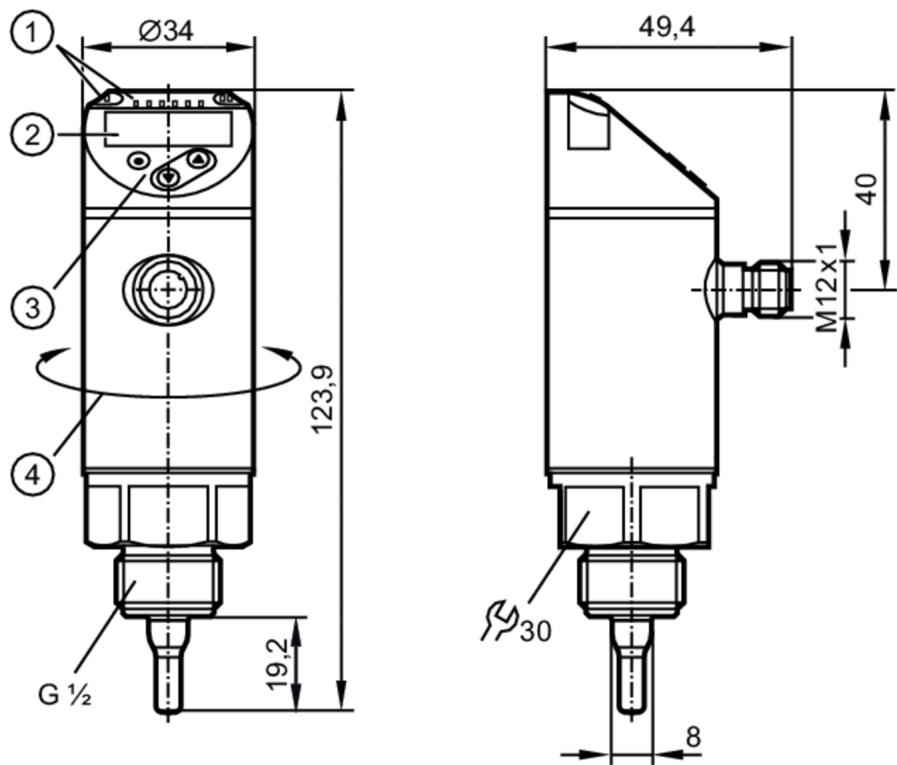


SA2000

Flow monitor

SAR12XDBFRKG/US-100



- 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°



Application		
Media		water; glycol solutions; air; oils
Medien		low-viscosity oils with viscosity: $\leq 40 \text{ mm}^2/\text{s}$ (40 °C)
		high-viscosity oils with viscosity: $> 40 \text{ mm}^2/\text{s}$ (40 °C)
Medium temperature	[°C]	-20...90
Pressure rating	[bar]	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
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)
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC [V]		2.5
Permanent current rating of switching output DC [mA]		250
Number of analogue outputs		1
Analogue current output [mA]		4...20; (scalable)
Max. load [Ω]		350
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes
Frequency of the output [Hz]		0...1000
Measuring/setting range		
Probe length L [mm]		19.2
Operating mode		relative; absolutely liquid; absolutely gaseous
Note on setting range		Operating mode: relative
Liquids		
Measuring range [m/s]		0.04...3
Setting range [m/s]		0...6
Gases		
Measuring range [m/s]		2...100
Setting range [m/s]		0...200
Temperature monitoring		
Measuring range [°C]		-20...90
Resolution [°C]		0.2
Accuracy / deviations		
Flow monitoring		
Temperature drift [cm/s x 1/K]		0,003 m/s x 1/K (< 20 °C; > 70 °C)
Temperature gradient [K/min]		100
Accuracy (in the measuring range)		± (7 % MW + 2 % MEW); (for relative mode in the measuring range with:; water: 20...70 °C; inlet length: 1,5 m; 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		± 0,005 K/°C
Accuracy [K]		± 0,3 / ± 1; (water; flow velocity: 0,3...3 m/s / air; flow velocity: > 10 m/s)



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Response times		
Flow monitoring		
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: 0,3...3 m/s)
Software / programming		
Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; current/frequency output; medium selection; Damping; Teach function; display can be rotated and switched off; standard unit of measurement; process value colour	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
IO-Link device ID	533 d / 00 02 15 h (REL)	
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
Operating conditions		
Ambient temperature	[°C]	-40...80
Storage temperature	[°C]	-40...100
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	20 g (10...2000 Hz)
MTTF	[years]	143
UL approval	UL Approval no.	I003
Mechanical data		
Weight	[g]	323.8
Materials	stainless steel (1.4404 / 316L); stainless steel (1.4310 / 301); PBT-GF20; PBT-GF30	
Materials (wetted parts)	stainless steel (1.4404 / 316L); Gasket: FKM	
Process connection	threaded connection G 1/2	
Displays / operating elements		
Display	Display unit	6 x LED, green (% , m/s, l/min, m³/h, °C, 10³)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit

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Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	540 d / 00 02 1ch (LIQU)
	547 d / 00 02 23 h (GAS)
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; Contacts: gold-plated





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Connection



colours 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
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- input External Teach

Core colours :

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