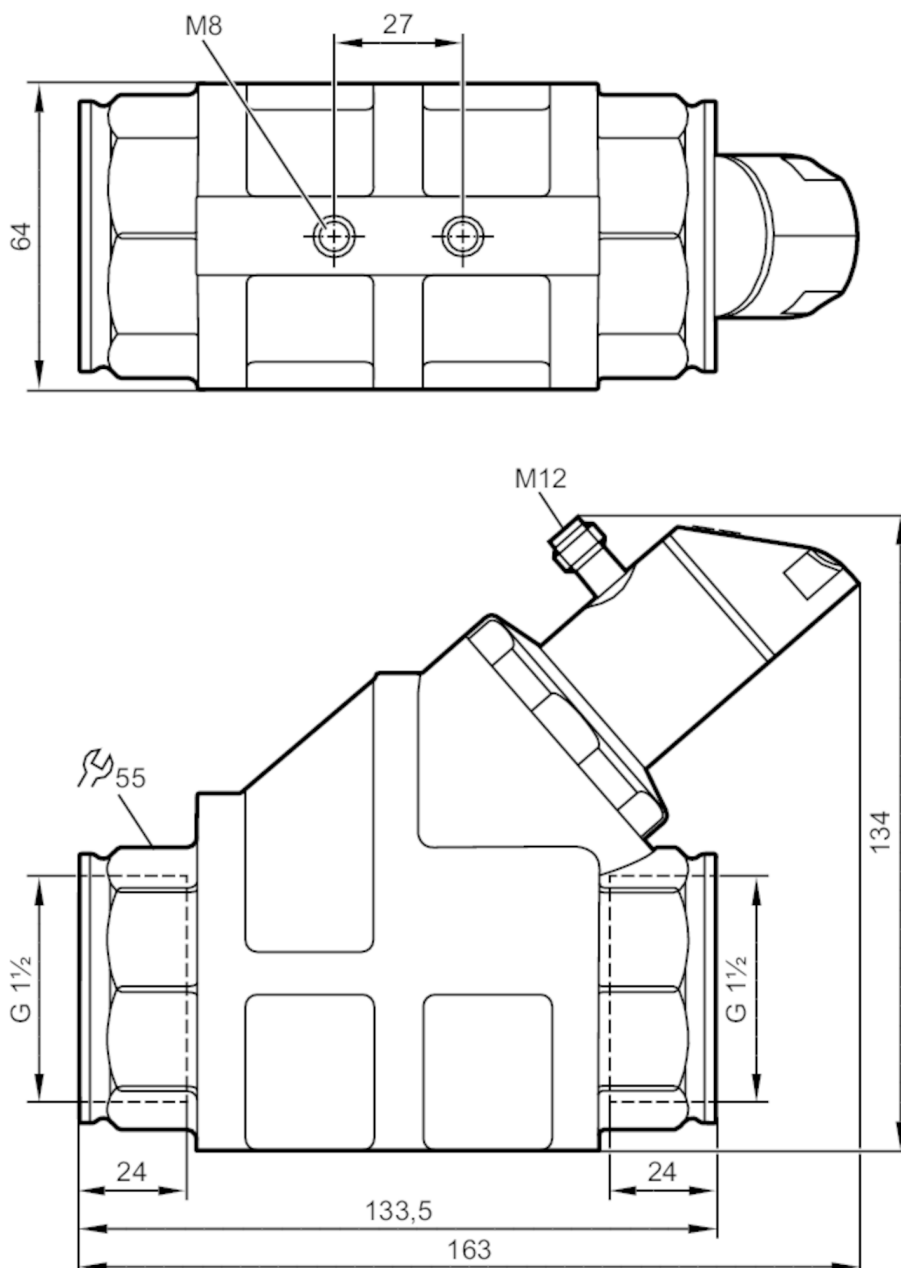


# SB1257



Flow meter with fast response and display

SBG32KM0FRKG



## Product characteristics

|                    |                                             |                |               |                |
|--------------------|---------------------------------------------|----------------|---------------|----------------|
| Measuring range    | 4...200 l/min                               | 0.24...12 m³/h | 65...3170 gph | 1.1...52.8 gpm |
| Process connection | threaded connection G 1 1/2 Internal thread |                |               |                |

