Data sheet



DL100-12AA2109

Dx100

TIME-OF-FLIGHT SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
DL100-12AA2109	1060394

Other models and accessories ➜ www.sick.com/Dx100

Detailed technical data

Features

Measuring range	0.15 m ... 130 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, at dead time 10 ms [1] 1 mm, at dead time 30 ms [1]
Measurement accuracy	± 4 mm [2]
Response time	2 ms
Measurement cycle time	1 ms
Output time	1 ms
Light source	Laser, red [3] visible red light
Type of light	Visible red light
Laser class	2, complies with 21 CFR 1040.10 and 1040.11 except for the conformance according to “Laser Notice No. 50” from June 24, 2007 (IEC 60825-1:2014, EN 60825-1:2014)
Typ. light spot size (distance)	5 mm + (2 mm x distance in m)
Max. movement speed	10 m/s
Safety-related parameters	
$MTTF_D$	101 years
DC_{avg}	0%

[1] Statistical error 1 σ, environmental conditions constant, depending on operating mode.
[2] From 150 mm ... 180 mm measuring range the accuracy can reach ± 4 mm.
[3] Average service life: 100,000 h at T_U = +25 °C.

Interfaces

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 < 250 mA
Ripple	5 V_{pp} [1]
Modulation frequency	Fix
Initialization time	Typ. 1.5 s [2]
Indication	6 digit 5 x 7 dot matrix display, LEDs
Enclosure rating	IP65
Protection class	III

[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)
Connection type	Male connector, M12, SPEEDCON™ compatible

Ambient data

Ambient temperature, operation	–20 °C ... +55 °C [1] –20 °C ... +75 °C, operation with cooling case
Ambient temperature, storage	–40 °C ... +75 °C
Effect of air pressure	0.3 ppm/hPa

[1] Temperatures < –10 °C require warm-up time of typ. 7 minutes.
[2] This is a Class A device. This device can cause radio interference in living quarters.

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 [2]

[1] Temperatures < –10 °C require warm-up time of typ. 7 minutes.
[2] This is a Class A device. This device can cause radio interference in living quarters.

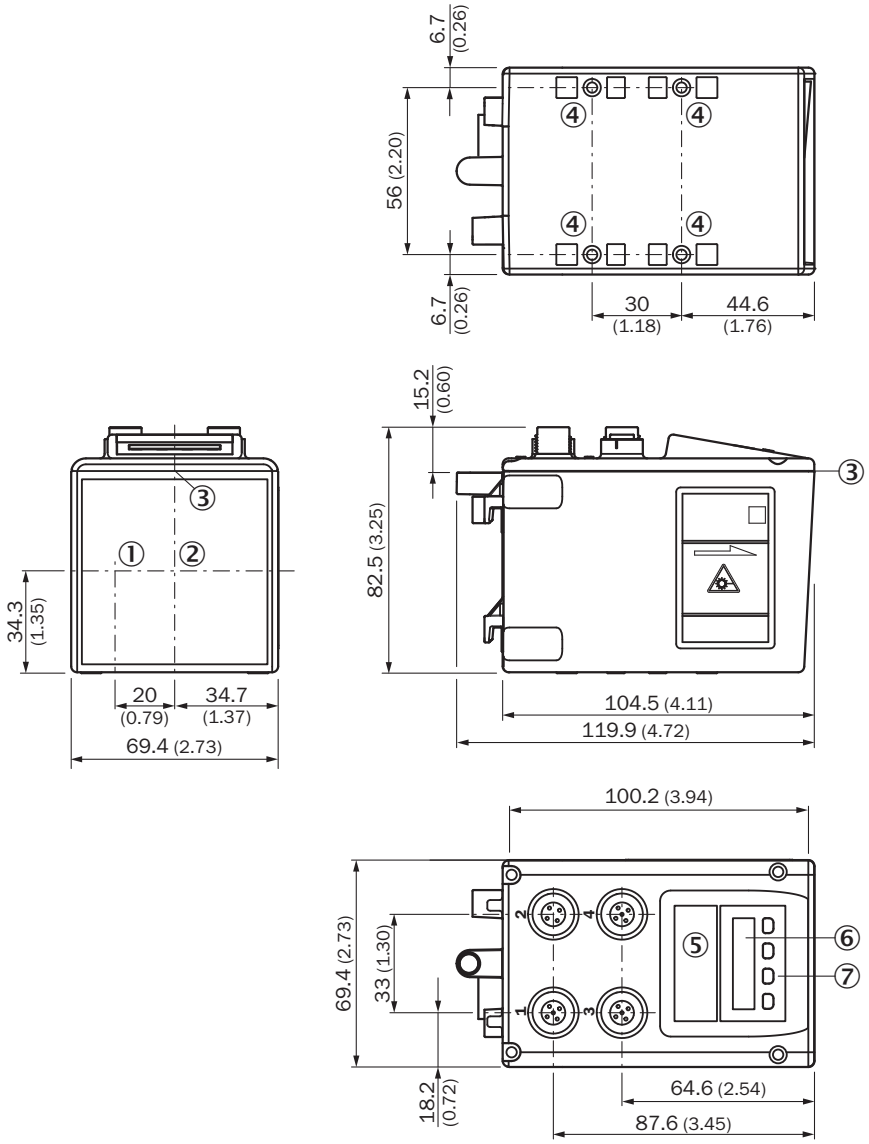
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓

