

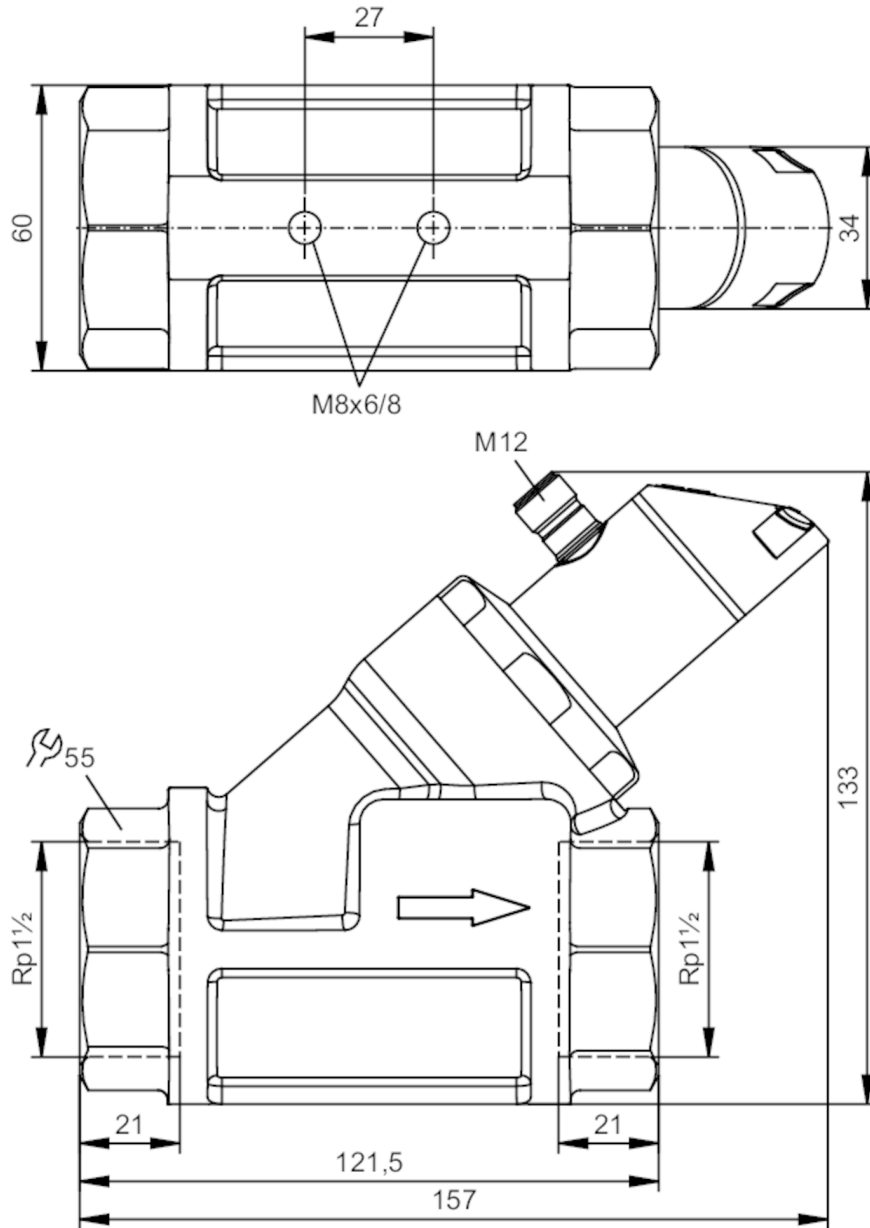
SBY257



Flow meter with fast response and display

SBY32IF0FRKG

Please note the changed housing design!



