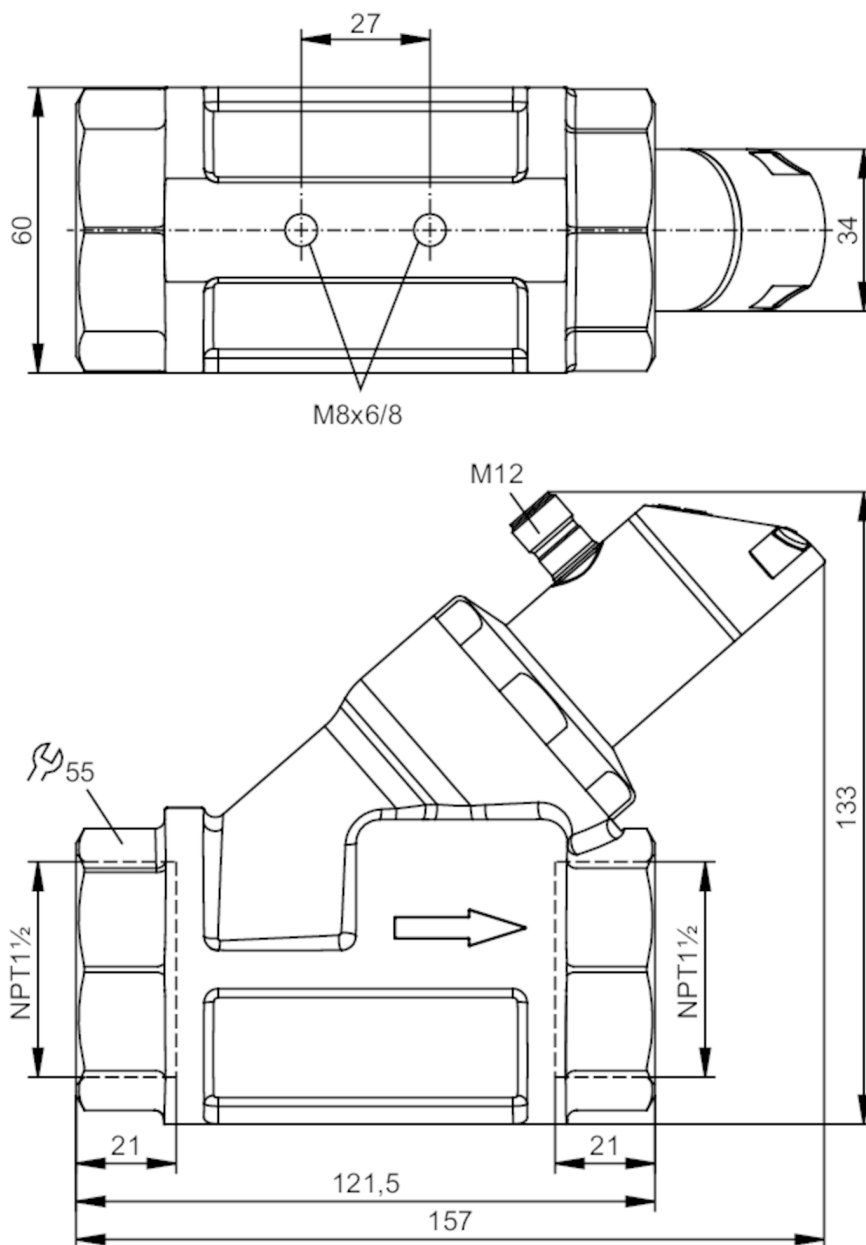


Flow meter with integrated backflow prevention and display

SBN32IF0FRKG

Please note the changed housing design!



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	60...3000 gph	1...50 gpm
Process connection	threaded connection 1 1/2" NPT	

Application

Special feature	Gold-plated contacts
Application	for industrial applications
Media	Liquids; water; glycol solutions; coolants



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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
Pressure rating	[bar]	25
Pressure rating	[MPa]	2.5
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 analogue outputs: 1
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 (...140 °F); 2 x 250 (...104 °F))
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	60...3000 gph	1...50 gpm
Display range	0...3600 gph	0...60 gpm
Resolution	20 gph	0.2 gpm
Set point SP	20...3000 gph	0.4...50 gpm
Reset point rP	0...2980 gph	0...49.6 gpm
Frequency end point, FEP	200...3000 gph	3.4...50 gpm
In steps of	20 gph	0.2 gpm
Frequency at the end point FRP		10...10000
Measuring dynamics		1:50
Temperature monitoring		
Measuring range	[°F]	14...212
Display range	[°F]	-26...252



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

Temperature monitoring

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

Response times

Flow monitoring

Response time [s]	0.01
Damping process value dAP [s]	0...5
Damping for the analogue 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 / 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
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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: 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				
Supported DeviceIDs	<table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>680</td></tr> </table>	Type of operation	DeviceID	default	680
Type of operation	DeviceID				
default	680				

Operating conditions

Ambient temperature [°F]	32...140
Note on ambient temperature	medium temperature < 176 °F medium temperature < 212 °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]	170
UL approval	UL Approval no.	I007
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	2258.35
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)	stainless steel (316 / 1.4401); stainless steel (316L/1.4404); brass (2.0371); brass chemically nickel-plated; PPS; spacer: POM; O-ring: FKM	
Process connection	threaded connection 1 1/2" 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
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:

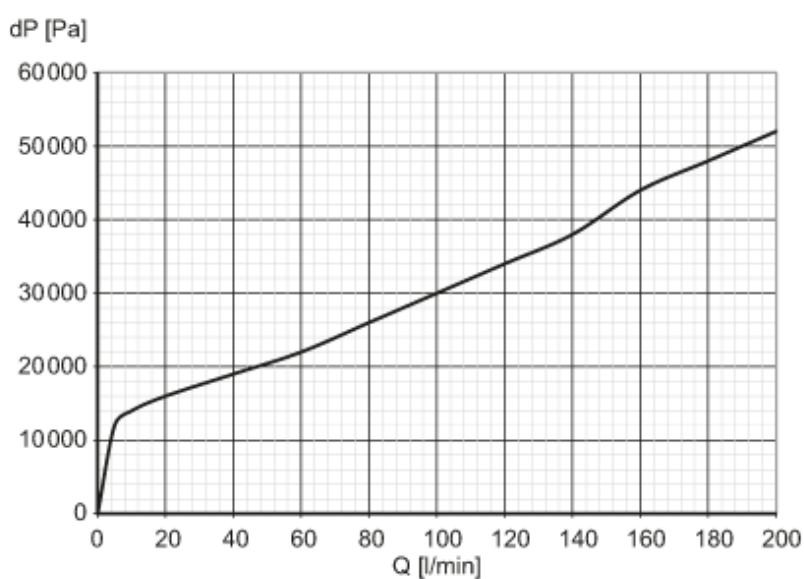
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- colours to DIN EN 60947-5-2

Core colours :

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity