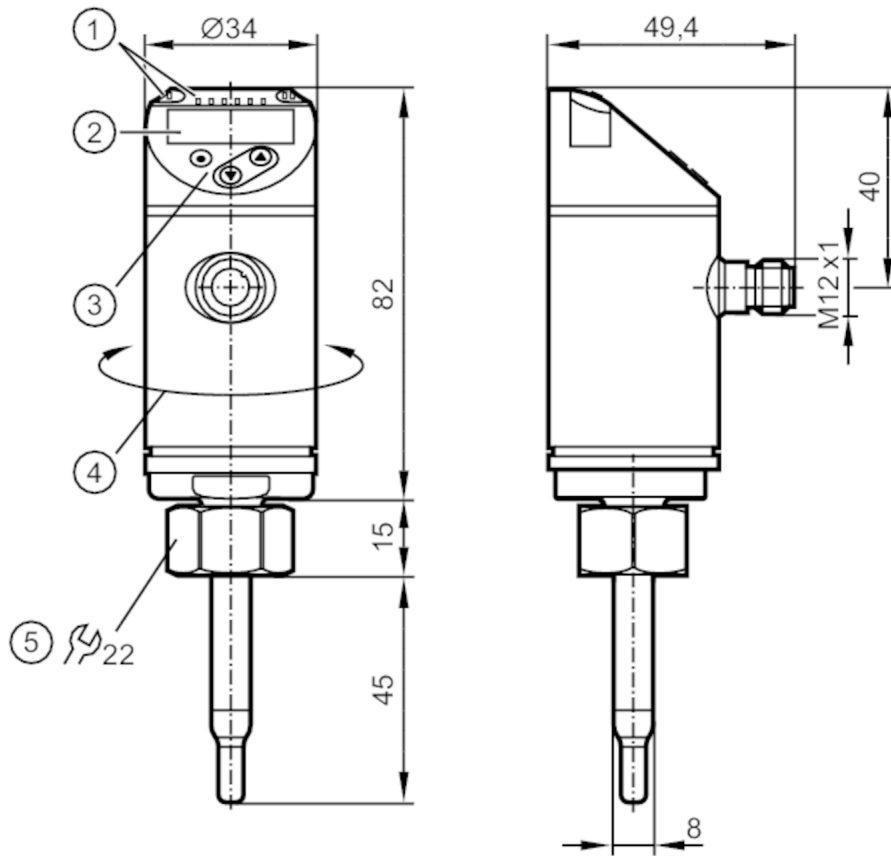


SA5020



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 analog outputs: 1
Process connection	threaded connection M18 x 1,5 Internal thread

Application

System	gold-plated contacts
Installation	Recommended for pipe diameters; (15...51 mm)
Media	air
Medium temperature [°C]	-20...90
Pressure rating	100 bar 10 MPa
MAWP (for applications according to CRN)	100 bar 10 MPa

Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)
Current consumption [mA]	< 100
Protection class	III
Reverse polarity protection	yes
Power-on delay time [s]	10

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Measuring principle	calorimetric
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 gaseous; (absolute: reference measurement recommended; Factory setting: relative)
Display range [m/s]	0...36
Resolution [m/s]	0.2
Set point SP [m/s]	2...30
Reset point rP [m/s]	0.6...28.6
Analog start point ASP [m/s]	0...24
Analog end point AEP [m/s]	6...30
Frequency end point, FEP [m/s]	6.6...30
Frequency at the end point FRP [Hz]	100...1000
Gases - operating mode "absolute"	
Setting range [m/s]	0.6...30
Greatest sensitivity [m/s]	0.6...30
Gases - operating mode "relative"	
Setting range [m/s]	0.6...60
Greatest sensitivity [m/s]	0.6...30
Temperature monitoring	
Measuring range [$^{\circ}\text{C}$]	-20...90
Resolution [$^{\circ}\text{C}$]	0.2

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Accuracy / deviations		
Gases - operating mode "absolute"		
Repeatability	± (3 % MW + 0,6 % MEW)	
Gases - operating mode "relative"		
Accuracy	± (10 % MW + 2 % MEW); (reference conditions: DN50; Inside diameter 51 mm; within the range of maximum sensitivity: 20 °C / < 6 bar; Insertion depth: 15 mm; inlet pipe length: 2.5 m; standard velocity to DIN ISO 2533 at the sensor tip)	
Repeatability	± (3 % MW + 0,6 % MEW)	
Temperature monitoring		
Temperature drift	± 0,005 K/°C	
Accuracy [K]	± 2 / + 8; (flow velocity > 20 % VMR and 20 °C: ± 2)	
Reaction times		
Response time [s]	7	
Temperature monitoring		
Dynamic response T05 / T09 [s]	30 (T09); (Flow velocity: ≥ 10 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)	1237
	ModE = (ABS)	1238
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]	131	

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UL approval	UL approval number	I003
	File number UL	E174189

Mechanical data		
Weight	[g]	258.25
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 (% , 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



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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