

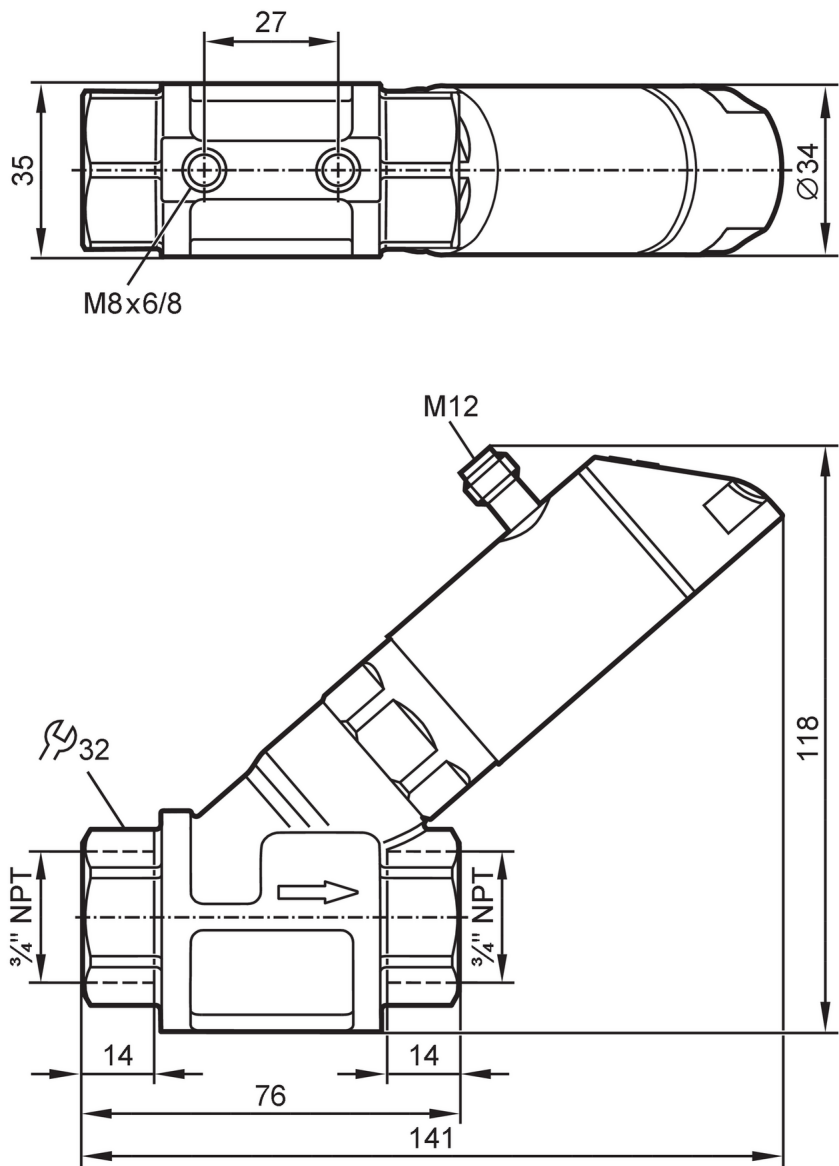
SBN233



Flow meter with fast response and display

SBN34IQ0FRKG

Please note the changed housing design!



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	7...360 gph	0.1...6 gpm
Process connection	threaded connection 3/4" NPT Internal thread	

Application

Special feature	gold-plated contacts	
Application	for industrial applications	
Media	Liquids; water; glycol solutions; Coolants; Öle (Viskosität 10 mm ² /s bei 104 °F); Öle (Viskosität 46 mm ² /s bei 104 °F)	
Note on media	oil 1 with viscosity: 10 mm ² /s (104 °F) oil 2 with viscosity: 46 mm ² /s (104 °F)	
Medium temperature	[°F]	14...212



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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 analog outputs: 1	
Outputs			
Total number of outputs		2	
Output signal		switching signal; analog signal; frequency signal; IO-Link; (configurable)	
Number of digital outputs		2	
Output function		normally open / closed; (configurable)	
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 analog outputs		1	
Analog 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		7...360 gph	0.1...6 gpm
Display range		0...432 gph	0...7.2 gpm
Resolution		1 gph	0.05 gpm
Set point SP		2...360 gph	0.05...6 gpm
Reset point rP		0...358 gph	0...5.95 gpm
Frequency end point, FEP		24...360 gph	0.4...6 gpm
In steps of		1 gph	0.05 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	
Reset point rP	[°F]	14...210	
In steps of	[°F]	2	



