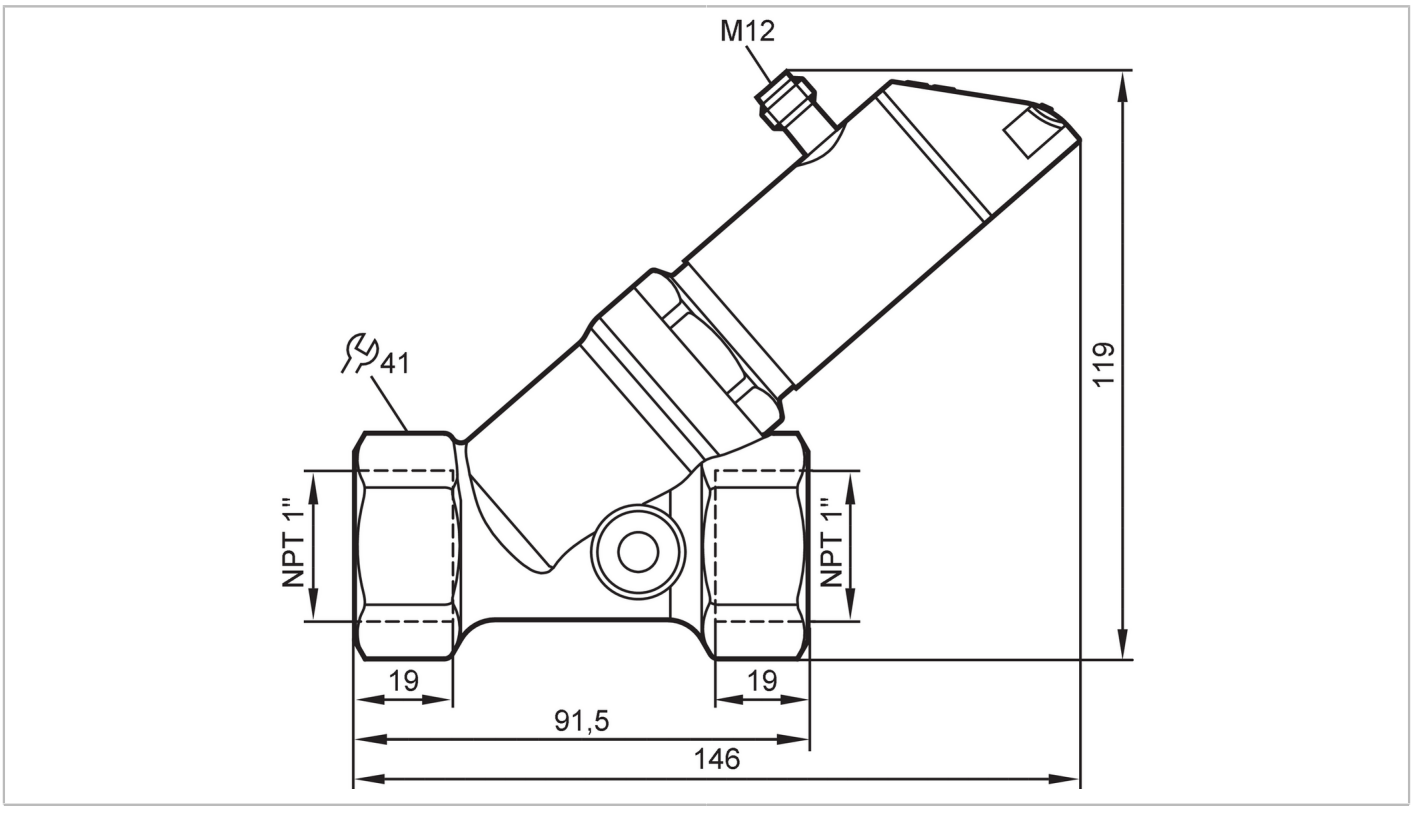
SBN246

Flow meter with integrated backflow prevention and display

SBN11IF0FRKG



CE CRN cULus LISTED IO-Link

Product characteristics			
Number of inputs and outputs		Number of digital outputs: 2; Number of analogue 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	
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 analogue outputs: 1	

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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 (...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	[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	
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 > 2 l/min; medium and operating temperature: +71,6 °F ± 4K)	
Repeatability		± 1 % MEW	
Temperature monitoring			
Temperature drift		0,9802 °F / K	

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Accuracy	[K]	3 K (77 °F; Q > 1 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 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	
Profiles		Smart Sensor - SSP 0	Generic Profiled Sensor
		Function	Device identification
		Function	Process data variable
		Function	Device diagnosis
SIO mode		yes	
Required master port type		A	
Process data analogue		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 °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.	I006
Pressure Equipment Directive		Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	1292.4	

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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; 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	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; coding: A; Contacts: 4, gold-plated

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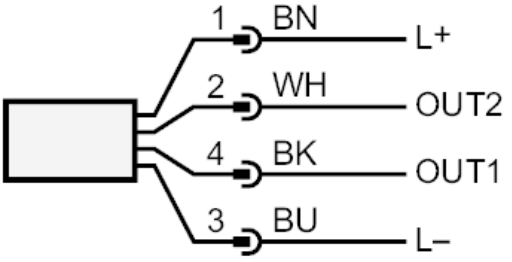
Connection



OUT1:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

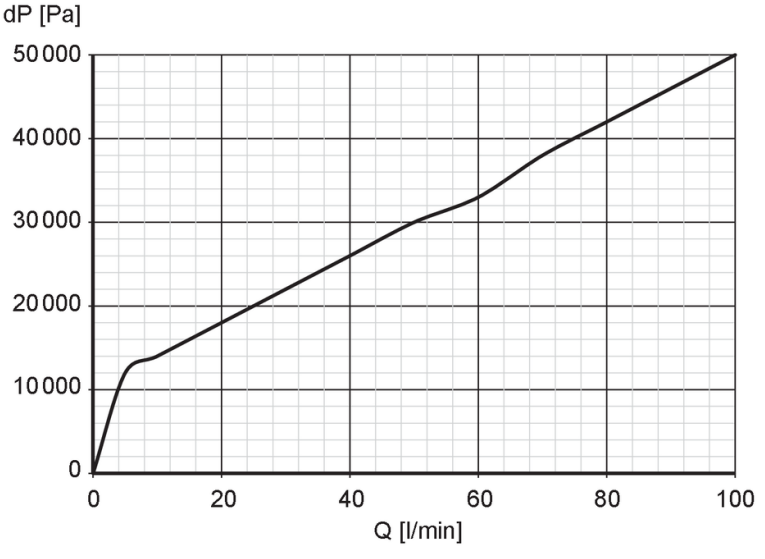
OUT2:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring

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