

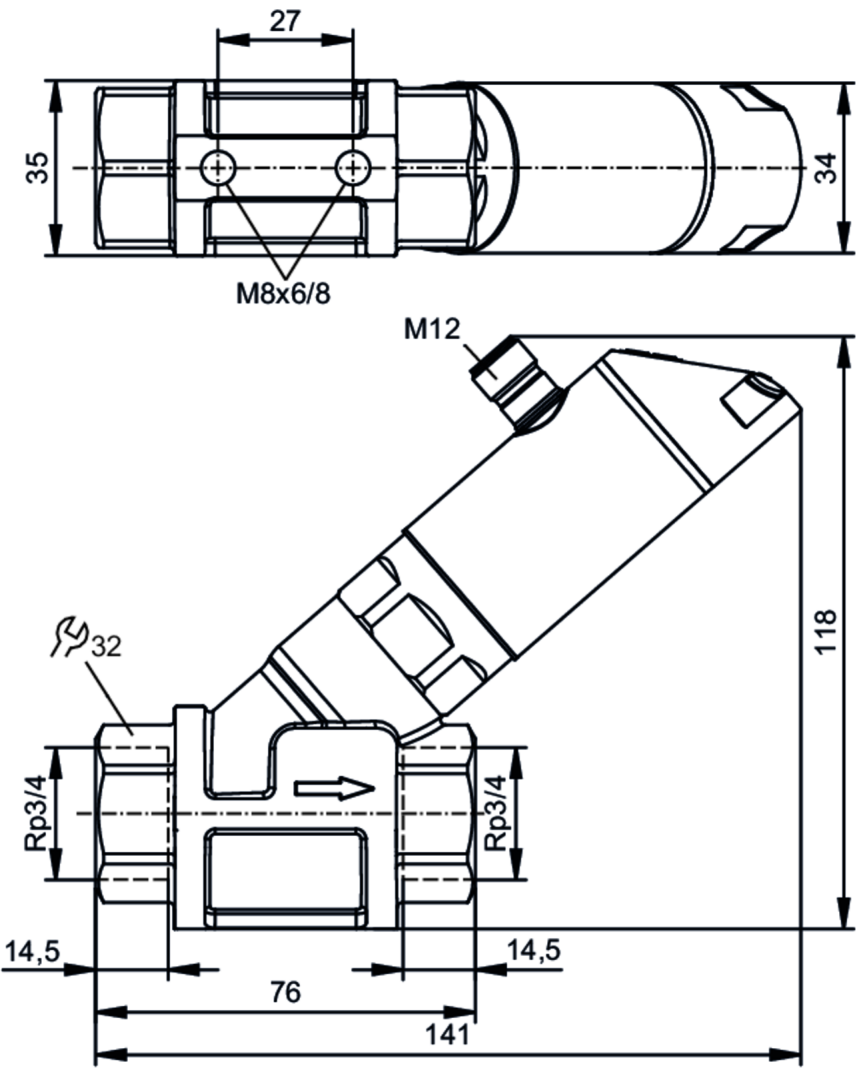
SBY232



Flow meter with integrated backflow prevention and display

SBY34IF0FRKG

Please note the changed housing design!



Product characteristics		
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	0.3...15 l/min	0.018...0.9 m³/h
Process connection	threaded connection Rp 3/4 internal thread	
Application		
Special feature	Gold-plated contacts	
Application	for industrial applications	
Media	Liquids; water; glycol solutions; coolants	
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]	40
Pressure rating	[MPa]	4



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MAWP (for applications according to CRN)	[bar]	40
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Electrical data

Operating voltage	[V]	18...30 DC; (to SELV/PELV)
Current consumption	[mA]	< 50
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	< 3

Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
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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	0.3...15 l/min	0.018...0.9 m³/h
Display range	0...18 l/min	0...1.08 m³/h
Resolution	0.05 l/min	0.005 m³/h
Set point SP	0.1...15 l/min	0.005...0.9 m³/h
Reset point rP	0...14.9 l/min	0...0.895 m³/h
Frequency end point, FEP	1...15 l/min	0.06...0.9 m³/h
In steps of	0.05 l/min	0.005 m³/h
Frequency at the end point FRP	[Hz]	10...10000
Measuring dynamics		1:50

Temperature monitoring

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



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Frequency end point, FEP	[°C]	12...100
Frequency at the end point FRP	[Hz]	10...10000

Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		$\pm (4 \% \text{ MW} + 1 \% \text{ MEW})$; ($Q > 0,3 \text{ l/min}$; medium and operating temperature: $+22 \text{ °C} \pm 4\text{K}$)
Repeatability		$\pm 1 \% \text{ MEW}$
Temperature monitoring		
Temperature drift		$0,029 \text{ °C} / \text{K}$
Accuracy	[K]	3 K (25°C ; $Q > 1 \text{ l/min}$)

Response times

Flow monitoring		
Response time	[s]	0.01
Damping process value 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	
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Interfaces

Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9 CDV	
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
Supported DeviceIDs	Type of operation	DeviceID
	default	560

Operating conditions

Ambient temperature	[°C]	0...60
Note on ambient temperature	medium temperature $< 80 \text{ °C}$ medium temperature $< 100 \text{ °C}$: 0...40 °C	
Storage temperature	[°C]	-15...80
Protection	IP 65; IP 67	

Tests / approvals

EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	



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Shock resistance	DIN EN 60068-2-27	20 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	5 g (10...2000 Hz)
MTTF [ANN]	145	
UL approval	UL Approval no.	I005
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	685.5	
Materials	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)	stainless steel (316 / 1.4401); stainless steel (1.4404 / 316L); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM	
Process connection	threaded connection Rp 3/4 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	
Notes	Please note the changed housing design!	
Pack quantity	1 pcs.	

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated





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Connection



OUT1:

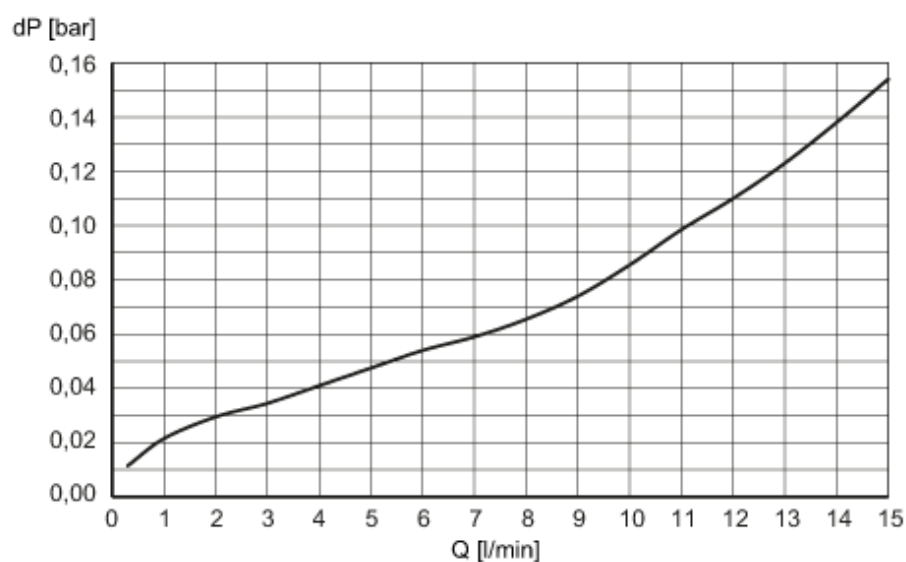
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

OUT2:

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity