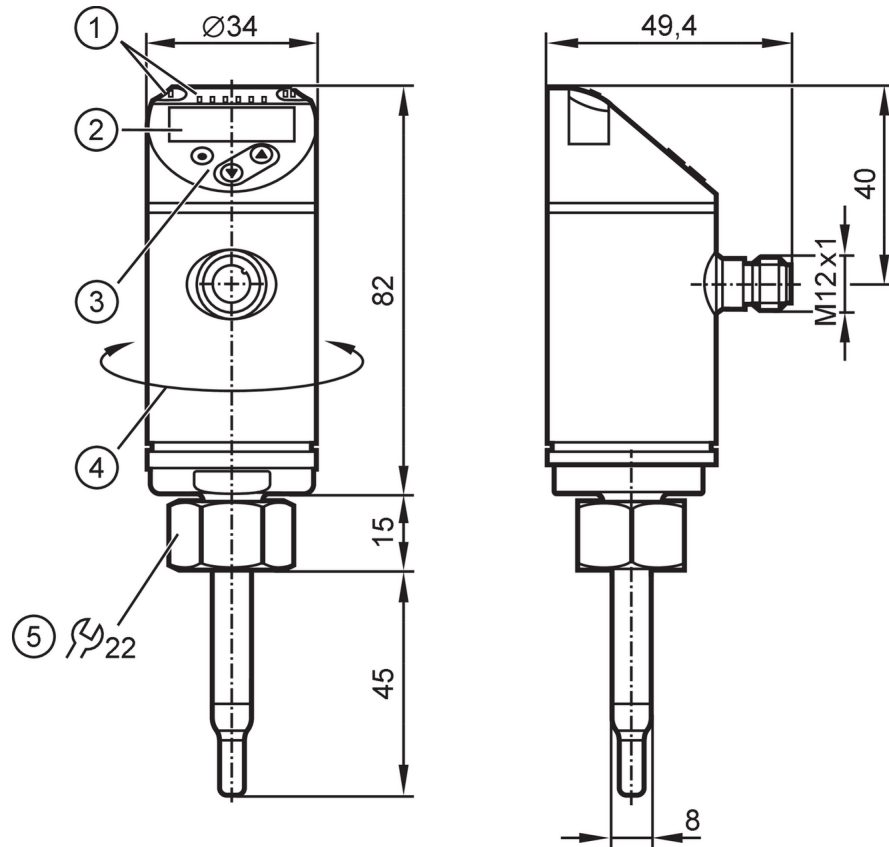


# SA5020



## 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

Special feature	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
Measuring principle	calorimetric

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## Flow sensor

SAD10XDBFRKG/US-100

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 [ $\Omega$ ]	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
Accuracy / deviations	
Gases - operating mode "absolute"	
Repeatability	$\pm (3 \% \text{ MW} + 0,6 \% \text{ MEW})$

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SAD10XDBFRKG/US-100

Gases - operating mode "relative"									
Accuracy	$\pm (10 \% \text{ MW} + 2 \% \text{ MEW})$ ; (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	$\pm (3 \% \text{ MW} + 0,6 \% \text{ MEW})$								
Temperature monitoring									
Temperature drift	$\pm 0,005 \text{ K/}^\circ\text{C}$								
Accuracy [K]	$\pm 2 / + 8$ ; (flow velocity > 20 % VMR and 20 °C: $\pm 2$ )								
Reaction times									
Response time [s]	7								
Temperature monitoring									
Dynamic response T05 / T09 [s]	30 (T09); (Flow velocity: $\geq 10 \text{ m/s}$ )								
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	<table border="1"> <tr> <td>Smart Sensor - SSP 0</td> <td>Generic Profiled Sensor</td> </tr> <tr> <td>Function</td> <td>Device identification</td> </tr> <tr> <td>Function</td> <td>Process data variable</td> </tr> <tr> <td>Function</td> <td>Device diagnosis</td> </tr> </table>	Smart Sensor - SSP 0	Generic Profiled Sensor	Function	Device identification	Function	Process data variable	Function	Device diagnosis
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	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / ModE = (REL)</td> <td>1237</td> </tr> <tr> <td>ModE = (ABS)</td> <td>1238</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / ModE = (REL)	1237	ModE = (ABS)	1238		
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								
UL approval	<table border="1"> <tr> <td>UL approval number</td> <td>I003</td> </tr> <tr> <td>File number UL</td> <td>E174189</td> </tr> </table>	UL approval number	I003	File number UL	E174189				
UL approval number	I003								
File number UL	E174189								

# SA5020



## Flow sensor

SAD10XDBFRKG/US-100

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, m <sup>3</sup> /h, °C, 10 <sup>3</sup> )
	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



# SA5020



## Flow sensor

SAD10XDBFRKG/US-100

### 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