

## Product information

### Filter Monitoring · Filters



#### Description

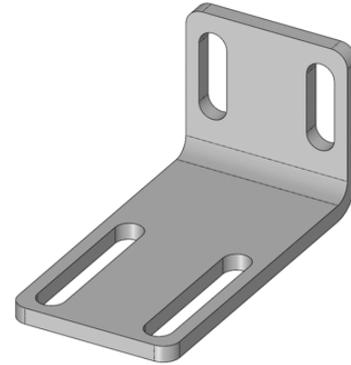
The sensor for filter monitoring is installed on the suction side as close as possible to the pump. The pressure measured allows conclusions to be drawn about the condition of the filter element and the suction line in general. This allows detecting pending maintenance or cleaning of the filter as well as a closed supply line. A reliable liquid supply of the micro annular gear pumps, especially in production plants (24/7 operation) is thus guaranteed.

The implementation of the sensor is very easy. It can be attached directly to T-filters or integrated into the suction line by means of a separate mounting block. Later upgrades are possible.

There are several sensor versions available. In addition to the simple pressure sensor with analog output, pressure switches with digital display, optical LED displays and/or configurable output signals are available. Pressure switches can give feedback when previously defined pressure thresholds are reached. The pressure switches can be configured to meet specific customer requirements via IO-Link interface.

#### Advantages

- Simultaneous monitoring of filter and system pressure on the suction side
- Various pressure sensors can be attached to T-filters or integrated into the suction line by means of a mounting block
- Can be used with all filter types
- Customized combination of filter and pressure sensor possible
- Switching points configurable via IO-Link \*
- LED indicator lamps for the switching points \*
- IP 65



**Mounting plate for filter with filter monitoring**

**Mounting bracket for mounting block with filter monitoring**

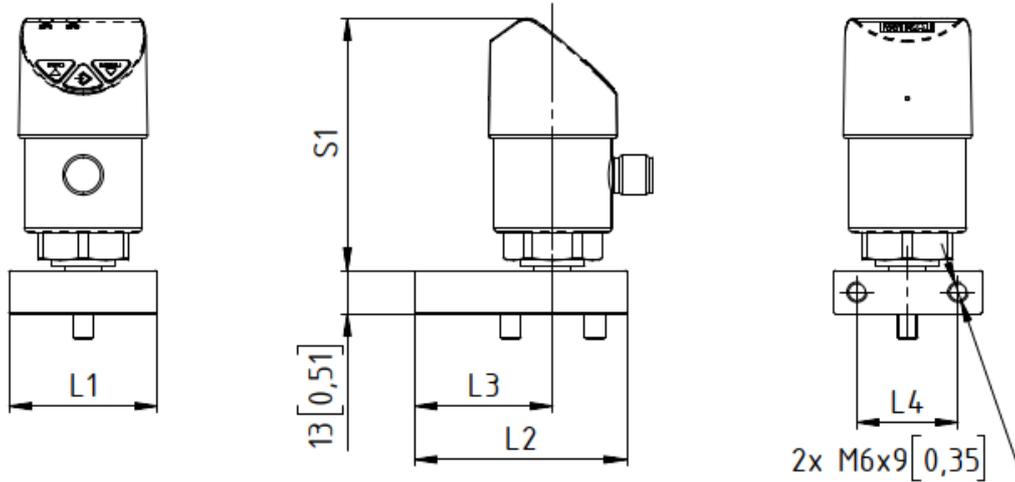
#### Technical data

Measuring range	-1 ... 1.5 bar [-14.5 ... 21.8 psi]
Accuracy	± 12.5 mbar [± 0.18 psi] (± 0.5 % measuring range)
Overpressure limit	4 bar [58 psi] (2 times measuring range)
Liquid temperature range	-20 ... +85 °C [-4 ... 185 °F] (with pressure indicator) -40 ... +125 °C [-40 ... 257 °F] (without pressure indicator)
Viscosity range	0.5 - 10,000 mPas
Fluid connection mounting block	1/8" NPT, 3/8" NPT, 1/4"-28 UNF *
Wetted parts	1.4404, PEEK
Switching output	2 switching points PNP/NPN *
Analog signal	4 ... 20 mA / 0 ... 10 V DC (3-wire) *
Power supply connection	M12 circular connector, 4-/5-pin socket *
Power supply	15 - 35 V DC
Remarks	* depending on respective configuration

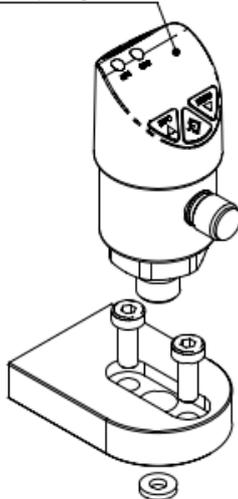
#### Notice

Even if single parameters are within the indicated performance range of technical data, certain parameter combinations may not be achievable. Single parameters may exceed their indicated performance range under adequate circumstances. For detailed evaluation please contact HNP Mikrosysteme. Actual performance may vary. Specifications are subject to change without notice. This document is subject to change without notice.

