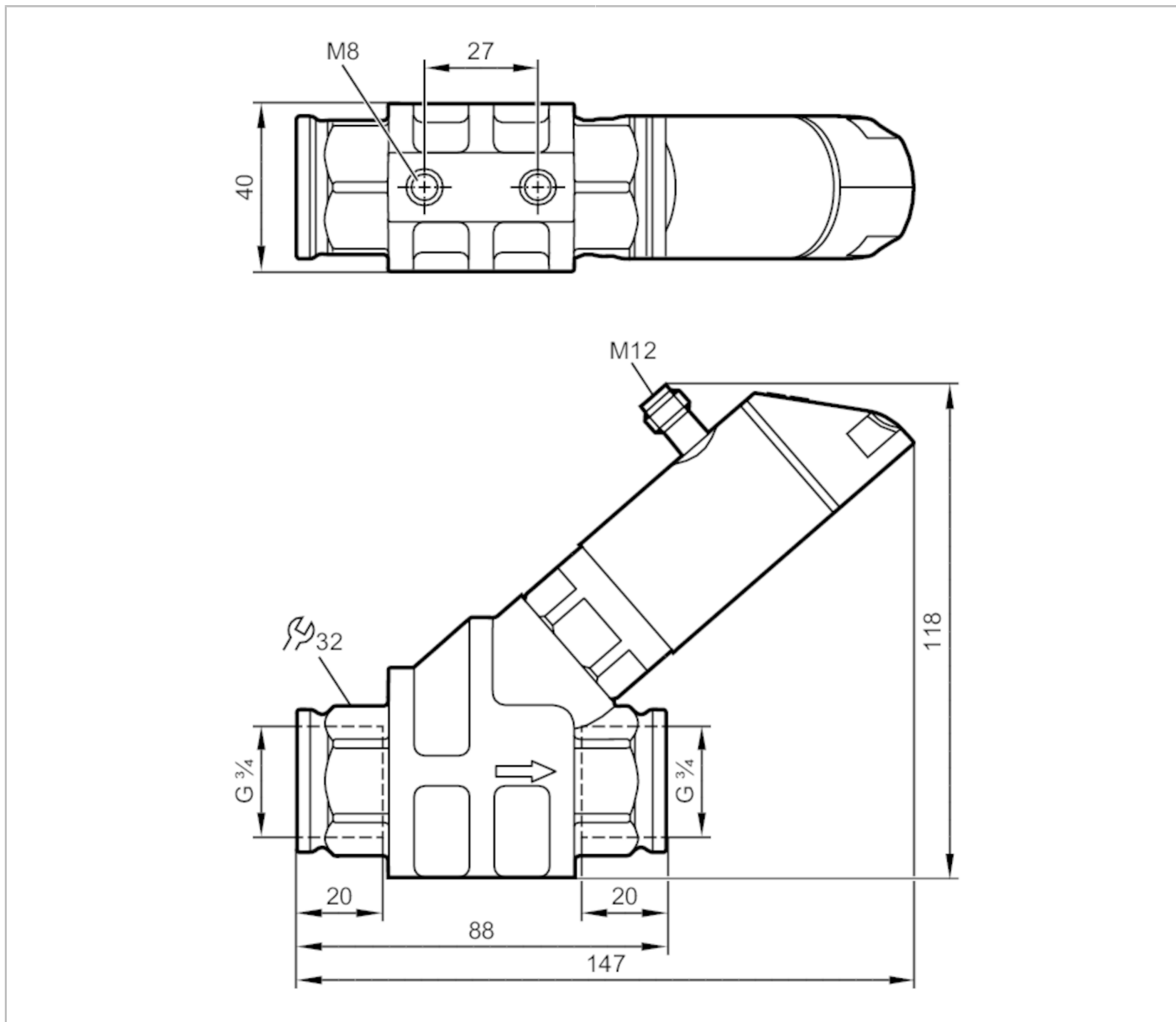


# SB2233



## Flow meter with fast response and display

SBG34KL0FRKG



Product characteristics				
Measuring range	0.5...25 l/min	0.03...1.5 m <sup>3</sup> /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 mm <sup>2</sup> /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			
<b>Outputs</b>					
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			
<b>Measuring/setting range</b>					
Measuring range		0.5...25 l/min	0.03...1.5 m <sup>3</sup> /h	8...396.5 gph	0.13...6.6 gpm
Display range		0...30 l/min	0...1.8 m <sup>3</sup> /h	0...475.5 gph	0...7.93 gpm
Resolution		0.01 l/min	0.001 m <sup>3</sup> /h	0.1 gph	0.01 gpm
Set point SP		0.16...25 l/min	0.01...1.5 m <sup>3</sup> /h	2.5...396 gph	0.04...6.6 gpm
Reset point rP		0...24.84 l/min	0...1.49 m <sup>3</sup> /h	0...393.5 gph	0...6.56 gpm
Frequency end point, FEP		1.66...25 l/min	0.1...1.5 m <sup>3</sup> /h	26.5...396 gph	0.44...6.6 gpm
In steps of		0.02 l/min	0.002 m <sup>3</sup> /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			
<b>Temperature monitoring</b>					
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			
<b>Accuracy / deviations</b>					
<b>Flow monitoring</b>					
Accuracy (in the measuring range)		± 5 % MEW; (Q > 1 l/min; 20...70 °C Medium temperature)			
Repeatability		± 1 % MEW			



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Temperature monitoring					
Temperature drift		0,029 °C / K			
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: Process Data Variable; Device Identification, 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	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>default</td> <td>1044</td> </tr> </tbody> </table>	Type of operation	DeviceID	default	1044
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			
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 <sup>2</sup> /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

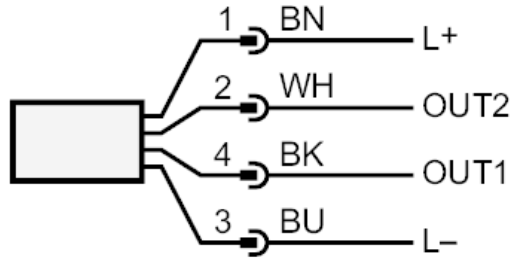




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### Connection



#### 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

