

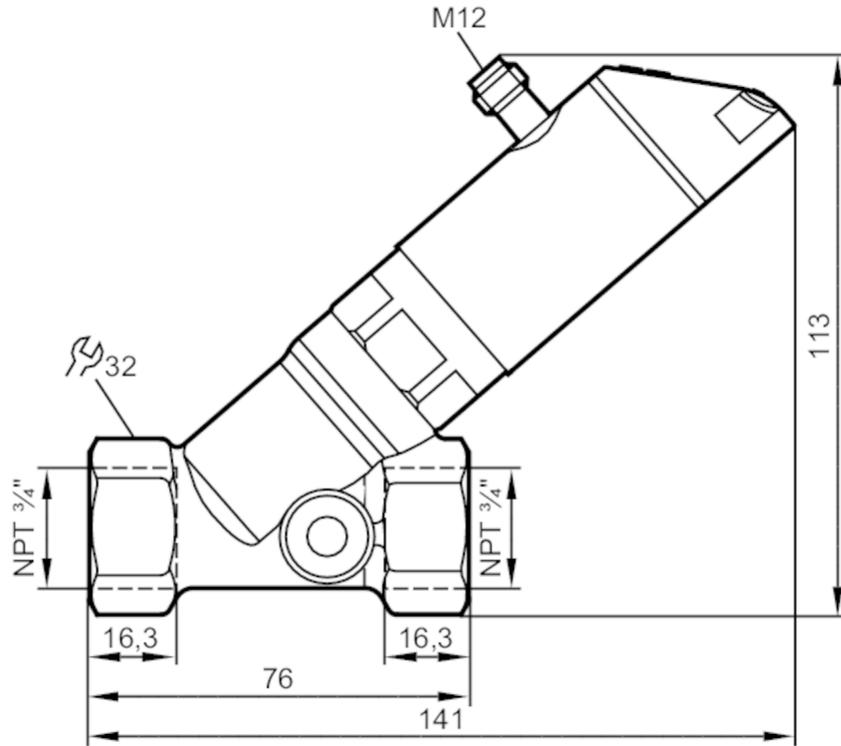
# SBN234



## 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	10...600 gph	0.2...10 gpm
Process connection	threaded connection 3/4" NPT Internal thread	

### Application

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



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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	10...600 gph	0.2...10 gpm
Display range	0...720 gph	0...12 gpm
Resolution	5 gph	0.1 gpm
Set point SP	5...600 gph	0.1...10 gpm
Reset point rP	0...595 gph	0...9.9 gpm
Frequency end point, FEP	40...600 gph	0.67...10 gpm
In steps of	5 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	
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 > 1 l/min; medium and operating temperature: +71,6 °F ± 4K)	
Repeatability	± 1 % MEW	



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<b>Temperature monitoring</b>		
Temperature drift		0,9802 °F / K
Accuracy	[K]	3 K (77 °F; Q > 1 l/min)
<b>Reaction times</b>		
<b>Flow monitoring</b>		
Response time	[s]	0.01
Damping process value dAP	[s]	0...5
Damping for the analog output dAA	[s]	0...5
<b>Temperature monitoring</b>		
Dynamic response T05 / T09	[s]	T09 = 120 (Q > 1 l/min)
<b>Software / programming</b>		
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	
<b>Interfaces</b>		
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	<b>Type of operation</b>	<b>DeviceID</b>
	default	567
<b>Operating conditions</b>		
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
Protection	IP 65; IP 67	
<b>Tests / approvals</b>		
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
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

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Mechanical data	
Weight [g]	752.9
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: gold-plated

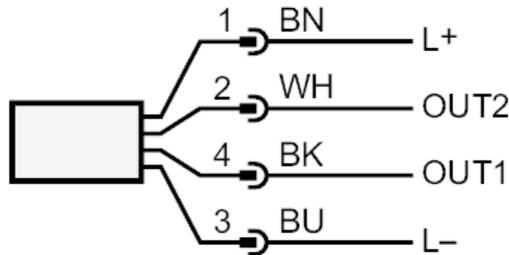




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### Connection



#### OUT1:

- Switching output Volumetric flow quantity monitoring
- Switching output Temperature monitoring
- Frequency output Volumetric flow quantity monitoring
- Frequency output Temperature monitoring
- IO-Link

#### OUT2:

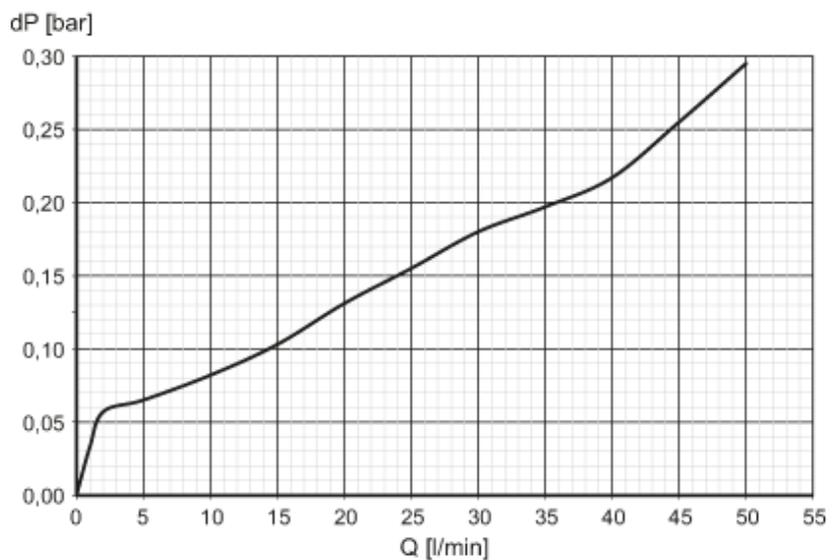
- Switching output Volumetric flow quantity monitoring
  - Switching output Temperature monitoring
  - analog output Volumetric flow quantity monitoring
  - analog output Temperature monitoring
- Colors to DIN EN 60947-5-2

Core colors :

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

### Diagrams and graphs

#### Pressure loss



dP Pressure loss

Q volumetric flow quantity