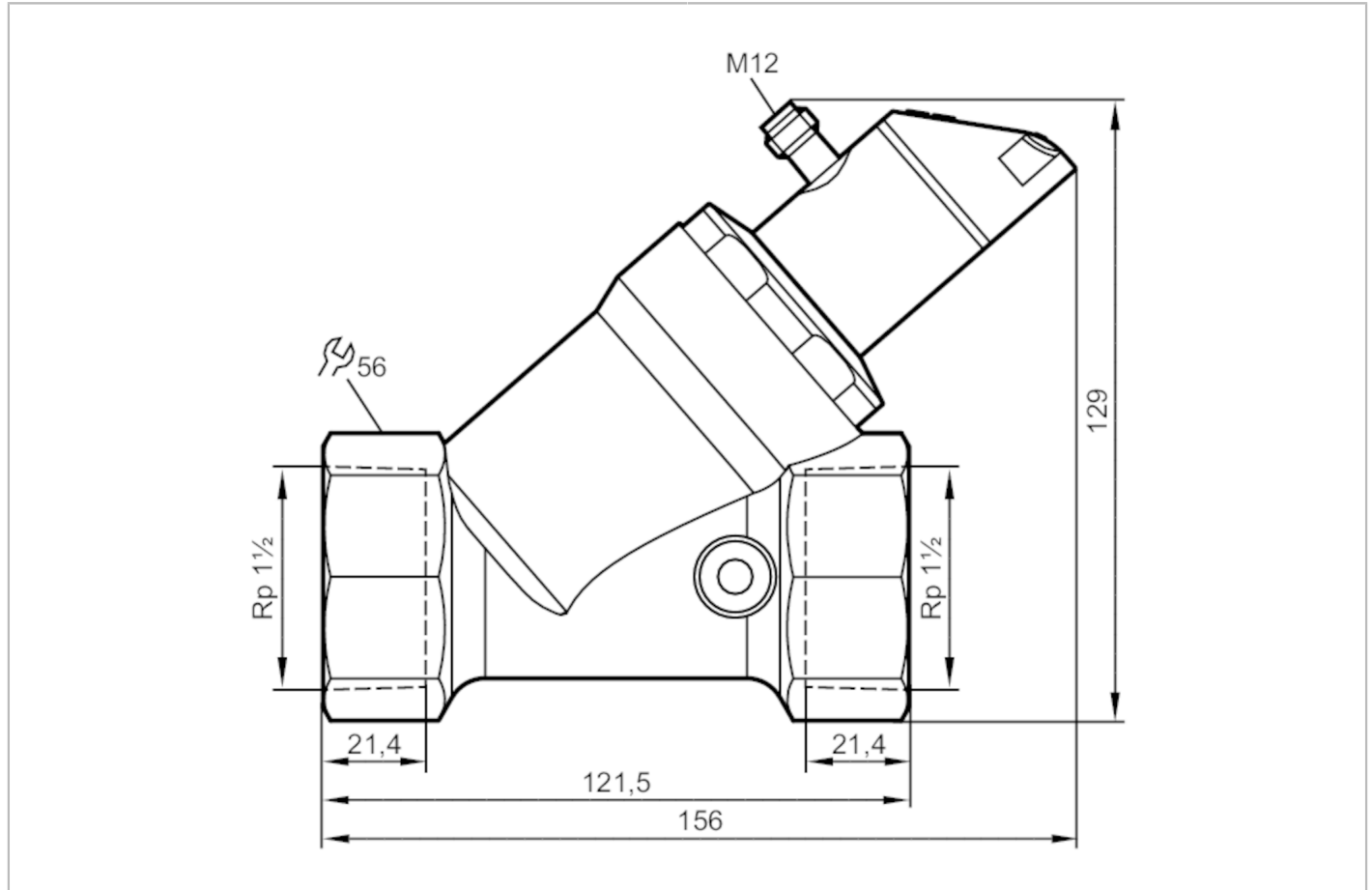


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Flow meter with integrated backflow prevention and display

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Product characteristics	
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
Measuring range	4...200 l/min 0.24...12 m³/h
Process connection	threaded connection Rp 1 1/2 internal thread
Application	
Special feature	Gold-plated contacts
Application	for industrial applications
Media	water; glycol solutions; coolants; oil
Note on media	oil 1 with viscosity: 10 mm²/s (40 °C) oil 2 with viscosity: 46 mm²/s (40 °C)
Medium temperature [°C]	-10...100
Pressure rating [bar]	25
MAWP (for applications according to CRN) [bar]	25
Electrical data	
Operating voltage [V]	18...30 DC; (according to EN 50178 SELV/PELV)
Current consumption [mA]	< 50
Protection class	III
Reverse polarity protection	yes
Power-on delay time [s]	< 3



