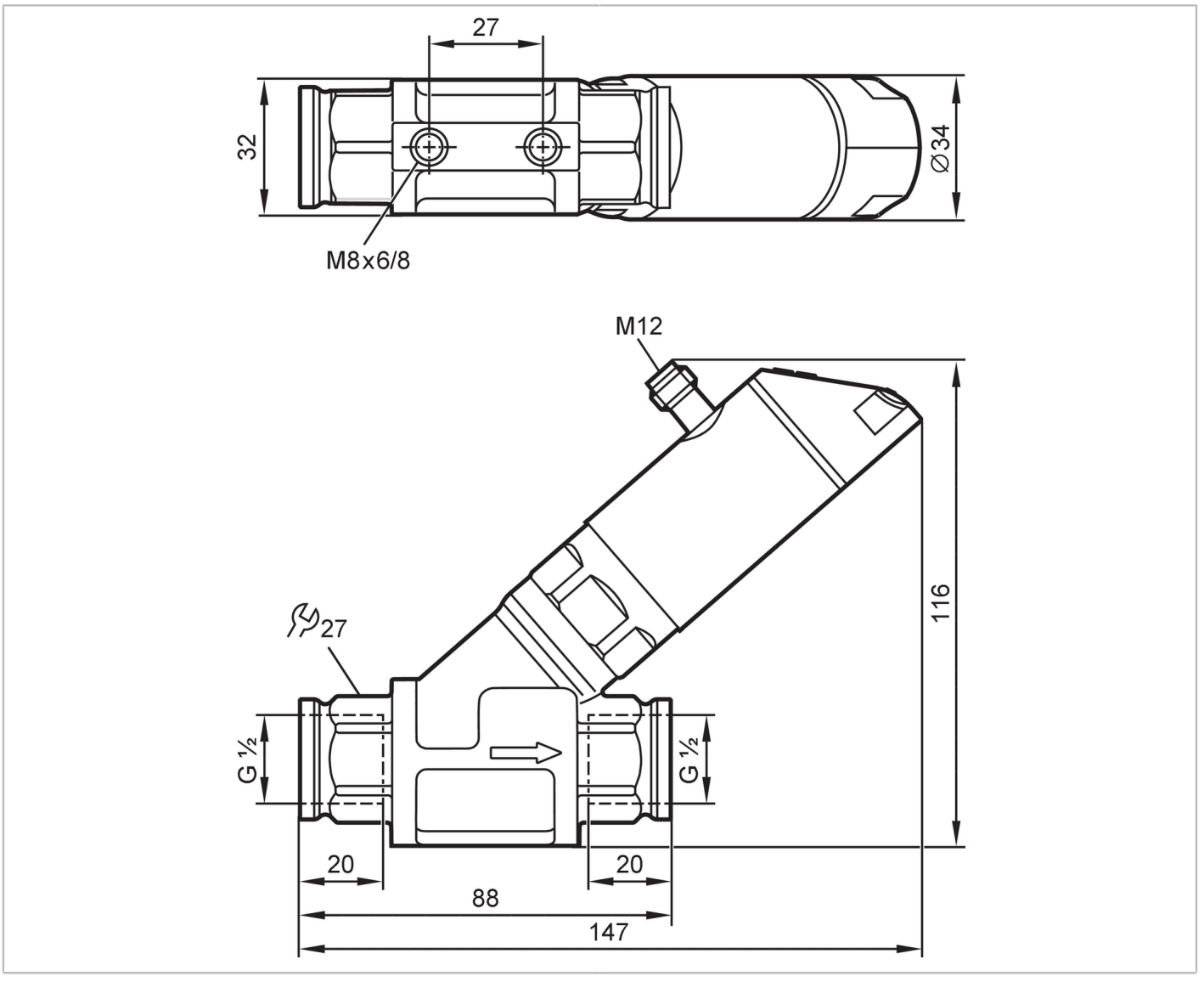
SBG232

Flow meters with display and fast response time

SBG12IF0FRKG

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 G 1/2 internal thread	
Application			
Special feature		Gold-plated contacts	
Application		for industrial applications	
Media		Liquids; oils (viscosity 10 mm²/s at 40 °C); oils (viscosity 46 mm²/s at 40 °C); 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	
Min. burst pressure	[bar]	160	

