Product data sheet

LFR-XXFFBJ2HAAX

LFR SicWave

LEVEL SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
LFR-XXFFBJ2HAAX	6072215

Other models and accessories ➜ www.sick.com/LFR_SicWave

Detailed technical data

Features

Medium	Fluids
Measurement	Continuous
Probe type	Flange with encapsulated antenna system
Frequency band	W-band (within 75 ... 85 GHz)
Measuring range	Up to 25 m (82.02 ft)
Angle of dispersion	6° [1]
Process pressure	–1 bar ... 20 bar (-100 kPa ... 2,000 kPa / –14.5 psig ... 290.1 psig)
Process temperature	–40 °C ... +200 °C
RoHS certificate	✓
HART	✓
Indication	Installed
Control element	Pushbutton 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	≤ 1 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%
Deviation on current output due to digital-analog conversion	< 15 µA
Measurement cycle time	Approx. 700 ms

[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).

Step response time	≤ 3 s [2]

[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	12 V DC ... 35 V DC, 18 V DC ... 35 V DC with illumination switched on [1]
Protection class	III (IEC 61010-1)
Connection type	M20 x 1.5 / cable gland nickel-plated brass (ø5 mm - 9 mm)
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	✓

[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	Flange DN 50 PN 40 form C, DIN 2501 / 316L
Housing material	Aluminum
Housing design	Single-chamber housing
Sealing material	PTFE
Antenna material	PTFE
Second line of defense	Not integrated

Ambient data

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

Classifications

ECl@ss 5.0	27200505
ECl@ss 5.1.4	27200505
ECl@ss 6.0	27200505
ECl@ss 6.2	27200505
ECl@ss 7.0	27200505
ECl@ss 8.0	27200505
ECl@ss 8.1	27200505
ECl@ss 9.0	27200505
ECl@ss 10.0	27270807
ECl@ss 11.0	27270807
ETIM 5.0	EC001447
ETIM 6.0	EC001447

ETIM 7.0	EC001447
ETIM 8.0	EC001447
UNSPSC 16.0901	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
AE	ATEX II 1/2G, 2G Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: KIWA 20ATEX0040 X
IC	IEC Ex ia IIC T6...T1, Ga, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0014X
IE	IEC Ex db IIC T6...T1, Ga/Gb, Gb, EU-type examination no.: IECEx KIWA 20.0015X

Antenna version/second line of defense

B	With plastic horn antenna
T	Thread with integrated horn antenna
U	Thread with integrated horn antenna with second line of defense
F	Flange with encapsulated antenna system
G	Flange with encapsulated antenna system with second line of defense
H	Hygiene connection with encapsulated antenna system

Process connection/Material

XX	Without process connection
XC	Mounting clamp, length: 170 mm / 316L
XD	Mounting clamp, length: 300 mm / 316L
TA	Thread G ¾ PN20, DIN3852-A / 316L
TB	Thread ¾" NPT PN20, ASME B1.20.1/316L
TC	Thread G 1½, PN20, DIN3852-A / 316L
TD	Thread 1½ NPT, PN20, ASME B1.20.1/316L
FB	Flange DN 50 PN40 Form C, DIN2501/316/316L
FH	Flange DN 80 PN40 Form C, DIN2501/316/316L
FL	Flange DN 100 PN16 Form C, DIN2501/316/316L
FS	Flange DN 150 PN16 Form C, DIN2501/316/316L
GI	Flange 2" 150 lb RF, ASME B16.5/316/316L
GM	Flange 3" 150 lb RF, ASME B16.5/316/316L
GP	Flange 4" 150 lb RF, ASME B16.5/316/316L
CA	Clamp 2" PN16 (Ø 64 mm) DIN32676, ISO2825/316L
RA	DN50; PN16; DIN11851; 316L

Material/seal/process temperature

C	Antenna material PP, seal PP, process temperature –40 ... +80 °C
I	Antenna material PTFE, seal PTFE, process temperature –40 ... +130 °C
J	Antenna material PTFE, seal PTFE, process temperature –40 ... +200 °C
W	Antenna material PTFE, seal PTFE, process temperature –196 ...+200 °C
A	Antenna material PEEK, seal FKM (SHS FPM 70C3 GLT) and PP, process temperature –40 ... +130 °C
B	Antenna material PEEK, seal FKM (SHS FPM 70C3 GLT) and PP, process temperature –40 ... +200 °C

Cable entry/Connection

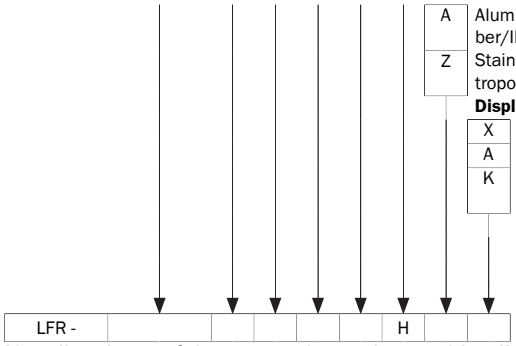
B	Round connector, M12x1 pin assignment B
M	M20x1.5 / cable gland, PA black (ø 5-9 mm), standard
2	M20x1.5 / cable gland, nickel-plated brass (ø 5-9 mm)
O	M20x1.5 / cable gland, nickel-plated brass (ø 6-12 mm)
J	½ NPT/cable gland, PA black (ø 5-9 mm)
P	½ NPT/cable gland, nickel-plated brass (ø 6-12 mm)

Electronics

H	Two-wire, 4 ... 20 mA/HART

Housing/Enclosure rating

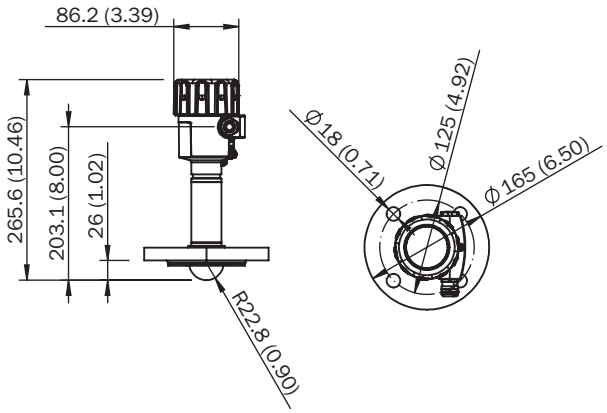
K	Plastic single chamber/IP67 / IP67



Not all variants of the type code can be combined!

Dimensional drawing (Dimensions in mm (inch))

Unit: mm (inch), decimal separator: period



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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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