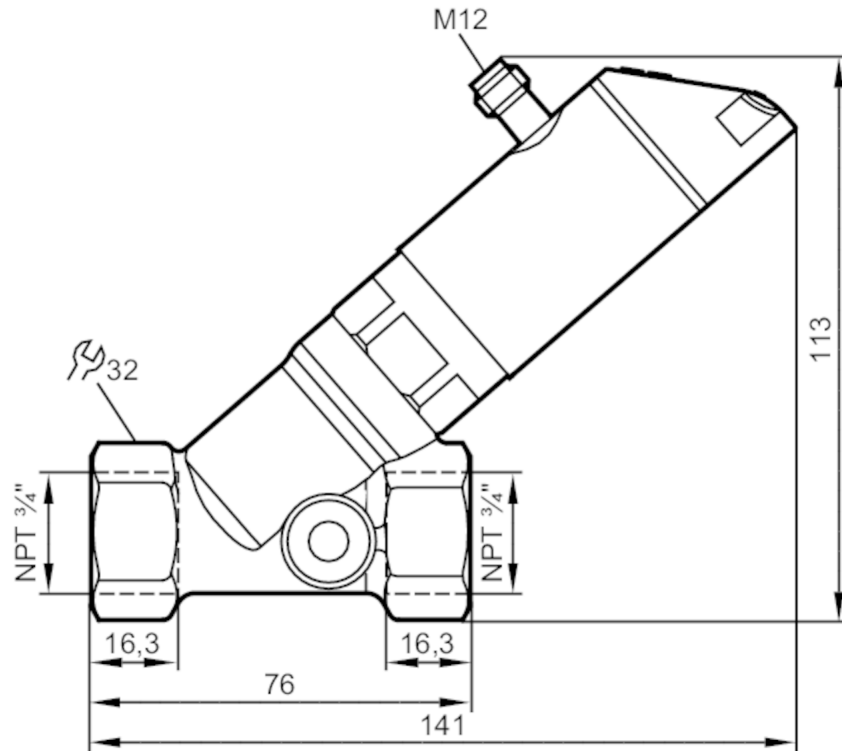


# SBN234



## Flow meter with fast response and display

SBN34IQ0FRKG



### 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	

### Application

System	gold-plated contacts
Application	for industrial applications
Media	water; glycol solutions; Coolants; oils
Note on media	oil 1 with viscosity: 10 mm <sup>2</sup> /s (40 °C) oil 2 with viscosity: 46 mm <sup>2</sup> /s (40 °C)
Medium temperature [°F]	14...212
Pressure rating [bar]	40
Pressure rating [Mpa]	4
MAWP (for applications according to CRN) [bar]	40

### Electrical data

Operating voltage [V]	18...30 DC; (according to EN 50178 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 (...60 °C); 2 x 250 (...40 °C))	
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: +22 °C ± 4K)	
Repeatability	± 1 % MEW	



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Temperature monitoring		
Temperature drift		0,029 °C / K
Accuracy	[K]	3 K (25°C; Q > 1 l/min)
Reaction times		
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
Temperature monitoring		
Dynamic response T05 / T09	[s]	T09 = 120 (Q > 1 l/min)
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	
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: Process Data Variable; Device Identification	
SIO mode	yes	
Required master port class	A	
Process data analog	2	
Process data binary	2	
Min. process cycle time	[ms]	5
Supported DeviceIDs	Type of operation	DeviceID
	default	567
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
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
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

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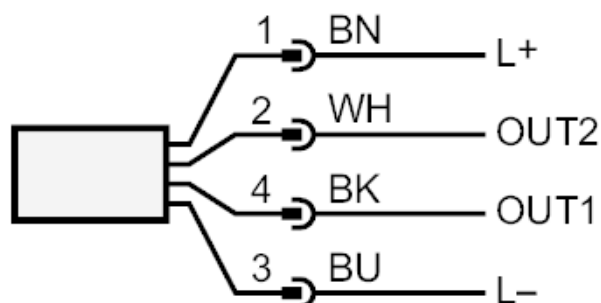
Mechanical data		
Weight	[g]	693
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)	stainless steel (1.4401 / 316); stainless steel (1.4404 / 316L); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM	
Process connection	threaded connection 3/4" NPT	
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	
Pack quantity	1 pcs.	
Electrical connection		
Connector: 1 x M12; Contacts: gold-plated		
		



## Flow meter with fast response and display

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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

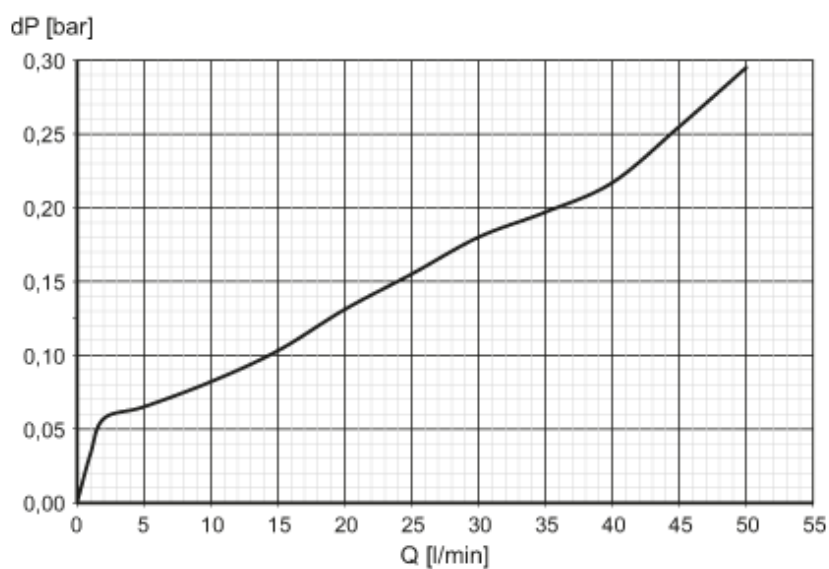


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### Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity