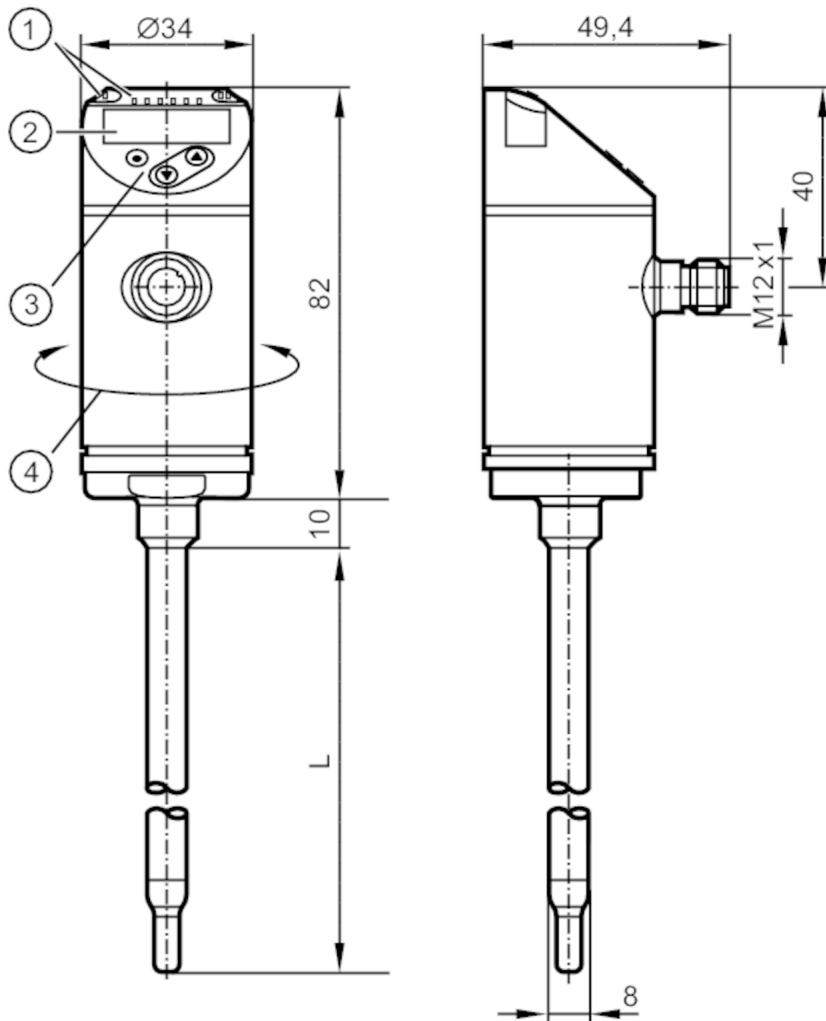


# SA4310



## Flow sensor

SAEXXXBFRKG/US-100



- L 200 mm
- 1 LEDs Display unit / Switching status
- 2 alphanumeric display 4-digit red/green
- 3 Programming buttons
- 4 upper part of the housing can be rotated 345°



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
Process connection	Clamp fitting $\varnothing$ 8 mm

### Application

System	gold-plated contacts		
Media	water; glycol solutions; air; oils		
Note on media	low-viscosity oils with viscosity: $\leq 40 \text{ mm}^2/\text{s}$ (104 °F) high-viscosity oils with viscosity: $> 40 \text{ mm}^2/\text{s}$ (104 °F)		
Medium temperature [°F]	-4...212		
Pressure rating	50 bar	725 psi	5 MPa
MAWP (for applications according to CRN) [bar]	50		

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SAEXXXBFRKG/US-100

Electrical data		
Operating voltage	[V]	18...30 DC
Current consumption	[mA]	< 100
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	10
Measuring principle		calorimetric
Inputs / outputs		
Number of inputs and outputs		Number of digital outputs: 2; Number of analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; frequency signal; IO-Link; (configurable)
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Max. voltage drop switching output DC	[V]	2.5
Permanent current rating of switching output DC	[mA]	250
Number of analog outputs		1
Analog current output	[mA]	4...20; (scalable)
Max. load	[Ω]	350
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
Overload protection		yes
Frequency of the output	[Hz]	0...1000
Measuring/setting range		
Probe length L	[mm]	200
Operating mode		relative; absolutely liquid; absolutely gaseous; (absolute: reference measurement recommended; Factory setting: relative)
Temperature monitoring		
Measuring range	[°F]	-4...212
Resolution	[°F]	0.5
Liquid media - absolute operating mode		
Setting range	[ft/s]	0.15...9.85
Greatest sensitivity	[ft/s]	0.15...9.85
Liquid media - relative operating mode		
Setting range	[ft/s]	0.15...19.5
Greatest sensitivity	[ft/s]	0.15...9.85
Gases - operating mode "absolute"		
Setting range	[ft/s]	6...328
Greatest sensitivity	[ft/s]	6...328

