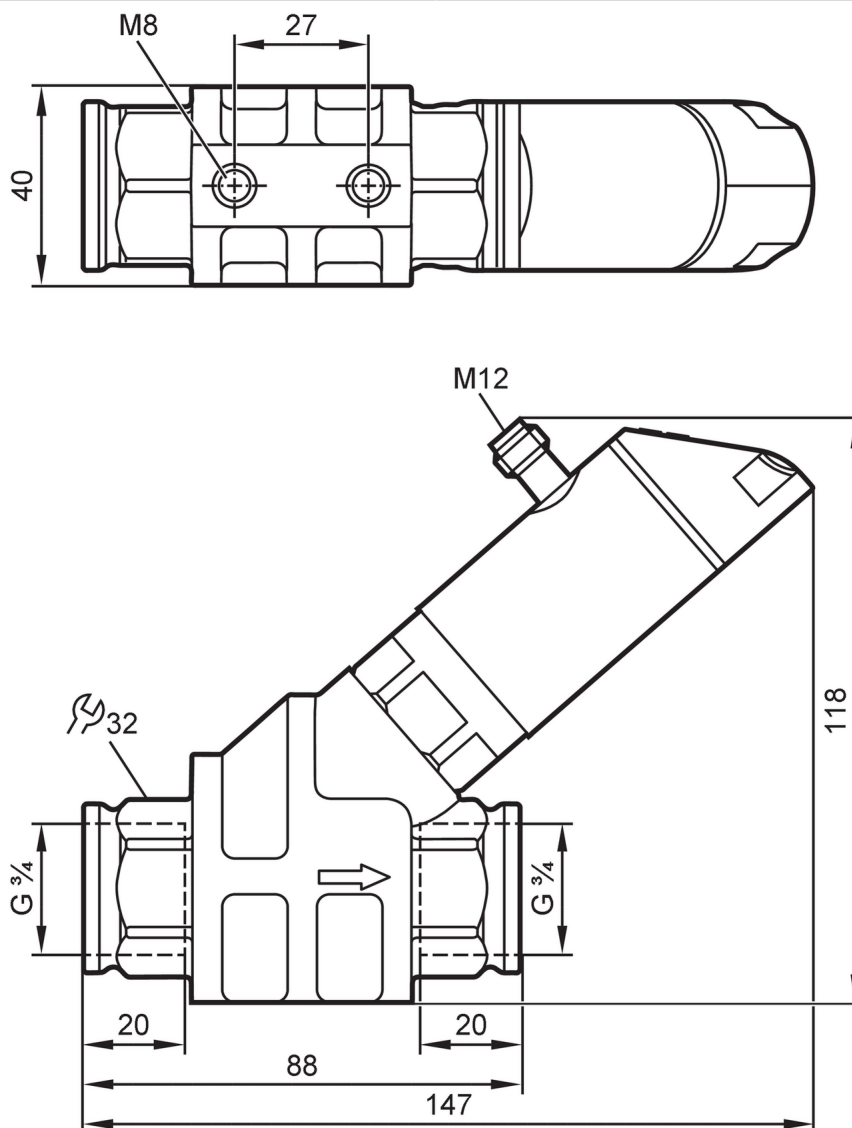


SB2233



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				
Special feature	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		
Protection class		III		
Reverse polarity protection		yes		



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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			
Accuracy	[K]	3 K (25°C; Q > 1 l/min)			



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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
Pressure equipment directive	sound engineering practice	

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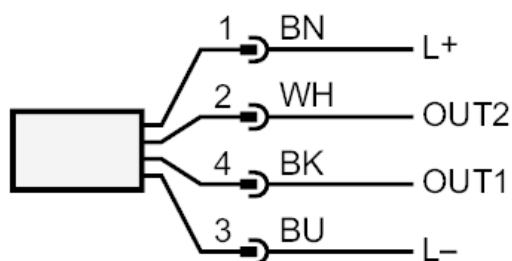
Mechanical data		
Weight	[g]	995.5
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated	
Materials (wetted parts)	stainless steel (1.4401 / 316); stainless steel (1.4404 / 316L); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM	
Process connection	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 mm²/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: 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
 - 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