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Pressure rating		40 bar	4 MPa
MAWP for applications according to CRN	[bar]	40	
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	
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	

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Frequency start point, FSP	[°C]	-10...78
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)		± (4 % MW + 1 % MEW); (Q > 0,3 l/min; medium and operating temperature: +22 °C ± 4K)
Repeatability		± 1 % MEW
Temperature monitoring		
Temperature drift		0,029 °C / K
Accuracy	[K]	3 K (25°C; Q > 1 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 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	
Profiles		Smart Sensor - SSP 0	Generic Profiled Sensor
		Function	Device identification
		Function	Process data variable
		Function	Device diagnosis
SIO mode		yes	
Required master port type		A	
Process data analogue		2	
Process data binary		2	
Min. process cycle time	[ms]	3.2	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	560

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

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Protection		IP 65; IP 67	
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.	I005
		File number UL	E174189
Pressure Equipment Directive		Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	750	
Materials		stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)		stainless steel (316 / 1.4401); stainless steel (316L/1.4404); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM	
Process connection		threaded connection G 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	
Notes		Please note the changed housing design!	
Pack quantity		1 pcs.	

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated

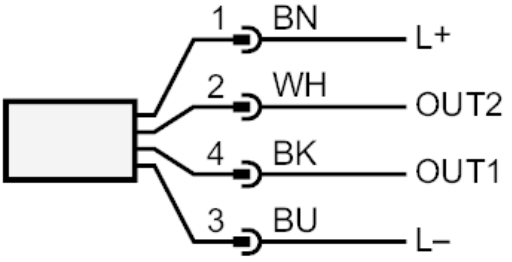


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Connection



OUT1:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

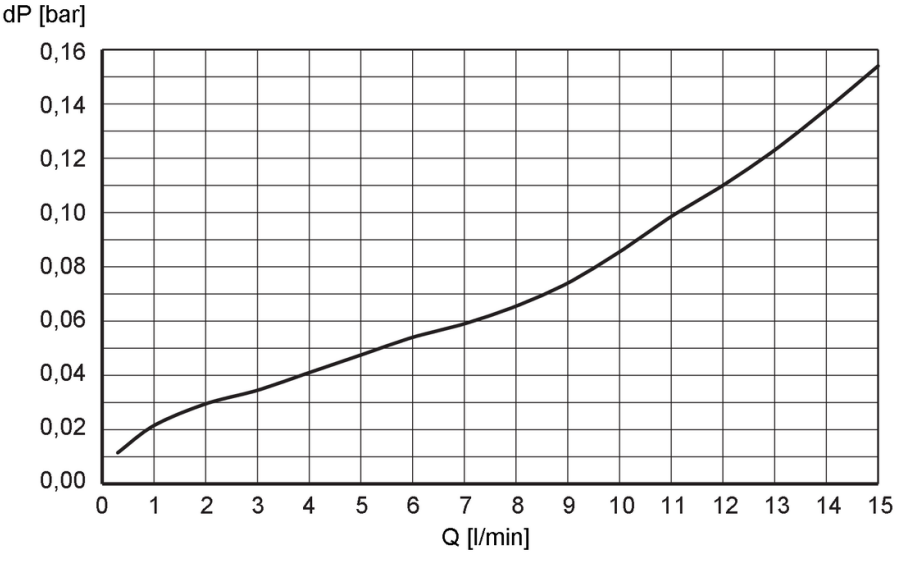
OUT2:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring

colours to DIN EN 60947-5-2
Core colours :

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity