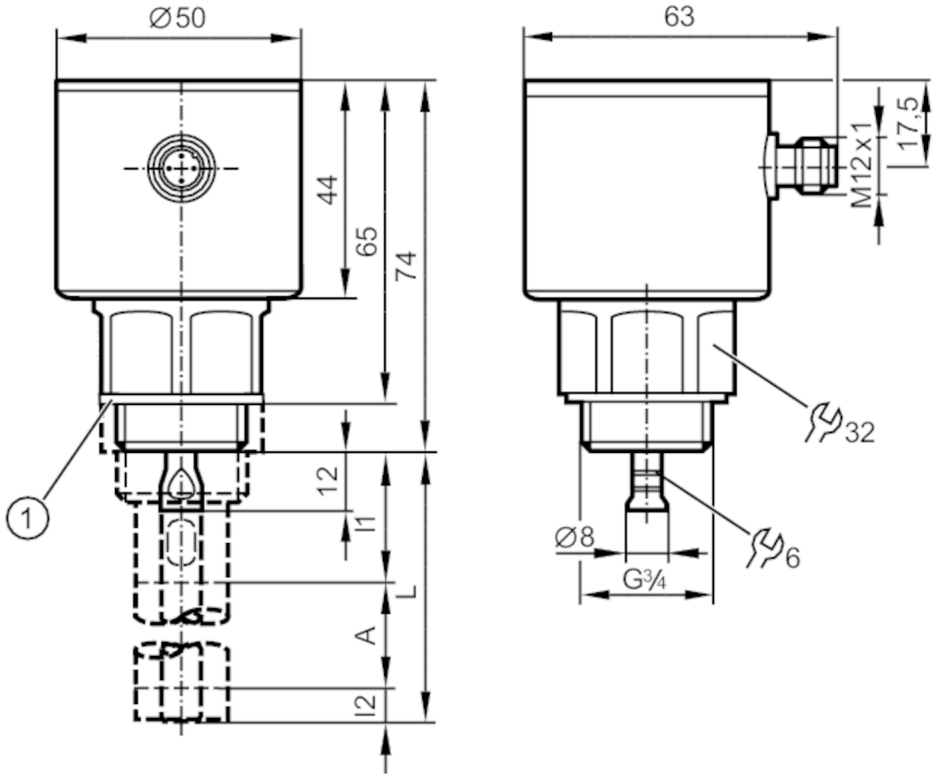
# LR7020

## Continuous level sensor (guided wave radar)

LR0000--BR34AQPKG/US

For high process temperatures: The temperature at the process connection is decisive. The actual medium temperature may be higher.




1 sealing
A Active zone
I1 / I2 Inactive ranges

| | | | |
|---|---|---|---|
| **Product characteristics** | | | |
| Number of inputs and outputs | | Number of digital outputs: 2 | |
| Probe length L | [mm] | 100...2000 | |
| Process connection | | threaded connection G 3/4 external thread | |
| **Application** | | | |
| System | | gold-plated contacts | |
| Application | | for industrial applications | |
| Media | | Liquids | |
| Dielectric constant of the medium | | ≥ 1,8; (for media with a dielectric constant of 1.8...5 (e.g. oils), a coaxial pipe is needed for operation) | |
| Recommended media | | water; water-based media; oils; oil-based media | |
| Process temperature | [°C] | -25...80; (90 < 1 h ; see note under remarks) | |
| Pressure rating | | 16 bar | 1.6 MPa |
| Vacuum resistance | | -1000 mbar | -0.1 MPa |
| **Electrical data** | | | |
| Operating voltage | [V] | 18...30 DC | |
| Current consumption | [mA] | < 25 | |

