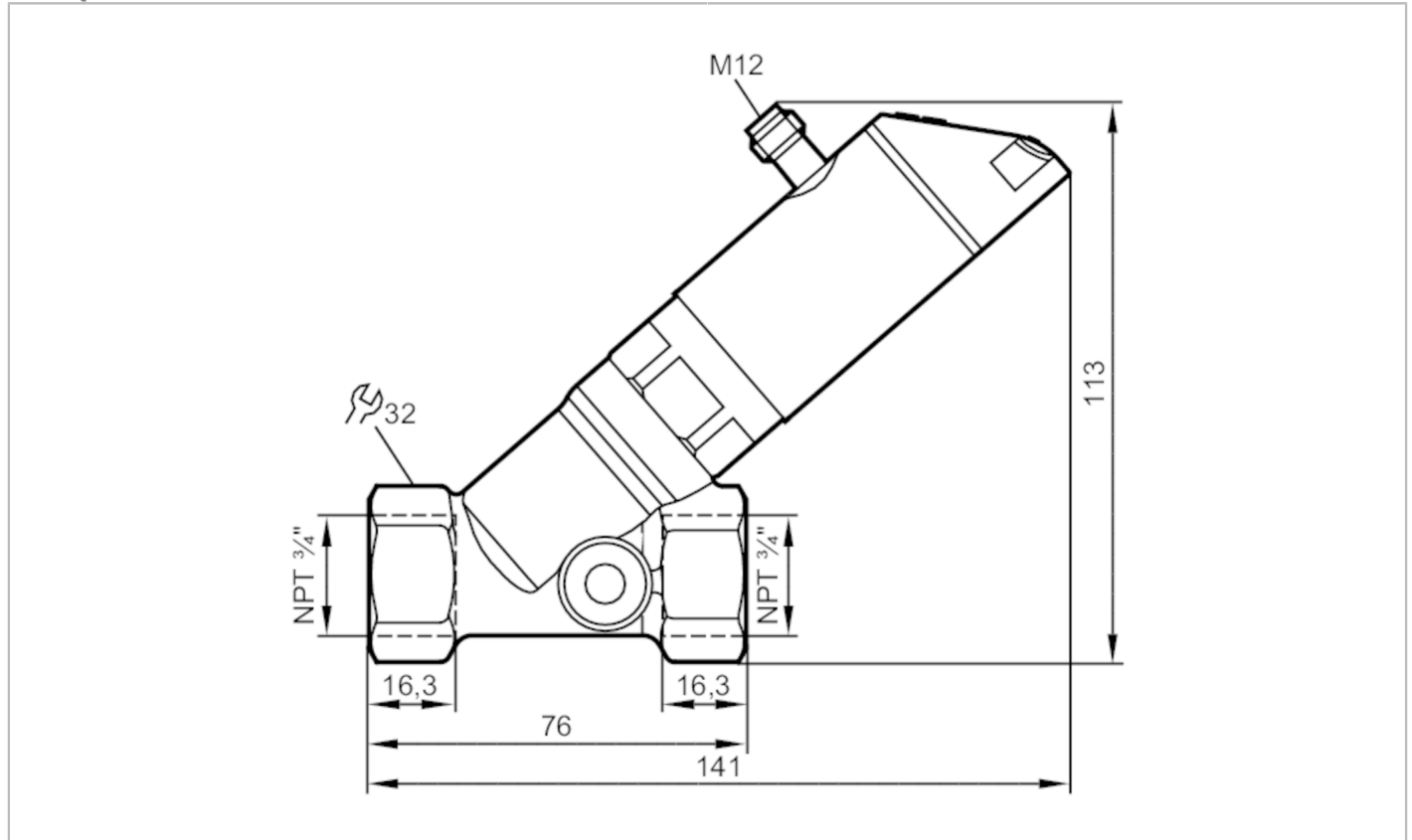


SBN233



Flow meter with integrated backflow prevention and display

SBN34IQ0FRKG



Application	
Application	for industrial applications
Media	water; glycol solutions; coolants; oil
Medien	oil 1 with viscosity: 10 mm ² /s (40 °C) oil 2 with viscosity: 46 mm ² /s (40 °C)
Medium temperature	[°F] 14...212
Pressure rating	[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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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	0.1...6 gpm	7...360 gph
Display range	0...7.2 gpm	0...432 gph
Resolution	0.05 gpm	1 gph
Set point SP	0.05...6 gpm	2...360 gph
Reset point rP	0...5.95 gpm	0...358 gph
Measuring dynamics	1:50	
Frequency end point, FEP	0.4...6 gpm	24...360 gph
Frequency at the end point FRP [Hz]	10...10000	
In steps of	0.05 gpm	1 gph

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
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 > 0,5 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)
Response times		
Flow monitoring		
Response time	[s]	0.01
Damping for the switching output 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	
IO-Link device ID	566 d/ 0236 h	
Profiles	Smart Sensor: Process Data Variable; Device Identification	
SIO mode	yes	
Required master port type	A	
Process data analogue	2	
Process data binary	2	
Min. process cycle time	[ms]	5
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 no.	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]	666.3
Materials	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	Recommendation: use a 200-micron filter.
	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

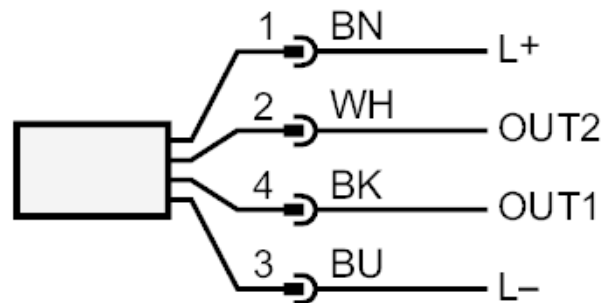




Flow meter with integrated backflow prevention and display

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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
- 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

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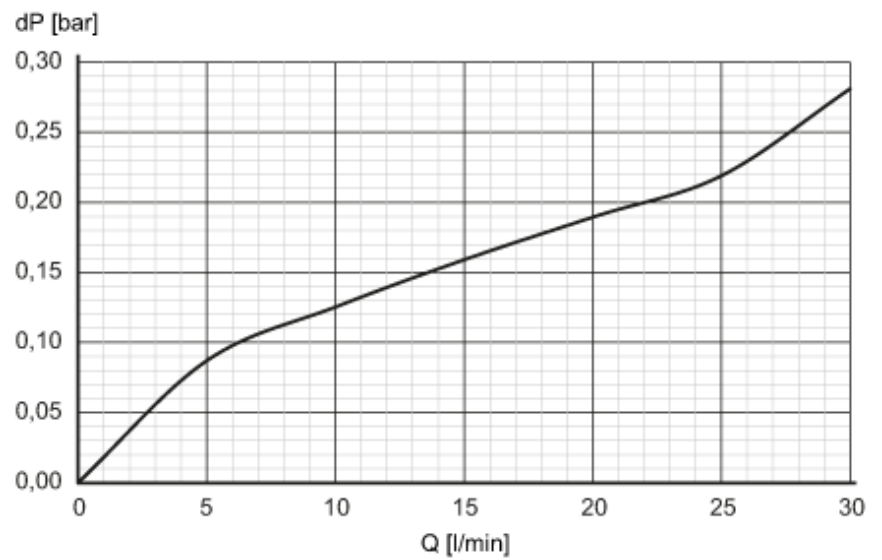


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity