



# DT50-2B215552

Dx50-2

MID RANGE DISTANCE SENSORS

**SICK**  
 Sensor Intelligence.



### Ordering information

Type	Part no.
DT50-2B215552	1075271

Other models and accessories → [www.sick.com/Dx50-2](http://www.sick.com/Dx50-2)



### Detailed technical data

#### Features

<b>Measuring range</b>	200 mm ... 30,000 mm, 90% remission factor <sup>1) 2)</sup> 200 mm ... 17,000 mm, 18 % remission 200 mm ... 10,000 mm, 6% remission factor
<b>Target</b>	Natural objects
<b>Resolution</b>	0.1 mm
<b>Repeatability</b>	≥ 0.5 mm <sup>2) 3) 4)</sup>
<b>Measurement accuracy</b>	± 7 mm <sup>4)</sup>
<b>Response time</b>	1.67 ms ... 150 ms, 1.67 ms / 6.67 ms / 16.67ms / 50 ms / 150 ms <sup>5) 6)</sup>
<b>Switching frequency</b>	500 Hz / 125 Hz / 50 Hz / 16.6 Hz / 5.5 Hz <sup>5) 6)</sup>
<b>Output time</b>	0.67 ms / 2.67 ms / 6.67 ms / 20 ms / 60 ms <sup>5) 7)</sup>
<b>Light source</b>	Laser, red <sup>8)</sup> visible red light
<b>Type of light</b>	Visible red light
<b>Laser class</b>	1 (IEC 60825-1:2014, EN 60825-1:2014)
<b>Typ. light spot size (distance)</b>	10 mm x 10 mm (at 10 m)
<b>Additional function</b>	Set speed: Super Fast ... Super Slow Teach-in, scaling and inversion of analog output Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output / Q <sub>1</sub> not / deactivated

<sup>1)</sup> For speed setting Slow.

<sup>2)</sup> See repeatability characteristic lines.

<sup>3)</sup> Equivalent to 1  $\sigma$ .

<sup>4)</sup> 6% ... 90% remission factor.

<sup>5)</sup> Depending on the set speed: Super Fast ... Super Slow.

<sup>6)</sup> Lateral entry of the object into the measuring range.

<sup>7)</sup> Continuous change of distance in measuring range.

<sup>8)</sup> Wavelength: 658 nm; max. output: 250 mW; pulse duration: 3 ns; duty cycle: 1/666.

	Switching mode: Distance to Object (DtO) / switching window / object between sensor and background (ObSB) Teach-in, scaling and inversion of digital output Multifunctional input: laser off / external teach / deactivated Reset to factory default Shape comparison: based on the distance measured over a period of time Hold measurement value Switch-off or lock display Easy teach option
<b>Average laser service life (at 25 °C)</b>	100,000 h
<b>Safety-related parameters</b>	
	MTTF <sub>D</sub> 101 years
	DC <sub>avg</sub> 0%

- 1) For speed setting Slow.
- 2) See repeatability characteristic lines.
- 3) Equivalent to 1  $\sigma$ .
- 4) 6% ... 90% remission factor.
- 5) Depending on the set speed: Super Fast ... Super Slow.
- 6) Lateral entry of the object into the measuring range.
- 7) Continuous change of distance in measuring range.
- 8) Wavelength: 658 nm; max. output: 250 mW; pulse duration: 3 ns; duty cycle: 1/666.

## Interfaces

<b>IO-Link</b>	✓, IO-Link V1.1, COM3 (230,4 kBaud)
	Function Process data, parameterization, diagnosis, data storage
<b>Digital output</b>	
	Number 1 ... 2 <sup>1) 2) 3)</sup>
	Type Push-pull: PNP/NPN
	Function Complementary digital outputs (Q, $\bar{Q}$ ) Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output / Q <sub>1</sub> not / deactivated
	Maximum output current I <sub>A</sub> ≤ 100 mA
<b>Analog output</b>	
	Number 1
	Type Current output / voltage output
	Function Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output / Q <sub>1</sub> not / deactivated
	Current 4 mA ... 20 mA, ≤ 450 $\Omega$
	Voltage 0 V ... 10 V, ≥ 50,000 $\Omega$
	Resolution 16 bit
<b>Multifunctional input (MF)</b>	1 x <sup>4)</sup>
<b>Hysteresis</b>	0 mm ... 29,950 mm

- 1) Output Q short-circuit protected.
- 2) Voltage drop < 3 V.
- 3) Max. total output current < 200 mA.
- 4) Response time ≤ 60 ms.

