



# DL100-23AA2109

Dx100

LONG RANGE DISTANCE SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
DL100-23AA2109	1060390

Other models and accessories → [www.sick.com/Dx100](http://www.sick.com/Dx100)

## Detailed technical data

### Features

<b>Measuring range</b>	0.15 m ... 300 m, on "diamond grade" reflective tape
<b>Scope</b>	Indoor
<b>Target</b>	Reflector
<b>Resolution</b>	0.1 mm, 0.125 mm, 1 mm, 10 mm, 100 mm
<b>Repeatability</b>	2 mm <sup>1)</sup>
<b>Measurement accuracy</b>	± 3 mm <sup>2)</sup>
<b>Response time</b>	2 ms
<b>Measurement cycle time</b>	1 ms <sup>3)</sup>
<b>Output time</b>	1 ms
<b>Light source</b>	Laser, red <sup>4)</sup> visible red light
<b>Type of light</b>	Visible red light
<b>Laser class</b>	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)
<b>Typ. light spot size (distance)</b>	5 mm + (2 mm x distance in m)
<b>Max. movement speed</b>	15 m/s
<b>Acceleration (max.)</b>	≤ 15 m/s <sup>2</sup>
<b>Safety-related parameters</b>	
	MTTF <sub>D</sub> 101 years
	DC <sub>avg</sub> 0%

<sup>1)</sup> Statistical error 1 σ, environmental conditions constant, min. warm-up time 10 min.

<sup>2)</sup> From 150 mm ... 180 mm measuring range the accuracy can reach ± 4 mm.

<sup>3)</sup> Measurement cycle synchronous to PLC request.

<sup>4)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Interfaces

<b>CANopen</b>	✓
<b>Digital output</b>	
Number	2 <sup>1)</sup>
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 $I_A$	$\leq 100 \text{ mA}$ <sup>2)</sup>
<b>Multifunctional input (MF)</b>	1 x MF1 <sup>3)</sup>

<sup>1)</sup> HIGH =  $> V_S - 3 \text{ V}$  / LOW =  $< 2 \text{ V}$ .

<sup>2)</sup> Max. 100 nF/20 mH.

<sup>3)</sup> HIGH  $> 12 \text{ V}$  / LOW  $< 3 \text{ V}$ .

## Electronics

<b>Supply voltage <math>U_B</math></b>	DC 18 V ... 30 V, limit values
<b>Current consumption</b>	At 24 V DC $< 250 \text{ mA}$
<b>Ripple</b>	5 $V_{pp}$ <sup>1)</sup>
<b>Modulation frequency</b>	Fix
<b>Initialization time</b>	Typ. 1.5 s <sup>2)</sup>
<b>Indication</b>	6 digit 5 x 7 dot matrix display, LEDs
<b>Enclosure rating</b>	IP65
<b>Protection class</b>	III

<sup>1)</sup> May not fall short of or exceed  $V_S$  tolerances.

<sup>2)</sup> After loss of reflector  $< 40 \text{ ms}$ .

## Mechanics

<b>Dimensions (W x H x D)</b>	69.4 mm x 82.5 mm x 100.2 mm
<b>Housing material</b>	Metal (Aluminum die cast)
<b>Window material</b>	Plastic (PMMA)
<b>Weight</b>	Approx. 800 g (with mounting bracket: approx. 1,600 g)
<b>Connection type</b>	Male connector, M12, SPEEDCON™ compatible

## Ambient data

<b>Ambient temperature, operation</b>	-20 °C ... +55 °C <sup>1)</sup> -20 °C ... +75 °C, operation with cooling case <sup>1)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>Effect of air pressure</b>	0.3 ppm/hPa
<b>Effect of air temperature</b>	1 ppm/K
<b>Temperature drift</b>	Typ. 0.1 mm/K

<sup>1)</sup> Temperatures  $< -10 \text{ °C}$  require warm-up time of typ. 7 minutes.

<sup>2)</sup> This is a Class A device. This device can cause radio interference in living quarters.

<b>Typ. Ambient light immunity</b>	≤ 100,000 lx
<b>Mechanical load</b>	Shock: (EN 600 68-2-27) Sine: (EN 600 68-2-6) Noise: (EN 600 68-2-64)
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2, EN 61000-6-4 <sup>2)</sup>

<sup>1)</sup> Temperatures < -10 °C require warm-up time of typ. 7 minutes.

<sup>2)</sup> This is a Class A device. This device can cause radio interference in living quarters.

### Classifications

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

**Dimensional drawing** (Dimensions in mm (inch))

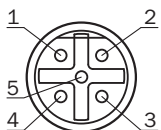
Dimensional drawing



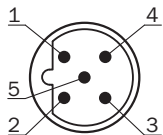
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Zero level
- ④ Threaded mounting hole M5
- ⑤ Status LED [status]
- ⑥ Display
- ⑦ Control elements

**Connection type**

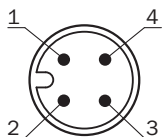
CANout connection type



CANin connection type

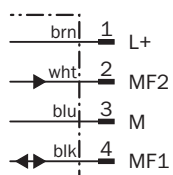


Voltage supply connection type

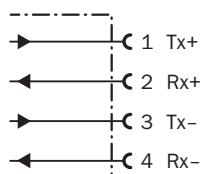


### Connection diagram

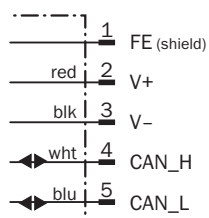
Voltage supply connection diagram



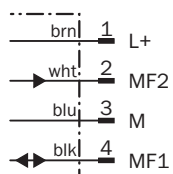
Ethernet connection diagram



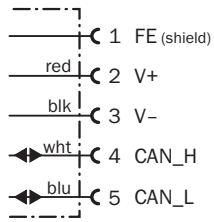
CAN in connection diagram



Dx100 power supply, M12 male connector, 4-pin

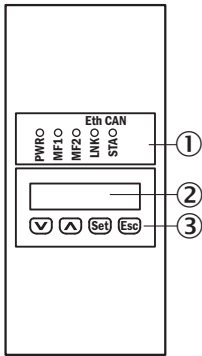


CAN out connection diagram



Adjustment possible

DL100-xxXXxx09









- ① Status LED [status]
- ② Display
- ③ Control elements

Recommended accessories

Other models and accessories → [www.sick.com/Dx100](http://www.sick.com/Dx100)

	Brief description	Type	Part no.
Reflectors			
	<ul style="list-style-type: none"> <li>• <b>Accessory group:</b> Reflectors</li> <li>• <b>Accessory family:</b> Angular</li> <li>• <b>Description:</b> Reflector plate, “diamond grade” reflective tape, 330 mm x 330 mm, base plate material: aluminum, screw connection</li> <li>• <b>Ambient operating temperature:</b> -34 °C ... +70 °C</li> </ul>	PL240DG	1017910
	<ul style="list-style-type: none"> <li>• <b>Accessory group:</b> Reflectors</li> <li>• <b>Accessory family:</b> Angular</li> <li>• <b>Description:</b> Reflector plate, “diamond grade” reflective tape, 665 mm x 665 mm, base plate material: aluminum, screw connection</li> <li>• <b>Ambient operating temperature:</b> -25 °C ... +65 °C</li> </ul>	PL560DG	1016806
Terminal and alignment brackets			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Alignment unit for Dx100, incl. mounting material</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> </ul>	BEF-AH-DX100	2058653

	Brief description	Type	Part no.
Others			
	YM2A14-100C1BXLEAX	YM2A14-100C1BXLEAX	6021293
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Power, CAN</li> <li>• <b>Cable:</b> 5 m, 5-wire</li> <li>• <b>Description:</b> Power, CAN, unshielded</li> </ul>	DOL-1205-G05M_Can	6021166
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> DeviceNet™, CANopen</li> <li>• <b>Cable:</b> 5 m, PUR, halogen-free</li> <li>• <b>Description:</b> DeviceNet™, CANopen, shielded, CAN cable</li> </ul>	CAN cable (male connector - female connector)	6021168
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> PROFINET</li> <li>• <b>Cable:</b> 5 m, 4-wire, AWG22, PUR, halogen-free</li> <li>• <b>Description:</b> PROFINET, shielded</li> </ul>	SSL-2J04-G05MZ	6035389
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A24-050VB4XLEAX	2096247
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight</li> <li>• <b>Signal type:</b> CANopen</li> <li>• <b>Description:</b> CANopen, unshielded, CAN male connector, with terminating resistor</li> </ul>	STE-1205-GKEND	6037193
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A24-100VB4XLEAX	2144087



## SICK AT A GLANCE

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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.

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For us, that is “Sensor Intelligence.”

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