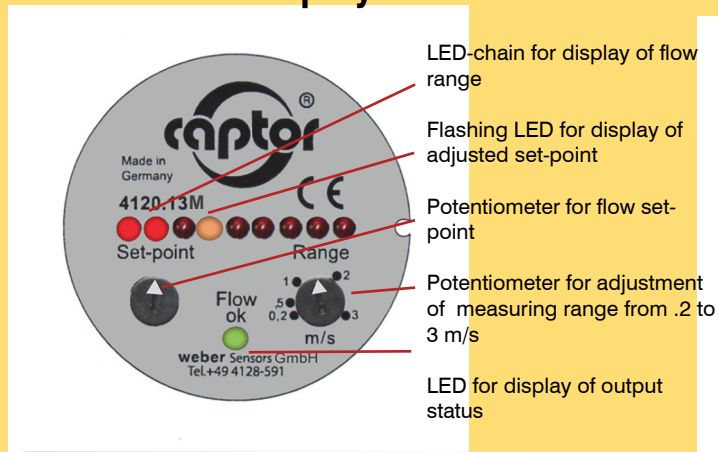


The flow-captor 412x.1xM 19 - 72 VDC is ideally suited for use in automation processes or other industrial applications where liquid media has to be monitored. The sensor works according to the calorimetric measuring principle, fully electronic and without any mechanically moved parts. The flow-captor detects the flow velocity of the medium and converts it into an electrical signal.

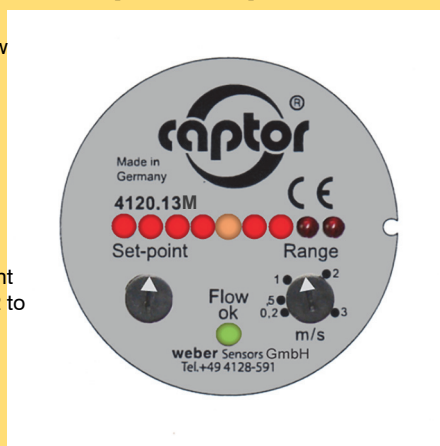
- **voltage range from 19 - 72 VDC**
- precise switching flow monitor
- high switching accuracy even with slower flows
- separate adjustment of Set-point and Range
- display of the flow condition and the switching point via LED chain
- LED for output status
- robust industrial design (special potting)
- **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.

### 1/2" BSP thread standard size



The flow-captor 412x.1xM 19 - 72 VDC 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

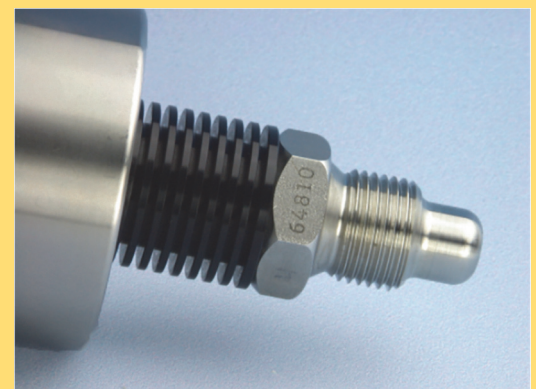
The sensor head is constructed of only one piece of electropolished stainless steel and without any sensor element intruding into the medium. Easy installation by means of T-piece or welded fitting.

For aggressive media special materials can be offered.

The electronics inside is completely epoxy resin encapsulated.

### flow-captor 412x.1xMK 19 - 72 VDC

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





# Flow switch for liquid media

## flow-captor 412x.1xM 19 - 72 VDC



### Technical data

Type	<b>4120.1xM 19 - 72 VDC</b>	<b>4121.1xM 19 - 72 VDC</b>
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	

