



# DT50-P2113

Dx50

MID RANGE DISTANCE SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
DT50-P2113	1047314

Other models and accessories → [www.sick.com/Dx50](http://www.sick.com/Dx50)



### Detailed technical data

#### Mechanics/electronics

<b>Supply voltage <math>V_s</math></b>	DC 10 V ... 30 V <sup>1)</sup>
<b>Ripple</b>	$\leq 5 V_{pp}$ <sup>2)</sup>
<b>Power consumption</b>	$\leq 2.1 W$ <sup>3)</sup>
<b>Initialization time</b>	$\leq 250$ ms
<b>Warm-up time</b>	$\leq 15$ min
<b>Housing material</b>	Metal (zinc diecast)
<b>Window material</b>	Plastic (PMMA)
<b>Connection type</b>	Male connector, M12, 5-pin
<b>Indication</b>	LC display, 2 x LED
<b>Weight</b>	200 g
<b>Dimensions (W x H x D)</b>	36.1 mm x 62.7 mm x 57.7 mm
<b>Enclosure rating</b>	IP65
<b>Protection class</b>	III

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall short of or exceed  $V_s$  tolerances.

<sup>3)</sup> Without load.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	101 years
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#### Performance

<b>Measurement range min ... max:</b>	200 mm ... 20,000 mm, 90% remission factor
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<sup>1)</sup> Equivalent to 1  $\sigma$ .

<sup>2)</sup> 6% ... 90% remission factor.

<sup>3)</sup> Dependent on the averaging setting: fast/medium/slow.

<sup>4)</sup> 90% remission factor.

<sup>5)</sup> Lateral entry of the object into the measuring range.

<sup>6)</sup> Continuous change of distance in measuring range.

<sup>7)</sup> Wavelength: 658 nm; max. output: 180 mW; pulse duration: 5 ns; duty cycle: 1/200.

	200 mm ... 8,500 mm, 18 % remission 200 mm ... 5,000 mm, 6% remission factor
<b>Target</b>	Natural objects
<b>Resolution</b>	1 mm
<b>Repeatability</b>	≥ 1 mm <sup>1) 2) 3)</sup>
<b>Measurement accuracy</b>	± 7 mm <sup>4)</sup>
<b>Response time</b>	15 ms ... 80 ms, 15 ms / 30 ms / 80 ms <sup>3) 5)</sup>
<b>Output time</b>	≥ 2 ms <sup>6)</sup>
<b>Light source</b>	Laser, red visible red light
<b>Laser class</b>	2 (IEC 60825-1:2014, EN 60825-1:2014) <sup>7)</sup>
<b>Typ. light spot size (distance)</b>	15 mm x 15 mm (10 m)
<b>Additional function</b>	Set moving average fast/medium/slow, switching mode: distance to object (DtO), teach-in, scaling and inversion of digital output, set hysteresis, teach-in, scaling and inversion of analog output, Multifunctional input: laser off / external teach / deactivated, switch-off display, reset to factory default, lock user interface
<b>Average laser service life (at 25 °C)</b>	100,000 h

- 1) Equivalent to 1  $\sigma$ .
- 2) 6% ... 90% remission factor.
- 3) Dependent on the averaging setting: fast/medium/slow.
- 4) 90% remission factor.
- 5) Lateral entry of the object into the measuring range.
- 6) Continuous change of distance in measuring range.
- 7) Wavelength: 658 nm; max. output: 180 mW; pulse duration: 5 ns; duty cycle: 1/200.

## Interfaces

<b>Digital output</b>	
Number	1 <sup>1) 2)</sup>
Type	PNP
Maximum output current $I_A$	≤ 100 mA
<b>Analog output</b>	
Number	1
Type	Current output
Current	4 mA ... 20 mA, ≤ 300 $\Omega$
Resolution	16 bit
<b>Multifunctional input (MF)</b>	
	1 x <sup>3) 4)</sup>
<b>Hysteresis</b>	
	10 mm ... 1,000 mm

- 1) Output Q short-circuit protected.
- 2) PNP: HIGH =  $V_S - (< 2.5 V)$  / LOW = 0 V.
- 3) Response time ≤ 15ms.
- 4) PNP: HIGH =  $V_S$  / LOW = ≤ 2.5 V.