## Electronics

<b>Supply voltage <math>U_B</math></b>	DC 10 V ... 30 V <sup>1) 2)</sup>
<b>Power consumption</b>	$\leq 1.7 \text{ W}$ <sup>3)</sup>
<b>Ripple</b>	$\leq 5 \text{ V}_{pp}$ <sup>4)</sup>
<b>Initialization time</b>	$\leq 300 \text{ ms}$
<b>Warm-up time</b>	$\leq 15 \text{ min}$
<b>Indication</b>	3 x LED, LC display
<b>Enclosure rating</b>	IP65 IP67
<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> When using IO-Link output  $V_S > 18 \text{ V}$ . When using analog output  $V_S > 13 \text{ V}$ .

<sup>3)</sup> Without load, at  $\geq 0 \text{ }^\circ\text{C}$ .

<sup>4)</sup> May not fall short of or exceed  $V_S$  tolerances.

## Mechanics

<b>Dimensions (W x H x D)</b>	36.2 mm x 63 mm x 58.6 mm
<b>Housing material</b>	Metal (zinc diecast)
<b>Window material</b>	Plastic (PMMA)
<b>Weight</b>	235 g
<b>Connection type</b>	Male connector, M12, 5-pin

## Ambient data

<b>Ambient temperature, operation</b>	-40 °C ... +65 °C, $U_V \leq 24 \text{ V}$ -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>	$\leq 95 \%$
<b>Typ. Ambient light immunity</b>	40,000 lx
<b>Vibration resistance</b>	(IEC 60068-2-6:2007) Sinusoidal resonance measurement: 10 Hz ... 1,000 Hz (IEC 60068-2-64:2008) Noise test: 20 Hz ... 500 Hz, 10 g RMS, 2 h / axis
<b>Shock resistance</b>	(IEC 60068-2-27:2008) 30 g, 11 ms, 6 axes, $\pm 3$ single shocks / axis (IEC 60068-2-27:2008) 10 g, 6 ms, 6 axes, $\pm 500$ shocks / axis (IEC 60068-2-27:2008) 70 g, 6 ms, 1 axis, $\pm 100,000$ shocks / axis
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2, EN 61000-6-4 <sup>1)</sup>

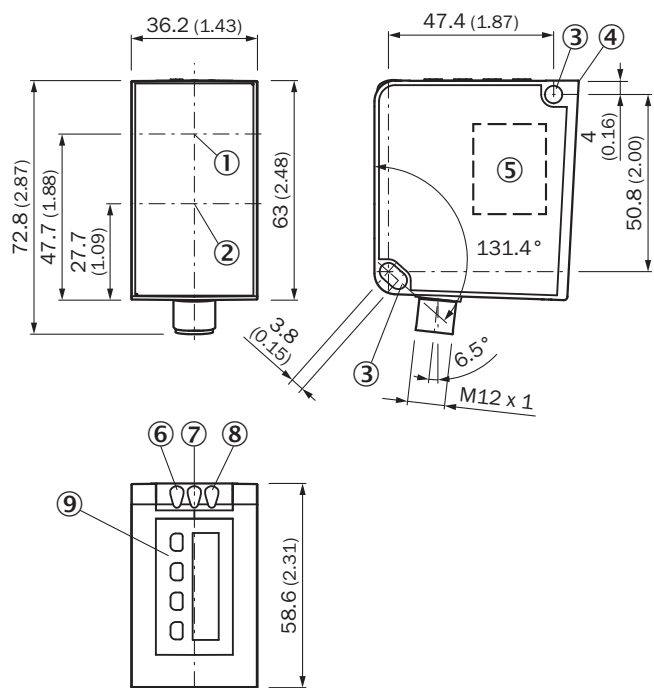
<sup>1)</sup> This is a Class A device. This device can cause radio interference in living quarters.

