

# flow switch for liquid media with analog temperature output



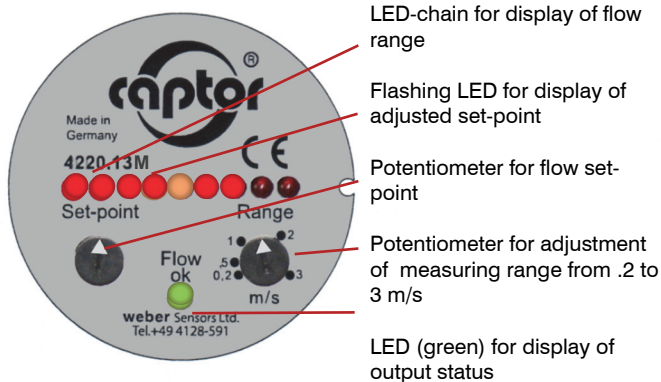
## flow-captor 422x.1xM

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. The 422x.1xM has a combined flow temperature output.

- precise switching sensor with additional analogue temperature output
- high switching accuracy even under low flow condition
- separate adjustment for range and set-point
- analogue display of the flow and the switching point via LED chain
- LED-display of output status
- ISO 9001 : 2015



### Control and Display Panel



LED-chain for display of flow range

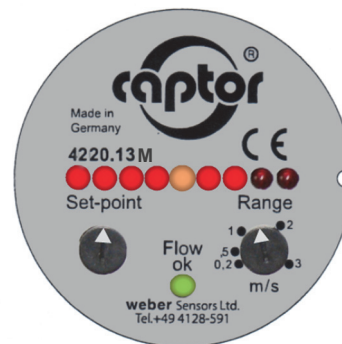
Flashing LED for display of adjusted set-point

Potentiometer for flow set-point

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

LED (green) for display of output status

### 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.

### 1/2" BSP thread Standard size



The **flow-captor** 422x.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

### The sensor head

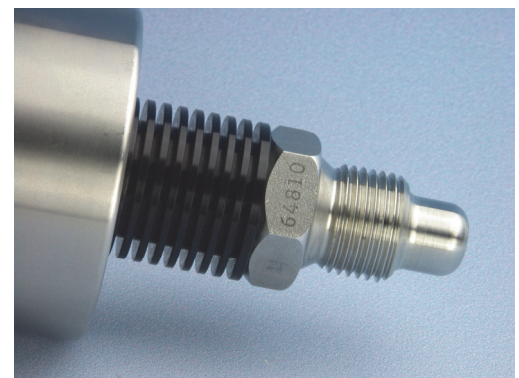
The sensor head is constructed of only one piece of electropolished stainless steel and without any sensor element intruding into the medium. Easy installation by means of T-piece or welded fitting.

For aggressive media special materials as Titanium, Hastelloy, Monel or a special sensor coating can be offered.

The electronics are fully encapsulated.

### Type 422x.1xMK

cooling version for medium temperature up to 130 °C



## weber

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**flow-captor 422x.1xM**

Technical Data		
Type	<b>4220.1xM</b>	<b>4221.1xM</b>
Medium	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	up to 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	ca. 10 %	
Temperature drift	< 0.3 % per Kelvin	
Mechanical Data		
Protection class	IP 67	
Material of housing	stainless steel AISI 303 (M)	
Material of sensor probe	stainless steel AISI 303 (other material on request)	
Sensor probe sizes		<b>a) flow-captor 422x.1xM 1/2" BSP</b> Length 30 mm, 1/2" BSP
A: sensor head AISI 316		<b>b) flow-captor 422x.1xMA 1/2" BSP S110/45</b> Length 45 mm, 1/2" BSP
S110/xx: length from hexagon to sensor tip		<b>c) flow-captor 422x.1xMA 1/2" BSP S110/67</b> Length 67 mm, 1/2" BSP
		<b>d) flow-captor 422x.1xMA 1/2" BSP S110/90</b> Length 90 mm, 1/2" BSP
Electrical connection	4-pin M12 coupling	
Connection cable (optional)	oil flex cable type 4941, 4 x 0.34 mm <sup>2</sup> with 4-pin M12-coupling	
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	
Initial operation	approx. 10 sec. after applying the operating voltage	
Electrical output without flow:	4220.12M PNP n.c. (opener) current-carrying 4220.13M PNP n.o. (closer) currentless	4220.12M PNP n.c. (opener) current-carrying 4220.13M PNP n.o. (closer) currentless
Temperature output	-10 °C (14 °F) to +80 °C (176 °F) ± 4 - 20 mA	
Cooling version – Temperature Data		
Type	<b>422x.1xMK</b>	
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 oil type "Shell Diala"

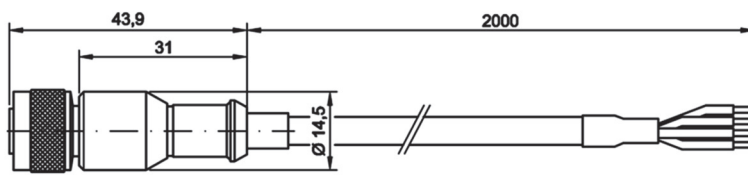
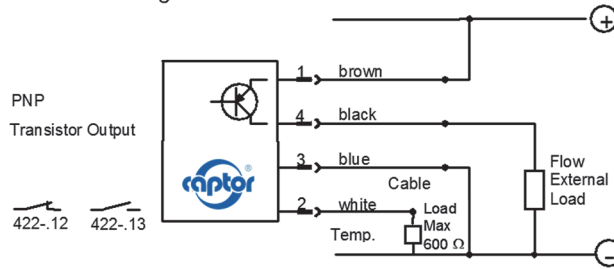


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Connection diagram



M 12  
plug

Cable  
2 m  
4 x 0,34 mm<sup>2</sup>

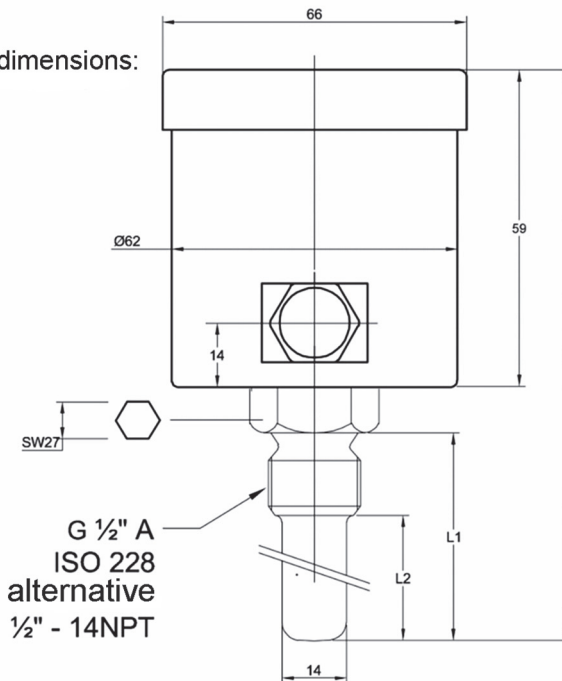
M 12  
plug

M 12  
coupling



View from the front on the pins  
and sockets respectively

Housing dimensions:



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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