

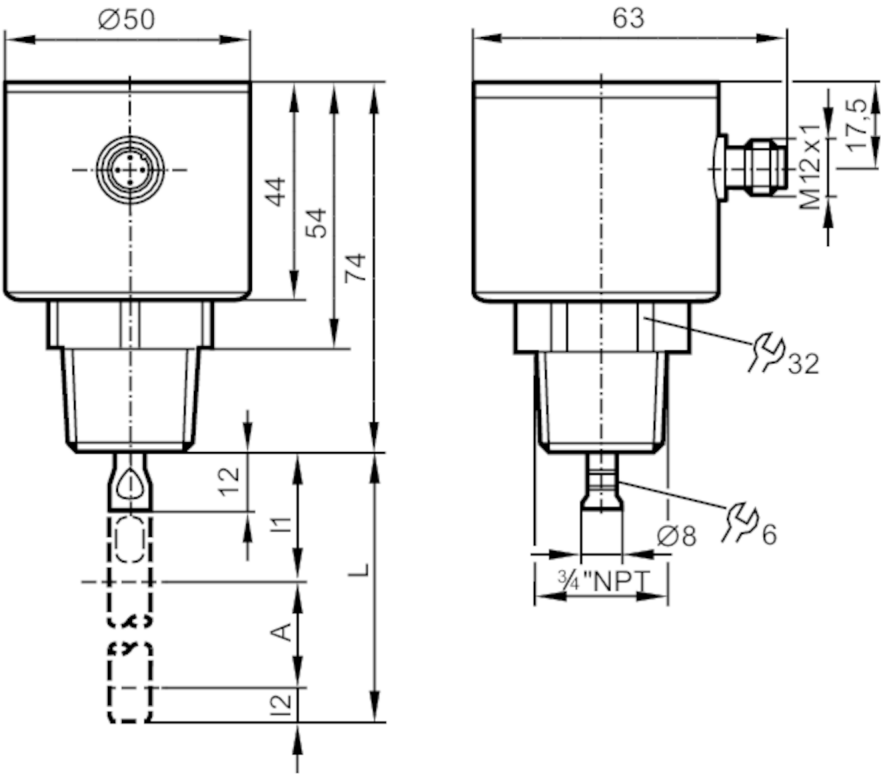
LR3320



Continuous level sensor (guided wave radar)

LR0000--BN34AMDKG/US

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



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]               | 100...2000                                                |          |
| Process connection                | threaded connection 3/4" NPT external thread              |          |
| Application                       |                                                           |          |
| System                            | gold-plated contacts                                      |          |
| Application                       | for industrial applications                               |          |
| Media                             | Liquids                                                   |          |
| Dielectric constant of the medium | > 5                                                       |          |
| Recommended media                 | water; water-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                                                      |          |
| Protection class                  | III                                                       |          |



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|                                                 |      |                                                           |
|-------------------------------------------------|------|-----------------------------------------------------------|
| Reverse polarity protection                     |      | yes                                                       |
| Power-on delay time                             | [s]  | < 3                                                       |
| Measuring principle                             |      | guided wave radar                                         |
| <b>Inputs / outputs</b>                         |      |                                                           |
| Number of inputs and outputs                    |      | Number of digital outputs: 1; Number of analog outputs: 1 |
| <b>Outputs</b>                                  |      |                                                           |
| 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] | 200                                                       |
| Number of analog outputs                        |      | 1                                                         |
| Analog current output                           | [mA] | 4...20, invertible                                        |
| Max. load                                       | [Ω]  | 500                                                       |
| Analog voltage output                           | [V]  | 0...10, invertible                                        |
| Min. load resistance                            | [Ω]  | 2000                                                      |
| Short-circuit protection                        |      | yes                                                       |
| Type of short-circuit protection                |      | yes (non-latching)                                        |
| Overload protection                             |      | yes                                                       |
| <b>Measuring/setting range</b>                  |      |                                                           |
| Probe length L                                  | [mm] | 100...2000                                                |
| Active range A                                  | [mm] | L-40                                                      |
| Inactive range I1 / I2                          | [mm] | 30 / 10                                                   |
| Sampling rate                                   | [Hz] | 4                                                         |
| <b>Setting range</b>                            |      |                                                           |
| Set point SP                                    | [mm] | 15...L-30                                                 |
| Reset point rP                                  | [mm] | 10... L-35                                                |
| In steps of                                     | [mm] | 5                                                         |
| Hysteresis                                      | [mm] | > 5                                                       |
| <b>Accuracy / deviations</b>                    |      |                                                           |
| Repeatability                                   | [mm] | 5                                                         |
| Measuring error                                 | [mm] | ± 7                                                       |
| Offset error                                    | [mm] | 5                                                         |
| Resolution                                      | [mm] | 1                                                         |
| Zero signal (voltage)                           | [V]  | 0                                                         |
| Zero signal (current)                           | [mA] | 4.0                                                       |
| Full signal (voltage)                           | [V]  | 10                                                        |
| 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                                                                                                                        |                                                                |
| Profiles                     | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                                       |                                                                |
| SIO mode                     | yes                                                                                                                                |                                                                |
| Required master port class   | A                                                                                                                                  |                                                                |
| Process data analog          | 3                                                                                                                                  |                                                                |
| Process data binary          | 1                                                                                                                                  |                                                                |
| Min. process cycle time [ms] | 3.2                                                                                                                                |                                                                |
| Supported DeviceIDs          | Type of operation                                                                                                                  | DeviceID                                                       |
|                              | default                                                                                                                            | 592                                                            |
| 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]                 | 241                                                                                                                                |                                                                |
| UL approval                  | UL approval number                                                                                                                 | H012                                                           |
|                              | File number UL                                                                                                                     | E174191                                                        |
| Mechanical data              |                                                                                                                                    |                                                                |
| Weight [g]                   | 448.2                                                                                                                              |                                                                |
| 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                                       |                                                                |
| Process connection           | threaded connection 3/4" NPT 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.                                                                                                                             |                                                                |

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### Electrical connection - plug

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



### Connection



OUT1: switching output or IO-Link  
OUT2: 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