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| | | |
|---|---|---|
| Protection class | | III |
| Reverse polarity protection | | yes |
| Power-on delay time | [s] | < 3 |
| Measuring principle | | guided wave radar |
| **Inputs / outputs** | | |
| Number of inputs and outputs | | Number of digital outputs: 2 |
| **Outputs** | | |
| Total number of outputs | | 2 |
| Output signal | | switching signal; IO-Link |
| Electrical design | | PNP/NPN |
| Number of digital outputs | | 2 |
| Output function | | normally open / closed; (configurable) |
| Max. voltage drop switching output DC | [V] | 2.5 |
| Permanent current rating of switching output DC | [mA] | 200 |
| Short-circuit protection | | yes |
| Type of short-circuit protection | | yes (non-latching) |
| Overload protection | | yes |
| **Measuring/setting range** | | |
| Probe length L | [mm] | 100...2000 |
| Active range A | [mm] | L-40; (when set to oil and oil based media: L-60) |
| Inactive range I1 / I2 | [mm] | 30 / 10; (when set to oil and oil based media: 30 / 30) |
| Sampling rate | [Hz] | 4 |
| Setting range | | |
| Set point SP | [mm] | 15...L-30 |
| Note on setpoint SP | | when set to oil and oil based media: 35...L-30 |
| Reset point rP | [mm] | 10... L-35 |
| Note on reset point rP | | when set to oil and oil based media: 30...L-35 |
| In steps of | [mm] | 5 |
| Hysteresis | [mm] | > 5 |
| **Accuracy / deviations** | | |
| Repeatability | [mm] | ± 5 |
| Measuring error | [mm] | ± 7 |
| Offset error | [mm] | 5 |
| Resolution | [mm] | 1 |
| Temperature drift per 10 K | | ± 0.2 % |
| **Interfaces** | | |
| Communication interface | | IO-Link |
| Transmission type | | COM2 (38,4 kBaud) |
| IO-Link revision | | 1.1 |
| SDCI standard | | IEC 61131-9 |
| Profiles | Smart Sensor - SSP 3.1 | Measuring Sensor |
| | Common - I&D | Identification and Diagnosis |

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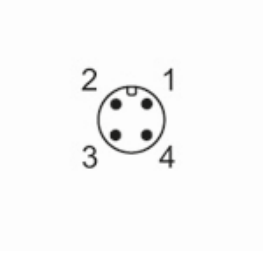
| | | | |
|---|---|---|---|
| SIO mode | | yes | |
| Required master port class | | A | |
| Process data analog | | 3 | |
| Process data binary | | 2 | |
| Min. process cycle time | [ms] | 3.2 | |
| Supported DeviceIDs | | **Type of operation** | **DeviceID** |
| | | default | 907 |
| **Operating conditions** | | | |
| Ambient temperature | [°C] | -25...60 | |
| Storage temperature | [°C] | -40...85 | |
| Protection | | IP 68; IP 69K; (7 days / 1 m water depth / 0.1 bar: IP 68) | |
| **Tests / approvals** | | | |
| EMC | | DIN EN 61000-6-2 | |
| | | DIN EN 61000-6-3 | : in a closed metal tank |
| | | DIN EN 61000-6-4 | : in plastic or open metal tanks |
| Shock resistance | | DIN EN 60068-2-27 | 50 g (11 ms) / 25 g (6 ms) with reference rod 0.5 m |
| Vibration resistance | | DIN EN 60068-2-6 | 5 g (10...2000 Hz) / 1 g (5...200 Hz) with reference rod 0.5 m |
| MTTF | [years] | 286 | |
| UL approval | | UL approval number | H010 |
| | | File number UL | E174191 |
| **Mechanical data** | | | |
| Weight | [g] | 484.4 | |
| Dimensions | [mm] | Ø 50 / L = 86 | |
| Material | | stainless steel (1.4301 / 304); stainless steel (1.4404 / 316L); FKM; PEI | |
| Materials (wetted parts) | | stainless steel (1.4305 / 303); probe connection: stainless steel (1.4435 / 316L); PTFE; FKM; sealing: NBR fiber-reinforced | |
| Process connection | | threaded connection G 3/4 external thread | |
| **Remarks** | | | |
| Notes | | For high process temperatures: The temperature at the process connection is decisive. The actual medium temperature may be higher. | |
| Pack quantity | | 1 pcs. | |

**Electrical connection - plug**

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



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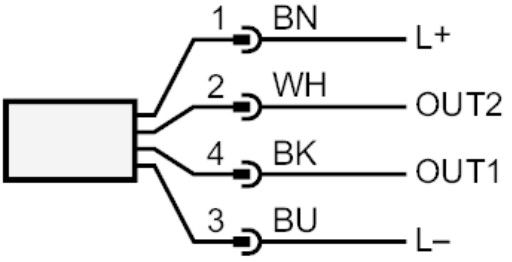
### Connection




| | |
|---|---|
| OUT1: | switching output or IO-Link |
| OUT2: | Switching output |
| | Colors to DIN EN 60947-5-2 |
| | Core colors : |
| BK = | black |
| BN = | brown |
| BU = | blue |
| WH = | white |

### Diagrams and graphs

Measurement deviation D at the limits of the active rod range