

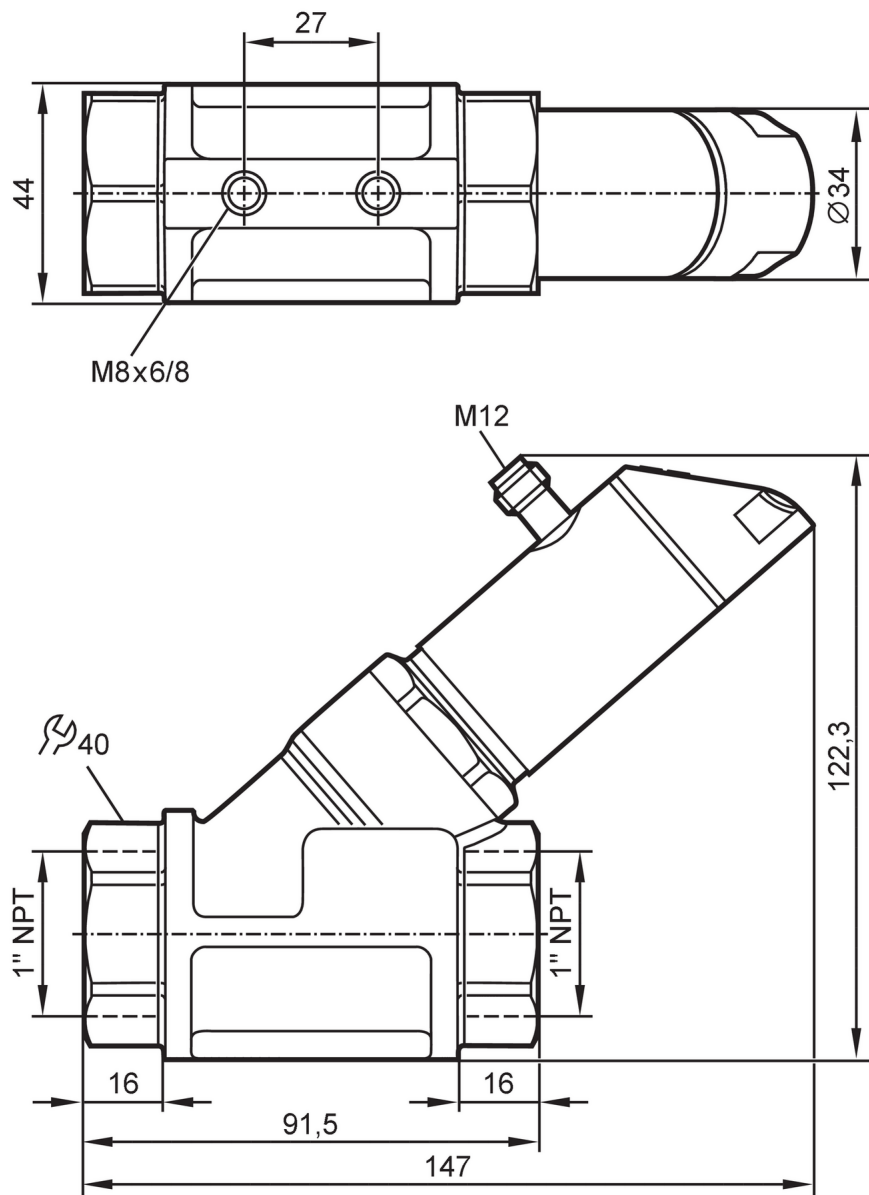
SBN246



Flow meter with fast response and display

SBN11IF0FRKG

Please note the changed housing design!



CRN



IO-Link

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog 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; 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)



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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
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	[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
Reset point rP	[°F]	14...210



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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)	$\pm (4 \% \text{ MW} + 1 \% \text{ MEW})$; ($Q > 2 \text{ l/min}$; medium and operating temperature: $+71,6 \text{ °F} \pm 4\text{K}$)
Repeatability	$\pm 1 \% \text{ MEW}$

Temperature monitoring

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

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 ($Q > 1 \text{ l/min}$)
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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	568

Operating conditions

Ambient temperature	[°F] 32...140
Note on ambient temperature	medium temperature $< 176 \text{ °F}$
	medium temperature $< 212 \text{ °F}$: 32...104 °F



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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	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
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 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	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:

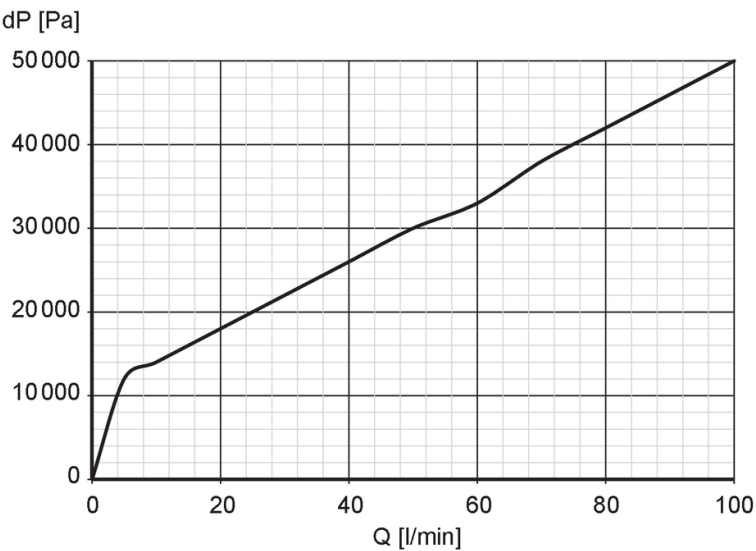
- Switching output Volumetric flow quantity monitoring
 - Switching output Temperature monitoring
 - analog output Volumetric flow quantity monitoring
 - analog output Temperature monitoring
- Colors to DIN EN 60947-5-2

Core colors :

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

Diagrams and graphs

Pressure loss



dP Pressure loss
Q volumetric flow quantity