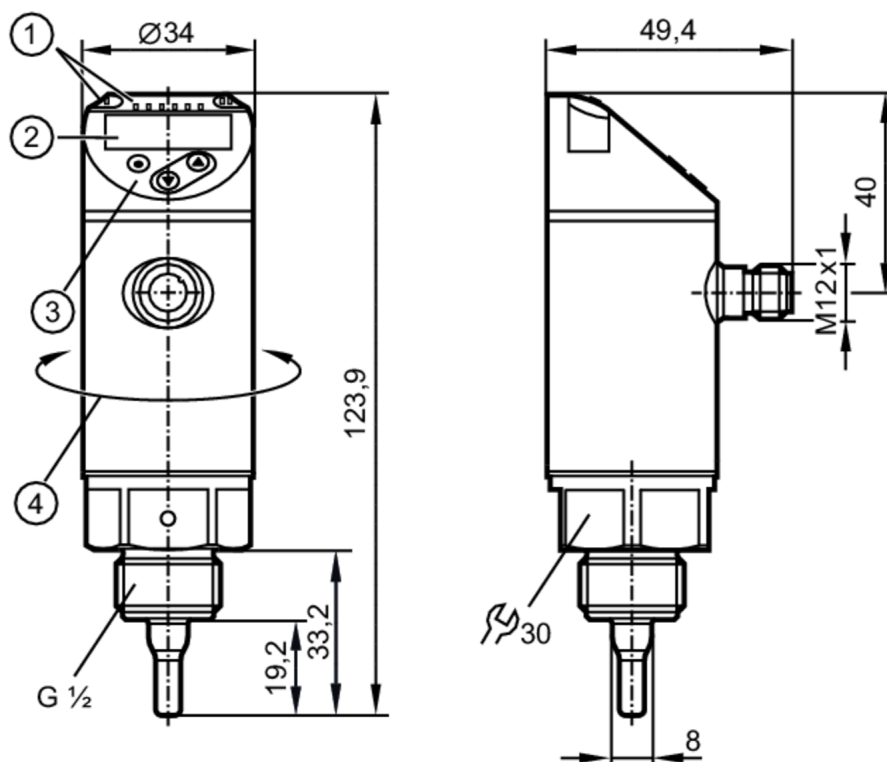




## Flow sensor

SAR12XDB50KG/US-100



- 1 LEDs Display unit
- I, II not used
- 2 alphanumeric display 4-digit red/green
- 3 Programming buttons
- 4 upper part of the housing can be rotated 345°



## Product characteristics

|                              |                             |
|------------------------------|-----------------------------|
| Number of inputs and outputs | Number of analog outputs: 2 |
| Process connection           | threaded connection G 1/2   |

## Application

|                                                |                                                                                                                                                        |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| System                                         | gold-plated contacts                                                                                                                                   |
| Media                                          | water; glycol solutions; air; oils                                                                                                                     |
| Note on media                                  | low-viscosity oils with viscosity: $\leq 40 \text{ mm}^2/\text{s}$ (40 °C)<br>high-viscosity oils with viscosity: $> 40 \text{ mm}^2/\text{s}$ (40 °C) |
| Medium temperature [°C]                        | -20...90                                                                                                                                               |
| Pressure rating [bar]                          | 100                                                                                                                                                    |
| Pressure rating [Mpa]                          | 10                                                                                                                                                     |
| MAWP (for applications according to CRN) [bar] | 85                                                                                                                                                     |

## Electrical data

|                          |            |
|--------------------------|------------|
| Operating voltage [V]    | 18...30 DC |
| Current consumption [mA] | < 100      |
| Protection class         | III        |



## Flow sensor

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|                                               |                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Reverse polarity protection                   | yes                                                                                                                       |
| Power-on delay time [s]                       | 10                                                                                                                        |
| <b>Inputs / outputs</b>                       |                                                                                                                           |
| Number of inputs and outputs                  | Number of analog outputs: 2                                                                                               |
| <b>Outputs</b>                                |                                                                                                                           |
| Total number of outputs                       | 2                                                                                                                         |
| Output signal                                 | analog signal                                                                                                             |
| Number of analog outputs                      | 2                                                                                                                         |
| Analog current output [mA]                    | 4...20; (scalable)                                                                                                        |
| Max. load [Ω]                                 | 350                                                                                                                       |
| Short-circuit protection                      | yes                                                                                                                       |
| Type of short-circuit protection              | yes (non-latching)                                                                                                        |
| Overload protection                           | yes                                                                                                                       |
| <b>Measuring/setting range</b>                |                                                                                                                           |
| Probe length L [mm]                           | 19.2                                                                                                                      |
| Operating mode                                | relative; absolutely liquid; absolutely gaseous; (absolute: reference measurement recommended; Factory setting: relative) |
| <b>Temperature monitoring</b>                 |                                                                                                                           |
| Measuring range [°C]                          | -20...90                                                                                                                  |
| Resolution [°C]                               | 0.2                                                                                                                       |
| Analog start point [°C]                       | -20...76                                                                                                                  |
| Analog end point [°C]                         | 4...100                                                                                                                   |
| In steps of [°C]                              | 0.2                                                                                                                       |
| <b>Liquid media - absolute operating mode</b> |                                                                                                                           |
| Setting range [m/s]                           | 0.04...3                                                                                                                  |
| Greatest sensitivity [m/s]                    | 0.04...3                                                                                                                  |
| <b>Liquid media - relative operating mode</b> |                                                                                                                           |
| Setting range [m/s]                           | 0.04...6                                                                                                                  |
| Greatest sensitivity [m/s]                    | 0.04...3                                                                                                                  |
| <b>Gases - operating mode "absolute"</b>      |                                                                                                                           |
| Setting range [m/s]                           | 0...100                                                                                                                   |
| Greatest sensitivity [m/s]                    | 30...100                                                                                                                  |
| <b>Gases - operating mode "relative"</b>      |                                                                                                                           |
| Setting range [m/s]                           | 0...200                                                                                                                   |
| Greatest sensitivity [m/s]                    | 30...100                                                                                                                  |
| <b>Accuracy / deviations</b>                  |                                                                                                                           |
| Temperature drift [cm/s x 1/K]                | 0,003 m/s x 1/K (< 20 °C; > 70 °C)                                                                                        |
| Max. temperature gradient of medium [K/min]   | 100                                                                                                                       |
| <b>Absolute operating mode</b>                |                                                                                                                           |
| Repeatability                                 | 0,05 m/s; (water; Flow velocity: 0,05...3 m/s)                                                                            |