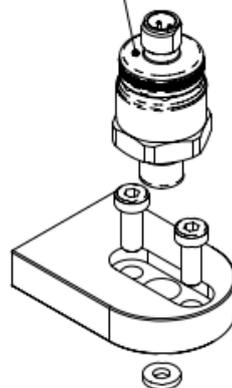
## Dimensions adaption T-filter



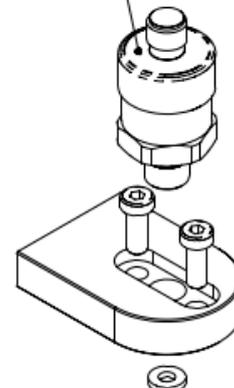
pressure switch  
with display



pressure switch  
without display



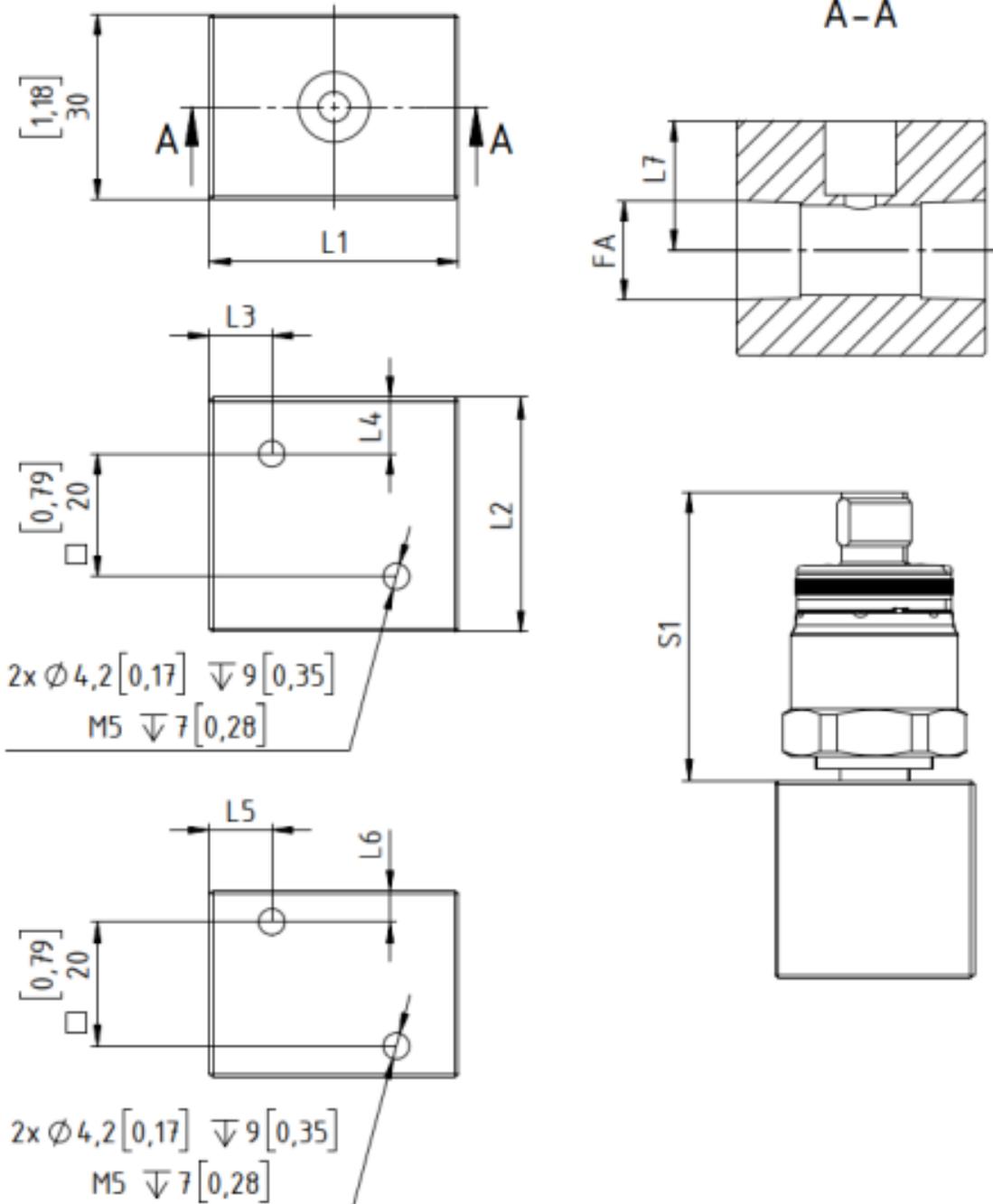
pressure sensor



Dimensions are millimeters next to [inches].  
Drawing is subject to change without notice.

filter type	F-MI1-T	F-MI2-T	F-MI3-T	F-MI4-T
L1	38 [1.50]	44 [1.73]	70 [2.76]	80 [3.15]
L2	60 [2.36]	63 [2.48]	76 [2.99]	85 [3.35]
L3	41 [1.61]	41 [1.61]	41 [1.61]	45 [1.77]
L4	20 [0.79]	30 [1.18]	30 [1.18]	30 [1.18]
sensor type	pressure switch with display	pressure switch without display	pressure sensor	
S1	75.3 [2.96]	50.3 [1.98]	48.1 [1.89]	

## Dimensions mounting block (1)



## Dimensions mounting block (2)

fluid connection variant (FA)	1/4"-28 UNF	1/8" NPT	3/8" NPT
L1	32 [1,26]	32 [1,26]	40 [1,57]
L2	30 [1,18]	32 [1,18]	38 [1,50]
L3	6 [0,24]	6 [0,24]	10 [0,39]
L4	5 [0,20]	6 [0,24]	9 [0,35]
L5	6 [0,24]	6 [0,24]	10 [0,39]
L6	5 [0,20]	5 [0,20]	5 [0,20]
L7	15 [0,59]	16,5 [0,65]	21 [0,83]

sensor type	pressure sensor	pressure switch without display	pressure switch with display
S1	48,1 [1,89]	50,3 [1,98]	75,3 [2,98]

## Patents and trademarks

Micro annular gear pumps (and housings) are protected by assigned patents: EP 1 354 135 B1; US 7,698,818 B2; DE 10 2011 001 041 B4; CN 103 348 141 B; US 10,012,220 B2; CN 103 732 921 B; US 9,404,492 B2; US 6,520,757 B1.

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