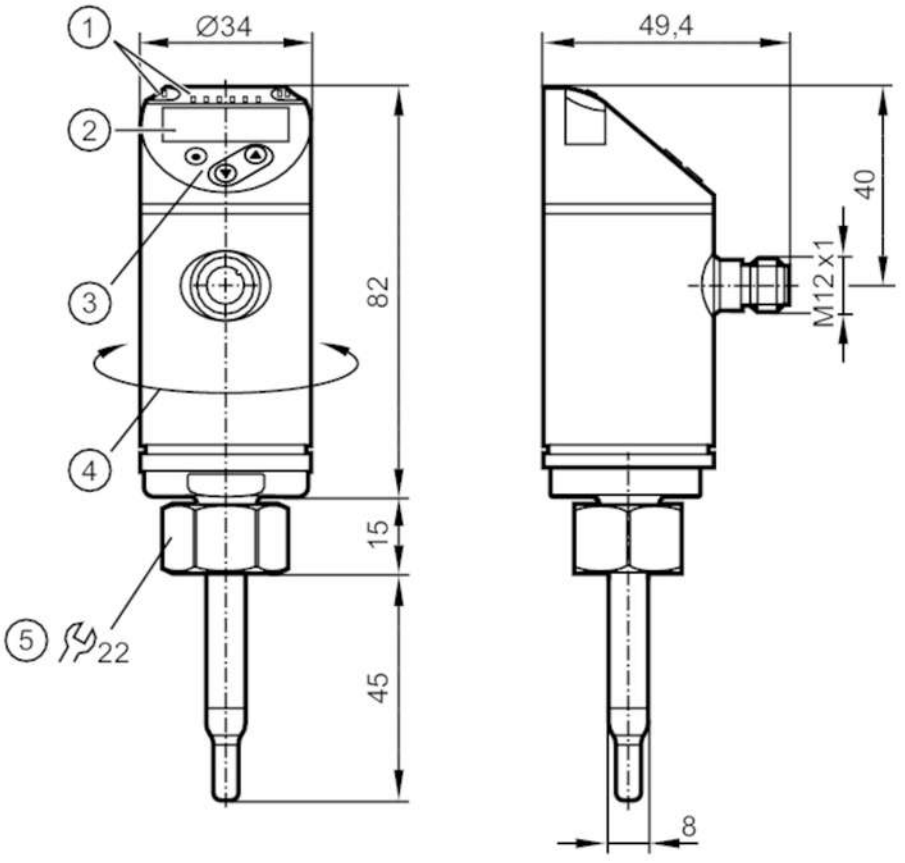
SA5000

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°

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: ≤ 40 mm²/s (40 °C)
		high-viscosity oils with viscosity: > 40 mm²/s (40 °C)
Medium temperature	[°C]	-20...90
Pressure rating	[bar]	100
Pressure rating	[Mpa]	10
MAWP (for applications according to CRN)	[bar]	100

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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
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)
Note on factory setting		Operating mode: 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

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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
Accuracy	[K]	± 0,3 / ± 1; (water; flow velocity: 0,3...3 m/s / air; flow velocity: > 10 m/s)
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
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 = (LIQU): 540 ModE = (GAS): 547
Operating conditions		
Ambient temperature	[°C]	-40...80
Storage temperature	[°C]	-40...100
Protection		IP 65; IP 67

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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]	132	
UL approval		UL Approval no.	I003

Mechanical data			
Weight	[g]	314	
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 M18 x 1,5 internal thread	

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; Contacts: gold-plated

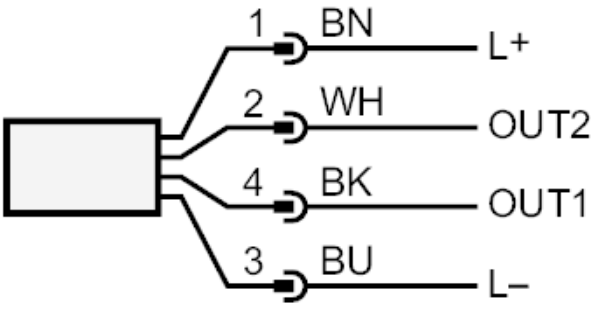


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Connection



	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