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## Flow sensor

SAR12XDB50KG/US-100

| Relative operating mode       |                                                                                                                                                                                                                                                                                  |                                                                                 |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Accuracy                      | ± (7 % MW + 2 % MEW); (for relative mode in the range of maximum sensitivity under the following conditions:; water: 20...70 °C; inlet length: 1.5 m; DN25 (DIN 2448); mounting position according to instructions; Accuracy can differ for other media and mounting positions.) |                                                                                 |
| Repeatability                 | 0,05 m/s; (water; Flow velocity: 0,05...3 m/s)                                                                                                                                                                                                                                   |                                                                                 |
| Temperature monitoring        |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Temperature drift             | ± 0,005 K/°C                                                                                                                                                                                                                                                                     |                                                                                 |
| Accuracy                      | [K]                                                                                                                                                                                                                                                                              | ± 0,3 / ± 1; (water; Flow velocity: 0,3...3 m/s / air; Flow velocity: > 10 m/s) |
| Reaction times                |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Response time                 | [s]                                                                                                                                                                                                                                                                              | 0.5; (T09; water; glycol: 0,8 s; air: 7 s; oil: 1,8 s; each T09)                |
| Temperature monitoring        |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Dynamic response T05 / T09    | [s]                                                                                                                                                                                                                                                                              | 1,5 (T09); (water; Flow velocity: 0,3...3 m/s)                                  |
| Software / programming        |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Parameter setting options     | medium selection; Damping; Teach function; display can be rotated and switched off; standard unit of measurement; process value color                                                                                                                                            |                                                                                 |
| Operating conditions          |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Ambient temperature           | [°C]                                                                                                                                                                                                                                                                             | -40...80                                                                        |
| Storage temperature           | [°C]                                                                                                                                                                                                                                                                             | -40...100                                                                       |
| Protection                    | IP 65; IP 67                                                                                                                                                                                                                                                                     |                                                                                 |
| Tests / approvals             |                                                                                                                                                                                                                                                                                  |                                                                                 |
| EMC                           | DIN EN 60947-5-9                                                                                                                                                                                                                                                                 |                                                                                 |
| Shock resistance              | DIN EN 60068-2-27                                                                                                                                                                                                                                                                | 50 g (11 ms)                                                                    |
| Vibration resistance          | DIN EN 60068-2-6                                                                                                                                                                                                                                                                 | 20 g (10...2000 Hz)                                                             |
| MTTF                          | [years]                                                                                                                                                                                                                                                                          | 180                                                                             |
| UL approval                   | UL approval number                                                                                                                                                                                                                                                               | I004                                                                            |
|                               | File number UL                                                                                                                                                                                                                                                                   | E174189                                                                         |
| Mechanical data               |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Weight                        | [g]                                                                                                                                                                                                                                                                              | 296.5                                                                           |
| Material                      | stainless steel (1.4404 / 316L); stainless steel (1.4310 / 301); PBT-GF20; PBT-GF30                                                                                                                                                                                              |                                                                                 |
| Materials (wetted parts)      | stainless steel (1.4404 / 316L); Gasket: FKM                                                                                                                                                                                                                                     |                                                                                 |
| Process connection            | threaded connection G 1/2                                                                                                                                                                                                                                                        |                                                                                 |
| Displays / operating elements |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Display                       | Display unit                                                                                                                                                                                                                                                                     | 6 x LED, green (% , m/s, l/min, m³/h, °C, 10³)                                  |
|                               | Measured values                                                                                                                                                                                                                                                                  | alphanumeric display, red/green 4-digit                                         |
| Remarks                       |                                                                                                                                                                                                                                                                                  |                                                                                 |
| Remarks                       | MW = Measured value                                                                                                                                                                                                                                                              |                                                                                 |
|                               | MEW = Final value of the measuring range                                                                                                                                                                                                                                         |                                                                                 |
| Pack quantity                 | 1 pcs.                                                                                                                                                                                                                                                                           |                                                                                 |

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## Flow sensor

SAR12XDB50KG/US-100

### Electrical connection

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



### Connection



OUT1: analog output Temperature monitoring  
OUT2: analog output Volumetric flow quantity monitoring  
Core colors :  
BK = black  
BN = brown  
BU = blue  
WH = white