Flow meter with integrated backflow prevention and display

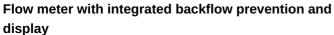


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Please note the changed housing design! 27 M8x6/8 M12 118 14 76 141

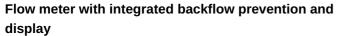


Product characteristics					
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1				
Measuring range	10600 gph	0.210 gpm			
Process connection	threaded connection 3/4" NPT				
Application					
Special feature	Gold-plated contacts				
Application	for industrial applications				
Media	Liquids; water; glycol solutions; coolants				





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Note on media		oil 1 with viscosity: 10 mm²/s (104 °F)		
Medium temperature	[°F]		pil 2 with viscosity: 46 mm²/s (104 °F) 14212	
Pressure rating	[bar]			
		40		
Pressure rating	[MPa]	4		
MAWP (for applications according to CRN)	[bar]	40		
Electrical data				
Operating voltage	[V]		1830 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	6	Number of c	ligital 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]	420		
Max. load	[Ω]	500		
Short-circuit protection		yes		
Overload protection		yes		
Frequency of the output	[Hz]	010000		
Measuring/setting range				
Measuring range		10600 gph	0.210 gpm	
Display range		0720 gph	012 gpm	
Resolution		5 gph	0.1 gpm	
Set point SP		5600 gph	0.110 gpm	
Reset point rP		0595 gph	09.9 gpm	
Frequency end point, FEP		40600 gph	0.6710 gpm	
In steps of		5 gph	0.1 gpm	
Frequency at the end point FRP	[Hz]	1010000		
Measuring dynamics		1:50		
Temperature monitoring				
Measuring range	[°F]	14212		
Display range	[°F]	-26252		





