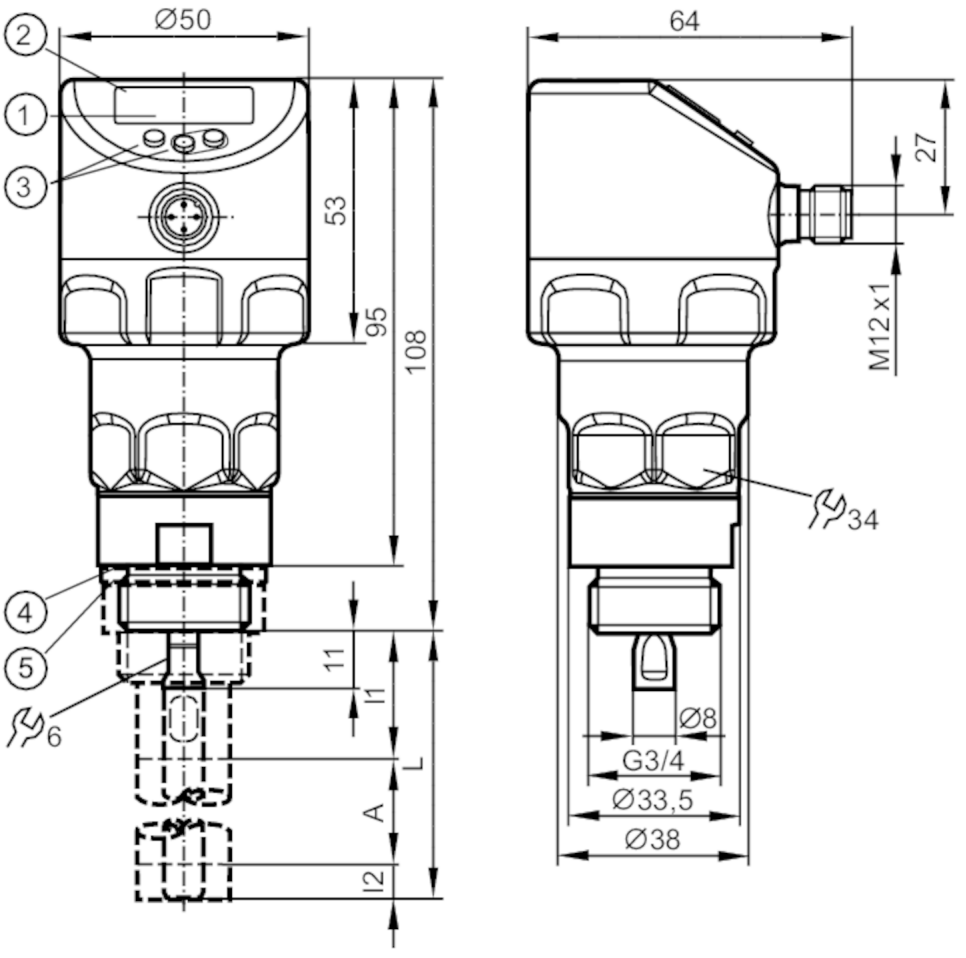
# LR2059

## Continuous level sensor (guided wave radar)

LR0000B-ER34AKSKG/US




1 alphanumeric display 4-digit
2 LEDs Display unit / switching status
3 programming buttons
4 Sealing
5 additional sealing for use with coaxial pipe
A active range
I1 / I2 inactive ranges

| Product characteristics | | |
|---|---|---|
| Number of inputs and outputs | | Number of digital outputs: 1; Number of analogue outputs: 1 |
| Probe length L | [mm] | 150...2000 |
| Process connection | | G 3/4 external thread |
| **Application** | | |
| Special feature | | Gold-plated contacts |
| Media | | Liquids; oil-based media; hydrous media |
| 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; hydrous media; oils; oil-based media |
| Medium temperature | [°C] | -20...100 |
| Tank pressure | [bar] | -1...16 |

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| | | |
|---|---|---|
| **Electrical data** | | |
| Operating voltage | [V] | 18...30 DC |
| 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: 1; Number of analogue outputs: 1 |
| **Outputs** | | |
| Total number of outputs | | 2 |
| Output signal | | switching signal; analogue signal; IO-Link |
| Electrical design | | PNP/NPN |
| Number of digital outputs | | 1 |
| Output function | | normally open / normally closed; (parameterisable) |
| Max. voltage drop switching output DC | [V] | 2.5 |
| Permanent current rating of switching output DC | [mA] | 150; (200 (...60 °C)) |
| Number of analogue outputs | | 1 |
| Analogue current output | [mA] | 4...20, invertible; (scalable) |
| Short-circuit protection | | yes |
| Type of short-circuit protection | | pulsed |
| Overload protection | | yes |
| **Measuring/setting range** | | |
| Probe length L | [mm] | 150...2000 |
| Active range A | [mm] | L-40 (L-60); (when set to oil and oil based media) |
| Inactive range I1 / I2 | [mm] | 30 / 10 (30); (when set to oil and oil based media) |
| Sampling rate | [Hz] | 4 |
| Setting range | | |
| Set point SP | [mm] | ≥ 15 (35) / ≤ L-30 |
| Note on setpoint SP | | when set to oil and oil based media |
| Reset point rP | [mm] | ≥ 10 (30) / ≤ L-35 |
| Note on reset point rP | | when set to oil and oil based media |
| In steps of | [mm] | 1 |
| Hysteresis | [mm] | > 5 |
| **Accuracy / deviations** | | |
| Measuring error [% of the measured value] | | ± 7 mm |
| Offset error | [mm] | 5 |
| Resolution | [mm] | 1 |
| Zero signal (current) | [mA] | 4.0 |
| Full signal (current) | [mA] | 20 |
| Temperature drift per 10 K | | ± 0.2 % |

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| | | | |
|---|---|---|---|
| **Interfaces** | | | |
| Communication interface | | IO-Link | |
| Transmission type | | COM2 (38,4 kBaud) | |
| IO-Link revision | | 1.1 | |
| SDCI standard | | IEC 61131-9 | |
| IO-Link device ID | | 0x000284 | |
| Profiles | | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis | |
| SIO mode | | yes | |
| Required master port type | | A | |
| Process data analogue | | 1 | |
| Process data binary | | 2 | |
| Min. process cycle time | [ms] | 2.3 | |
| **Operating conditions** | | | |
| Ambient temperature | [°C] | -40...80 | |
| Storage temperature | [°C] | -40...100 | |
| Protection | | IP 68; IP 69K | |
| **Tests / approvals** | | | |
| EMC | | DIN EN 61000-6-2 | |
| | | DIN EN 61000-6-3 | : in a metal tank |
| | | DIN EN 61000-6-4 | : in a plastic tank |
| Shock resistance | | DIN EN 60068-2-27 | 50 g (11 ms) / 20 g (6 ms) with reference rod 0.5 m |
| Vibration resistance | | DIN EN 60068-2-6 | 20 g (10...2000 Hz) / 1 g (5...200 Hz) with reference rod 0.5 m |
| MTTF | [years] | 216 | |
| **Mechanical data** | | | |
| Weight | [g] | 438 | |
| Materials | | stainless steel (1.4404 / 316L); PEI; PFA; PBT; FKM | |
| Materials (wetted parts) | | stainless steel (1.4404 / 316L); stainless steel (1.4435 / 316L); PTFE; FKM | |
| Process connection | | G 3/4 external thread | |
| **Displays / operating elements** | | | |
| Display | | Display unit | 3 x LED, green |
| | | switching status | 2 x LED, yellow |
| | | level | alphanumeric display, 4-digit |
| | | parameter setting | alphanumeric display, 4-digit |
| **Remarks** | | | |
| Pack quantity | | 1 pcs. | |

**Electrical connection**

Connector: 1 x M12; Contacts: gold-plated

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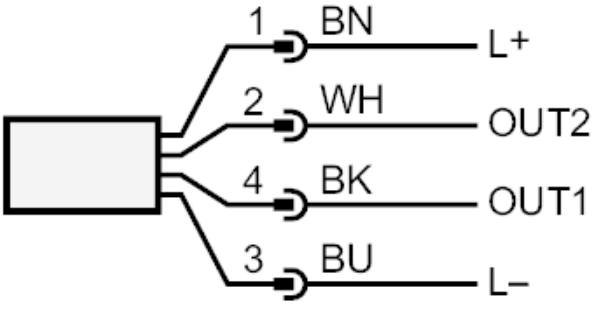
### Connection




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

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## Diagrams and graphs

Measurement deviation D at the limits of the active rod range