



# LBR-ARCSAA2HAKX

LBR SicWave

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
LBR-ARCSAA2HAKX	6081128

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>	Metal jacketed lens antenna / PEEK / c/w air purge connection
<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>	4° <sup>1)</sup>
<b>Process pressure</b>	-1 bar ... 3 bar (-100 kPa ... 300 kPa / -14.5 psig ... 43.5 psig)
<b>Process temperature</b>	-40 °C ... +130 °C
<b>ATEX approval</b>	ATEX II 1D, 1/2D, 1/3D, 2D Ex ta, ta/tb, ta/tc, tb IIIC T* Da, Da/Db, Da/Dc, Db
<b>Type examination</b>	KIWA 20ATEX0041 X
<b>RoHS certificate</b>	✓
<b>HART</b>	✓
<b>Indication</b>	Installed
<b>Control element</b>	Bluetooth Magnet pin operation

<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%

<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>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
<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 nickel-plated brass (ø5 mm - 9 mm)
<b>Output signal</b>	4 mA ... 20 mA / HART <sup>2)</sup>
<b>Contamination rating</b>	4
<b>Enclosure rating</b>	IP66 / IP68
<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>	Swivel holder with flange DN100, PN16, form B, DIN / 316/316L
<b>Housing material</b>	Aluminum die cast AISi10Mg, powder-coated (base: polyester)
<b>Housing design</b>	Single-chamber housing
<b>Sealing material</b>	FKM (SHS FPM 70C3 GLT)
<b>Antenna material</b>	PEEK

## 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

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#### 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

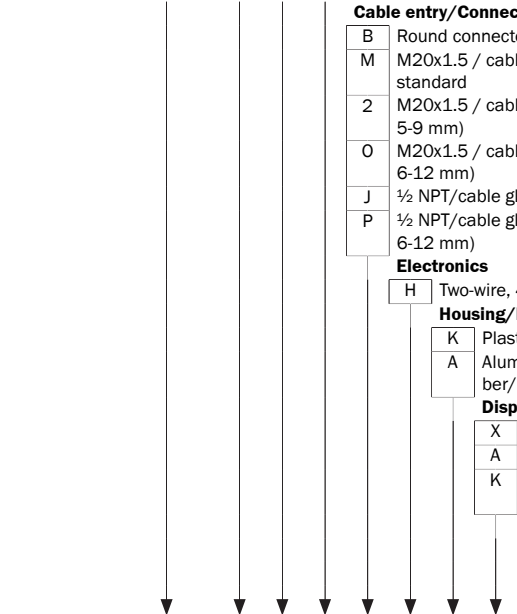
- Cable entry/Connection**
- |   |  |
|---|--|
| B | Round connector, M12x1 pin assignment B                |
| M | M20x1.5 / cable gland, PA black (∅ 5-9 mm), standard   |
| 2 | M20x1.5 / cable gland, nickel-plated brass (∅ 5-9 mm)  |
| O | M20x1.5 / cable gland, nickel-plated brass (∅ 6-12 mm) |
| J | ½ NPT/cable gland, PA black (∅ 5-9 mm)                 |
| P | ½ NPT/cable gland, nickel-plated brass (∅ 6-12 mm)     |

**Electronics**

H	Two-wire, 4 ... 20 mA/HART
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- Housing/Enclosure rating**
- |   |                                     |
|---|-------------------------------------|
| K | Plastic single chamber/IP67 / IP67  |
| A | Aluminum single chamber/IP66 / IP68 |

- Display/Control module**
- |   |   |
|---|---|
| X | Without display                                     |
| A | Integrated display                                  |
| K | Enclosed display; with WPAN, magnetic pen operation |



Not all variants of the type code can be combined!

## SICK AT A GLANCE

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