Classifications

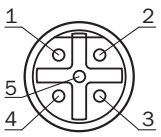
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ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC 16.0901	41111613

Dimensional drawing

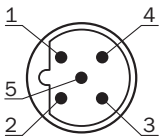


Dimensions in mm (inch)
① Optical axis, sender
② Optical axis, receiver
③ Zero level
④ Threaded mounting hole M5
⑤ status LED [status]
⑥ Display
⑦ Control elements

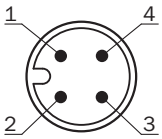
CANout connection type



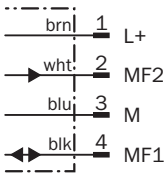
CANin connection type



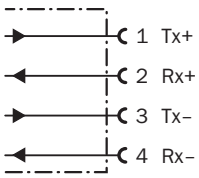
Voltage supply connection type



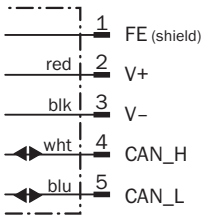
Voltage supply connection diagram



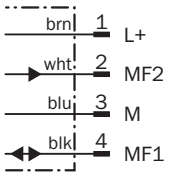
Ethernet connection diagram



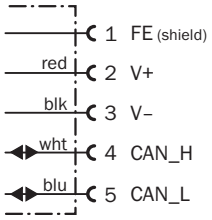
CAN in connection diagram



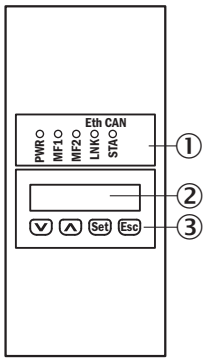
Connection diagram Dx100 power supply, M12 male connector, 4-pin



CAN out connection diagram



Adjustment possible DL100-xxXXxx09



① status LED [status]
② Display
③ Control elements

Recommended accessories

Other models and accessories ➜ www.sick.com/Dx100

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Alignment unit for Dx100, incl. mounting material • **Material:** Steel • **Details:** Steel, zinc coated	BEF-AH-DX100	2058653

	Brief description	Type	part no.
reflectors and optics			
	• **Description:** Reflector plate, “diamond grade” reflective tape, 665 mm x 665 mm, base plate material: aluminum, screw connection • **Ambient operating temperature:** –25 °C ... +65 °C	PL560DG	1016806
	• **Description:** Reflector plate, “diamond grade” reflective tape, 330 mm x 330 mm, base plate material: aluminum, screw connection • **Ambient operating temperature:** –34 °C ... +70 °C	PL240DG	1017910
connectors and cables			
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** PROFINET • **Cable:** 5 m, 4-wire, AWG22, PUR, halogen-free • **Description:** PROFINET, shielded	SSL-2J04-G05MZ	6035389
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 4-pin, straight • **Signal type:** Ethernet, PROFINET • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Ethernet, shieldedPROFINET • **Application:** Drag chain operation, Zones with oils and lubricants	YM2D24-020P-N1MRJA4	2106182
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 4-pin, straight • **Signal type:** Ethernet, PROFINET • **Cable:** 10 m, 4-wire, PUR, halogen-free • **Description:** Ethernet, shieldedPROFINET • **Application:** Drag chain operation, Zones with oils and lubricants	YM2D24-100P-N1MRJA4	2106185

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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