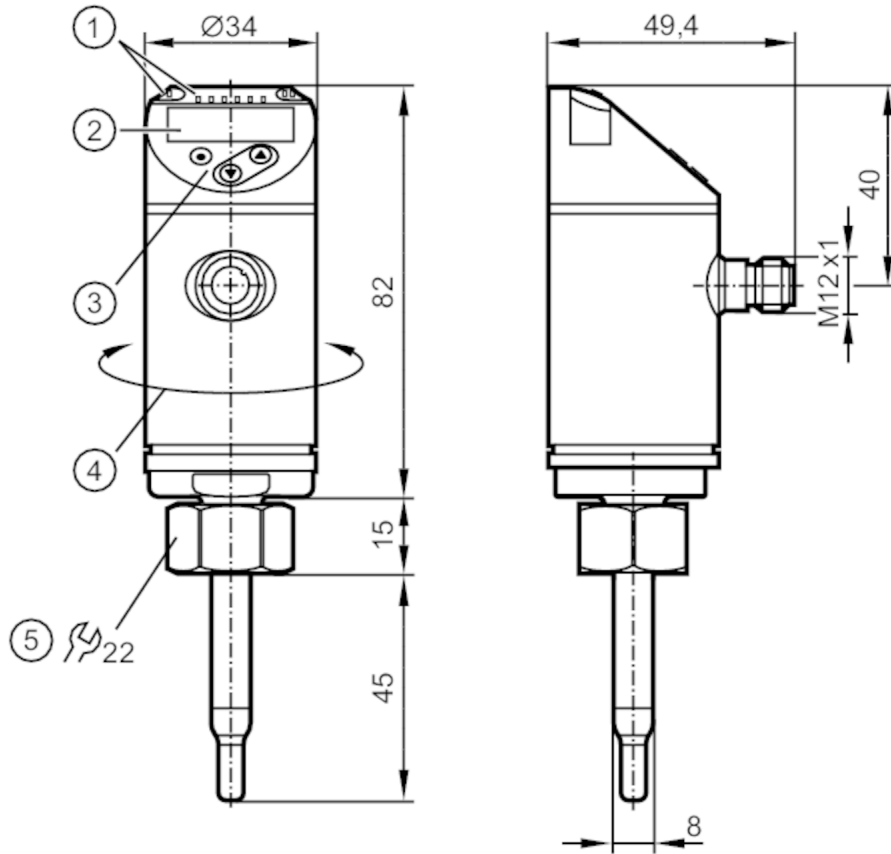


SA5010



Flow sensor

SAD10XDBFRKG/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°
- 5 M_{22}



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
Process connection	threaded connection M18 x 1,5 Internal thread

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...194
Pressure rating	100 bar 1450 psi 10 MPa

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

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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]	45
Operating mode	relative; absolutely liquid; absolutely gaseous; (absolute: reference measurement recommended; Factory setting: relative)
Temperature monitoring	
Measuring range [°F]	-4...194
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
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

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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	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	Type of operation	DeviceID
	Factory setting / ModE = (REL)	537
	ModE = (GAS)	551
	ModE = (LIQU)	544
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	20 g (10...2000 Hz)

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MTTF	[years]	143
UL approval	UL approval number	I003
	File number UL	E174189

Mechanical data		
Weight	[g]	259
Housing		tubular
Dimensions	[mm]	Ø 34 / L = 142
Material		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 M18 x 1,5 Internal thread
Probe diameter	[mm]	8
Installation length EL	[mm]	45

Displays / operating elements		
Display	Display unit	6 x LED, green (% , fps , gpm , cfm , °F , 10 ³)
	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



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

Colors to DIN EN 60947-5-2 :

Core colors :
BK = black
BN = brown
BU = blue
WH = white