type	412x.1xMK	
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	

*1 related to water

*2 related to insulating oil type "Shell Diala S4 ZX-I"

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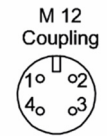
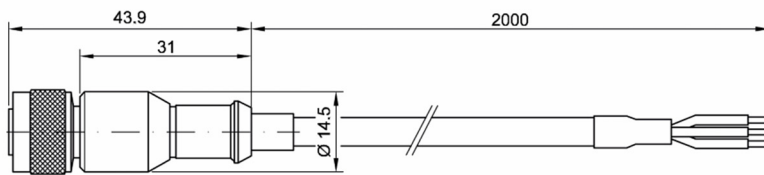
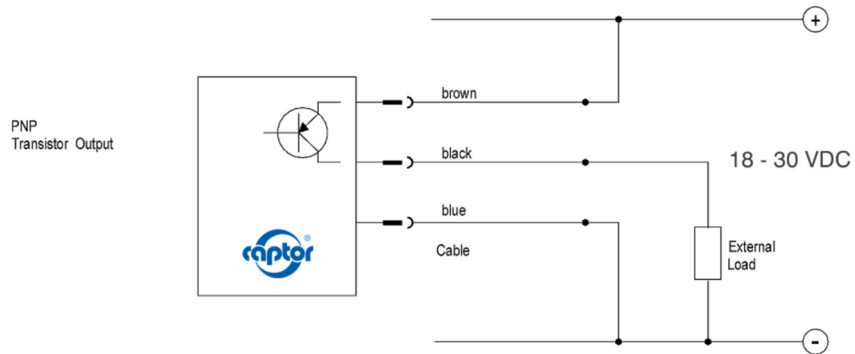
Technical data subject to alteration! Rev. AR 12.02.19

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Connection diagram:

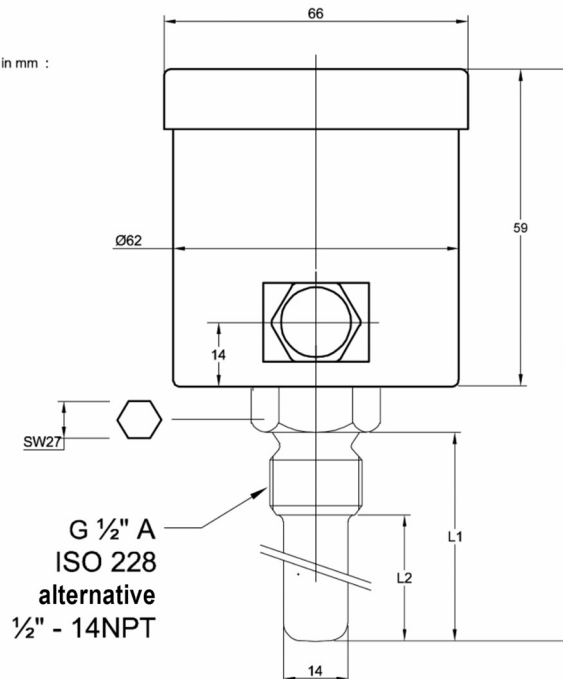


Front view onto the pins and sockets

M 12 Coupling

Cable
2 m
3 x 0.34 mm²

Dimensions in mm :



Type	L	L1	L2
Standard	109	30	12,5
S110/45	124	45	27,5
S110/67	146	67	49,5
S110/90	169	90	73,0

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