## Application

|                         |                                             |         |  |
|-------------------------|---------------------------------------------|---------|--|
| System                  | gold-plated contacts                        |         |  |
| Media                   | Liquids; oils (viscosity 10 mm²/s at 40 °C) |         |  |
| Medium temperature [°C] | -10...100                                   |         |  |
| Pressure rating         | 63 bar                                      | 6.3 MPa |  |
| Note on pressure rating | at medium temperature >70°C: 50 bar / 5 MPa |         |  |



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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                                                                           |                  |                |
| 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                       |      | 4...200 l/min                                                                 | 0.24...12 m³/h   | 65...3170 gph  |
| Display range                         |      | 0...240 l/min                                                                 | 0...14.4 m³/h    | 0...3805 gph   |
| Resolution                            |      | 0.1 l/min                                                                     | 0.01 m³/h        | 1 gph          |
| Set point SP                          |      | 1.4...200 l/min                                                               | 0.08...12 m³/h   | 20...3170 gph  |
| Reset point rP                        |      | 0...198.6 l/min                                                               | 0...11.92 m³/h   | 0...3150 gph   |
| Frequency end point, FEP              |      | 13.4...200 l/min                                                              | 0.8...12 m³/h    | 210...3170 gph |
| In steps of                           |      | 0.02 l/min                                                                    | 0.02 m³/h        | 5 gph          |
| 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)     |      | ± 5 % MEW; (Q > 1 l/min; 20...70 °C Medium temperature)                       |                  |                |



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|                                   |                                                                                                                                                                                                                                                          |                         |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Repeatability                     | ± 1 % MEW                                                                                                                                                                                                                                                |                         |
| Temperature monitoring            |                                                                                                                                                                                                                                                          |                         |
| Temperature drift                 | 0,029 °C / K                                                                                                                                                                                                                                             |                         |
| Accuracy                          | [K]                                                                                                                                                                                                                                                      | 3 K (25°C; Q > 1 l/min) |
| 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: Process Data Variable; Device Identification, 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                                                                                                                                                                                                                                                  | 1047                    |
| 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]                                                                                                                                                                                                                                                  | 145                     |
| UL approval                       | UL approval number                                                                                                                                                                                                                                       | I007                    |
| Pressure equipment directive      | sound engineering practice                                                                                                                                                                                                                               |                         |

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| Mechanical data             |                                                                                                                                      |        |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------|
| Weight                      | [g]                                                                                                                                  | 2796.5 |
| Material                    | stainless steel (1.4404 / 316L); PBT+PC-GF30;<br>PBT-GF20; PC; brass chemically nickel-plated                                        |        |
| Materials (wetted parts)    | stainless steel (1.4401 / 316); stainless steel (1.4404 / 316L);<br>brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM |        |
| Process connection          | threaded connection G 1 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<br>indication 4-digit |
|                               | Programming      | alphanumeric display, 4-digit                                     |

| Remarks       |                                                                                          |  |
|---------------|------------------------------------------------------------------------------------------|--|
| Remarks       | Use of 200 micron filtration is recommended.                                             |  |
|               | All data refer to oil with the following nominal viscosity: 10 mm <sup>2</sup> /s, 40 °C |  |
|               | MW = Measured value                                                                      |  |
|               | MEW = Final value of the measuring range                                                 |  |
| Pack quantity | 1 pcs.                                                                                   |  |

### Electrical connection

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

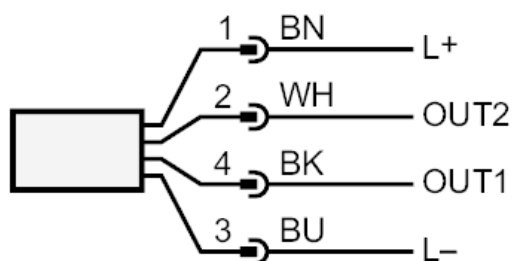




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### Connection



#### 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

