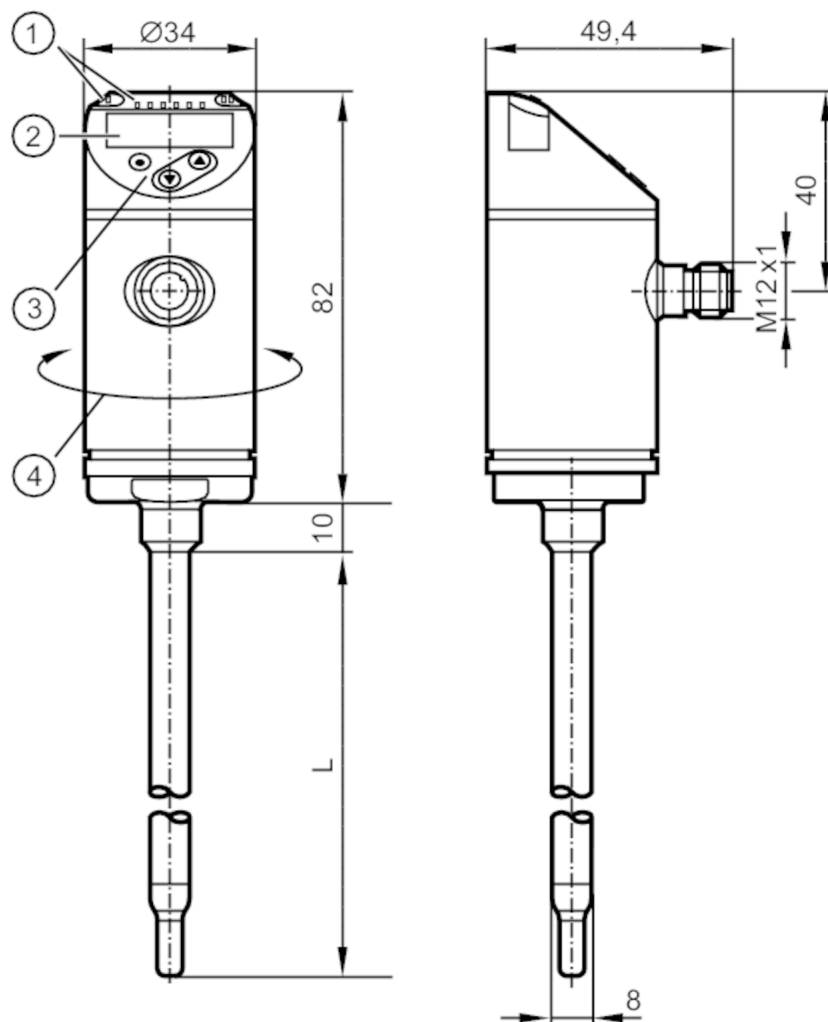


# SA4300



## Flow sensor

SAEXXXBFRKG/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 CRN DNV.COM/AF EC 1935/2004 FCM IO-Link KTW/W270 Reg31

### Product characteristics

|                              |                                                           |
|------------------------------|-----------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1 |
| Process connection           | Diameter $\varnothing$ 8 mm                               |

### 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)<br>high-viscosity oils with viscosity: $> 40 \text{ mm}^2/\text{s}$ (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;<br>(absolute: reference measurement recommended) |
| Note on factory setting                         |       | Operating mode: 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                                                                                          |



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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                                                                                                                                                                                                                                                                     |

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## Flow sensor

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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   | 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       | Diameter 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; Contacts: gold-plated



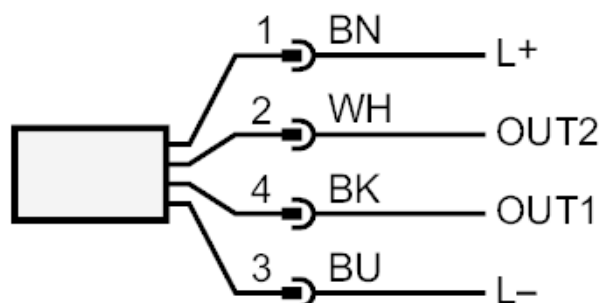
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### Connection



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 |