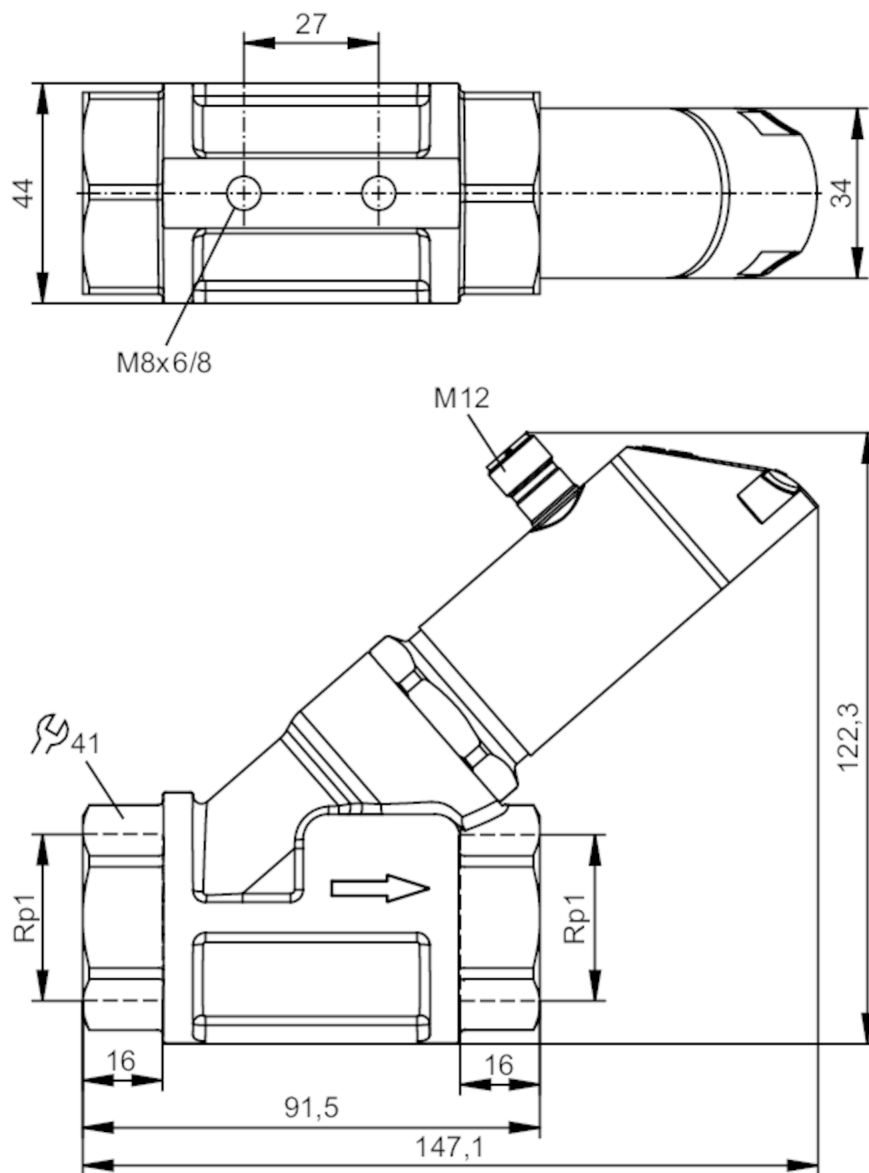


Flow meter with integrated backflow prevention and display

SBY11IF0FRKG

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	2...100 l/min	0.12...6 m³/h
Process connection	threaded connection Rp 1 internal thread	

Application

Special feature	Gold-plated contacts
Application	for industrial applications
Media	Liquids; water; glycol solutions; coolants
Note on media	oil 1 with viscosity: 10 mm²/s (40 °C)
	oil 2 with viscosity: 46 mm²/s (40 °C)
Medium temperature [°C]	-10...100



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Pressure rating	[bar]	25
Pressure rating	[MPa]	2.5
MAWP (for applications according to CRN)	[bar]	25

Electrical data

Operating voltage	[V]	18...30 DC; (to 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
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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

Measuring/setting range

Measuring range	2...100 l/min	0.12...6 m³/h
Display range	0...120 l/min	0...7.2 m³/h
Resolution	0.5 l/min	0.05 m³/h
Set point SP	1...100 l/min	0.05...6 m³/h
Reset point rP	0...99 l/min	0...5.95 m³/h
Frequency end point, FEP	6.5...100 l/min	0.4...6 m³/h
In steps of	0.5 l/min	0.05 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



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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)	$\pm (4 \% \text{ MW} + 1 \% \text{ MEW}); (Q > 2 \text{ l/min; medium and operating temperature: } +22 \text{ °C} \pm 4\text{K})$
Repeatability	$\pm 1 \% \text{ MEW}$

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 process value 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)
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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	<table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>563</td></tr> </table>	Type of operation	DeviceID	default	563
Type of operation	DeviceID				
default	563				

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.	I006
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	1286
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated
Materials (wetted parts)	stainless steel (316 / 1.4401); stainless steel (316L/1.4404); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM
Process connection	threaded connection Rp 1 internal thread

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
Notes	Please note the changed housing design!
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:

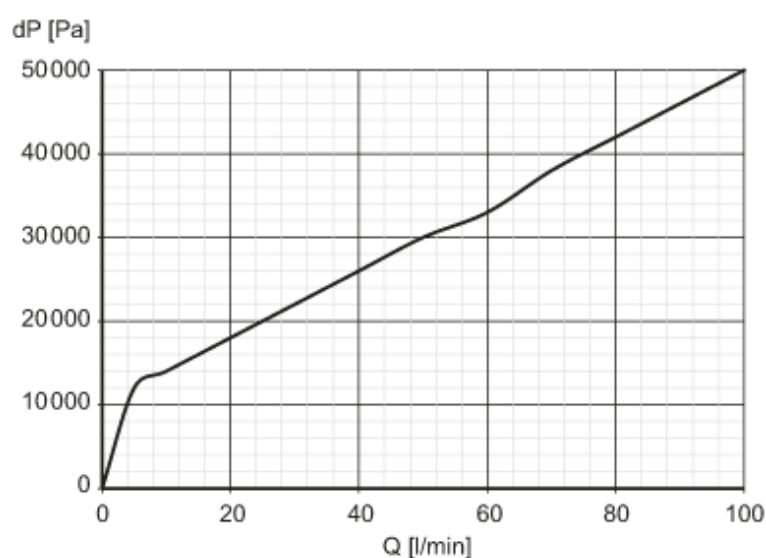
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- colours to DIN EN 60947-5-2

Core colours :

BK = black
BN = brown
BU = blue
WH = white

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity