

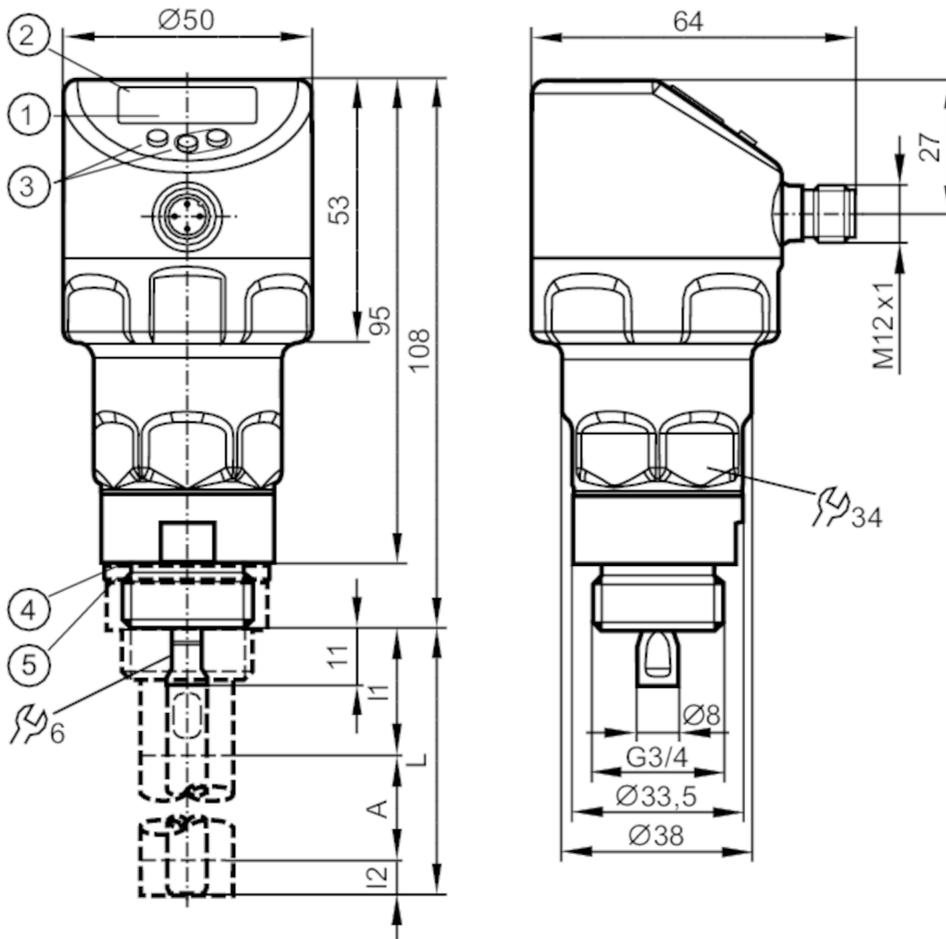
# LR2050



## Continuous level sensor (guided wave radar)

LR0000B-ER34AKSKG/US

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



- 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 zone
- I1 / I2 Inactive ranges



### Product characteristics

|                              |   |
|------------------------------|---|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |
| Probe length L [mm]          | 150...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  |

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|  |        |                                     |
|--|--------|-------------------------------------|
| Process temperature                      | [°C]   | -20...100; (see note under remarks) |
| Pressure rating                          | [bar]  | 16                                  |
| Vacuum resistance                        | [mbar] | -1000                               |
| MAWP (for applications according to CRN) | [bar]  | 16                                  |

### 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               |
| Measuring principle         |      | guided wave radar |

### Inputs / outputs

|                              |   |
|------------------------------|---|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |
|------------------------------|---|

### Outputs

|   |  |
|---|--|
| Total number of outputs                         | 2  |
| Output signal                                   | switching signal; analog signal; IO-Link |
| Electrical design                               | PNP/NPN                                  |
| Number of digital outputs                       | 1  |
| Output function                                 | normally open / closed; (configurable)   |
| Max. voltage drop switching output DC           | [V] 2.5                                  |
| Permanent current rating of switching output DC | [mA] 150; (200 (...60 °C))               |
| Number of analog outputs                        | 1  |
| Analog current output                           | [mA] 4...20, invertible; (scalable)      |
| Max. load                                       | [Ω] 500                                  |
| Short-circuit protection                        | yes                                      |
| Type of short-circuit protection                | yes (non-latching)                       |
| 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...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] 1   |
| Hysteresis             | [mm] > 5                                       |

### Accuracy / deviations

|                 |          |
|-----------------|----------|
| Measuring error | [mm] ± 7 |
|-----------------|----------|

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|                            |      |         |
|----------------------------|------|---------|
| 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 % |

### Interfaces

|                            |  |                 |
|----------------------------|--|-----------------|
| Communication interface    | IO-Link  |                 |
| Transmission type          | COM2 (38,4 kBaud)  |                 |
| IO-Link revision           | 1.1  |                 |
| SDCI standard              | IEC 61131-9  |                 |
| Profiles                   | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis |                 |
| SIO mode                   | yes  |                 |
| Required master port class | A  |                 |
| Process data analog        | 1  |                 |
| Process data binary        | 2  |                 |
| Min. process cycle time    | [ms]   | 2.3             |
| Supported DeviceIDs        | <b>Type of operation</b>   | <b>DeviceID</b> |
|                            | default  | 479             |

### 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 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) / 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] | 367.4   |
| Material                 |     | 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       |     | threaded 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

|               |  |
|---------------|--|
| Notes         | For high process temperatures: The temperature at the process connection is decisive. The actual medium temperature may be higher. |
| Pack quantity | 1 pcs.   |

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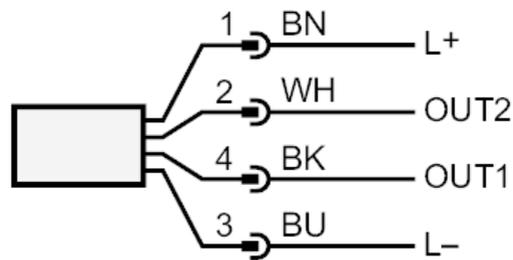
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### Electrical connection

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



### Connection



OUT1: Switching output IO-Link  
OUT2: Switching output analog output  
Colors to DIN EN 60947-5-2

Core colors :

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