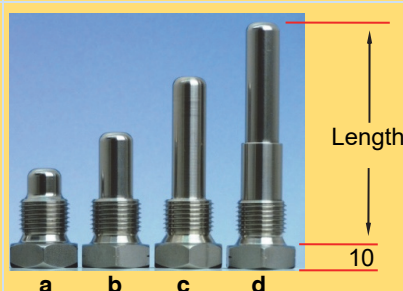
### Mechanical data

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): Sensor head  
AISI 316

(S110/xx): Length from  
hexagon bolt to sensor tip



#### a) flow-captor 412x.1xM 19 - 72 VDC / BSP

Length 30 mm, 1/2" BSP

#### b) flow-captor 412x.1xMA 19 - 72 VDC / BSP S110/45

Length 45 mm, 1/2" BSP

#### c) flow-captor 412x.1xMA 19 - 72 VDC / BSP S110/67

Length 67 mm, 1/2" BSP

#### d) flow-captor 412x.1xMA 19 - 72 VDC / 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 <sup>2</sup> with 4-pin M12 plug	

### Electrical data

Operating voltage	19 - 72 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

	<b>412x.12M 19 - 72 VDC</b>	<b>412x.13M 19 - 72 VDC</b>
Switching condition with flow < switching point	energized, switched	currentless, not switched
LED	off	off
Switching condition with flow > switching point	currentless, not switched	energized, switched
LED	green	green

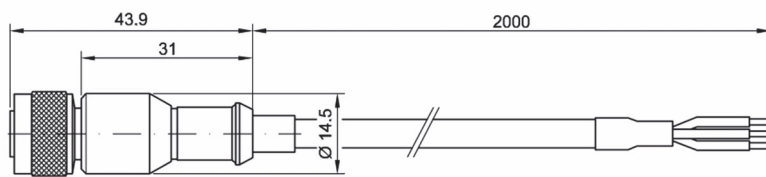
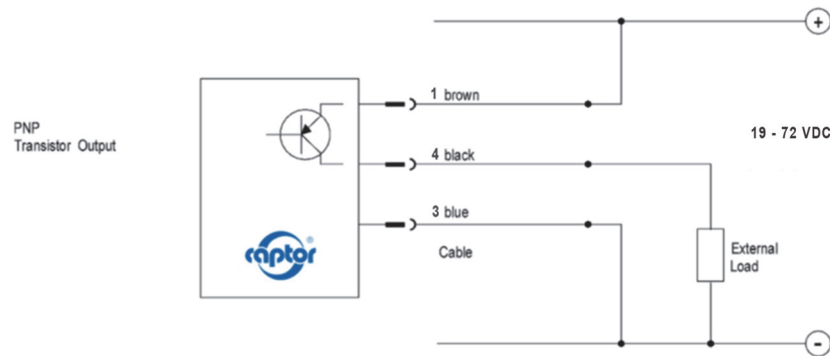
### Cooling version – Temperature data

Type	<b>412x.1xMK 19 - 72 VDC</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

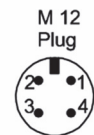
\*2 related to insulating oil type "Shell Diala S4 ZX-I"

### Connection diagram:

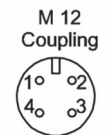


M 12  
Coupling

Cable  
2 m  
3 x 0.34 mm<sup>2</sup>



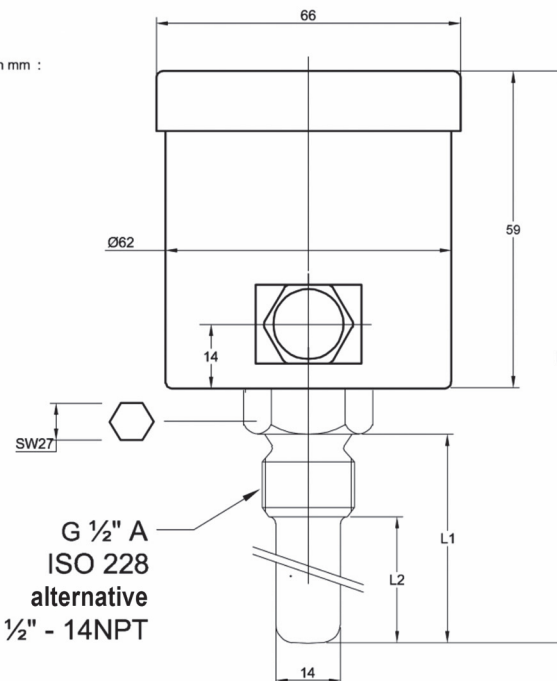
M 12  
Plug



M 12  
Coupling

Front view onto the pins and sockets

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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