sperosens
safety through innovation

FLOW-CAPTOR 412X.1XM

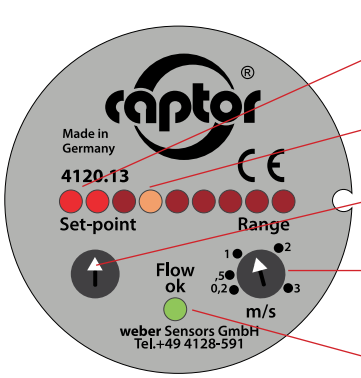
Flow switch for liquid media

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.

FEATURES:

- 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:



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 for display of output status

T +27 12 665 0317 · **E** info@spero.co.za · Sperosens · Sperosens · **www.spero.co.za**

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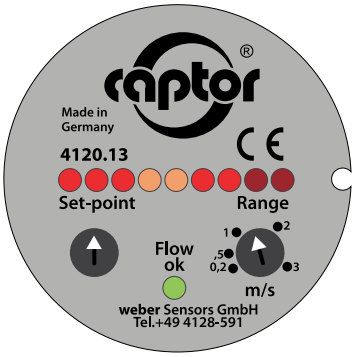
EXAMPLE OF OPERATION:



- 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 is available with different sensor head versions.

- ½“ BSP thread – standard size –
- Extended sensor probes with ½“ BSP thread are available
- NPT thread as option

FLOW-CAPTOR 412X.1XMK:

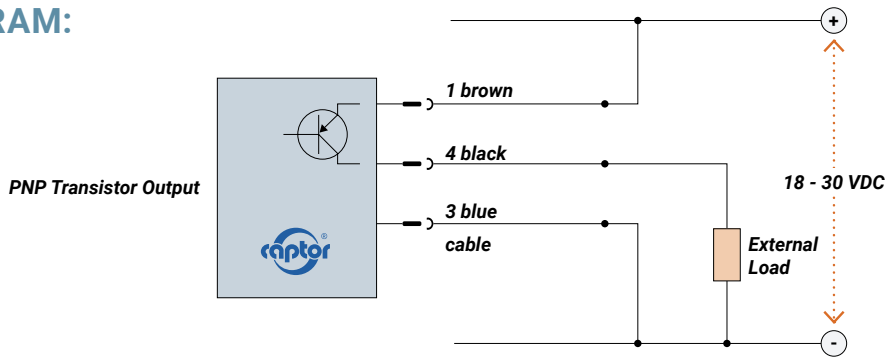
Cooling version with heat sink for medium temperature up to 130°C

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.

CONNECTION DIAGRAM:



FLOW-CAPTOR 412X.1XM

TECHNICAL DATA

Type	4120.1xM	4121.1xM
Medium	water-based	oil-based

SENSOR DATA *1

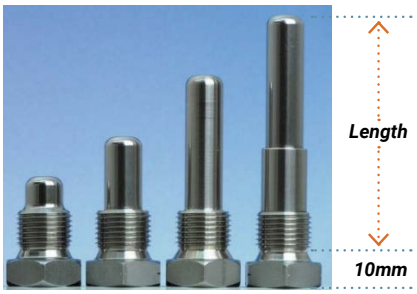
Measuring range	0 - 20 cm/s to 0 - 300 cm/s, continuously adjustable *1	0 - 30 cm/s to 0 - 300 cm/s, continuously adjustable *2
Set-point range	approx. 15 % - 90 % of range setting	
Medium temperature	-20°C to +80°C	
Ambient temperature	-20°C to +70°C	
Pressure	max. 100 bar (1450 PSI)	
Response time	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/ BSP
Length 30 mm, ½" BSP

b) flow-captor 412x.1xMA/ BSP
S110/45 Length 45 mm, ½" BSP

c) flow-captor 412x.1xMA/ BSP
S110/67 Length 67 mm, ½" BSP

d) flow-captor 412x.1xMA/ BSP
S110/90 Length 90 mm, ½" BSP

Electrical connection	4-pin M12-coupling
Connection cable (optional)	PUR-cable type 4940, 3 x 0.34 mm² 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

FLOW-CAPTOR 412X.1XM

ELECTRICAL DATA

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

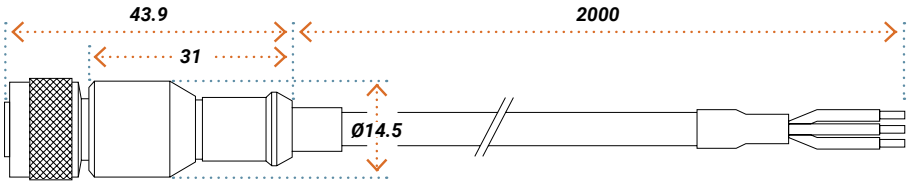
ELECTRICAL OUTPUT	412x.12M	412x.13M
Switching condition with flow < switching point	energized, switched off	currentless, not switched
LED	off	off
Switching condition with flow > switching point	currentless, not switched	energized, switched
LED	green	green

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

FLOW-CAPTOR 412X.1XM

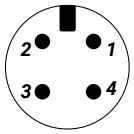
HOUSING DIMENSIONS:



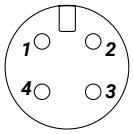
M 12 COUPLING

CABLE 2m 3 X 0.34mm²

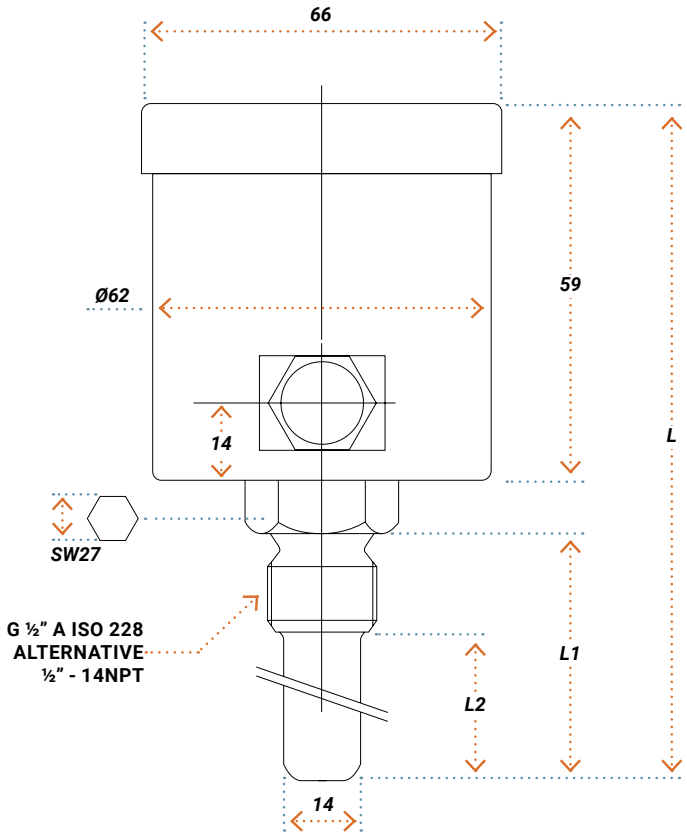
M 12 PLUG



M 12 COUPLING



Front view onto the pins and sockets



Type	L	L1	L2
Standard	109	30	12,5
S110/45	124	45	27,5
S110/67	146	67	29,5
S110/90	169	90	73,0