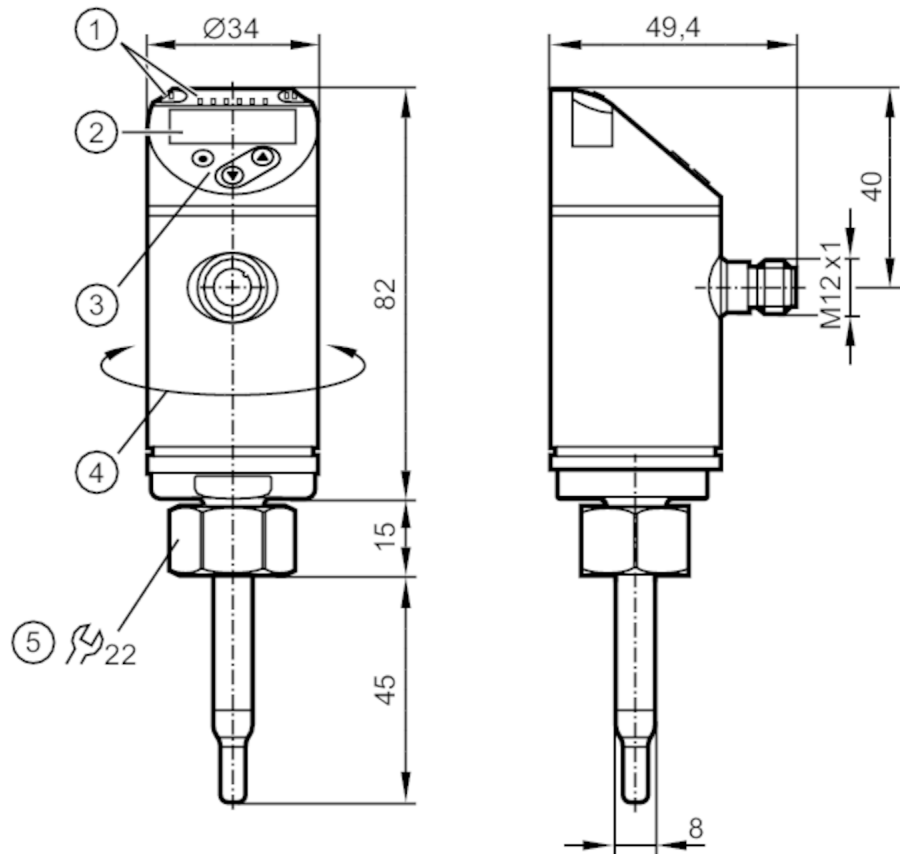


SA5040



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°
- 5 $\varnothing 22$

ACS **IO-Link KTW/W270 Reg31**

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue 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 [bar]	100
Pressure rating [MPa]	10

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



Flow sensor

SAD10XDBFRKG/US-100

Measuring principle	calorimetric
Inputs / outputs	
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
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]	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]	0...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)
Temperature gradient [K/min]	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

SA5040



Flow sensor

SAD10XDBFRKG/US-100

Accuracy	[K]	$\pm 0,3 / \pm 1$; (water; flow velocity: 0,3...3 m/s / air; flow velocity: > 10 m/s)
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Response times

Flow monitoring	
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Response time	[s]	0.5; (T09; water; glycol: 0,8 s; air: 7 s; oil: 1,8 s; each T09)
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Temperature monitoring	
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Dynamic response T05 / T09	[s]	1,5 (T09); (water; flow velocity: 0,3...3 m/s)
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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
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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	
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
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 no.	I003
	File number UL	E174189

Mechanical data

Weight	[g]	313.5
Housing		cylindrical
Dimensions	[mm]	Ø 34 / L = 142
Materials		stainless steel (316L/1.4404); stainless steel (301/1.4310); PBT-GF20; PBT-GF30
Materials (wetted parts)		stainless steel (316L/1.4404); Gasket: EPDM
Process connection		threaded connection M18 x 1,5 internal thread
Probe diameter	[mm]	8

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Flow sensor

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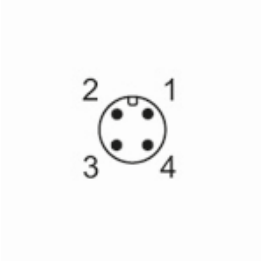
Installation length EL	[mm]	45
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Displays / operating elements		
Display	Display unit	6 x LED, green (% , m/s, l/min, m³/h, °C, 10³)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit

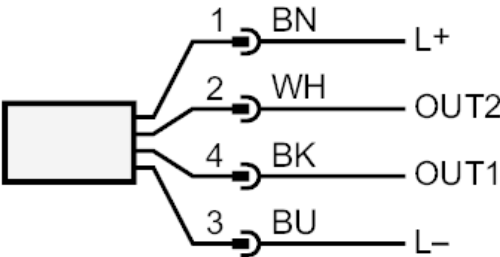
Remarks		
Remarks	MW = measured value	
	MEW = Final value of the measuring range	
Pack quantity	1 pcs.	

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 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
 - 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