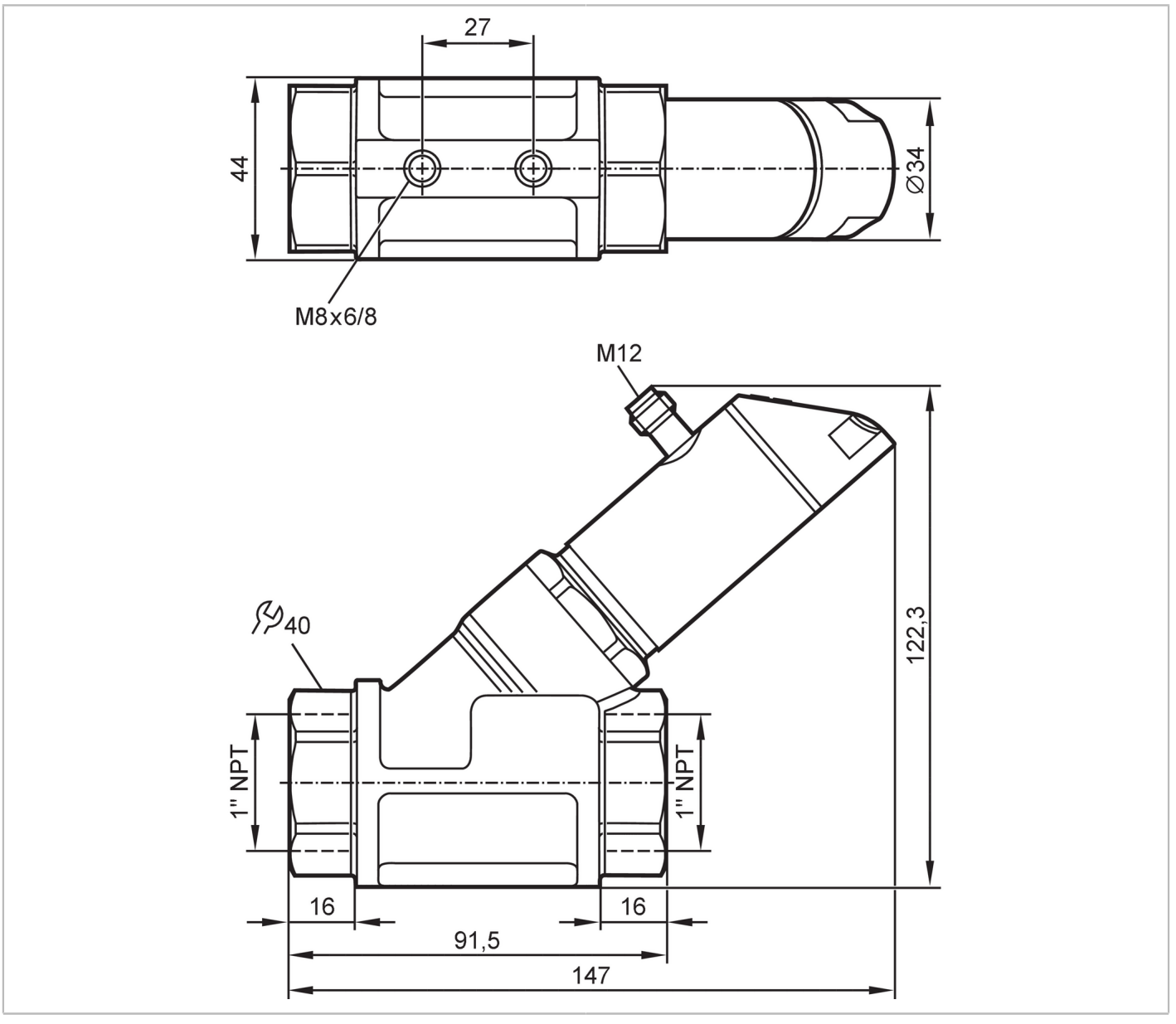
SBN246

Flow meter with integrated backflow prevention and display

SBN11IF0FRKG

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	[gph]	30...1620
Process connection		threaded connection 1" NPT internal thread
Application		
Special feature		Gold-plated contacts
Application		for industrial applications
Media		Liquids; water; glycol solutions; coolants; oil (viscosity 10 mm²/s at 104 °F); oil (viscosity 46 mm²/s at 104 °F)
Note on media		oil 1 with viscosity: 10 mm²/s (104 °F)
		oil 2 with viscosity: 46 mm²/s (104 °F)

