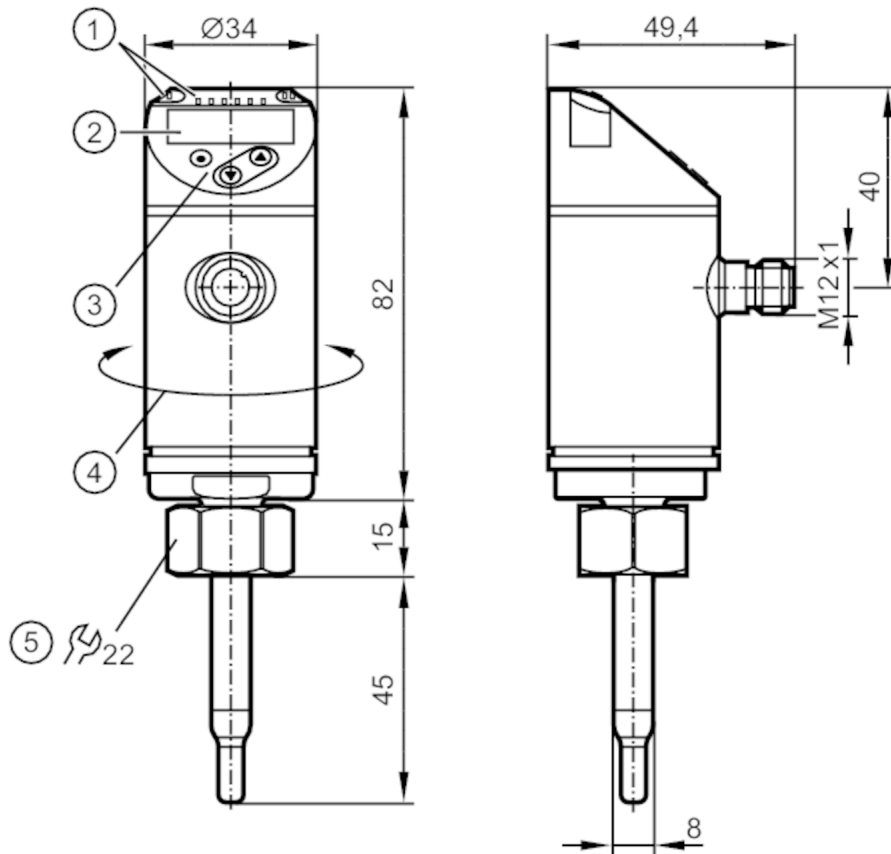


SA5000



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

Application

| | |
|--|--|
| System | 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 |
| MAWP (for applications according to CRN) [bar] | 100 |

SA5000



Flow sensor

SAD10XDBFRKG/US-100

| 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 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) |
| Note on factory setting | | Operating mode: relative |
| Temperature monitoring | | |
| Measuring range | [°C] | -20...90 |
| Resolution | [°C] | 0.2 |
| Liquid media - absolute operating mode | | |
| Setting range | [m/s] | 0.04...3 |
| Greatest sensitivity | [m/s] | 0.04...3 |
| Liquid media - relative operating mode | | |
| Setting range | [m/s] | 0.04...6 |
| Greatest sensitivity | [m/s] | 0.04...3 |
| Gases - operating mode "absolute" | | |
| Setting range | [m/s] | 0...100 |
| Greatest sensitivity | [m/s] | 30...100 |

SA5000



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| | | |
|---|--|----------|
| Gases - operating mode "relative" | | |
| Setting range [m/s] | 0...200 | |
| Greatest sensitivity [m/s] | 30...100 | |
| Accuracy / deviations | | |
| Temperature drift [cm/s x 1/K] | 0,003 m/s x 1/K (< 20 °C; > 70 °C) | |
| Max. temperature gradient of medium [K/min] | 100 | |
| Absolute operating mode | | |
| Repeatability | 0,05 m/s; (water; Flow velocity: 0,05...3 m/s) | |
| Relative operating mode | | |
| 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) | |
| Reaction times | | |
| 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: Process Data Variable; Device Identification, 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 = (LIQU) | 540 |
| | ModE = (GAS) | 547 |
| Operating conditions | | |
| Ambient temperature [°C] | -40...80 | |
| Storage temperature [°C] | -40...100 | |
| Protection | IP 65; IP 67 | |

SA5000



Flow sensor

SAD10XDBFRKG/US-100

| 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 number | I003 |

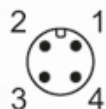
| Mechanical data | |
|--------------------------|---|
| Weight [g] | 314 |
| Material | stainless steel (1.4404 / 316L); stainless steel (1.4310 / 301); PBT-GF20; PBT-GF30 |
| Materials (wetted parts) | stainless steel (1.4404 / 316L); Gasket: FKM |
| Process connection | threaded connection M18 x 1,5 Internal thread |

| Displays / operating elements | | |
|-------------------------------|------------------|--|
| Display | Display unit | 6 x LED, green (% , m/s, l/min, m ³ /h, °C, 10 ³) |
| | 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



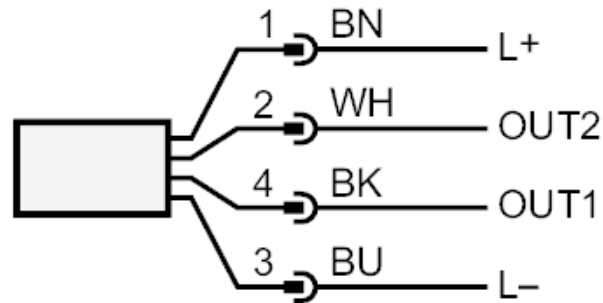
SA5000



Flow sensor

SAD10XDBFRKG/US-100

Connection



Colors 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
- analog output Volumetric flow quantity monitoring
- analog output Temperature monitoring
- Frequency output Volumetric flow quantity monitoring
- Frequency output Temperature monitoring
- Input External Teach

Core colors :

- BK = black
- BN = brown
- BU = blue
- WH = white