SICK.COM



DATA SHEET

DL100-23HA2109

Dx100
Time-of-flight sensors

SICK Sensor Intelligence



Illustration may differ

TIME-OF-FLIGHT SENSORS

DL100-23HA2109

ORDERING INFORMATION

Type	part no.
DL100-23HA2109	1060391

Further device versions and accessories at www.sick.com/Dx100

DETAILED TECHNICAL DATA

FEATURES

Measuring range	0.15 m ... 300 m, on “diamond grade” reflective tape
Scope	Indoor
Target	Reflector
Resolution	0.1 mm, 0.125 mm, 1 mm, 10 mm, 100 mm
Repeatability	2 mm [1]
Measurement accuracy	± 3 mm [2]
Response time	2 ms
Measurement cycle time	1 ms [3]
Output time	1 ms
Emitted beam	
Light source	Laser, red [4]
Type of light	Visible red light
Typ. light spot size (distance)	5 mm + (2 mm x distance in m)
Key laser figures	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	2 [5]
Max. movement speed	15 m/s
Acceleration (max.)	≤ 15 m/s²
Heating	✓
Safety-related parameters	
$MTTF_D$	101 years

[1] Statistical error 1 σ, environmental conditions constant, min. warm-up time 10 min.

[2] From 150 mm ... 180 mm measuring range the accuracy can reach ± 4 mm.

[3] Measurement cycle synchronous to PLC request.

[4] Average service life: 100,000 h at T_U = +25 °C.

[5] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

DC_{avg}	0%

[1] Statistical error 1 σ, environmental conditions constant, min. warm-up time 10 min.

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[4] Average service life: 100,000 h at T_U = +25 °C.

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INTERFACES

CANopen	✓, CANopen
Digital output	
Number	2 [1]
Type	Push-pull: PNP/NPN
Function	Distance: Distance switching output Speed; Speed output Service: Warning message as the sensor ages, if the damping value is exceeded (for example when contaminated, if the permitted interior device temperature is exceeded or undercut, if the measured value has a plausibility error, if the laser is not ready for operation, if the heating is switched on Laser off Preset
Maximum output current I_A	≤ 100 mA [2]
Multifunctional input (MF)	1 x MF1 [3]

[1] HIGH = > V_S - 3 V / LOW = < 2 V.

[2] Max. 100 nF/20 mH.

[3] HIGH > 12 V / LOW < 3 V.

ELECTRONICS

Supply voltage U_B	DC 18 V ... 30 V, limit values
Current consumption	At 24 V DC < 1,000 mA
Ripple	5 V_{pp} [1]
Modulation frequency	Fix
Initialization time	Typ. 1.5 s [2]
Display	6 digit 5 x 7 dot matrix display, LEDs
Enclosure rating	IP65
Protection class	III
Connection type	Male connector, M12, SPEEDCON™ compatible

[1] May not fall short of or exceed V_S tolerances.

[2] After loss of reflector < 40 ms.

MECHANICS

Dimensions (W x H x D)	69.4 mm x 82.5 mm x 100.2 mm
Housing material	Metal (Aluminum die cast)
Window material	Plastic (PMMA)
Weight	Approx. 800 g (with mounting bracket: approx. 1,600 g)

AMBIENT DATA

Ambient temperature, operation	–40 °C ... +55 °C, operation with heating [1) 2)] –40 °C ... +75 °C, operation with cooling case [1) 2)]
Ambient temperature, storage	–40 °C ... +75 °C
Effect of air pressure	0.3 ppm/hPa
Effect of air temperature	1 ppm/K
Temperature drift	Typ. 0.1 mm/K
Typ. Ambient light immunity	≤ 100,000 lx
Mechanical load	Shock: (EN 600 68-2-27) Sine: (EN 600 68-2-6) Noise: (EN 600 68-2-64)
Electromagnetic compatibility (EMC)	EN 61000-6-2, EN 61000-6-4 [3)]

[1)] Temperatures < –10 °C require warm-up time of typ. 7 minutes.

