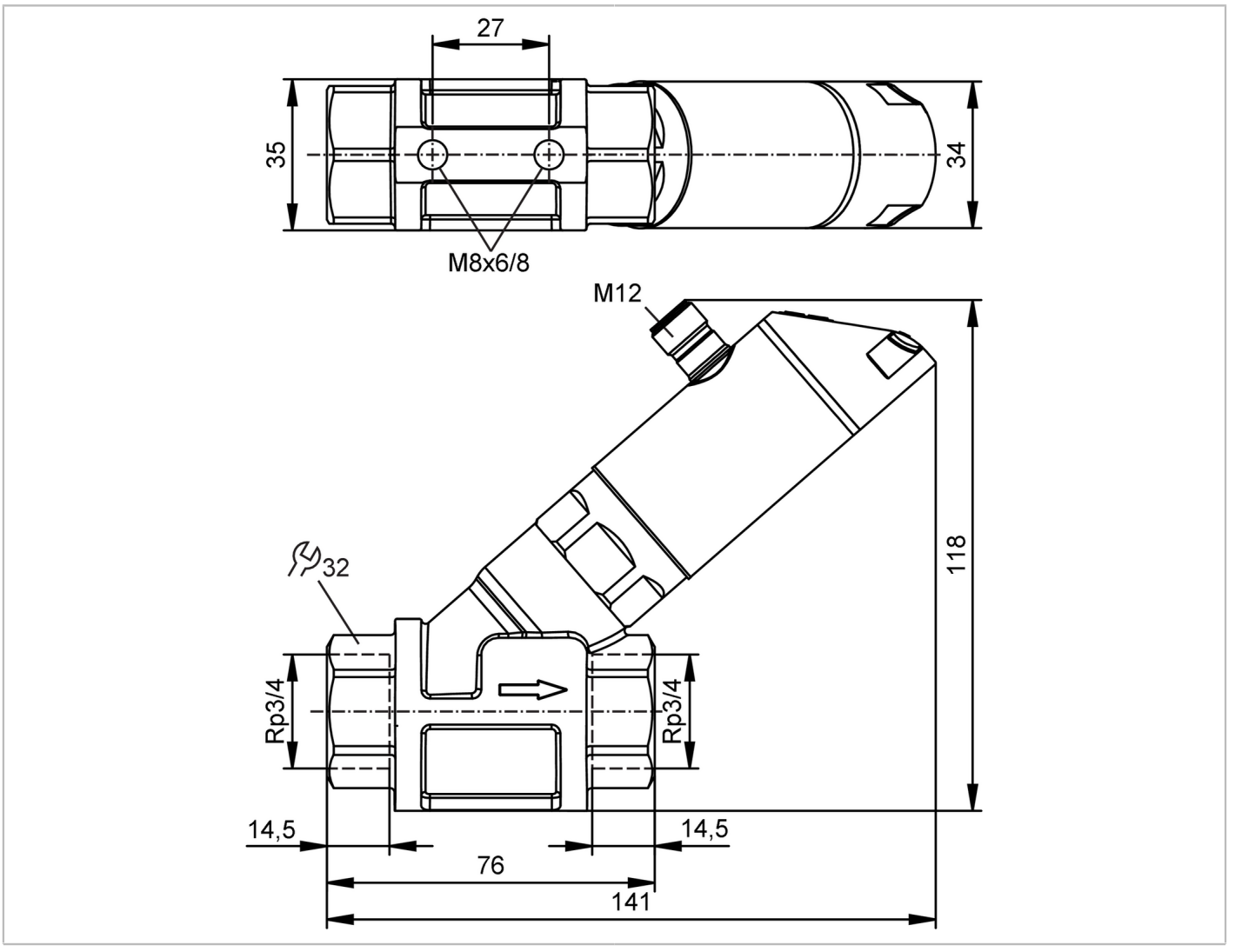
# SBY232

## Flow meter with integrated backflow prevention and display

SBY34IF0FRKG

Please note the changed housing design!




CE CRN cULus LISTED IO-Link

| Product characteristics | | | |
|---|---|---|---|
| Number of inputs and outputs | | Number of digital outputs: 2; Number of analogue outputs: 1 | |
| Measuring range | | 0.3...15 l/min | 0.018...0.9 m³/h |
| Process connection | | threaded connection Rp 3/4 internal thread | |
| **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 | |
| Pressure rating | | 40 bar | 4 MPa |
| MAWP for applications according to CRN | [bar] | 40 | |

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| | | | |
|---|---|---|---|
| **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 | | 0.3...15 l/min | 0.018...0.9 m³/h |
| Display range | | 0...18 l/min | 0...1.08 m³/h |
| Resolution | | 0.05 l/min | 0.005 m³/h |
| Set point SP | | 0.1...15 l/min | 0.005...0.9 m³/h |
| Reset point rP | | 0...14.9 l/min | 0...0.895 m³/h |
| Frequency end point, FEP | | 1...15 l/min | 0.06...0.9 m³/h |
| In steps of | | 0.05 l/min | 0.005 m³/h |
| Frequency at the end point FRP | [Hz] | 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 | |
| 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 | |

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| | | | |
|---|---|---|---|
| Frequency at the end point FRP | [Hz] | 10...10000 | |
| **Accuracy / deviations** | | | |
| Flow monitoring | | | |
| Accuracy (in the measuring range) | | ± (4 % MW + 1 % MEW); (Q > 0,3 l/min; medium and operating temperature: +22 °C ± 4K) | |
| Repeatability | | ± 1 % MEW | |
| Temperature monitoring | | | |
| Temperature drift | | 0,029 °C / K | |
| Accuracy | [K] | 3 K (25°C; Q > 1 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 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 - SSP 0 | Generic Profiled Sensor |
| | | Function | Device identification |
| | | Function | Process data variable |
| | | Function | Device diagnosis |
| SIO mode | | yes | |
| Required master port type | | A | |
| Process data analogue | | 2 | |
| Process data binary | | 2 | |
| Min. process cycle time | [ms] | 3.2 | |
| Supported DeviceIDs | | **Type of operation** | **DeviceID** |
| | | default | 560 |
| **Operating conditions** | | | |
| Ambient temperature | [°C] | 0...60 | |
| Note on ambient temperature | | medium temperature < 80 °C | |
| | | medium temperature < 100 °C: 0...40 °C | |
| Storage temperature | [°C] | -15...80 | |
| Protection | | IP 65; IP 67 | |

# SBY232

## Flow meter with integrated backflow prevention and display

SBY34IF0FRKG

| 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 | [years] | 145 | |
| UL approval | | UL approval no. | I005 |
| | | File number UL | E174189 |
| Pressure Equipment Directive | | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

| Mechanical data | | |
|---|---|---|
| Weight | [g] | 736.4 |
| Materials | | stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; brass chemically nickel-plated |
| Materials (wetted parts) | | stainless steel (316 / 1.4401); stainless steel (316L/1.4404); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM |
| Process connection | | threaded connection Rp 3/4 internal thread |

| 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: 4, gold-plated

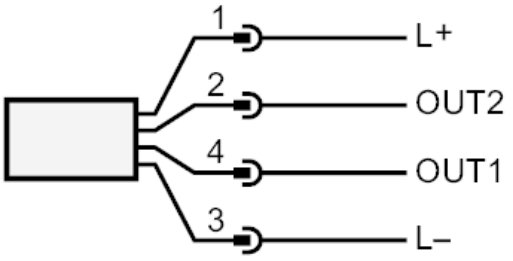


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## Connection

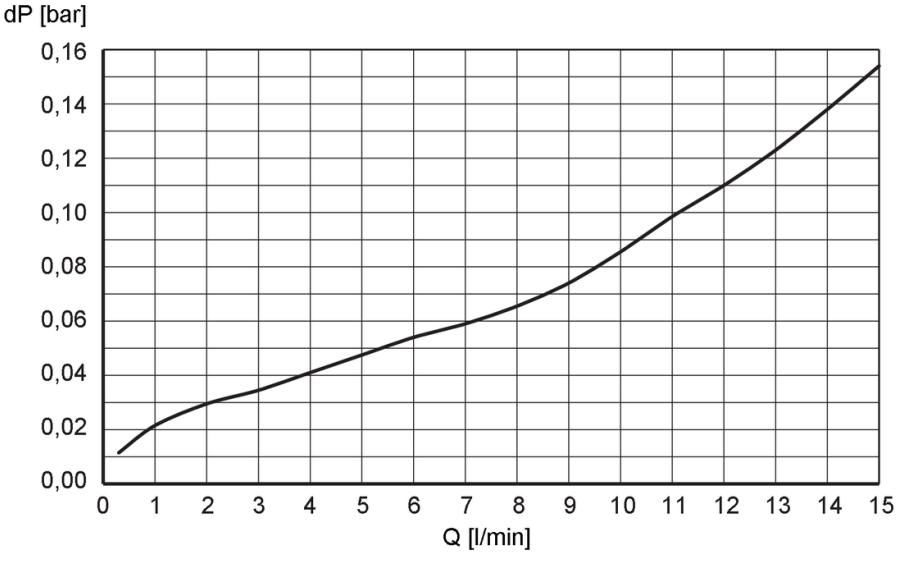



OUT1:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- frequency output volumetric flow quantity monitoring
- frequency output Temperature monitoring
- IO-Link

OUT2:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring

## Diagrams and graphs

Pressure loss




dP Pressure loss

Q volumetric flow quantity