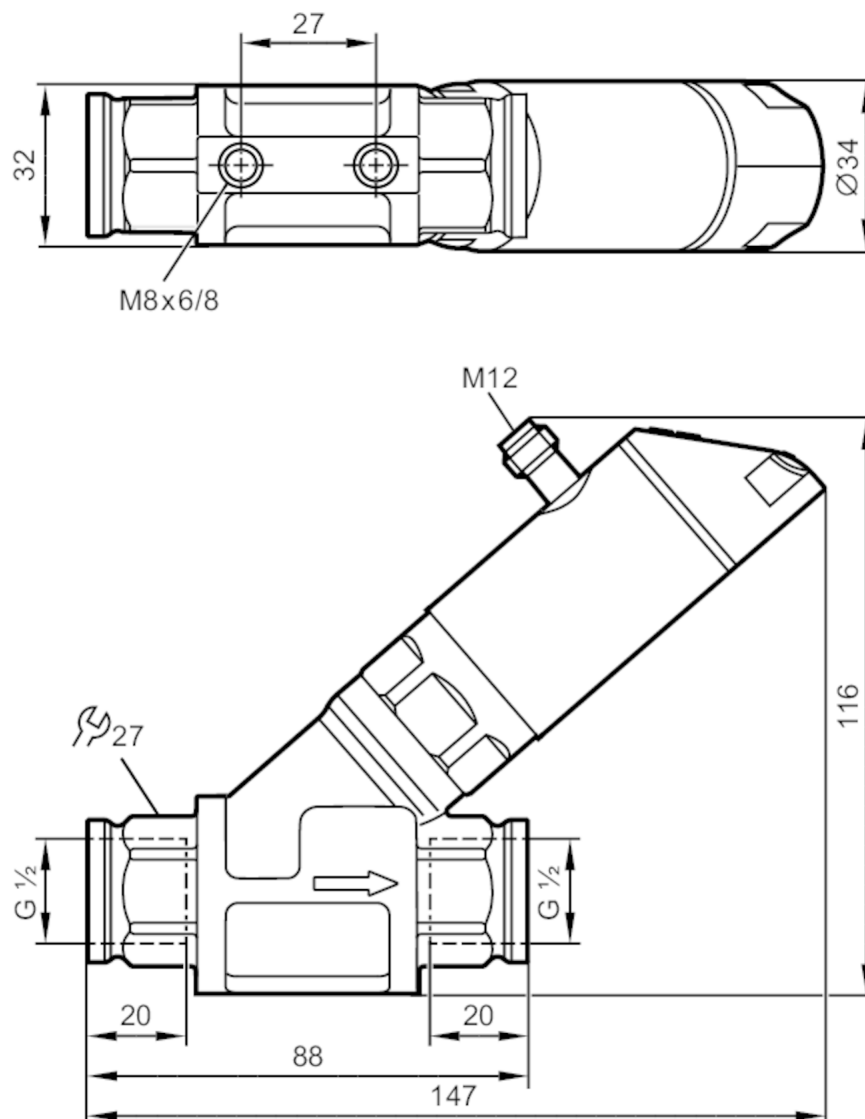


## Flow meter with integrated backflow prevention and display

SBG12IF0FRKG

Please note the changed housing design!



### Product characteristics

|                              |                                                             |               |
|------------------------------|-------------------------------------------------------------|---------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |               |
| Measuring range              | 1...50 l/min                                                | 0.06...3 m³/h |
| Process connection           | threaded connection G 1/2                                   |               |

### Application

|                    |                                            |           |
|--------------------|--------------------------------------------|-----------|
| Special feature    | Gold-plated contacts                       |           |
| Application        | for industrial applications                |           |
| Media              | Liquids; water; glycol solutions; coolants |           |
| Note on media      | oil 1 with viscosity: 10 mm²/s (40 °C)     |           |
|                    | oil 2 with viscosity: 46 mm²/s (40 °C)     |           |
| Medium temperature | [°C]                                       | -10...100 |



