



LBR-AHCSAA1HAKX

LBR SicWave

FREE-SPACE RADAR

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
LBR-AHCSAA1HAKX	6084930

Other models and accessories → www.sick.com/LBR_SicWave

Detailed technical data

Features

Medium	Bulk solids
Measurement	Continuous
Probe type	Metal jacketed lens antenna / PEEK / c/w air purge connection
Frequency band	W-band (within 75 ... 85 GHz)
Measuring range	Up to 120 m (393.7 ft), recommended measuring range in thread version with integrated horn antenna up to 20 m (65.62 ft)
Angle of dispersion	4° ¹⁾
Process pressure	-1 bar ... 3 bar (-100 kPa ... 300 kPa / -14.5 psig ... 43.5 psig)
Process temperature	-40 °C ... +130 °C
ATEX approval	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + II 1D, 1/2D, 1/3D, 2D Ex ta IIIC T*
Type examination	KIWA 20ATEX0039 X, KIWA 20ATEX0041 X
RoHS certificate	✓
HART	✓
Indication	Installed
Control element	Bluetooth Magnet pin operation

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

Performance

Accuracy of sensor element	≤ 5 mm ¹⁾
Non-repeatability	≤ 1 mm
Digital measurement resolution	< 1 mm
Analog measurement resolution	0.3 µA
Digital output temperature drift	≤ 3 mm / 10 K, max. 10 mm
Current output temperature drift	≤ 0.03% / 10 K relating to the 16 mA span or ≤ 0.3%

¹⁾ Measurement distance > 0.25 m / 0.8202 ft.

²⁾ 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).

Deviation on current output due to digital-analog conversion	< 15 μ A
Measurement cycle time	Approx. 700 ms
Step response time	≤ 3 s ²⁾
MTBF	3,37*10 ⁶ h
Display	✓

¹⁾ Measurement distance > 0.25 m / 0.8202 ft.

²⁾ 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

Supply voltage	9 V DC ... 30 V DC ¹⁾
Protection class	I (IEC 61010-1)
Output signal	4 mA ... 20 mA / HART ²⁾
Contamination rating	4
Enclosure rating	IP66 / IP68
EMC	EN 61326-1
Start-up current	< 3.6 mA
Overvoltage category	III (IEC 61010-1)
Short-circuit protection	✓
Isolation	✓

¹⁾ All connections are polarity protected. All outputs are overload and short-circuit protected.

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

Mechanics

Process connection	Swivel holder with flange DN100, PN16, form B, DIN / 316/316L
Housing material	Aluminum die cast AISi10Mg, powder-coated (base: polyester)
Housing design	Single-chamber housing
Sealing material	FKM (SHS FPM 70C3 GLT)
Antenna material	PEEK

Ambient data

Ambient operating temperature	-40 °C ... +80 °C
Ambient temperature, storage	-40 °C ... +80 °C

Classifications

ECLASS 5.0	27200505
ECLASS 5.1.4	27200505
ECLASS 6.0	27200505
ECLASS 6.2	27200505
ECLASS 7.0	27200505
ECLASS 8.0	27200505
ECLASS 8.1	27200505
ECLASS 9.0	27200505
ECLASS 10.0	27270807

ECLASS 11.0	27270807
ECLASS 12.0	27274501
ETIM 5.0	EC001447
ETIM 6.0	EC001447
ETIM 7.0	EC001447
ETIM 8.0	EC001447
UNSPSC 16.0901	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

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