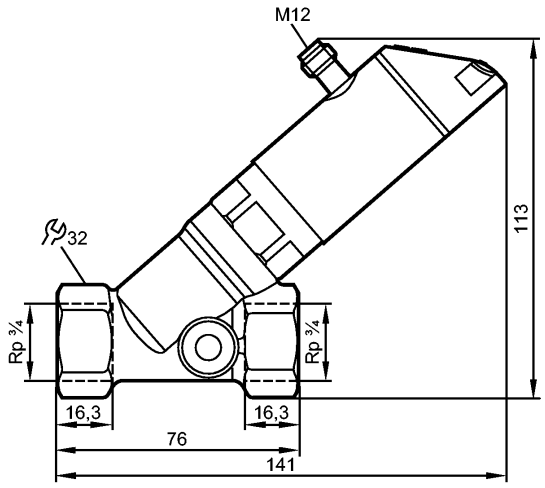
SBY232

SBY34IF0FRKG

Flow sensors



Product characteristics

Mechatronic flow meter

with non-return valve

Process connection: Rp ¾

With display (360° rotatable); IO-Link; temperature measurement

Application

Application		Liquids (water, glycol solutions, coolants, oil (oil 1 with viscosity 10 mm²/s at 40 °C; oil 2 with viscosity 46 mm²/s at 40 °C)
Pressure rating	[bar]	40
Medium temperature	[°C]	-10...100

Electrical data

Electrical design		DC
Operating voltage	[V]	18...30 DC; to DIN EN 50178, SELV, PELV
Current consumption	[mA]	< 50
Protection class		III
Reverse polarity protection		yes

Outputs

Output function		OUT1: NO / NC programmable or frequency or IO-Link OUT2: NO / NC programmable or analogue
Current rating	[mA]	2 x 150; 2 x 200 (...60 °C); 2 x 250 (...40 °C)
Voltage drop	[V]	< 2
Short-circuit protection		yes
Overload protection		yes
Analog output		4...20 mA
Max. load	[Ω]	500
Frequency range [Hz]		0...10000

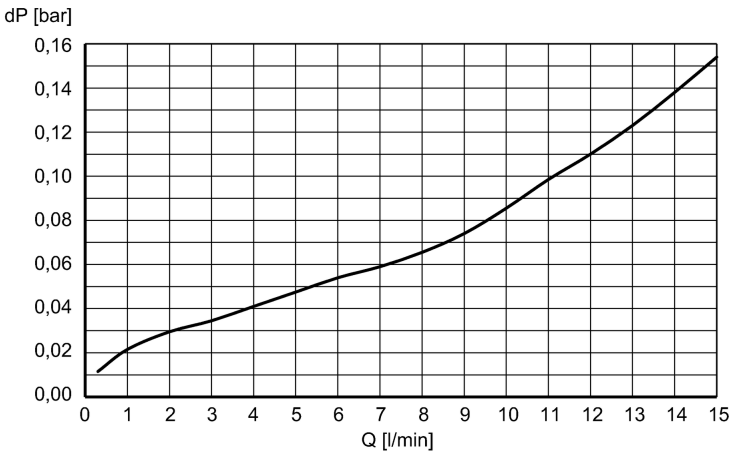
Measuring / setting range

Flow monitoring

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	
in steps of		10 Hz	
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	
Frequency start point, FSP	[°C]	-10...78	
Frequency end point, FEP	[°C]	12...100	
in steps of	[°C]	1	
Frequency at the end point, FrP [Hz]		10...10000	

Accuracy / deviations

Flow monitoring		
Accuracy		± (4 % MW + 1 % MEW); Q > 0.3 l/min, medium and ambient temperature +22 °C ± 4 K
Repeatability		± 1 % MEW
Pressure loss (dP) / flow rate (Q)		
Temperature monitoring		
Accuracy	[K]	3 K (25°C; Q > 1 l/min)
Temperature drift		0.029 °C / K

Reaction times

Power-on delay time	[s]	< 3
Flow monitoring		
Response time	[s]	0.01
Damping for the switching output (dAP) [s]		0...5
Damping for the analog output (dAA) [s]		0...5
in steps of		0.1 s
Temperature monitoring		
Response time	[s]	T09 = 120 (Q > 1 l/min)

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Flow sensors

Software / programming		
Programming options		Hysteresis/window; NO/NC; switching logic; current / frequency output; fluid selection, damping switching/analogue output, display can be rotated/switched off; standard unit of measurement/colour process value
Interfaces		
IO-Link Device		
Transfer type		COM2 (38.4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9 CDV
IO-Link Device ID		560 d / 0230 h
Profiles		Smart Sensor: Process Data Variable; Device Identification
SIO mode		yes
Required master port class		A
Process data analogue		2
Process data binary		2
Min. process cycle time	[ms]	5
Environment		
Ambient temperature	[°C]	0...60, at max. 80 °C medium temperature (0...40 °C at max. 100 °C medium temperature)
Storage temperature	[°C]	-15...80
Protection		IP 65 / IP 67
Tests / approvals		
Pressure equipment directive		sound engineering practice
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 number		I005
Mechanical data		
Process connection		Rp ¾
Materials (wetted parts)		stainless steel 316 / 1.4401; stainless steel 316L / 1.4404; brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM
Housing materials		stainless steel 316L / 1.4404; PBT+PC-GF 30; PBT-GF 20; PC; brass chemically nickel-plated
Weight	[kg]	0.668
Switching cycles min.		10 million
Displays / operating elements		
Display		Display unit 3 x LED green Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green Programming 4-digit alphanumeric display
Electrical connection		
Connection		M12 connector; gold-plated contacts

Wiring

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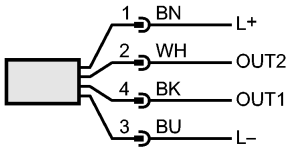
Core colors	
BK	black
BN	brown
BU	blue
WH	white



OUT1:
- switching output flow rate monitoring
- switching output temperature monitoring
- frequency output flow rate monitoring
- frequency output temperature monitoring
- IO-Link

OUT2:
- switching output flow rate monitoring
- switching output temperature monitoring
- analogue output flow rate
- analogue output temperature

Colours to DIN EN 60947-5-2

Remarks

Remarks	Use of 200 micron filtration is recommended. All data refer to water (20 °C). MW = measured value MEW = final value of the measuring range
Pack quantity [piece]	1