

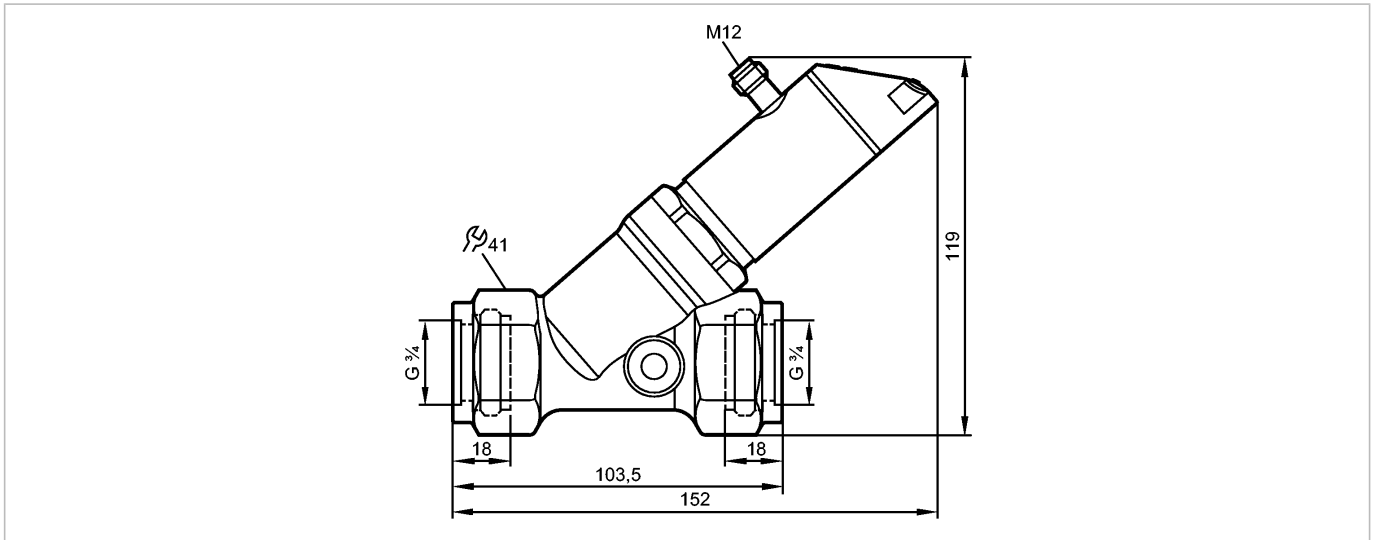


# SBG246

SBG34IF0FRKG



Flow sensors



## Product characteristics

Mechatronic flow meter

with non-return valve

Process connection: G 3/4

With display (360° rotatable); IO-Link; temperature measurement

## Application

|                         |  |  |
|-------------------------|--|--|
| Application             | Liquids (water, glycol solutions, coolants, oil<br>(oil 1 with viscosity 10 mm <sup>2</sup> /s at 40 °C; oil 2 with viscosity 46 mm <sup>2</sup> /s at 40 °C)) |  |
| Pressure rating [bar]   | 25   |  |
| Medium temperature [°C] | -10...100  |  |

## Electrical data

|                             |   |  |
|-----------------------------|---|--|
| Electrical design           | DC                                      |  |
| Operating voltage [V]       | 18...30 DC; to DIN EN 50178, SELV, PELV |  |
| Current consumption [mA]    | < 50                                    |  |
| Protection class            | III                                     |  |
| Reverse polarity protection | yes                                     |  |

## Outputs

|                          |  |  |
|--------------------------|--|--|
| Output function          | OUT1: NO / NC programmable or frequency or IO-Link<br>OUT2: NO / NC programmable or analogue |  |
| Current rating [mA]      | 2 x 150; 2 x 200 (...60 °C); 2 x 250 (...40 °C)  |  |
| Voltage drop [V]         | < 2  |  |
| Short-circuit protection | yes  |  |
| Overload protection      | yes  |  |
| Analog output            | 4...20 mA  |  |
| Max. load [Ω]            | 500  |  |
| Frequency range [Hz]     | 0...10000  |  |