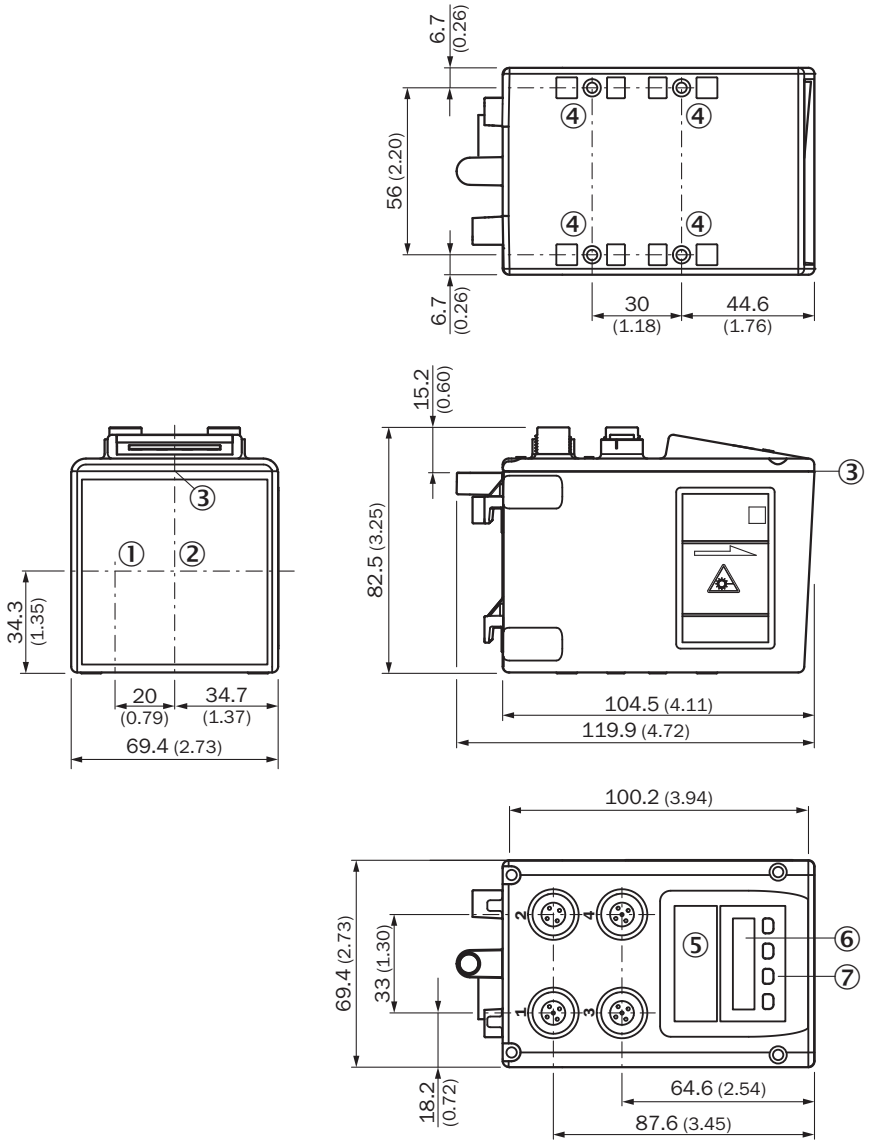
[2)] For operation below –20 °C, a supply voltage of at least 24 V is required.

[3)] This is a Class A device. This device can cause radio interference in living quarters.

CERTIFICATES

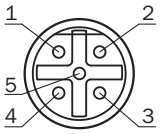
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING

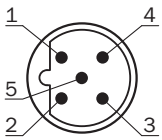


Dimensions in mm (inch)
① Optical axis, sender
② Optical axis, receiver
③ Zero level
④ Threaded mounting hole M5
⑤ status LED [status]
⑥ Display
⑦ Control elements

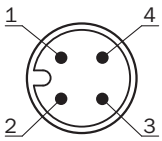
CANOUT CONNECTION TYPE



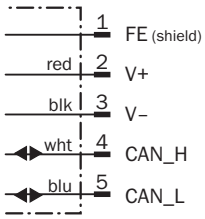
CANIN CONNECTION TYPE



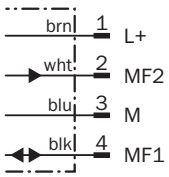
VOLTAGE SUPPLY CONNECTION TYPE



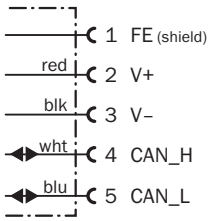
CAN IN CONNECTION DIAGRAM



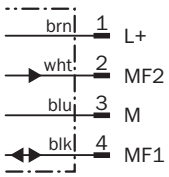
CONNECTION DIAGRAM DX100 POWER SUPPLY, M12 MALE CONNECTOR, 4-PIN



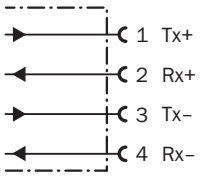
CAN OUT CONNECTION DIAGRAM



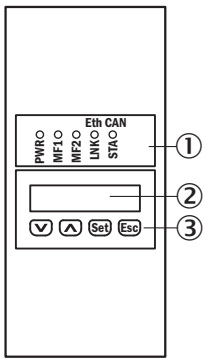
VOLTAGE SUPPLY CONNECTION DIAGRAM



ETHERNET CONNECTION DIAGRAM



ADJUSTMENT POSSIBLE DL100-XXXXXX09



① status LED [status]
② Display
③ Control elements

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1060391

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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