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|                                          |       |     |
|------------------------------------------|-------|-----|
| Min. bursting pressure                   | [bar] | 160 |
| Pressure rating                          | [bar] | 40  |
| Pressure rating                          | [MPa] | 4   |
| MAWP (for applications according to CRN) | [bar] | 40  |

| Electrical data             |      |                            |
|-----------------------------|------|----------------------------|
| Operating voltage           | [V]  | 18...30 DC; (to SELV/PELV) |
| Current consumption         | [mA] | < 50                       |
| Protection class            |      | III                        |
| Reverse polarity protection |      | yes                        |
| Power-on delay time         | [s]  | < 3                        |

| 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) |
| Number of digital outputs                       |      | 2                                                                            |
| Output function                                 |      | normally open / normally closed; (parameterisable)                           |
| Max. voltage drop switching output DC           | [V]  | 2                                                                            |
| Permanent current rating of switching output DC | [mA] | 150; (per output 2 x 200 (...60 °C); 2 x 250 (...40 °C))                     |
| Switching cycles (mechanical)                   |      | 10 million                                                                   |
| Number of analogue outputs                      |      | 1                                                                            |
| Analogue current output                         | [mA] | 4...20                                                                       |
| Max. load                                       | [Ω]  | 500                                                                          |
| Short-circuit protection                        |      | yes                                                                          |
| Overload protection                             |      | yes                                                                          |
| Frequency of the output                         | [Hz] | 0...10000                                                                    |

| Measuring/setting range        |                |               |
|--------------------------------|----------------|---------------|
| Measuring range                | 1...50 l/min   | 0.06...3 m³/h |
| Display range                  | 0...60 l/min   | 0...3.6 m³/h  |
| Resolution                     | 0.5 l/min      | 0.01 m³/h     |
| Set point SP                   | 0.5...50 l/min | 0.02...3 m³/h |
| Reset point rP                 | 0...49.5 l/min | 0...2.98 m³/h |
| Frequency end point, FEP       | 3.5...50 l/min | 0.2...3 m³/h  |
| In steps of                    | 0.5 l/min      | 0.01 m³/h     |
| Frequency at the end point FRP |                | 10...10000    |
| 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  |



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|                                |      |            |
|--------------------------------|------|------------|
| Reset point rP                 | [°C] | -10...99   |
| In steps of                    | [°C] | 1          |
| Frequency start point, FSP     | [°C] | -10...78   |
| Frequency end point, FEP       | [°C] | 12...100   |
| Frequency at the end point FRP | [Hz] | 10...10000 |

### Accuracy / deviations

|                                   |     |                                                                                                                                             |
|-----------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------|
| Flow monitoring                   |     |                                                                                                                                             |
| Accuracy (in the measuring range) |     | $\pm (4 \% \text{ MW} + 1 \% \text{ MEW})$ ; ( $Q > 1 \text{ l/min}$ ; medium and operating temperature: $+22 \text{ °C} \pm 4 \text{ K}$ ) |
| Repeatability                     |     | $\pm 1 \% \text{ MEW}$                                                                                                                      |
| Temperature monitoring            |     |                                                                                                                                             |
| Temperature drift                 |     | 0,029 °C / K                                                                                                                                |
| Accuracy                          | [K] | 3 K (25°C; $Q > 1 \text{ l/min}$ )                                                                                                          |

### Response times

|                                     |     |                                     |
|-------------------------------------|-----|-------------------------------------|
| Flow monitoring                     |     |                                     |
| Response time                       | [s] | 0.01                                |
| Damping process value dAP           | [s] | 0...5                               |
| Damping for the analogue output dAA | [s] | 0...5                               |
| Temperature monitoring              |     |                                     |
| Dynamic response T05 / T09          | [s] | T09 = 120 ( $Q > 1 \text{ l/min}$ ) |

### Software / programming

|                           |                                                                                                                                                                                                                                                                    |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter setting options | hysteresis / window; normally open / normally closed; switching logic; current/frequency output; medium selection; damping for the switching output / analogue output; display can be rotated and switched off; standard unit of measurement; process value colour |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Interfaces

|                           |                                                            |                 |
|---------------------------|------------------------------------------------------------|-----------------|
| Communication interface   | IO-Link                                                    |                 |
| Transmission type         | COM2 (38,4 kBaud)                                          |                 |
| IO-Link revision          | 1.1                                                        |                 |
| SDCI standard             | IEC 61131-9 CDV                                            |                 |
| Profiles                  | Smart Sensor: Process Data Variable; Device Identification |                 |
| SIO mode                  | yes                                                        |                 |
| Required master port type | A                                                          |                 |
| Process data analogue     | 2                                                          |                 |
| Process data binary       | 2                                                          |                 |
| Min. process cycle time   | [ms]                                                       | 5               |
| Supported DeviceIDs       | <b>Type of operation</b>                                   | <b>DeviceID</b> |
|                           | default                                                    | 562             |