## Measuring / setting range

|                 |                 |                              |
|-----------------|-----------------|------------------------------|
| Flow monitoring |                 |                              |
| Measuring range | 2...100 [l/min] | 0.12...6 [m <sup>3</sup> /h] |
| Display range   | 0...120 [l/min] | 0...7.2 [m <sup>3</sup> /h]  |
| Resolution      | 0.5 [l/min]     | 0.05 [m <sup>3</sup> /h]     |
| Set point, SP   | 1...100 [l/min] | 0.05...6 [m <sup>3</sup> /h] |



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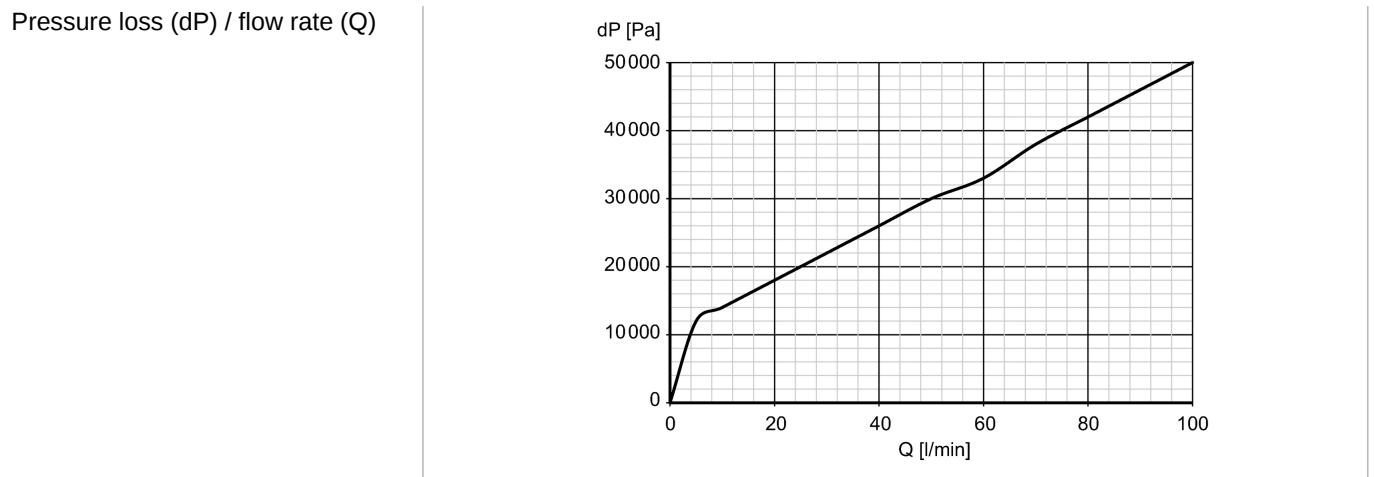


Flow sensors

|                                      |                   |                 |
|--------------------------------------|-------------------|-----------------|
| Reset point, rP                      | 0...99 [l/min]    | 0...5.95 [m³/h] |
| Frequency end point, FEP             | 6.5...100 [l/min] | 0.4...6 [m³/h]  |
| in steps of                          | 0.5 [l/min]       | 0.05 [m³/h]     |
| Frequency at the end point, FrP [Hz] | 10...10000        |                 |
| in steps of                          | 10 Hz             |                 |
| Measuring dynamics                   | 1:50              |                 |
| Temperature monitoring               |                   |                 |
| Measuring range [°C]                 | -10...100         |                 |
| Display range [°C]                   | -32...122         |                 |
| Resolution [°C]                      | 1                 |                 |
| Set point, SP [°C]                   | -9...100          |                 |
| Reset point, rP [°C]                 | -10...99          |                 |
| Frequency start point, FSP [°C]      | -10...78          |                 |
| Frequency end point, FEP [°C]        | 12...100          |                 |
| in steps of [°C]                     | 1                 |                 |
| Frequency at the end point, FrP [Hz] | 10...10000        |                 |

### Accuracy / deviations

|                                 |  |
|---------------------------------|--|
| Flow monitoring                 |  |
| Accuracy [% of the final value] | $\pm (4 \% MW + 1 \% MEW)$ ;<br>Q > 2 l/min, medium and ambient temperature +22 °C $\pm$ 4 K |
| Repeatability                   | $\pm 1 \% MEW$   |



|                        |                         |
|------------------------|-------------------------|
| Temperature monitoring |                         |
| Accuracy [K]           | 3 K (25°C; Q > 1 l/min) |
| Temperature drift      | 0.029 °C / K            |

