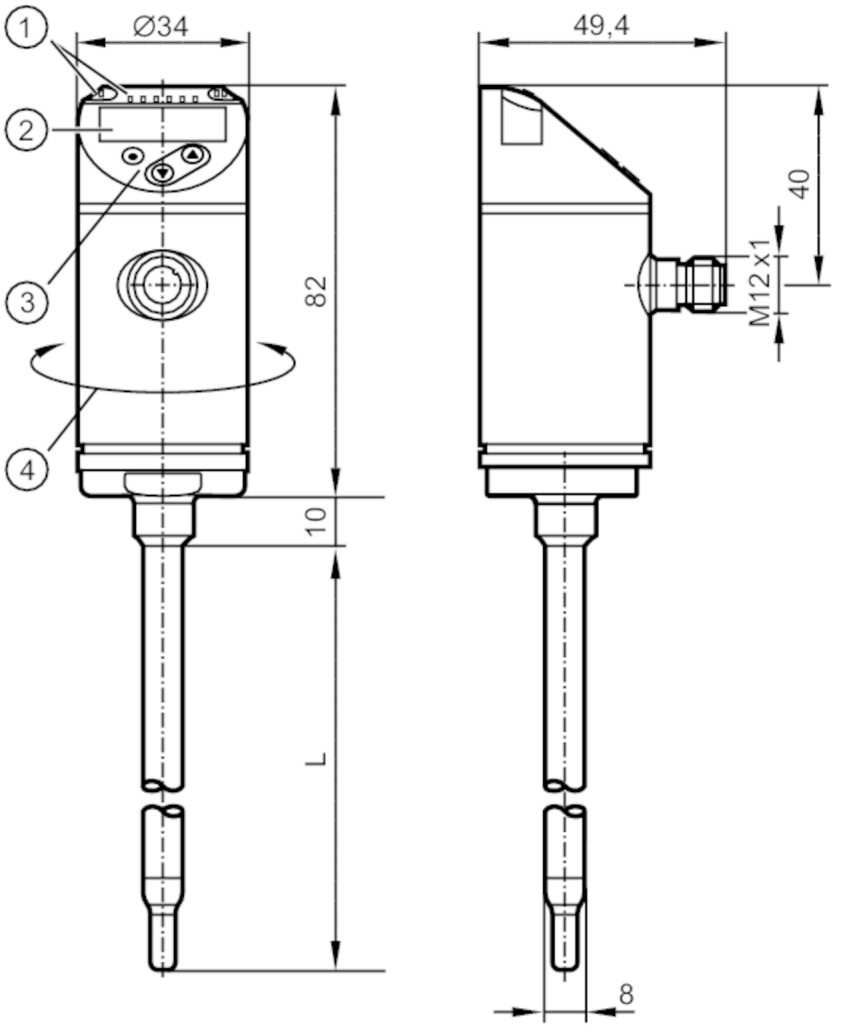
# SA4300

## Flow sensor

SAEXXXXBFRKG/US-100




L 200 mm
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°

ACS CE CRN cULus LISTED DNV DNV.COM/AF EC 1935/2004 FCM FDA IO-Link KTW/W270 Reg31 UKCA

| Product characteristics | | |
|---|---|---|
| Number of inputs and outputs | | Number of digital outputs: 2; Number of analog outputs: 1 |
| Process connection | | Ø 8 mm |
| **Application** | | |
| System | | 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...100 |
| Pressure rating | [bar] | 50 |
| Pressure rating | [MPa] | 5 |
| MAWP (for applications according to CRN) | [bar] | 50 |

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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 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] | 200 |
| Operating mode | | relative; absolutely liquid; absolutely gaseous; (absolute: reference measurement recommended; Factory setting: relative) |
| Temperature monitoring | | |
| Measuring range | [°C] | -20...100 |
| 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 |
| Gases - operating mode "relative" | | |
| Setting range | [m/s] | 0...200 |

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|---|---|---|
| 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 = (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 |

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| | | | |
|---|---|---|---|
| Shock resistance | | DIN EN 60068-2-27 | 50 g (11 ms) |
| Vibration resistance | | DIN EN 60068-2-6 | 2 g (10...2000 Hz) |
| MTTF | [years] | 180 | |
| UL approval | | UL approval number | I017 |
| | | File number UL | E174189 |

## Mechanical data

| | | | |
|---|---|---|---|
| Weight | [g] | 345.5 | |
| Material | | stainless steel (1.4404 / 316L); PBT-GF20; PBT-GF30 | |
| Materials (wetted parts) | | stainless steel (1.4404 / 316L) | |
| Process connection | | Ø 8 mm | |

## 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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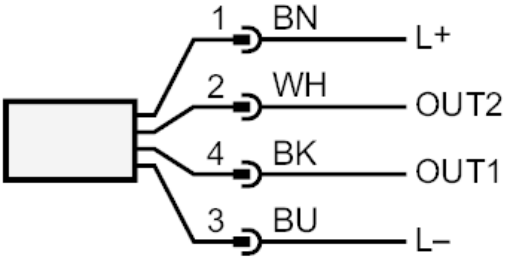
### Connection




| | |
|---|---|
| | 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 |