## 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

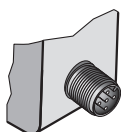
<b>ECLASS 10.0</b>	27270801
<b>ECLASS 11.0</b>	27270801
<b>ECLASS 12.0</b>	27270916
<b>ETIM 5.0</b>	EC001825
<b>ETIM 6.0</b>	EC001825
<b>ETIM 7.0</b>	EC001825
<b>ETIM 8.0</b>	EC001825
<b>UNSPSC 16.0901</b>	41111613

Dimensional drawing (Dimensions in mm (inch))

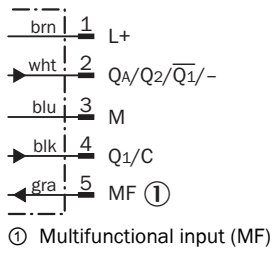


- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole, Ø 4.5 mm
- ④ Reference surface = 0 mm
- ⑤ Laser warning label
- ⑥ Status indicator output Qa/Q2
- ⑦ Status LEDs output Q<sub>1</sub>
- ⑧ Supply voltage status display
- ⑨ Control elements and display

Connection type



Connection diagram

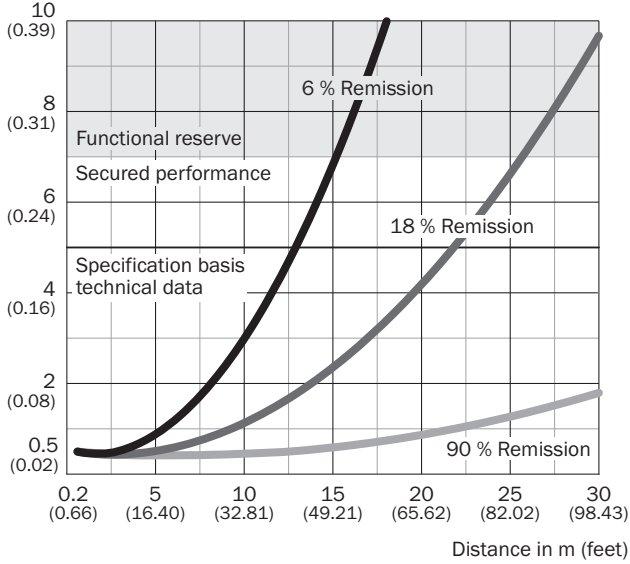


Repeatability

Characteristic curve 1) Super Slow

**Super Slow**

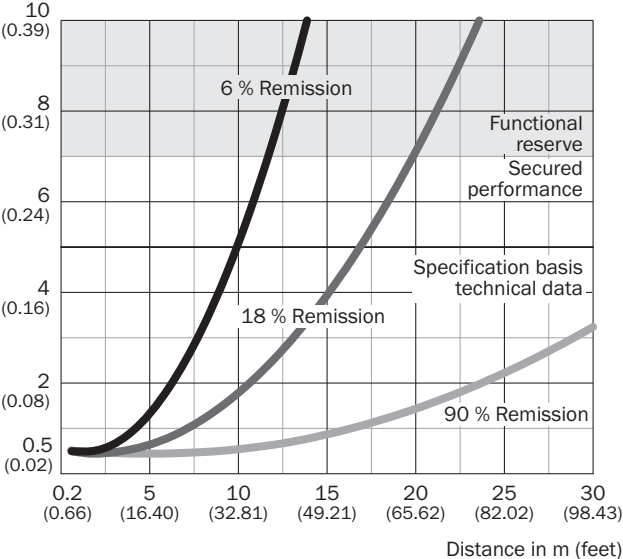
Typ. repeatability in mm (inch)