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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)		$\pm (4 \% \text{ MW} + 1 \% \text{ MEW})$; (Q > 0,5 l/min; medium and operating temperature: +71,6 °F $\pm$ 4K)
Repeatability		$\pm 1 \% \text{ MEW}$

Temperature monitoring

Temperature drift		0,9802 °F / K
Accuracy	[K]	3 K (77 °F; Q > 1 l/min)

Reaction times

Flow monitoring		
Response time	[s]	0.01
Damping process value dAP	[s]	0...5
Damping for the analog output dAA	[s]	0...5

Temperature monitoring

Dynamic response T05 / T09	[s]	T09 = 120 (Q > 1 l/min)
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Software / programming

Parameter setting options	hysteresis / window; normally open / closed; switching logic; current output; medium selection; damping for the switching output / analog output; display can be rotated and switched off; standard unit of measurement; process value color	
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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 - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable
	Function	Device diagnosis
SIO mode	yes	
Required master port class	A	
Process data analog	2	
Process data binary	2	
Min. process cycle time	[ms]	3.2
Supported DeviceIDs	Type of operation	DeviceID
	default	566

Operating conditions

Ambient temperature	[°F]	32...140
Note on ambient temperature	medium temperature < 176 °F	
	medium temperature < 212 °F: 32...104 °F	
Storage temperature	[°F]	5...176



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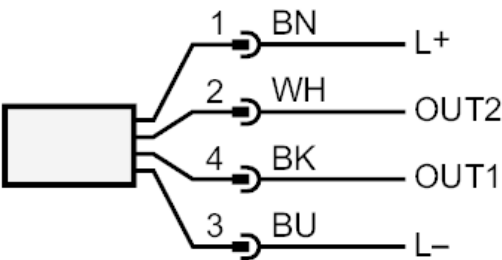
Protection	IP 65; IP 67	
Tests / approvals		
EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	
Shock resistance	DIN EN 60068-2-27	20 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	5 g (10...2000 Hz)
MTTF [years]	145	
UL approval	UL approval number	I005
	File number UL	E174189
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	754.4	
Material	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; O-ring: FKM	
Process connection	threaded connection 3/4" 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	Use of 200 micron filtration is recommended.	
	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

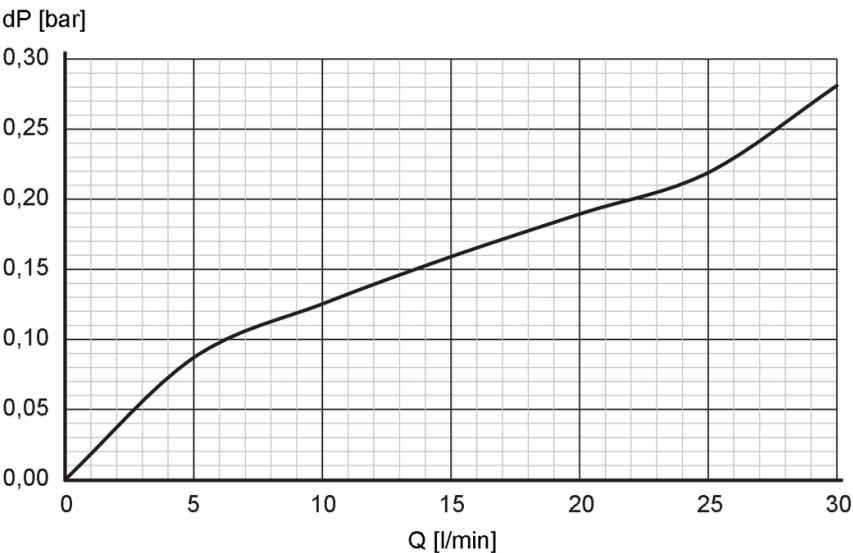
- OUT2:
- Switching output Volumetric flow quantity monitoring
 - Switching output Temperature monitoring
 - analog output Volumetric flow quantity monitoring
 - analog output Temperature monitoring
- Colors to DIN EN 60947-5-2

Core colors :

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

Diagrams and graphs

Pressure loss



dP Pressure loss
Q volumetric flow quantity