## Ambient data

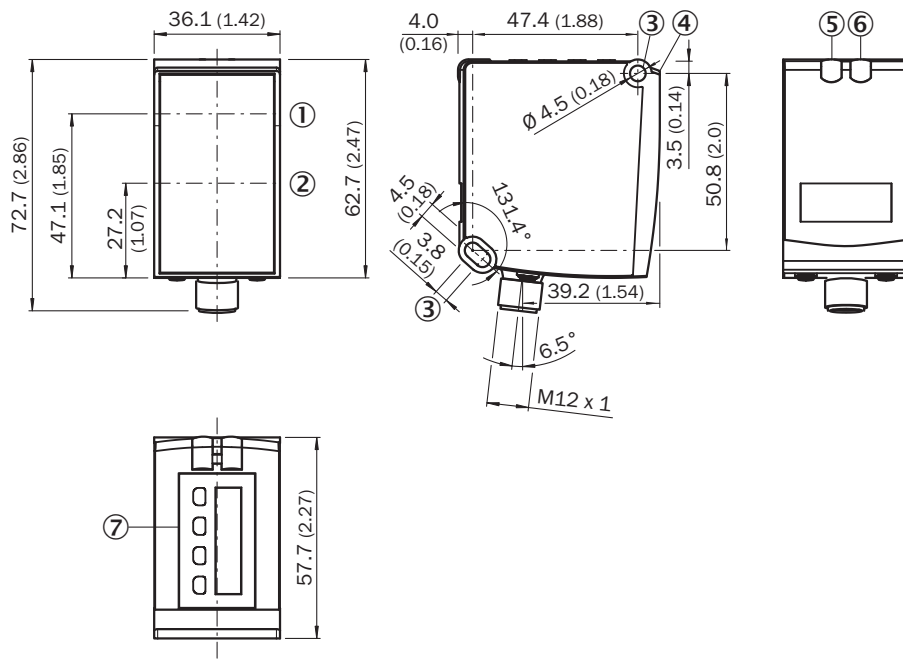
<b>Ambient temperature, operation</b>	-30 °C ... +65 °C -30 °C ... +80 °C, operation with 2 cooling plates -30 °C ... +140 °C, operation with 2 cooling plates and protection filter
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>Max. rel. humidity (not condensing)</b>	≤ 95 %

<b>Typ. Ambient light immunity</b>	40,000 lx
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27

### 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

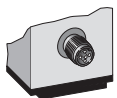
**Dimensional drawing** (Dimensions in mm (inch))



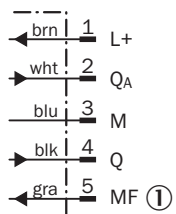
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Fixing hole
- ④ Reference surface = 0 mm
- ⑤ Status indicator digital output Q<sub>1</sub> (orange)
- ⑥ DT50/DT50 Hi/DL50: Status display for supply voltage active (green), DS50/DL50 Hi: Status display of digital output Q<sub>2</sub> (orange)
- ⑦ Control elements and display

**Connection type**

Male connector M12, 5-pin






**Connection diagram**



- ① Multifunctional input (MF)

### Recommended accessories

Other models and accessories → [www.sick.com/Dx50](http://www.sick.com/Dx50)

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket, steel, zinc coated, steel, zinc coated, mounting hardware for the sensor included	BEF-WN-DX50	2048370
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, angled, 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> 2 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YG2A15-020VB5XLEAX	2096215
	<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> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A15-020VB5XLEAX	2096239

## 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)