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	4...200 l/min	0.24...12 m³/h
Process connection	threaded connection Rp 1 1/2 Internal thread	

Application

System	gold-plated contacts
Application	for industrial applications
Media	Liquids; water; glycol solutions; Coolants

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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]	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 analog outputs: 1
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Outputs

Total number of outputs		2
Output signal		switching signal; analog signal; frequency signal; IO-Link; (configurable)
Number of digital outputs		2
Output function		normally open / closed; (configurable)
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 analog outputs		1
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	4...200 l/min	0.24...12 m ³ /h
Display range	0...240 l/min	0...14.4 m ³ /h
Resolution	1 l/min	0.05 m ³ /h
Set point SP	2...200 l/min	0.1...12 m ³ /h
Reset point rP	0...198 l/min	0...11.9 m ³ /h
Frequency end point, FEP	13...200 l/min	0.8...12 m ³ /h
In steps of	1 l/min	0.05 m ³ /h
Frequency at the end point FRP		10...10000
In steps of		10
Measuring dynamics		1:50

Temperature monitoring

Measuring range	[°C]	-10...100
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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
In steps of	[Hz]	10

Accuracy / deviations

Flow monitoring

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

Temperature monitoring

Temperature drift	0,029 °C / K
Accuracy	[K] 3 K (25°C; $Q > 1 \text{ l/min}$)

Reaction times

Flow monitoring

Response time	[s]	0.01
Damping process value dAP	[s]	0...5
Damping for the analog output dAA	[s]	0...5

Temperature monitoring

Dynamic response T05 / T09	[s]	T09 = 120 ($Q > 1 \text{ l/min}$)
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Software / programming

Parameter setting options	hysteresis / window; normally open / closed; switching logic; current/frequency output; medium selection; damping for the switching output / analog output; display can be rotated and switched off; standard unit of measurement; process value color
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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 class	A
Process data analog	2
Process data binary	2
Min. process cycle time	[ms] 5
Supported DeviceIDs	Type of operation DeviceID
	default 564

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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 I007
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request

Mechanical data	
Weight [g]	2234.1
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; PP-GF30; spacer: POM; O-ring: FKM
Process connection	threaded connection Rp 1 1/2 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	Use of 200 micron filtration is recommended. 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:

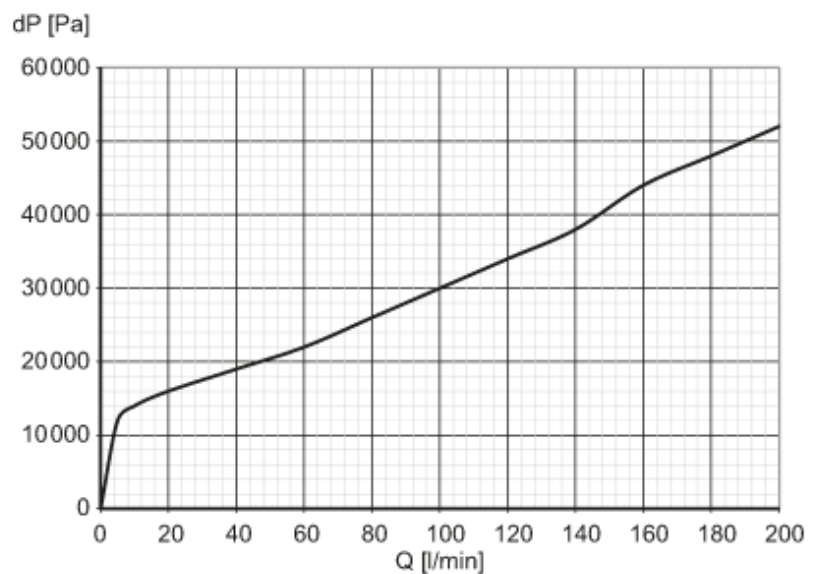
- Switching output Volumetric flow quantity monitoring
 - Switching output Temperature monitoring
 - analog output Volumetric flow quantity monitoring
 - analog output Temperature monitoring
- Colors to DIN EN 60947-5-2

Core colors :

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity