

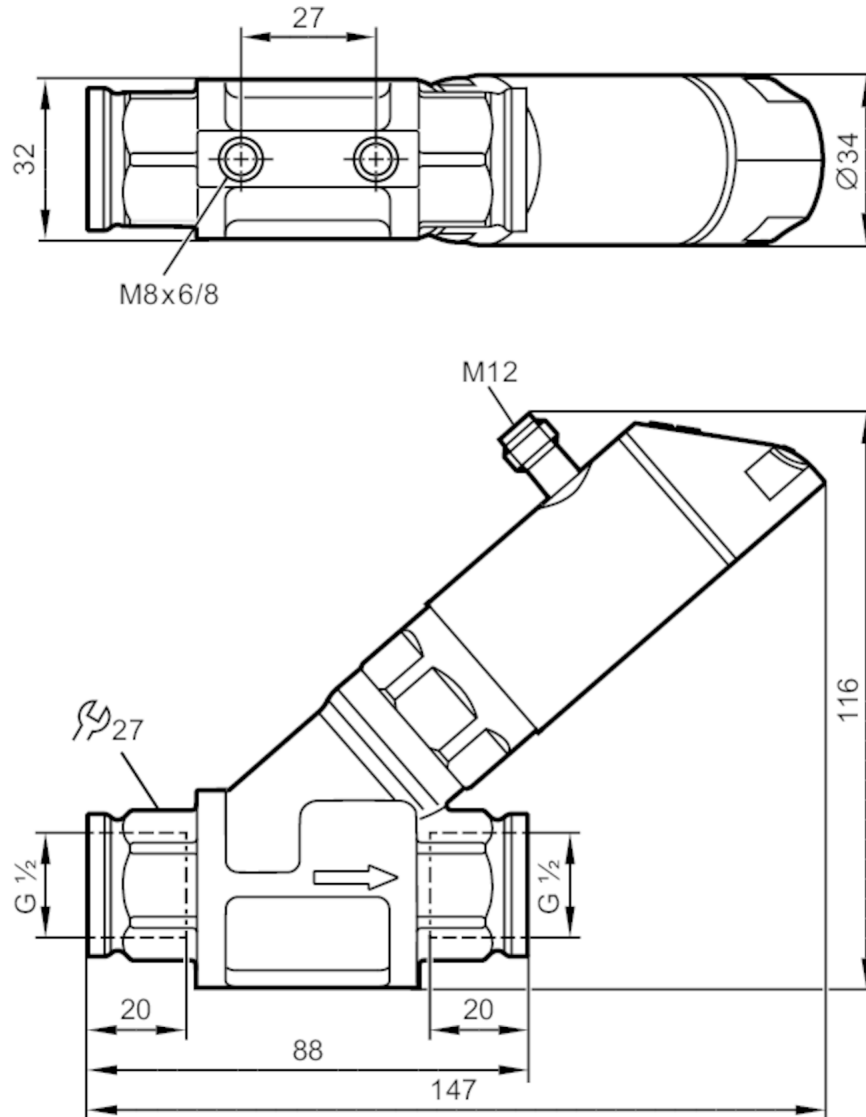
SBG233



Flow meter with integrated backflow prevention and display

SBG12IF0FRKG

Please note the changed housing design!



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	0.5...25 l/min	0.03...1.5 m ³ /h
Process connection	threaded connection G 1/2	



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Application	
Special feature	Gold-plated contacts
Application	for industrial applications
Media	water; glycol solutions; coolants; oils
Note on media	oil 1 with viscosity: 10 mm ² /s (40 °C) oil 2 with viscosity: 46 mm ² /s (40 °C)
Medium temperature [°C]	-10...100
Pressure rating [bar]	40
Pressure rating [Mpa]	4
MAWP (for applications according to CRN) [bar]	40
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
Inputs / outputs	
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
Outputs	
Total number of outputs	2
Output signal	switching signal; analogue signal; frequency signal; IO-Link; (configurable)
Number of digital outputs	2
Output function	normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC [V]	2
Permanent current rating of switching output DC [mA]	150; (per output 2 x 200 (...60 °C); 2 x 250 (...40 °C))
Switching cycles (mechanical)	10 million
Number of analogue outputs	1
Analogue current output [mA]	4...20
Max. load [Ω]	500
Short-circuit protection	yes
Overload protection	yes
Frequency of the output [Hz]	0...10000