Sensition Fine Programming Programmi	uispiay			
Note Steps of Feducincy start point, FSP Feducincy start point, FSP Feducincy start point, FSP Feducincy at the end point FEP Feducincy at the end point FEP Feducincy at the end point FEP Feducincy (in the measuring range)	-	[°F]		2
Frequency start point, FSP F F 54212 Frequency at the end point FP F F 54212 Frequency FP F F F F F F F F	Set point SP	[°F]		16212
Frequency start point, FSP F F 54212 Frequency at the end point FP F F 54212 Frequency FP F F F F F F F F	In steps of	[°F]		
Frequency at the end point FRP Accuracy / deviations Flow monitoring Accuracy (in the measuring range) Repeatability ### 1 % MEW) ### 1 % MEW): (Q > 1 l/min; medium and operating temperature: +71,6 *F ± 4K) ### 1 % MEW ##	Frequency start point, FSP	[°F]		
Accuracy / deviations	Frequency end point, FEP	[°F]		
Accuracy (in the measuring range)		[Hz]		
\$\ \text{Accuracy (in the measuring range)} \\ \$\ \text{4 \% MW + 1 \% MEW); (Q > 1 l/min; medium and operating temperature: +71,6 "F ± 4K)} \\ \$\ \text{Repeatability} \\ \$\ \text{1 \% MEW} \\ \$\ \text{Temperature monitoring} \\ \$\ \text{Temperature drift} \\ \$\ \text{Accuracy} \\ \$\ \text{K} \\ \$\ \text{Response times} \\ \$\ \text{Flow monitoring} \\ \$\ \text{Response time} \\ \$\ \text{S} \\ \$\ \text{Damping process value dAP} \\ \$\ \text{S} \\ \$\ \text{Damping process value dAP} \\ \$\ \text{S} \\ \$\ \text{Damping for the analogue} \\ \$\ \text{S} \\ \$\ \text{Damping process value dAP} \\ \$\ \text{S} \\ \$\ \text{Damping for the analogue} \\ \$\ \text{S} \\ \$\ \text{Damping process ponse T05 / T09} \\ \$\ \text{S} \\ \$\ \text{Temperature monitoring} \\ \$\ \text{Dynamic response T05 / T09} \\ \$\ \text{S} \\ \$\ \text{Temperature monitoring} \\ \$\ \text{Dynamic response T05 / T09} \\ \$\ \text{S} \\ \$\ \text{Temperature monitoring} \\ \$\ \text{Dynamic response T05 / T09} \\ \$\ \text{S} \\ \$\ \text{Temperature monitoring} \\ \$\ \text{Dynamic response T05 / T09} \\ \$\ \text{S} \\ \$\ \text{Toy = 120 (Q > 1 l/min)} \\ \$\ \text{Douts of witching 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 \\ \$\ \text{Interfaces} \\ \$\ \text{Douts formula ly open / normally open / normally output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour \\ \$\ \text{Interfaces} \\ \$\ \text{Douts and drift of the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour \\ \$\ \text{Douts and drift of the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour \\ \$\ \text{Douts and drift of the switching logic} \\				
Repeatability ±1 % MEW Repeatability ±1 % MEW Temperature drift 0,9802 °F / K Accuracy [k] 3 K (77 °F; Q > 1 l/min) Response times Flow monitoring Response time [s] Damping process value dAP [s] Damping process value dAP [s] Damping for the analogue output dAA Emperature monitoring Premperature monitoring Dynamic response T05 / T09 [s] Software / programming Parameter setting options hysteresis / window, normally open / normally closed; switching logic; current output; medium selection; damping of the switching output / analogue output display can be rotated and switched off; standard unit of measurement; process value colour Interfaces Communication interface Communication interface Communication interface IO-Link revision IO-Link revision IO-Link revision SIO mode Required master port type Process data analogue Process data analogue Process data binary Min. process cycle time [ms] Supported DeviceIDs Type of operation default Mote on ambient temperature "F] Note on ambient temperature "F] Mote on ambient temperature "F] Mote on ambient temperature "E] A "B "B "B "B "B "B "B	Flow monitoring			
Temperature drift			\pm (4 % MW + 1 % MEW); (Q > 1 l/min; medium and operating temperature: +71,6 °F \pm 4K)	
Temperature drift				± 1 % MEW
Temperature drift	Temperature monitoring			
Response times Flow monitoring Response time S 0.01 0.0.5 Damping process value dAP S 0.0.5 Damping for the analogue output dAA S 0.0.5 Damping by the analogue output dAA S 0.0.5 Damping by the analogue output dAA S 0.0.5 Damping by the analogue output dAA Temperature monitoring Togs = 120 (Q > 1 l/min) Software / programming Parameter setting options Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour Parameter setting output / analogue output; display				0,9802 °F / K
Plow monitoring Response time S 0.01	Accuracy	[K]		3 K (77 °F; Q > 1 l/min)
Plow monitoring Response time S 0.01	Response times			
Response time [s] 0.01 Damping process value dAP [s] 05 Damping for the analogue output dAA 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: Process Data Variable; Device Identification SIO mode yes Required master port type A A Process data analogue 2 Process data analogue 2 Process data binary 2 Min. process cycle time [ms] Supported DeviceIDs Type of operation default 567 Operating conditions Ambient temperature [°F] 32140 Note on ambient temperature < 212 °F: 32104 °F				
Damping process value dAP [S] Damping for the analogue output dAA Temperature monitoring Dynamic response T05 / T09 [S] 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 Transmission type COM2 (38.4 kBaud) IO-Link Transmission type COM2 (38.4 kBaud) IO-Link revision 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 Process data analogue Process data binary Min. process cycle time [ms] Supported DeviceIDs Type of operation default Type of operation default Tout in the process of	_	[s]		0.01