### Operating conditions

|                             |      |                                                                      |
|-----------------------------|------|----------------------------------------------------------------------|
| Ambient temperature         | [°C] | 0...60                                                               |
| Note on ambient temperature |      | medium temperature < 80 °C<br>medium temperature < 100 °C: 0...40 °C |
| Storage temperature         | [°C] | -15...80                                                             |
| Protection                  |      | IP 65; IP 67                                                         |



## Flow meter with integrated backflow prevention and display

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### Tests / approvals

|                              |                                                                                       |                    |
|------------------------------|---------------------------------------------------------------------------------------|--------------------|
| EMC                          | DIN EN 61000-6-2                                                                      |                    |
|                              | 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 [ANN]                   |                                                                                       | 145                |
| UL approval                  | UL Approval no.                                                                       | I005               |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                    |

### Mechanical data

|                          |                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Weight [g]               | 753.5                                                                                                                             |
| Materials                | stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated                                        |
| Materials (wetted parts) | stainless steel (316 / 1.4401); stainless steel (1.4404 / 316L); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM |
| Process connection       | threaded connection G 1/2                                                                                                         |

### Displays / operating elements

|         |                  |                                         |
|---------|------------------|-----------------------------------------|
| Display | Display unit     | 3 x LED, green                          |
|         | switching status | 2 x LED, yellow                         |
|         | measured values  | alphanumeric display, red/green 4-digit |
|         | programming      | alphanumeric display, 4-digit           |

### Remarks

|               |                                          |
|---------------|------------------------------------------|
| Remarks       | Recommendation: use a 200-micron filter. |
|               | All data refer to water (20 °C).         |
|               | MW = measured value                      |
|               | MEW = Final value of the measuring range |
| Notes         | Please note the changed housing design!  |
| Pack quantity | 1 pcs.                                   |

### Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



## Flow meter with integrated backflow prevention and display

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### Connection



#### OUT1:

- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

#### OUT2:

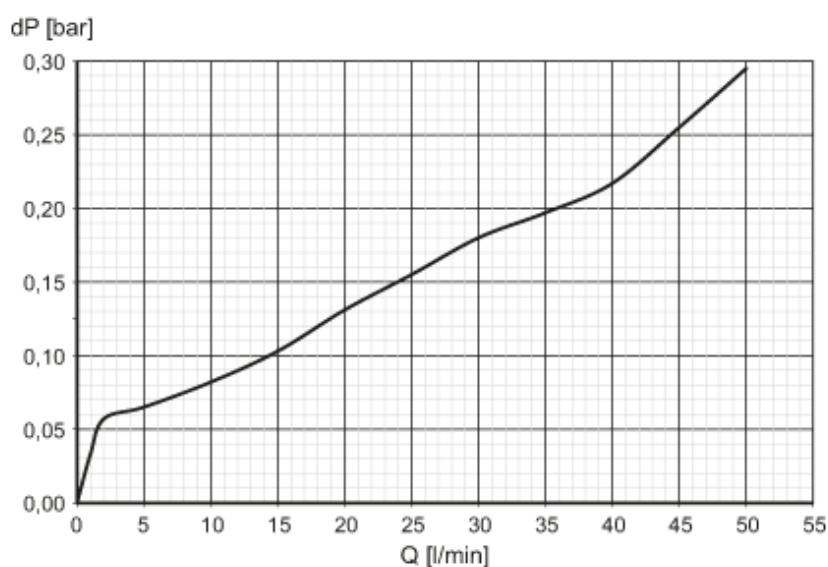
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- colours to DIN EN 60947-5-2

Core colours :

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

### Diagrams and graphs

#### Pressure loss



dP Pressure loss

Q volumetric flow quantity