Characteristic curve 2) Slow

**Slow**

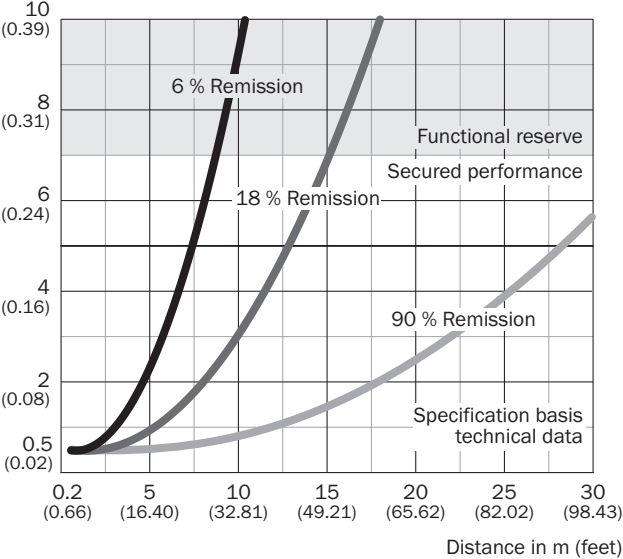
Typ. repeatability in mm (inch)



Characteristic curve 3) Medium

**Medium**

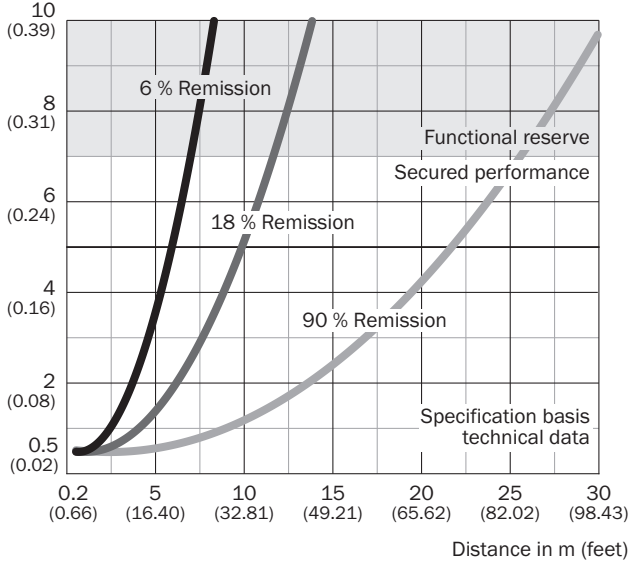
Typ. repeatability in mm (inch)



Characteristic curve 4) Fast

**Fast**

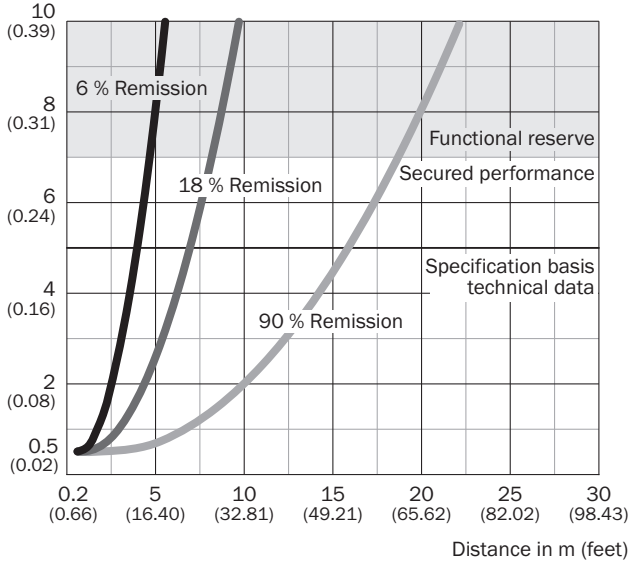
Typ. repeatability in mm (inch)



Characteristic curve 5) Super Fast

**Super Fast**






Typ. repeatability in mm (inch)





## Recommended accessories

Other models and accessories → [www.sick.com/Dx50-2](http://www.sick.com/Dx50-2)

	Brief description	Type	Part no.
Mounting brackets and plates			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, steel, zinc coated</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware for the sensor included</li> </ul>	BEF-WN-DX50	2048370
Terminal and alignment brackets			
	<ul style="list-style-type: none"> <li><b>Description:</b> Alignment unit</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware for the sensor included</li> </ul>	BEF-AH-DX50	2048397
Others			
	<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, Uncontaminated zones</li> </ul>	YF2A15-020VB5XLEAX	2096239
	<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> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-020UB5M2A15	2096009
	<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, Uncontaminated zones</li> </ul>	YG2A15-020VB5XLEAX	2096215

## 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)