



# DL100-12HA2102

Dx100

LONG RANGE DISTANCE SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
DL100-12HA2102	1059966

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

## Detailed technical data

### Mechanics/electronics

<b>Supply voltage <math>V_s</math></b>	DC 18 V ... 30 V, limit values
<b>Ripple</b>	5 V <sub>pp</sub> <sup>1)</sup>
<b>Initialization time</b>	Typ. 1.5 s <sup>2)</sup>
<b>Housing material</b>	Metal (Aluminum die cast)
<b>Window material</b>	Plastic (PMMA)
<b>Connection type</b>	Male connector, M12, SPEEDCON™ compatible
<b>Indication</b>	6 digit 5 x 7 dot matrix display, LEDs
<b>Weight</b>	Approx. 800 g (with mounting bracket: approx. 1,600 g)
<b>Current consumption</b>	At 24 V DC < 1,000 mA
<b>Dimensions (W x H x D)</b>	69.4 mm x 82.5 mm x 100.2 mm
<b>Modulation frequency</b>	Fix
<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 ms.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	101 years
<b>DC<sub>avg</sub></b>	0%

### Performance

<b>Scope</b>	Indoor
<b>Measurement range min ... max:</b>	0.15 m ... 130 m, on "diamond grade" reflective tape
<b>Target</b>	Reflector
<b>Resolution</b>	0.1 mm, 0.125 mm, 1 mm, 10 mm, 100 mm
<b>Repeatability</b>	2 mm, at dead time 10 ms <sup>1)</sup>

<sup>1)</sup> Statistical error 1  $\sigma$ , environmental conditions constant, depending on operating mode.

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

<sup>3)</sup> Average service life: 100,000 h at  $T_U = +25$  °C.

	1 mm, at dead time 30 ms <sup>1)</sup>
<b>Measurement accuracy</b>	± 4 mm <sup>2)</sup>
<b>Response time</b>	2 ms
<b>Measurement cycle time</b>	1 ms
<b>Output time</b>	1 ms
<b>Light source</b>	Laser, red <sup>3)</sup> 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>	10 m/s
<b>Heating</b>	✓

<sup>1)</sup> Statistical error 1  $\sigma$ , environmental conditions constant, depending on operating mode.

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

<sup>3)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Interfaces

<b>PROFIBUS DP</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 <sub>A</sub>	≤ 100 mA <sup>2)</sup>
<b>Multifunctional input (MF)</b>	1 x MF1 <sup>3)</sup>

<sup>1)</sup> HIGH = > V<sub>S</sub> - 3 V / LOW = < 2 V.

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

<sup>3)</sup> HIGH > 12 V / LOW < 3 V.

## Ambient data

<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2, EN 61000-6-4 <sup>1)</sup>
<b>Ambient temperature, operation</b>	-40 °C ... +55 °C, operation with heating <sup>2)</sup> -40 °C ... +75 °C, operation with cooling case
<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
<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)

<sup>1)</sup> This is a Class A device. This device can cause radio interference in living quarters.

<sup>2)</sup> Temperatures < -10 °C require warm-up time of typ. 7 minutes.

Noise: (EN 600 68-2-64)

1) This is a Class A device. This device can cause radio interference in living quarters.

2) Temperatures < -10 °C require warm-up time of typ. 7 minutes.

## 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))

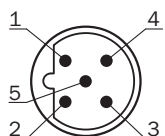
Dimensional drawing



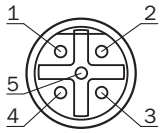
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Zero level
- ④ Threaded mounting hole M5
- ⑤ Status LED [status]
- ⑥ Display
- ⑦ Control elements

**Connection type**

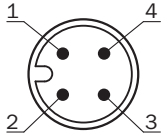
PROFIBUS IN connection type



PROFIBUS OUT connection type

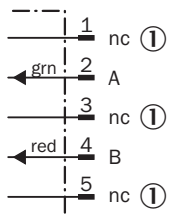


Voltage supply connection type



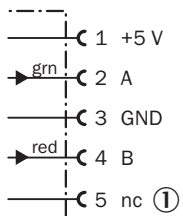
## Connection diagram

PROFIBUS IN connection diagram



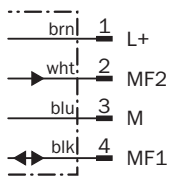
① Not assigned

PROFIBUS OUT connection diagram

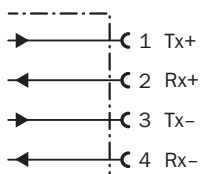


① Not assigned

Voltage supply connection diagram

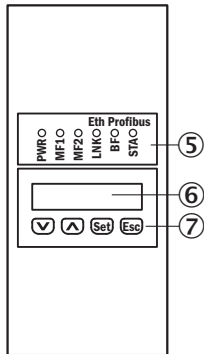


Ethernet connection diagram



## Adjustment possible






DL100-xxXXxx02









- ⑤ Status LED [status]
- ⑥ Display
- ⑦ Control elements

## Recommended accessories

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

	Brief description	Type	Part no.
<b>Sets and kits</b>			
	Accessory kit for upgrade from DME3000 PROFIBUS to Dx100 PROFIBUS	DME3000 Dx100 PROFIBUS upgrade kit	2065222
	Accessory kit for upgrade from DME4000/5000 PROFIBUS to Dx100 PROFIBUS	DME4000/5000 Dx100 PROFIBUS upgrade kit	2065220
<b>Plug connectors and cables</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, B-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> PROFIBUS DP</li> <li>• <b>Cable:</b> 10 m, 2-wire, PUR, halogen-free</li> <li>• <b>Description:</b> PROFIBUS DP, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	DOL-1205-G10MQ	6026008
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight, B-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> PROFIBUS DP</li> <li>• <b>Cable:</b> 10 m, 2-wire, PUR, halogen-free</li> <li>• <b>Description:</b> PROFIBUS DP, twisted pair, shielded</li> <li>• <b>Note:</b> Wire shield Al-Pt film, overall shield C-screen tin-plated</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation</li> </ul>	STL-1205-G10MQ	6026007
	<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

	Brief description	Type	Part no.
	<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, 4-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, PROFINET</li> <li>• <b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, PROFINET, shielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-020PN1MRJA4	2106182
Reflectors			
	Reflector plate, "diamond grade" reflective tape, 330 mm x 330 mm, base plate material: aluminum, screw connection, Screw-on, 4 hole mounting	PL240DG	1017910
	Reflector plate, "diamond grade" reflective tape, 665 mm x 665 mm, base plate material: aluminum, screw connection, Screw-on, 4 hole mounting	PL560DG	1016806
Terminal and alignment brackets			
	Alignment unit for Dx100, incl. mounting material, steel, zinc coated	BEF-AH-DX100	2058653
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, B-coded</li> <li>• <b>Signal type:</b> PROFIBUS DP</li> <li>• <b>Description:</b> PROFIBUS DP, terminal resistor</li> </ul>	STE-END-Q	6021156
	<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, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235



## 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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)