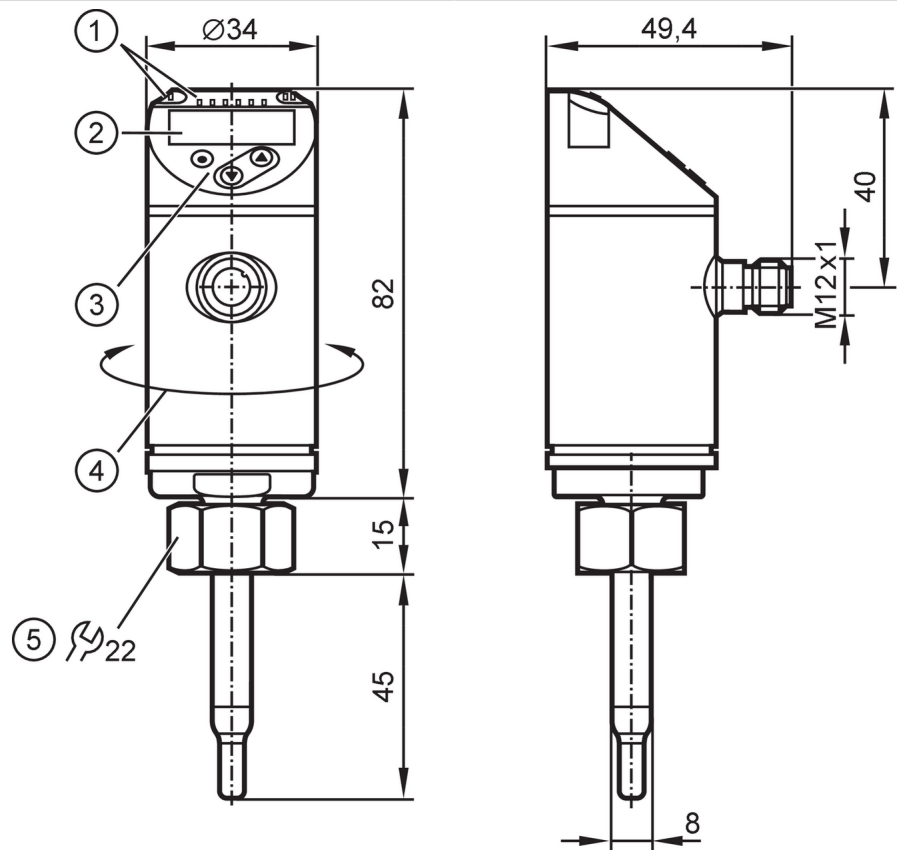


SA5040



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°

ACS IO-Link KTW/W270 Reg31

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

Special feature	gold-plated contacts
Media	water; glycol solutions; air; oils
Note on media	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	100 bar 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



Flow sensor

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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)
Liquids	
Setting range [m/s]	0.04...6
Greatest sensitivity [m/s]	0.04...3
Gases	
Setting range [m/s]	2...200
Greatest sensitivity [m/s]	2...100
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)
Max. temperature gradient off[K/min] medium	100
Accuracy	± (7 % MW + 2 % MEW); (for relative mode in the range of maximum sensitivity under the following conditions:; 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

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Accuracy	[K]	± 0,3 / ± 1; (water; Flow velocity: 0,3...3 m/s / air; Flow velocity: > 10 m/s)	
Reaction 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 / 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)	533	
	ModE = (GAS)	547	
	ModE = (LIQU)	540	
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 number		I003
	File number UL		E174189
Mechanical data			
Weight	[g]	256.5	
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: EPDM		

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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 (% , m/s, l/min, m³/h, °C, 10³)
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit

Remarks

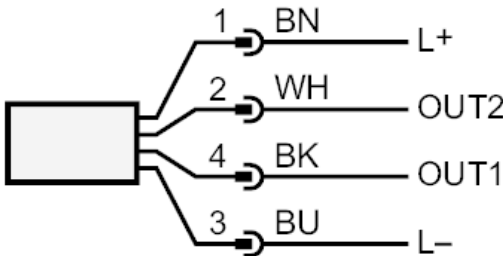
Remarks	MW = Measured value	
	MEW = Final value of the measuring range	
Pack quantity	1 pcs.	

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



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