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Measuring/setting range		
Measuring range	0.5...25 l/min	0.03...1.5 m³/h
Display range	0...30 l/min	0...1.8 m³/h
Resolution	0.1 l/min	0.01 m³/h
Set point SP	0.2...25 l/min	0.01...1.5 m³/h
Reset point rP	0...24.8 l/min	0...1.49 m³/h
Frequency end point, FEP	1.7...25 l/min	0.1...1.5 m³/h
In steps of	0.1 l/min	0.01 m³/h
Frequency at the end point FRP [Hz]	10...10000	
Measuring dynamics	1:50	
Temperature monitoring		
Measuring range [°C]	-10...100	
Display range [°C]	-32...122	
Resolution [°C]	1	
Set point SP [°C]	-9...100	
Reset point rP [°C]	-10...99	
In steps of [°C]	1	
Frequency start point, FSP [°C]	-10...78	
Frequency end point, FEP [°C]	12...100	
Frequency at the end point FRP [Hz]	10...10000	
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	± (4 % MW + 1 % MEW); (Q > 0,5 l/min; medium and operating temperature: +22 °C ± 4K)	
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	
Damping for the analogue output dAA [s]	0...5	
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; medium selection; damping for the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour	



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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	
SIO mode	yes	
Required master port type	A	
Process data analogue	2	
Process data binary	2	
Min. process cycle time [ms]	5	
Supported DeviceIDs	Type of operation	DeviceID
	Default	561
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; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	750	
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 1/2	
Displays / operating elements		
Display	Display unit	3 x LED, green
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit
	programming	alphanumeric display, 4-digit
Remarks		
Remarks	Recommendation: use a 200-micron filter.	
	All data refer to water (20 °C).	
	MW = measured value MEW = Final value of the measuring range	
Pack quantity	1 pcs.	



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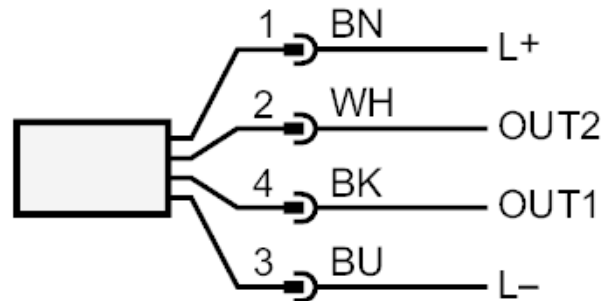
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Electrical connection

Connector: 1 x M12; Contacts: gold-plated



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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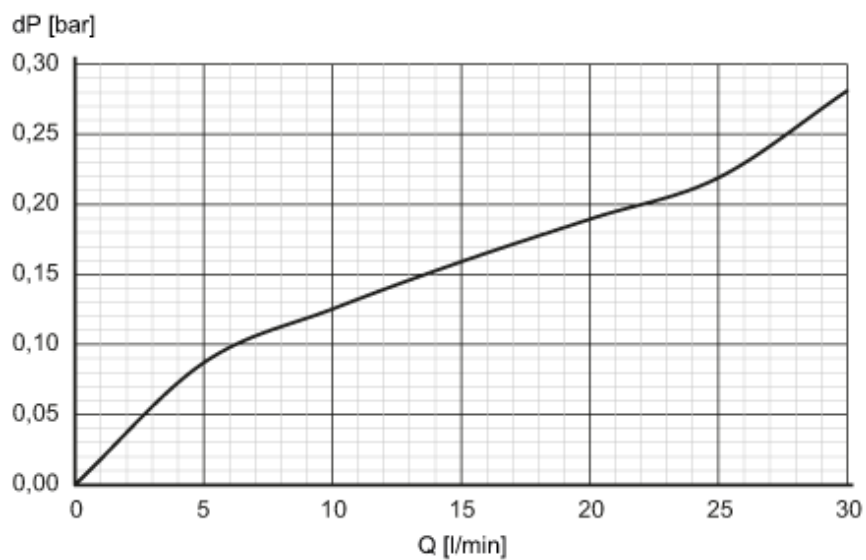


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity