

SB2232



Flow meter with integrated backflow prevention and display

SBG34KL0FRKG



Product characteristics				
Measuring range	0.3...15 l/min	0.018...0.9 m³/h	4.8...237.8 gph	0.08...3.965 gpm
Process connection	threaded connection G 3/4 internal thread			
Application				
Special feature	Gold-plated contacts			
Media	Liquids; oils (viscosity 46 mm²/s at 40 °C)			
Medium temperature	[°C]	-10...100		
Pressure rating	[bar]	100		
Pressure rating	[MPa]	10		
Note on pressure rating	at medium temperature >70°C: 80 bar / 8 MPa			
Electrical data				
Operating voltage	[V]	18...30 DC; (to SELV/PELV)		



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Current consumption [mA]	< 50
Protection class	III
Reverse polarity protection	yes
Power-on delay time [s]	< 3

Outputs

Total number of outputs	2
Output signal	switching signal; analogue signal; frequency signal; IO-Link
Max. voltage drop switching output DC [V]	2
Max. current load per output [mA]	150; (200: ...60 °C; Ambient temperature; 250: ...40 °C; Ambient temperature)
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	0.3...15 l/min	0.018...0.9 m³/h	4.8...237.8 gph	0.08...3.965 gpm
Display range	0...18 l/min	0...1.08 m³/h	0...285.4 gph	0...4.755 gpm
Resolution	0.01 l/min	0.001 m³/h	0.1 gph	0.001 gpm
Set point SP	0.1...15 l/min	0.006...0.9 m³/h	1.6...237.8 gph	0.025...3.965 gpm
Reset point rP	0...14.9 l/min	0...0.894 m³/h	0...236.2 gph	0...3.935 gpm
Frequency end point, FEP	1...15 l/min	0.06...0.9 m³/h	15.8...237.8 gph	0.265...3.965 gpm
In steps of	0.01 l/min	0.001 m³/h	0.2 gph	0.005 gpm
Frequency at the end point FRP [Hz]	10...10000			
In steps of [Hz]	10			
Measuring dynamics	1:50			

Temperature monitoring

Measuring range	-10...100 °C	14...212 °F
Display range	-32...122 °C	-25.6...251.6 °F
Resolution	0.1 °C	0.1 °F
Set point SP	-9.3...100 °C	15.2...212 °F
Reset point rP	-10...99.3 °C	14...210.8 °F
In steps of	0.1 °C	0.2 °F
Frequency start point, FSP	-10...78 °C	14...172.4 °F
Frequency end point, FEP	12...100 °C	53.6...212 °F
Frequency at the end point FRP [Hz]	10...10000	

Accuracy / deviations

Flow monitoring	
Accuracy (in the measuring range)	± 5 % MEW; (Q > 1 l/min; 20...70 °C Medium temperature)
Repeatability	± 1 % MEW
Temperature monitoring	
Temperature drift	0,029 °C / K
Accuracy [K]	3 K (25°C; Q > 1 l/min)



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Response times		
Flow monitoring		
Response time	[s]	0.01
Damping process value dAP	[s]	0...5
In steps of	[s]	0.1
Damping for the analogue output dAA	[s]	0...5
In steps of	[s]	0.1
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/frequency output; damping for the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour; calibration factor	
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, 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 default	DeviceID 1043
Operating conditions		
Ambient temperature	[°C]	0...60
Note on ambient temperature	medium temperature < 80 °C medium temperature < 100 °C: 0...40 °C	
Storage temperature	[°C]	-15...80
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.	I005
Pressure Equipment Directive	Sound engineering practice	
Mechanical data		
Weight	[g]	996.5
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	



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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 G 3/4 internal thread
Switching cycles mechanical	10 million

Displays / operating elements

Display	Display unit	6 x LED, green
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green alternating indication 4-digit
	programming	alphanumeric display, 4-digit

Remarks

Remarks	Recommendation: use a 200-micron filter.
	All data refer to oil with the following nominal viscosity: 46 mm ² /s, 40 °C
	MW = measured value
	MEW = Final value of the measuring range
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