### Reaction times

|  |                         |
|--|-------------------------|
| Power-on delay time [s]                    | < 3                     |
| Flow monitoring                            |                         |
| Response time [s]                          | 0.01                    |
| Damping for the switching output (dAP) [s] | 0...5                   |
| Damping for the analog output (dAA) [s]    | 0...5                   |
| in steps of                                | 0.1 s                   |
| Temperature monitoring                     |                         |
| Response time [s]                          | T09 = 120 (Q > 1 l/min) |



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## Software / programming

|                     |   |
|---------------------|---|
| Programming options | Hysteresis/window; NO/NC; switching logic; current / frequency output; fluid selection, damping switching/analogue output, display can be rotated/switched off; standard unit of measurement/colour process value |
|---------------------|---|

## Interfaces

|                              |  |
|------------------------------|--|
| IO-Link Device               |  |
| Transfer type                | COM2 (38.4 kBaud)  |
| IO-Link revision             | 1.1  |
| SDCI standard                | IEC 61131-9 CDV  |
| IO-Link Device ID            | 563 d / 0233 h   |
| Profiles                     | Smart Sensor: Process Data Variable; Device Identification |
| SIO mode                     | yes  |
| Required master port class   | A  |
| Process data analogue        | 2  |
| Process data binary          | 2  |
| Min. process cycle time [ms] | 5  |

## Environment

|                          |  |
|--------------------------|--|
| Ambient temperature [°C] | 0...60, at max. 80 °C medium temperature (0...40 °C at max. 100 °C medium temperature) |
| Storage temperature [°C] | -15...80   |
| Protection               | IP 65 / IP 67  |

## Tests / approvals

|                              |  |
|------------------------------|--|
| Pressure equipment directive | sound engineering practice               |
| EMC                          | DIN EN 61000-6-2<br>DIN EN 61000-6-3     |
| Shock resistance             | DIN EN 60068-2-27      20 g (11 ms)      |
| Vibration resistance         | DIN EN 60068-2-6      5 g (10...2000 Hz) |
| MTTF [Years]                 | 145                                      |
| UL approval number           | I006                                     |

## Mechanical data

|                          |   |
|--------------------------|---|
| Process connection       | G ¾   |
| Materials (wetted parts) | stainless steel 316 / 1.4401; stainless steel 316L / 1.4404; brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM |
| Housing materials        | stainless steel 316L / 1.4404; PBT+PC-GF 30; PBT-GF 20; PC; brass chemically nickel-plated                                    |
| Weight [kg]              | 0.96  |
| Switching cycles min.    | 10 million  |

## Displays / operating elements

|         |   |
|---------|---|
| Display | Display unit      3 x LED green<br>Switching status    2 x LED yellow<br>4-digit alphanumeric display / alternating indication<br>Measured values of red and green<br>Programming      4-digit alphanumeric display |
|---------|---|

## Electrical connection

|            |                                     |
|------------|-------------------------------------|
| Connection | M12 connector; gold-plated contacts |
|------------|-------------------------------------|

## Wiring



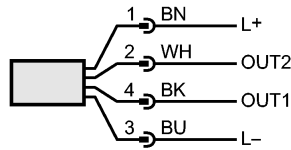
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Core colors  
 BK black  
 BN brown  
 BU blue  
 WH white



### OUT1:

- switching output flow rate monitoring
- switching output temperature monitoring
- frequency output flow rate monitoring
- frequency output temperature monitoring
- IO-Link

### OUT2:

- switching output flow rate monitoring
- switching output temperature monitoring
- analogue output flow rate
- analogue output temperature

-----  
Colours to DIN EN 60947-5-2

## Remarks

|         |   |
|---------|---|
| Remarks | Use of 200 micron filtration is recommended.<br>All data refer to water (20 °C).<br>MW = measured value<br>MEW = final value of the measuring range |
|---------|---|

|               |         |   |
|---------------|---------|---|
| Pack quantity | [piece] | 1 |
|---------------|---------|---|