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Inputs / outputs		
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Outputs		
Total number of outputs	2	
Output signal	switching signal; analogue signal; frequency signal; IO-Link; (configurable)	
Number of digital outputs	2	
Output function	normally open / normally closed; (parameterisable)	
Max. voltage drop switching output DC [V]	2	
Permanent current rating of switching output DC [mA]	150; (per output 2 x 200 (...60 °C); 2 x 250 (...40 °C))	
Switching cycles (mechanical)	10 million	
Number of analogue outputs	1	
Analogue current output [mA]	4...20	
Max. load [Ω]	500	
Short-circuit protection	yes	
Overload protection	yes	
Frequency of the output [Hz]	0...10000	
Measuring/setting range		
Measuring range	4...200 l/min	0.24...12 m³/h
Display range	0...240 l/min	0...14.4 m³/h
Resolution	1 l/min	0.05 m³/h
Set point SP	2...200 l/min	0.1...12 m³/h
Reset point rP	0...198 l/min	0...11.9 m³/h
Frequency end point, FEP	13...200 l/min	0.8...12 m³/h
In steps of	1 l/min	0.05 m³/h
Frequency at the end point FRP [Hz]	10...10000	
Measuring dynamics	1:50	
In steps of	10 Hz	
Temperature monitoring		
In steps of	10Hz	
Measuring range [°C]	-10...100	
Display range [°C]	-32...122	
Resolution [°C]	1	
Set point SP [°C]	-9...100	
Reset point rP [°C]	-10...99	
In steps of [°C]	1	
Frequency start point, FSP [°C]	-10...78	
Frequency end point, FEP [°C]	12...100	
Frequency at the end point FRP [Hz]	10...10000	



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Accuracy / deviations	
Flow monitoring	
Accuracy (in the measuring range)	$\pm (4 \% MW + 1 \% MEW)$; ($Q > 1 \text{ l/min}$; medium and operating temperature: $+22 \text{ °C} \pm 4\text{K}$)
Repeatability	$\pm 1 \% MEW$
Temperature monitoring	
Temperature drift	0,029 °C / K
Accuracy [K]	3 K (25°C; $Q > 1 \text{ l/min}$)
Response times	
Flow monitoring	
Response time [s]	0.01
Damping for the switching output dAP [s]	0...5
Damping for the analogue output dAA [s]	0...5
Temperature monitoring	
Dynamic response T05 / T09 [s]	T09 = 120 ($Q > 1 \text{ l/min}$)
Software / programming	
Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; current/frequency output; medium selection; damping for the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour
Interfaces	
Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)
IO-Link revision	1.1
SDCI standard	IEC 61131-9 CDV
IO-Link device ID	564 d / 0234 h
Profiles	Smart Sensor: Process Data Variable; Device Identification
SIO mode	yes
Required master port type	A
Process data analogue	2
Process data binary	2
Min. process cycle time [ms]	5
Operating conditions	
Ambient temperature [°C]	0...60
Note on ambient temperature	medium temperature < 80 °C medium temperature < 100 °C: 0...40 °C
Storage temperature [°C]	-15...80
Protection	IP 65; IP 67

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Tests / approvals

EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	
Shock resistance	DIN EN 60068-2-27	20 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	5 g (10...2000 Hz)
MTTF [years]	145	
UL approval	UL Approval no.	I007
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	1808	
Materials	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)	stainless steel (1.4401 / 316); stainless steel (1.4404 / 316L); brass (2.0371); brass chemically nickel-plated; PPS; PP-GF30; O-ring: FKM	
Process connection	threaded connection Rp 1 1/2 internal thread	

Displays / operating elements

Display	Display unit	3 x LED, green
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit
	programming	alphanumeric display, 4-digit

Remarks

Remarks	Recommendation: use a 200-micron filter.	
	All data refer to water (20 °C).	
	MW = measured value	
	MEW = Final value of the measuring range	
Pack quantity	1 pcs.	

Electrical connection

Connector: 1 x M12; Contacts: gold-plated





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Connection



OUT1:

- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

OUT2:

- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring

colours to DIN EN 60947-5-2

Core colours :

- BK = black
- BN = brown
- BU = blue
- WH = white

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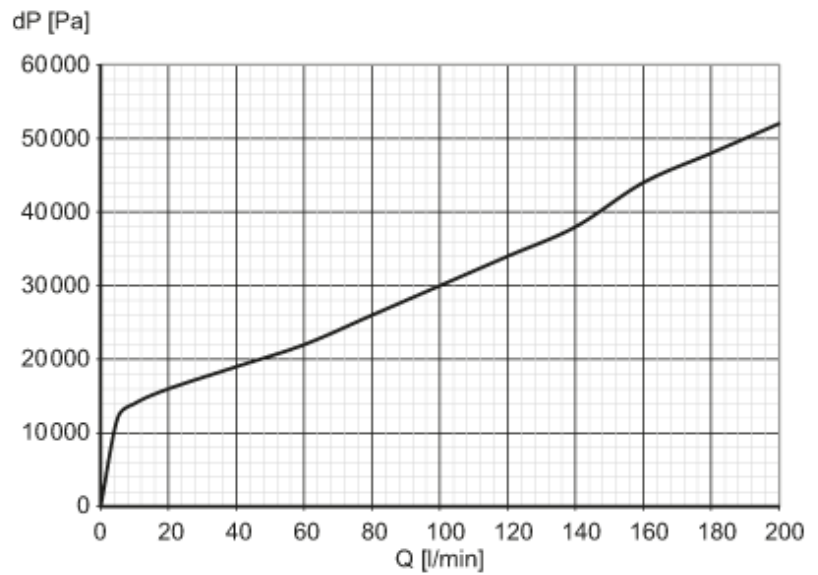


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity