



# LBR-XXBXXCMHKAX

LBR SicWave

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type            | Part no. |
|-----------------|----------|
| LBR-XXBXXCMHKAX | 6080698  |

Other models and accessories → [www.sick.com/LBR\\_SicWave](http://www.sick.com/LBR_SicWave)

### Detailed technical data

#### Features

|                            |  |
|----------------------------|--|
| <b>Medium</b>              | Bulk solids  |
| <b>Measurement</b>         | Continuous   |
| <b>Probe type</b>          | Plastic horn antenna made from PP  |
| <b>Frequency band</b>      | W-band (within 75 ... 85 GHz)  |
| <b>Measuring range</b>     | Up to 120 m (393.7 ft), recommended measuring range in thread version with integrated horn antenna up to 20 m (65.62 ft) |
| <b>Angle of dispersion</b> | 3.5° <sup>1)</sup>   |
| <b>Process pressure</b>    | -1 bar ... 2 bar<br>(-100 kPa ... 200 kPa / -14.5 psig ... 29.1 psig)  |
| <b>Process temperature</b> | -40 °C ... +80 °C  |
| <b>RoHS certificate</b>    | ✓  |
| <b>HART</b>                | ✓  |
| <b>Indication</b>          | Installed  |

<sup>1)</sup> Outside the specified aperture angle, the level of the radar signal energy is lowered by 50% (-3 dB).

#### Performance

|   |   |
|---|---|
| <b>Accuracy of sensor element</b>                                   | ≤ 5 mm <sup>1)</sup>                                |
| <b>Non-repeatability</b>  | ≤ 1 mm  |
| <b>Digital measurement resolution</b>                               | < 1 mm  |
| <b>Analog measurement resolution</b>                                | 0.3 μA  |
| <b>Digital output temperature drift</b>                             | ≤ 3 mm / 10 K, max. 10 mm                           |
| <b>Current output temperature drift</b>                             | ≤ 0.03% / 10 K relating to the 16 mA span or ≤ 0.3% |
| <b>Deviation on current output due to digital-analog conversion</b> | < 15 μA   |
| <b>Measurement cycle time</b>                                       | Approx. 700 ms                                      |
| <b>Step response time</b>   | ≤ 3 s <sup>2)</sup>                                 |
| <b>MTBF</b>   | 3,37*10 <sup>6</sup> h                              |

<sup>1)</sup> Measurement distance > 0.25 m / 0.8202 ft.

<sup>2)</sup> Time span after abrupt change to the measurement distance by max. 2 m for bulk material applications until the output signal has assumed 90% of its steady-state value for the first time (IEC 61298-2).

|                |   |
|----------------|---|
| <b>Display</b> | ✓ |
|----------------|---|

<sup>1)</sup> Measurement distance > 0.25 m / 0.8202 ft.

<sup>2)</sup> Time span after abrupt change to the measurement distance by max. 2 m for bulk material applications until the output signal has assumed 90% of its steady-state value for the first time (IEC 61298-2).

## Electronics

|                                 |  |
|---------------------------------|--|
| <b>Communication interface</b>  | HART   |
| <b>Supply voltage</b>           | 9 V DC ... 30 V DC <sup>1)</sup>                 |
| <b>Protection class</b>         | I (IEC 61010-1)                                  |
| <b>Connection type</b>          | M20 x 1.5 / cable gland PA black (ø 5 mm - 9 mm) |
| <b>Output signal</b>            | 4 mA ... 20 mA / HART <sup>2)</sup>              |
| <b>Contamination rating</b>     | 4  |
| <b>Enclosure rating</b>         | IP67 / IP67                                      |
| <b>EMC</b>                      | EN 61326-1                                       |
| <b>Start-up current</b>         | < 3.6 mA   |
| <b>Overvoltage category</b>     | III (IEC 61010-1)                                |
| <b>Short-circuit protection</b> | ✓  |
| <b>Isolation</b>                | ✓  |

<sup>1)</sup> All connections are polarity protected. All outputs are overload and short-circuit protected.

<sup>2)</sup> Range of the output signal: 3.8 mA ... 20.5 mA / HART (factory setting); fault current < 3.6 mA or 22 mA.

## Mechanics

|                           |                            |
|---------------------------|----------------------------|
| <b>Process connection</b> | Without process connection |
| <b>Housing material</b>   | Plastic PBT (polyester)    |
| <b>Housing design</b>     | Single-chamber housing     |
| <b>Sealing material</b>   | PP                         |
| <b>Antenna material</b>   | PP                         |

## Ambient data

|                                      |                   |
|--------------------------------------|-------------------|
| <b>Ambient operating temperature</b> | -40 °C ... +80 °C |
| <b>Ambient temperature, storage</b>  | -40 °C ... +80 °C |

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27200505 |
| <b>ECLASS 5.1.4</b> | 27200505 |
| <b>ECLASS 6.0</b>   | 27200505 |
| <b>ECLASS 6.2</b>   | 27200505 |
| <b>ECLASS 7.0</b>   | 27200505 |
| <b>ECLASS 8.0</b>   | 27200505 |
| <b>ECLASS 8.1</b>   | 27200505 |
| <b>ECLASS 9.0</b>   | 27200505 |
| <b>ECLASS 10.0</b>  | 27270807 |
| <b>ECLASS 11.0</b>  | 27270807 |
| <b>ECLASS 12.0</b>  | 27274501 |

|                       |          |
|-----------------------|----------|
| <b>ETIM 5.0</b>       | EC001447 |
| <b>ETIM 6.0</b>       | EC001447 |
| <b>ETIM 7.0</b>       | EC001447 |
| <b>ETIM 8.0</b>       | EC001447 |
| <b>UNSPSC 16.0901</b> | 41111950 |

Type code

Type code

**Certification**

|    |  |
|----|--|
| XX | Without certification  |
| AC | ATEX II 1G, 1/2G, 2G Ex ia IIC T6...T1, Ga, Ga/Gb, Gb, EU-type examination no.: KIWA 20ATEX0039 X  |
| AH | ATEX II 1G, 1/2G, 2G Ex ia IIC T6...T1, Ga, Ga/Gb, Gb, EU-type examination no.: KIWA 20ATEX0039 X; ATEX II 1D, 1/2D, 1/3D, 2D Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: KIWA 20ATEX0041 X |
| AE | ATEX II 1/2G, 2G Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: KIWA 20ATEX0040 X  |
| AJ | ATEX II 1/2G, 2G Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: KIWA 20ATEX0040 X, ATEX II 1D, 1/2D, 1/3D, 2D Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: KIWA 20ATEX0041 X         |
| AR | ATEX II 1D, 1/2D, 1/3D, 2D Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: KIWA 20ATEX0041 X  |
| IC | IEC Ex ia IIC T6...T1, Ga, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0014X   |
| IH | IEC Ex ia IIC T6...T1, Ga, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0014X, IEC Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: IECEx KIWA 20.0016X                                     |
| IE | IEC Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0015X   |
| IJ | IEC Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0015X, IEC Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: IECEx KIWA 20.0016X   |
| IR | IEC Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db, EU-type examination no.: IECEx KIWA 20.0016X   |

**Antenna version/Material**

|   |   |
|---|---|
| B | Plastic horn antenna made from PP                             |
| C | Metal jacketed lens antenna / PEEK / c/w air purge connection |
| T | Thread with integrated horn antenna made from PEEK            |

**Process connection/Material**

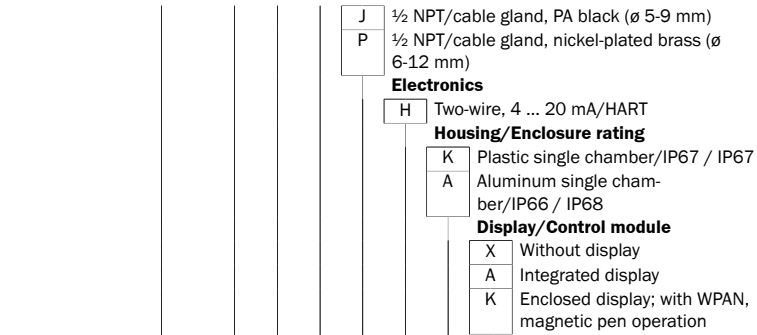
|    |  |
|----|--|
| XX | Without process connection                                     |
| XC | Mounting clamp, length: 170 mm / 316L                          |
| XD | Mounting clamp, length: 300 mm / 316L                          |
| SD | Swivel holder with flange 4" 150 lb / 316/316L                 |
| SA | Swivel holder with flange DN 100, PN16, form B, DIN / 316/316L |
| SB | Swivel holder with flange DN 150, PN16, form B, DIN / 316/316L |
| TC | Thread G 1½, PN20, DIN3852-A / 316L                            |
| TD | Thread 1½ NPT, PN20, ASME B1.20.1/316L                         |
| FA | Flange DN 80, PN16, form B, DIN / 316/316L                     |
| FB | Flange DN 100, PN16, form B, DIN / 316/316L                    |
| FC | Flange DN 150, PN16, form B, DIN / 316/316L                    |

**Antenna seal/Process temperature**

|   |   |
|---|---|
| A | FKM (SHS FPM 70C3 GLT) and PEEK / -40 ... +130 °C |
| B | FKM (SHS FPM 70C3 GLT) and PEEK / -40 ... +200 °C |
| C | PP / -40 ... +80 °C                               |

**Cable entry/Connection**

|   |  |
|---|--|
| B | Round connector, M12x1 pin assignment B                |
| M | M20x1.5 / cable gland, PA black (ø 5-9 mm), standard   |
| 2 | M20x1.5 / cable gland, nickel-plated brass (ø 5-9 mm)  |
| O | M20x1.5 / cable gland, nickel-plated brass (ø 6-12 mm) |



Not all variants of the type code can be combined!

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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