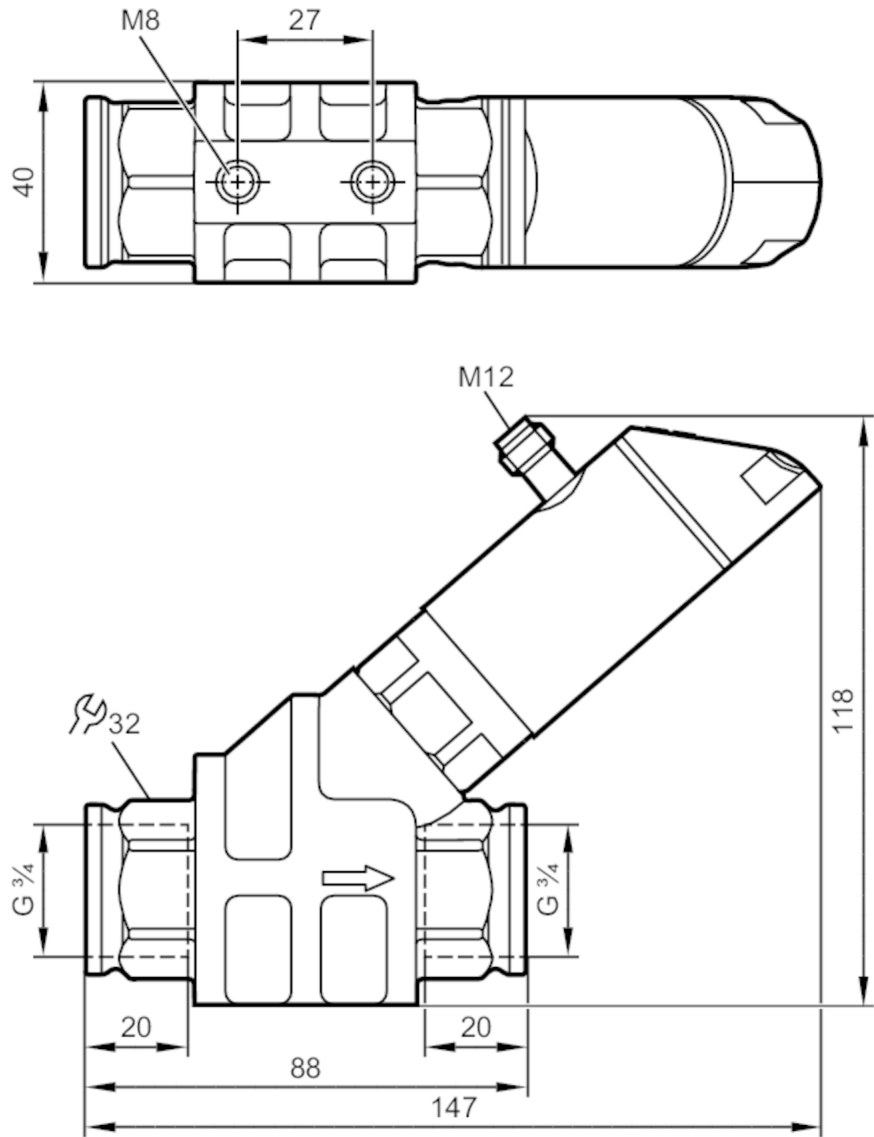


SB2233



Flow meter with fast response and display

SBG34KL0FRKG



Product characteristics				
Measuring range	0.5...25 l/min	0.03...1.5 m³/h	8...396.5 gph	0.13...6.6 gpm
Process connection	threaded connection G 3/4 Internal thread			
Application				
System	gold-plated contacts			
Media	Liquids; oils (viscosity 46 mm²/s at 40 °C)			
Medium temperature	[°C]	-10...100		
Pressure rating	100 bar	10 MPa		
Note on pressure rating	at medium temperature >70°C: 80 bar / 8 MPa			
Electrical data				
Operating voltage	[V]	18...30 DC; (to SELV/PELV)		
Current consumption	[mA]	< 50		



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

Outputs	
Total number of outputs	2
Output signal	switching signal; analog signal; frequency signal; IO-Link
Output function	configurable
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)
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	0.5...25 l/min	0.03...1.5 m³/h	8...396.5 gph	0.13...6.6 gpm
Display range	0...30 l/min	0...1.8 m³/h	0...475.5 gph	0...7.93 gpm
Resolution	0.01 l/min	0.001 m³/h	0.1 gph	0.01 gpm
Set point SP	0.16...25 l/min	0.01...1.5 m³/h	2.5...396 gph	0.04...6.6 gpm
Reset point rP	0...24.84 l/min	0...1.49 m³/h	0...393.5 gph	0...6.56 gpm
Frequency end point, FEP	1.66...25 l/min	0.1...1.5 m³/h	26.5...396 gph	0.44...6.6 gpm
In steps of	0.02 l/min	0.002 m³/h	0.5 gph	0.01 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	
In steps of [Hz]	10	

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



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Accuracy	[K]	3 K (25°C; Q > 1 l/min)	
Reaction times			
Flow monitoring			
Response time	[s]	0.01	
Damping process value dAP	[s]	0...5	
In steps of	[s]	0.1	
Damping for the analog 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 / closed; switching logic; current/frequency output; damping for the switching output / analog output; display can be rotated and switched off; standard unit of measurement; process value color; 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 - SSP 0	Generic Profiled Sensor	
	Function	Device identification	
	Function	Process data variable	
	Function	Device diagnosis	
SIO mode	yes		
Required master port class	A		
Process data analog	2		
Process data binary	2		
Min. process cycle time	[ms]	3.2	
Supported DeviceIDs	Type of operation	DeviceID	
	default	1044	
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 number	I005	
	File number UL	E174189	



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Pressure equipment directive	sound engineering practice
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Mechanical data

Weight	[g]	995.5
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; 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	Use of 200 micron filtration is recommended.	
	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
 - 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