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Gases - operating mode "relative"									
Setting range	[ft/s] 6...656								
Greatest sensitivity	[ft/s] 6...328								
Accuracy / deviations									
Temperature drift	[cm/s x 1/K] 0,01 fps x 1/K (< 68 °F; > 158 °F)								
Max. temperature gradient of medium	[K/min] 100								
Absolute operating mode									
Repeatability	0,05 m/s; (water; Flow velocity: 0,05...3 m/s)								
Relative operating mode									
Accuracy	± (7 % MW + 2 % MEW); (for relative mode in the range of maximum sensitivity under the following conditions; water: 68...158 °F; inlet length: 5 ft; DN25 (DIN 2448); mounting position according to instructions; Accuracy can differ for other media and mounting positions.)								
Repeatability	0,05 m/s; (water; Flow velocity: 0,05...3 m/s)								
Temperature monitoring									
Temperature drift	± 0,003 K/°F								
Accuracy	[K] ± 0,3 / ± 1; (water; Flow velocity: 1...9,85 fps / air; Flow velocity: > 32,8 fps)								
Reaction times									
Response time	[s] 0.5; (T09; water; glycol: 0,8 s; air: 7 s; oil: 1,8 s; each T09)								
Temperature monitoring									
Dynamic response T05 / T09	[s] 1,5 (T09); (water; Flow velocity: 1...9,85 fps)								
Software / programming									
Parameter setting options	hysteresis / window; normally open / closed; switching logic; current/frequency output; medium selection; Damping; Teach function; display can be rotated and switched off; standard unit of measurement; process value color								
Interfaces									
Communication interface	IO-Link								
Transmission type	COM2 (38,4 kBaud)								
IO-Link revision	1.1								
SDCI standard	IEC 61131-9								
Profiles	<table border="1"> <tr> <td>Smart Sensor - SSP 0</td> <td>Generic Profiled Sensor</td> </tr> <tr> <td>Function</td> <td>Device identification</td> </tr> <tr> <td>Function</td> <td>Process data variable</td> </tr> <tr> <td>Function</td> <td>Device diagnosis</td> </tr> </table>	Smart Sensor - SSP 0	Generic Profiled Sensor	Function	Device identification	Function	Process data variable	Function	Device diagnosis
Smart Sensor - SSP 0	Generic Profiled Sensor								
Function	Device identification								
Function	Process data variable								
Function	Device diagnosis								
SIO mode	yes								
Required master port class	A								
Process data analog	2								
Process data binary	2								
Min. process cycle time	[ms] 3								
Supported DeviceIDs	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / ModE = (REL)</td> <td>537</td> </tr> <tr> <td>ModE = (GAS)</td> <td>551</td> </tr> <tr> <td>ModE = (LIQU)</td> <td>544</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / ModE = (REL)	537	ModE = (GAS)	551	ModE = (LIQU)	544
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## Flow sensor

SAEXXXBFRKG/US-100

Operating conditions		
Ambient temperature	[°F]	-40...176
Storage temperature	[°F]	-40...212
Protection		IP 65; IP 67

Tests / approvals		
EMC	DIN EN 60947-5-9	
Shock resistance	DIN EN 60068-2-27	50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	2 g (10...2000 Hz)
MTTF	[years]	143
UL approval	UL approval number	I017
	File number UL	E174189

Mechanical data		
Weight	[g]	344.5
Housing		tubular
Dimensions	[mm]	Ø 8 / L = 292
Material		stainless steel (1.4404 / 316L); PBT-GF20; PBT-GF30
Materials (wetted parts)		stainless steel (1.4404 / 316L)
Process connection		Clamp fitting Ø 8 mm

Displays / operating elements		
Display	Display unit	6 x LED, green (% , fps, gpm, cfm, °F, 10 <sup>3</sup> )
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit

Remarks		
Remarks		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



Colors to DIN EN 60947-5-2

#### OUT1:

- Switching output Volumetric flow quantity monitoring
- Frequency output Volumetric flow quantity monitoring
- IO-Link

#### OUT2:

- Switching output Volumetric flow quantity monitoring
- Switching output Temperature monitoring
- analog output Volumetric flow quantity monitoring
- analog output Temperature monitoring
- Frequency output Volumetric flow quantity monitoring
- Frequency output Temperature monitoring
- Input External Teach

Core colors :

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