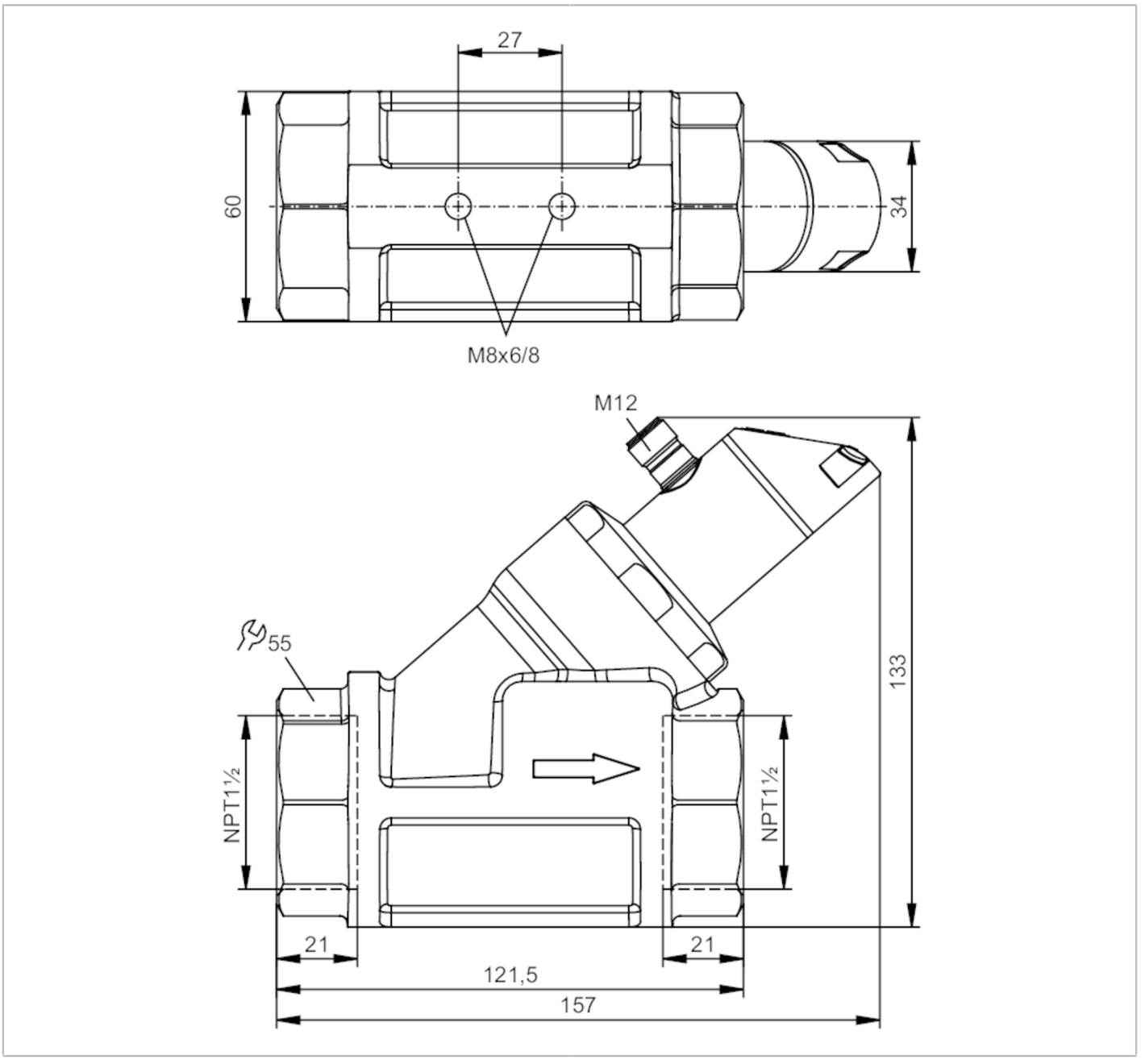
SBN257

Flow meter with fast response and display

SBN32IF0FRKG

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	60...3000 gph	1...50 gpm
Process connection	threaded connection 1 1/2" NPT Internal thread	

Application	
System	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 mm²/s (104 °F)	
		oil 2 with viscosity: 46 mm²/s (104 °F)	
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		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	[Hz]	10...10000	
Measuring dynamics		1:50	
Temperature monitoring			
Measuring range	[°F]	14...212	
Display range	[°F]	-26...252	
Resolution	[°F]	2	

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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 > 1 l/min; medium and operating temperature: +71,6 °F ± 4K)
Repeatability		± 1 % MEW
Temperature monitoring		
Temperature drift		0,9802 °F / K
Accuracy	[K]	3 K (77 °F; Q > 1 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 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	680

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

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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 number	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	
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; spacer: POM; O-ring: FKM	
Process connection		threaded connection 1 1/2" 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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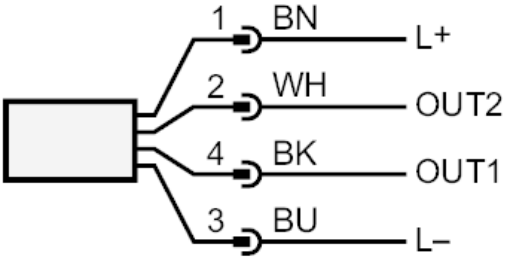
Connection



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

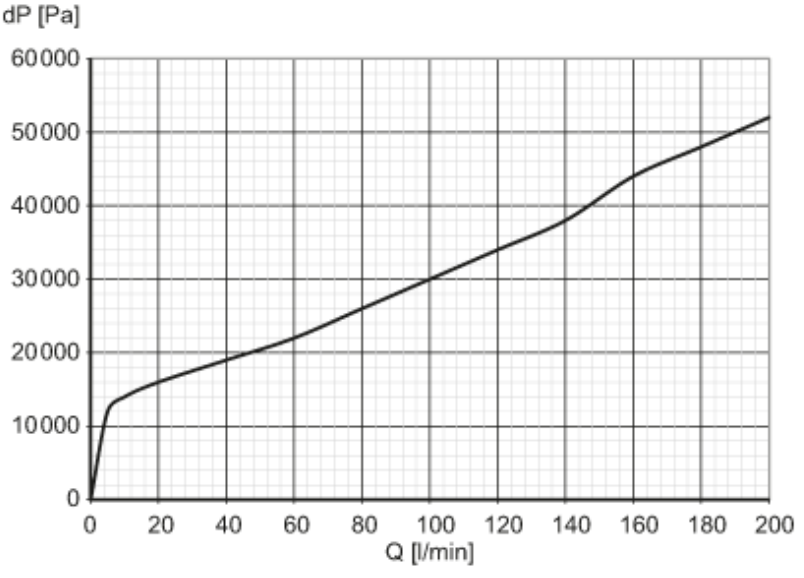
Colors to DIN EN 60947-5-2

Core colors :

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity