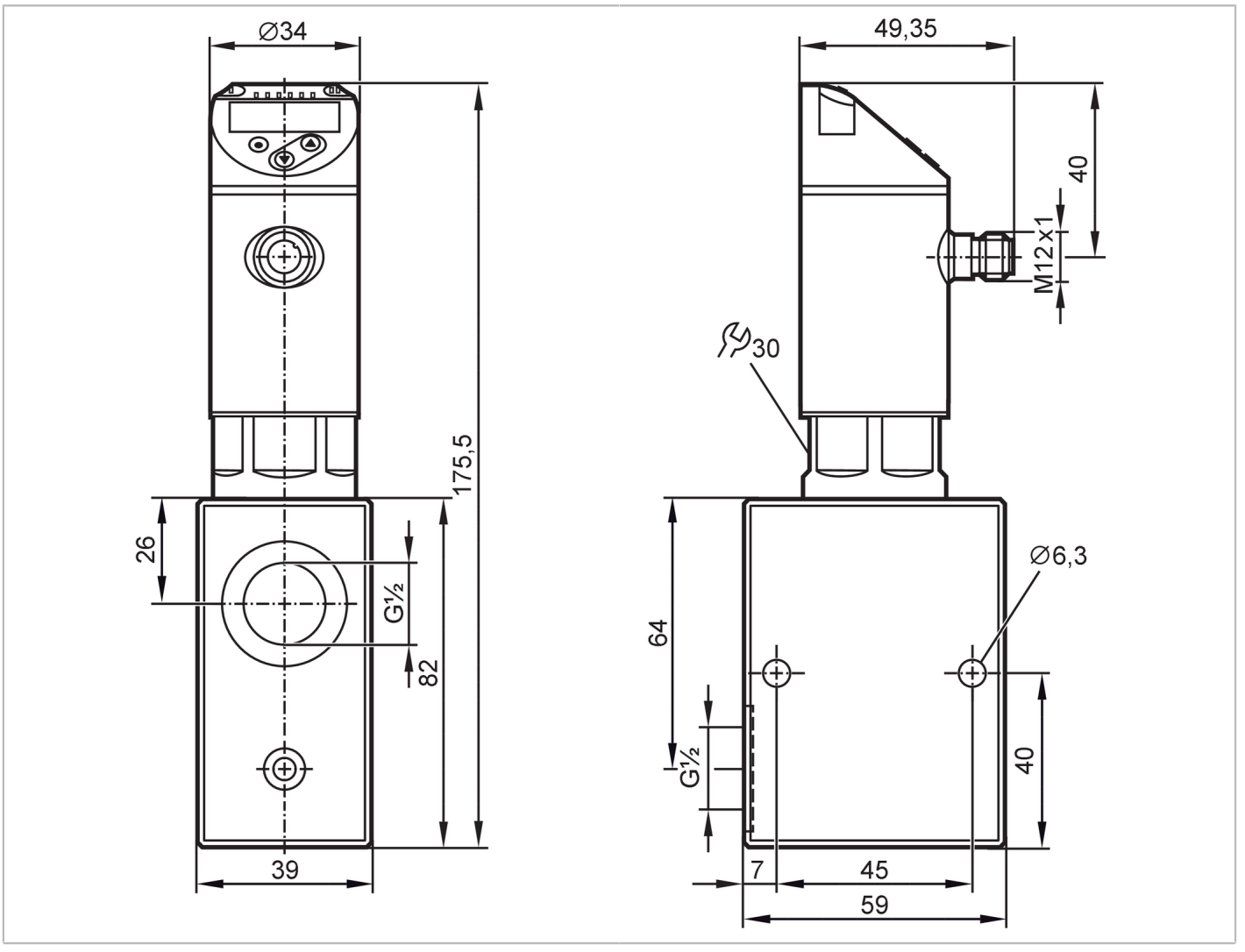
# SBZ224

## Flow meter with fast response and display

SBZ12IIBFRKG




| | | | | | |
|---|---|---|---|---|---|
| **Product characteristics** | | | | | |
| Measuring range | | 1...50 l/min | 0.06...3 m³/h | 16...793 gph | 0.26...13.2 gpm |
| Process connection | | threaded connection G 1/2 Internal thread | | | |
| **Application** | | | | | |
| Special feature | | gold-plated contacts | | | |
| Media | | Liquids; water; glycol solutions; Coolants | | | |
| Medium temperature | [°C] | -10...100 | | | |
| Pressure rating | | 200 bar | 20 MPa | | |
| **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 | | | |

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| | | | | | |
|---|---|---|---|---|---|
| **Outputs** | | | | | |
| Total number of outputs | | 2 | | | |
| Output signal | | switching signal; analog signal; frequency signal; IO-Link | | | |
| Output function | | normally open / closed; (configurable) | | | |
| Max. voltage drop switching output DC | [V] | 2 | | | |
| Max. current load per output | [mA] | 150; (200: ...60 °C; Ambient temperature; 250: ...40 °C; Ambient temperature) | | | |
| Analog 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 | 16...793 gph | 0.26...13.2 gpm |
| Display range | | 0...60 l/min | 0...3.6 m³/h | 0...951 gph | 0...15.86 gpm |
| Resolution | | 0.01 l/min | 0.001 m³/h | 1 gph | 0.01 gpm |
| Set point SP | | 0.35...50 l/min | 0.02...3 m³/h | 5...793 gph | 0.08...13.2 gpm |
| Reset point rP | | 0...49.65 l/min | 0...2.98 m³/h | 0...787 gph | 0...13.12 gpm |
| Frequency end point, FEP | | 3.35...50 l/min | 0.2...3 m³/h | 53...793 gph | 0.88...13.2 gpm |
| In steps of | | 0.05 l/min | 0.005 m³/h | 1 gph | 0.02 gpm |
| Frequency at the end point FRP | [Hz] | 10...10000 | | | |
| In steps of | [Hz] | 10 | | | |
| Measuring dynamics | | 1:50 | | | |
| Temperature monitoring | | | | | |
| Measuring range | | -10...100 °C | | 14...212 °F | |
| Display range | | -32...122 °C | | -25.6...251.6 °F | |
| Resolution | | 0.1 °C | | 0.1 °F | |
| Set point SP | | -9.3...100 °C | | 15.2...212 °F | |
| Reset point rP | | -10...99.3 °C | | 14...210.8 °F | |
| In steps of | | 0.1 °C | | 0.2 °F | |
| Frequency start point, FSP | | -10...78 °C | | 14...172.4 °F | |
| Frequency end point, FEP | | 12...100 °C | | 53.6...212 °F | |
| Frequency at the end point FRP | [Hz] | 10...10000 | | | |
| In steps of | [Hz] | 10 | | | |
| **Accuracy / deviations** | | | | | |
| Flow monitoring | | | | | |
| Accuracy (in the measuring range) | | ± (4 % MW + 1 % MEW); (Q > 1 l/min; medium and operating temperature: + 22 °C ± 4K; Mounting orientation upright) | | | |
| Repeatability | | ± 1 % MEW | | | |
| Temperature monitoring | | | | | |
| Temperature drift | | 0,029 °C / K | | | |
| Accuracy | [K] | 3 K (25 °C; Q > 1 l/min) | | | |

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| | | | |
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| **Reaction times** | | | |
| Flow monitoring | | | |
| Response time | [s] | 0.01 | |
| Damping process value dAP | [s] | 0...5 | |
| In steps of | [s] | 0.1 | |
| Damping for the analog output dAA | [s] | 0...5 | |
| In steps of | [s] | 0.1 | |
| Temperature monitoring | | | |
| Dynamic response T05 / T09 | [s] | T09 = 120 (Q > 1 l/min) | |
| **Software / programming** | | | |
| Parameter setting options | | hysteresis / window; normally open / closed; switching logic; current/frequency output; damping for the switching output / analog output; display can be rotated and switched off; standard unit of measurement; process value color; calibration factor | |
| **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 class | | A | |
| Process data analog | | 2 | |
| Process data binary | | 2 | |
| Min. process cycle time | [ms] | 3.2 | |
| Supported DeviceIDs | | **Type of operation** | **DeviceID** |
| | | default | 1447 |
| **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 | |
| **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] | 170 | |
| Pressure equipment directive | | sound engineering practice | |
| **Mechanical data** | | | |
| Weight | [g] | 1734.3 | |

