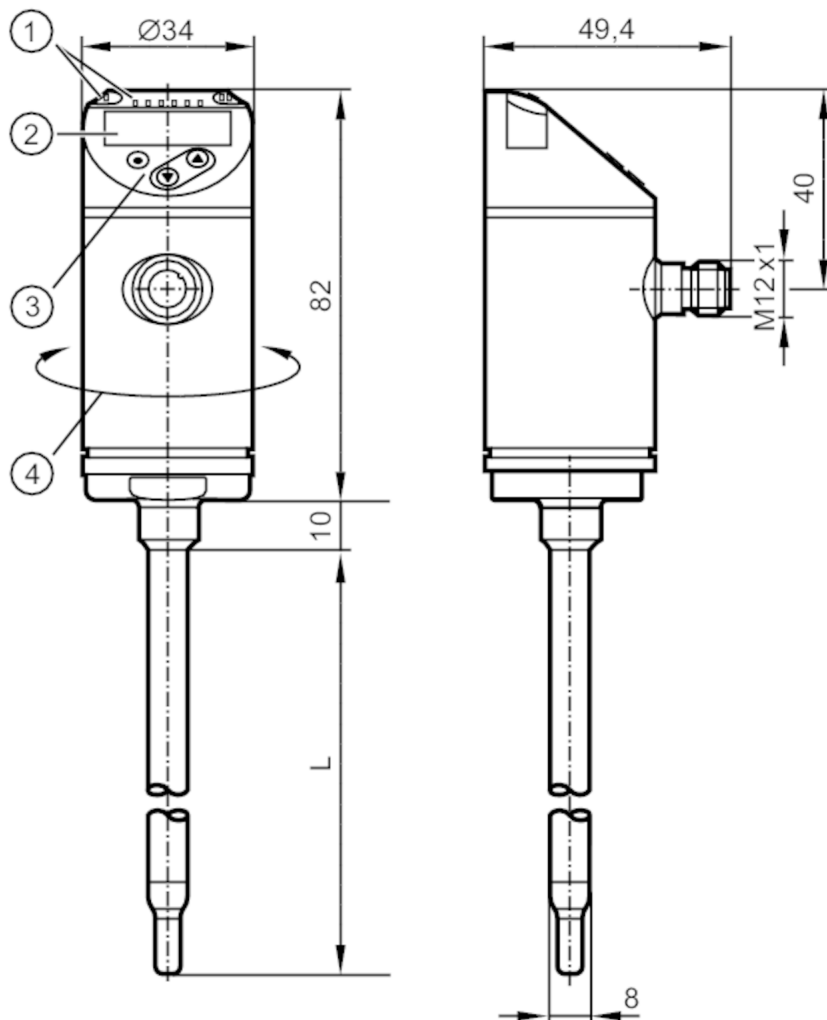


# SA4120



## Flow sensor

SAEXXXBFRKG/US-100



- L 100 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°



### Product characteristics

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

### Application

|  |  |
|--|--|
| Special feature                                | Gold-plated contacts                           |
| Installation                                   | Recommended for pipe diameters; ( 15...400 mm) |
| Media  | air  |
| Medium temperature [°C]                        | -20...100                                      |
| Pressure rating [bar]                          | 50   |
| Pressure rating [MPa]                          | 5  |
| MAWP (for applications according to CRN) [bar] | 50   |



## Flow sensor

SAEXXXBFRKG/US-100

| 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   |
| Inputs / outputs                                     |  |
| Number of inputs and outputs                         | Number of digital outputs: 2; Number of analogue outputs: 1  |
| Outputs  |  |
| Total number of outputs                              | 2  |
| Output signal  | switching signal; analogue signal; frequency signal; IO-Link; (configurable)                           |
| Electrical design                                    | PNP/NPN  |
| Number of digital outputs                            | 2  |
| Output function                                      | normally open / normally closed; (parameterisable)   |
| Max. voltage drop switching output DC [V]            | 2.5  |
| Permanent current rating of switching output DC [mA] | 250  |
| Number of analogue outputs                           | 1  |
| Analogue current output [mA]                         | 4...20; (scalable)   |
| Max. load [ $\Omega$ ]                               | 350  |
| Short-circuit protection                             | yes  |
| Type of short-circuit protection                     | pulsed   |
| Overload protection                                  | yes  |
| Frequency of the output [Hz]                         | 0...1000   |
| Measuring/setting range                              |  |
| Probe length L [mm]                                  | 100  |
| 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   |
| Analogue start point ASP [m/s]                       | 0...24   |
| Analogue 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...30   |
| Greatest sensitivity [m/s]                           | 0.6...30   |
| Gases - operating mode "relative"                    |  |
| Setting range [m/s]                                  | 0...60   |
| Greatest sensitivity [m/s]                           | 0.6...30   |

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|                                   |                                |   |
|-----------------------------------|--------------------------------|---|
| Temperature monitoring            |                                |   |
| Measuring range                   | [°C]                           | -20...100   |
| Resolution                        | [°C]                           | 0.2   |
| <b>Accuracy / deviations</b>      |                                |   |
| 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)  |
| <b>Response times</b>             |                                |   |
| Response time                     | [s]                            | 7   |
| Temperature monitoring            |                                |   |
| Dynamic response T05 / T09        | [s]                            | 30 (T09); (flow velocity: ≥ 10 m/s)   |
| <b>Software / programming</b>     |                                |   |
| Parameter setting options         |                                | hysteresis / window; normally open / normally closed; switching logic; current/frequency output; medium selection; Damping; Teach function; display can be rotated and switched off; standard unit of measurement; process value colour     |
| <b>Interfaces</b>                 |                                |   |
| 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 type         |                                | A   |
| Process data analogue             |                                | 2   |
| Process data binary               |                                | 2   |
| Min. process cycle time           | [ms]                           | 3   |
| Supported DeviceIDs               | <b>Type of operation</b>       | <b>DeviceID</b>   |
|                                   | Factory setting / ModE = (REL) | 1237  |
|                                   | ModE = (ABS)                   | 1238  |
| <b>Operating conditions</b>       |                                |   |
| Ambient temperature               | [°C]                           | -40...80  |
| Storage temperature               | [°C]                           | -40...100   |
| Protection                        |                                | IP 65; IP 67  |
| <b>Tests / approvals</b>          |                                |   |
| EMC                               | DIN EN 60947-5-9               |   |
| Shock resistance                  | DIN EN 60068-2-27              | 50 g (11 ms)  |
| Vibration resistance              | DIN EN 60068-2-6               | 5 g (10...2000 Hz)  |

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## Flow sensor

SAEXXXBFRKG/US-100

|             |                 |         |
|-------------|-----------------|---------|
| MTTF        | [years]         | 131     |
| UL approval | UL Approval no. | I017    |
|             | File number UL  | E174189 |

| Mechanical data          |   |        |
|--------------------------|---|--------|
| Weight                   | [g]   | 295.05 |
| Materials                | stainless steel (316L/1.4404); PBT-GF20; PBT-GF30 |        |
| Materials (wetted parts) | stainless steel (316L/1.4404)                     |        |
| Process connection       | Ø 8 mm  |        |

| 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<br>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



colours 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
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- input External Teach

Core colours :

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