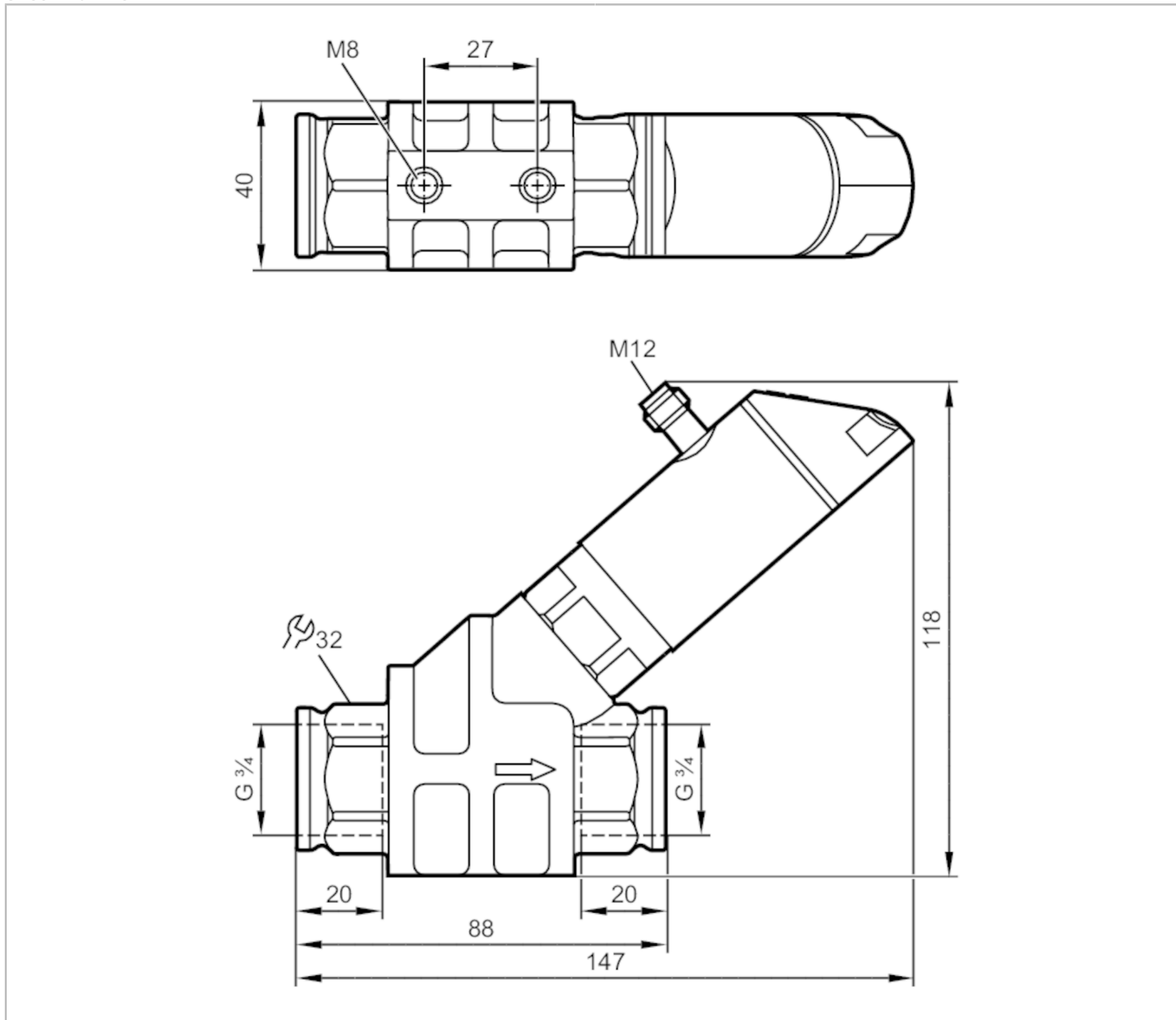


# SB9233



## Flow meter with integrated backflow prevention 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

Special feature	Gold-plated contacts			
Media	Liquids; oil			
Note on media	oil with viscosity: 32 mm <sup>2</sup> /s (40 °C)			
Medium temperature [°C]	-10...100			
Pressure rating [bar]	100			
Note on pressure rating	at medium temperature >70°C: 80			



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Electrical data	
Operating voltage [V]	18...30 DC; (according to EN 50178 SELV/PELV)
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
Output function	parameterisable
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	0.5...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			
In steps of	10 Hz			

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	



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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)
Response times	
Flow monitoring	
Response time [s]	0.01
Damping for the switching output 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
IO-Link device ID	1044 d / 0414 h
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
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



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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]	995	
Materials	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	Recommendation: use a 200-micron filter.	
	All data refer to oil with the following nominal viscosity:	
	32 cSt, 40 °C ± 3 K	
	MW = measured value	
Pack quantity	MEW = Final value of the measuring range	
	1 pcs.	

### Electrical connection

Connector: 1 x M12; 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

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### Diagrams and graphs