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| | | |
|---|---|---|
| Housing | | rectangular |
| Dimensions | [mm] | 175.5 x 59 x 39 |
| Material | | stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC |
| Materials (wetted parts) | | stainless steel (1.4401 / 316); stainless steel (1.4404 / 316L); O-ring: FKM |
| Process connection | | threaded connection G 1/2 Internal thread |
| Switching cycles mechanical | | 10 million |

## Displays / operating elements

| | | |
|---|---|---|
| Display | Display unit | 6 x LED, green |
| | Switching status | 2 x LED, yellow |
| | Measured values | alphanumeric display, red/green alternating indication 4-digit |
| | Programming | alphanumeric display, 4-digit |

## Remarks

| | |
|---|---|
| Remarks | Use of 200 micron filtration is recommended. |
| | All data refer to water (20 °C). |
| | Mounting orientation upright |
| | MW = Measured value |
| | MEW = Final value of the measuring range |
| Pack quantity | 1 pcs. |

## Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated

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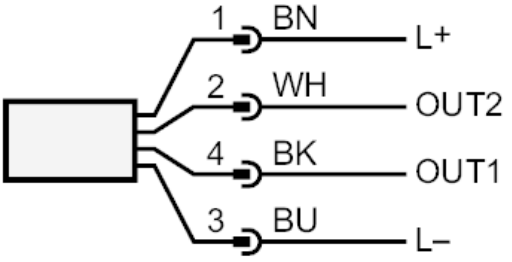
## Connection

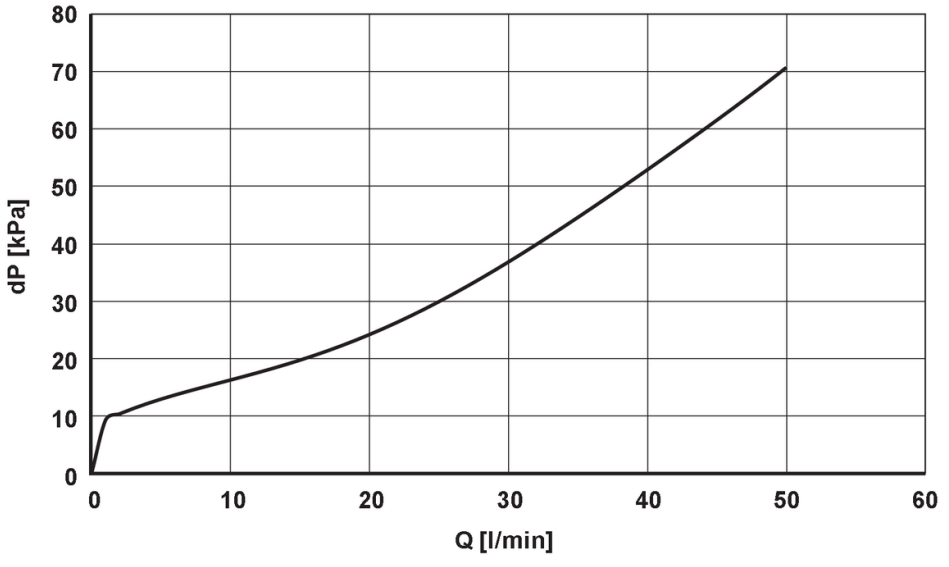



OUT1:
- Switching output Volumetric flow quantity monitoring
- Switching output Temperature monitoring
- Frequency output Volumetric flow quantity monitoring
- Frequency output Temperature monitoring
- IO-Link

OUT2:
- Switching output Volumetric flow quantity monitoring
- Switching output Temperature monitoring
- analog output Volumetric flow quantity monitoring
- analog output Temperature monitoring

Colors to DIN EN 60947-5-2

Core colors :

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

## Diagrams and graphs