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Medium temperature	[°F]	14...212	
Pressure rating		25 bar	2.5 MPa
MAWP for applications according to CRN	[bar]	25	
Electrical data			
Operating voltage	[V]	18...30 DC; (to SELV/PELV)	
Current consumption	[mA]	< 50	
Min. insulation resistance	[MΩ]	100; (500 V DC)	
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 (...140 °F); 2 x 250 (...104 °F))	
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	[gph]	30...1620	
Display range		0...1940 gph	0...32.4 gpm
Resolution		10 gph	0.1 gpm
Set point SP		10...1620 gph	0.2...27 gpm
Reset point rP		0...1610 gph	0...26.8 gpm
Frequency end point, FEP		110...1620 gph	1.8...27 gpm
In steps of		10 gph	0.1 gpm
Frequency at the end point FRP	[Hz]	10...10000	
Measuring dynamics		1:50	
Temperature monitoring			
Measuring range	[°F]	14...212	
Display range	[°F]	-26...252	
Resolution	[°F]	2	
Set point SP	[°F]	16...212	

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Reset point rP	[°F]	14...210
In steps of	[°F]	2
Frequency start point, FSP	[°F]	14...172
Frequency end point, FEP	[°F]	54...212
Frequency at the end point FRP	[Hz]	10...10000

Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		± (4 % MW + 1 % MEW); (Q > 2 l/min; medium and operating temperature: +71,6 °F ± 4K)
Repeatability		± 1 % MEW
Temperature monitoring		
Temperature drift		0,9802 °F / K
Accuracy	[K]	3 K (77 °F; 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 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	568

Operating conditions

Ambient temperature	[°F]	32...140

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Note on ambient temperature		medium temperature < 176 °F	
		medium temperature < 212 °F: 32...104 °F	
Storage temperature	[°F]	5...176	
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.	I006
		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]	1292.4	
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 chemically nickel-plated; PPS; O-ring: FKM	
Process connection		threaded connection 1" NPT 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 (68 °F).	
		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

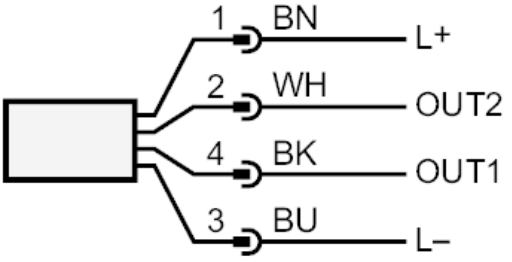


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Connection



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

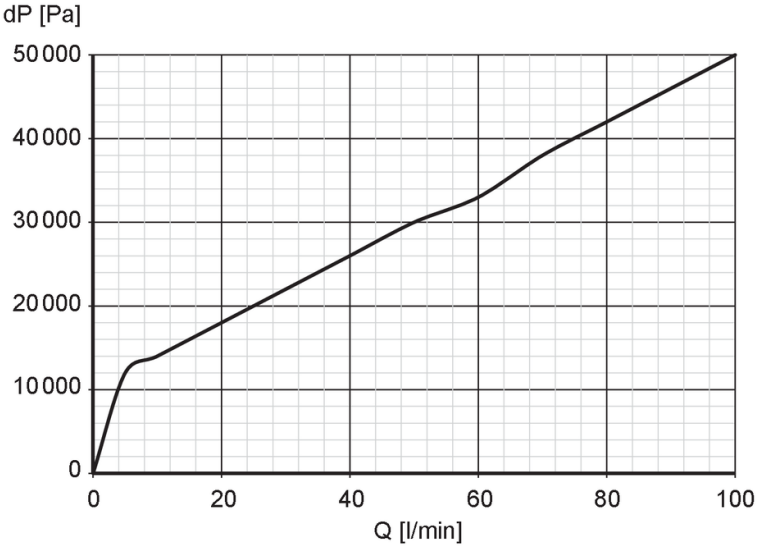
OUT2:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring

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