Damping for the analogue output dAA Temperature monitoring Dynamic response T05 / T09 [s] T09 = 120 (Q > 1 l/min) Software / programming Parameter setting options				
Temperature monitoring Dynamic response T05 / T09 [s] T09 = 120 (Q > 1 l/min) Software / programming Parameter setting options				
Dynamic response T05 / T09 S T09 = 120 (Q > 1 l/min)	output dAA			05
Software / programming Parameter setting options	Temperature monitoring			
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 Numeria	Dynamic response T05 / T09	[s]		T09 = 120 (Q > 1 l/min)
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	Software / programming			
Communication interface Transmission type IO-Link revision IO-Link revision SDCI standard Profiles Smart Sensor: Process Data Variable; Device Identification SIO mode Required master port type Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default DeviceID Type of operation Mote on ambient temperature Process data manient temperature Process data default Salandard IEC 61131-9 CDV Smart Sensor: Process Data Variable; Device Identification A Process data variable; Device Identification Sensor: Process Data Variable; Device Identification Process data default Salandard Salandard DeviceID Salandard DeviceID Salandard Saland	Parameter setting options		medium selection; damping for the switching output / analogue output; display can	
Transmission type IO-Link revision SDCI standard Frofiles Smart Sensor: Process Data Variable; Device Identification SIO mode Required master port type Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default Operating conditions Ambient temperature Process data manipum femperature Process data binary Type of operation medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Interfaces			
IO-Link revision SDCI standard IEC 61131-9 CDV Profiles Smart Sensor: Process Data Variable; Device Identification SIO mode Required master port type Required master port type Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default DeviceID Type of operation default DeviceID Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Communication interface		IO-Link	
SDCI standard Profiles Smart Sensor: Process Data Variable; Device Identification SIO mode Required master port type Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default DeviceID Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Transmission type		COM2 (38,4 kBaud)	
Profiles Since Si	IO-Link revision		1.1	
SIO mode Required master port type A Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default Operating conditions Ambient temperature [°F] Note on ambient temperature Measure Me	SDCI standard		IEC 61131-9 CDV	
Required master port type Process data analogue Process data binary Min. process cycle time Supported DeviceIDs Type of operation default DeviceID Type of operation default DeviceID Type of operation default S67 Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Profiles		Smart Sensor: Process Data Variable; Device Identification	
Process data analogue Process data binary Min. process cycle time [ms] Supported DeviceIDs Type of operation default Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 212 °F: 32104 °F	SIO mode		yes	
Process data binary Min. process cycle time [ms] Supported DeviceIDs Type of operation default Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Required master port type			
Min. process cycle time [ms] Supported DeviceIDs Type of operation default Operating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Process data analogue			2
Supported DeviceIDs Type of operation default Separating conditions Ambient temperature [°F] Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F	Process data binary			2
Operating conditions Ambient temperature [°F] 32140 Note on ambient temperature medium temperature < 176 °F	Min. process cycle time	[ms]		5
Operating conditions Ambient temperature [°F] 32140 Note on ambient temperature medium temperature < 176 °F	Supported DeviceIDs			
Ambient temperature [°F] 32140 Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F			default	567
Note on ambient temperature medium temperature < 176 °F medium temperature < 212 °F: 32104 °F				
medium temperature < 212 °F: 32104 °F	Ambient temperature	[°F]	32140	
	Note on ambient temperature		·	
Storage temperature [F] 51/6	Storage temperature	[0 -1	·	
	Siorage temperature	[-]	J1/0	

Flow meter with integrated backflow prevention and display



SBN34IQ0FRKG

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 (102000 Hz)	
MTTF [ANN]	145		
UL approval	UL Approval no.	1005	
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request		
Mechanical data			
Weight [g]	693		
Materials	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated		
Materials (wetted parts)	stainless steel (316 / 1.4401); 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		
Notes	Please note the changed housing design!		
Pack quantity	1 pcs.		
Electrical connection			

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated

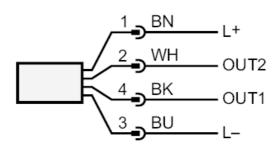


Flow meter with integrated backflow prevention and display



SBN34IQ0FRKG

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

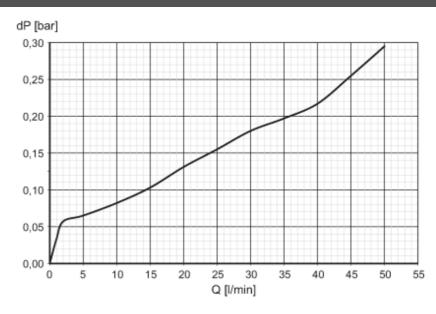
 BN =
 brown

 BU =
 blue

 WH =
 white

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity