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Product data sheet




# DT50-2B215552

## Dx50-2

**MID RANGE DISTANCE SENSORS**

SICK
Sensor Intelligence.

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# DT50-2B215552 | Dx50-2

MID RANGE DISTANCE SENSORS



## Ordering information

| Type | Part no. |
|---|---|
| DT50-2B215552 | 1075271 |

Other models and accessories → www.sick.com/Dx50-2

## Detailed technical data

### Mechanics/electronics

| | |
|---|---|
| **Supply voltage $V_s$** | DC 10 V ... 30 V [1) 2)] |
| **Ripple** | ≤ 5 $V_{pp}$ [3)] |
| **Power consumption** | ≤ 1.7 W [4)] |
| **Initialization time** | ≤ 300 ms |
| **Warm-up time** | ≤ 15 min |
| **Housing material** | Metal (zinc diecast) |
| **Window material** | Plastic (PMMA) |
| **Connection type** | Male connector, M12, 5-pin |
| **Indication** | 3 x LED, LC display |
| **Weight** | 235 g |
| **Dimensions (W x H x D)** | 36.2 mm x 63 mm x 58.6 mm |
| **Enclosure rating** | IP65<br>IP67 |
| **Protection class** | III |

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

2) When using IO-Link output $V_S$ > 18 V. When using analog output $V_S$ > 13 V.

3) May not fall short of or exceed $V_S$ tolerances.

4) Without load, at ≥ 0 °C.

### Safety-related parameters

| | |
|---|---|
| **$MTTF_D$** | 101 years |

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## Performance

| | |
|---|---|
| **Measurement range min ... max:** | 200 mm ... 30,000 mm, 90% remission factor [1) 2)]<br>200 mm ... 17,000 mm, 18 % remission<br>200 mm ... 10,000 mm, 6% remission factor |
| **Target** | Natural objects |
| **Resolution** | 0.1 mm |
| **Repeatability** | ≥ 0.5 mm [2) 3) 4)] |
| **Accuracy** | ± 7 mm [4)] |
| **Response time** | 1.67 ms ... 150 ms, 1.67 ms / 6.67 ms / 16.67ms / 50 ms / 150 ms [5) 6)] |
| **Switching frequency** | 500 Hz / 125 Hz / 50 Hz / 16.6 Hz / 5.5 Hz [5) 6)] |
| **Output time** | 0.67 ms / 2.67 ms / 6.67 ms / 20 ms / 60 ms [5) 7)] |
| **Light source** | Laser, red [8)]<br>visible red light |
| **Laser class** | 1 (IEC 60825-1:2014, EN 60825-1:2014) |
| **Typ. light spot size (distance)** | 10 mm x 10 mm (at 10 m) |
| **Additional function** | Set speed: Super Fast ... Super Slow, teach-in, scaling and inversion of analog output, Output $Q_2$ adaptable: Current output / Voltage output / Digital output / $Q_1$ not / deactivated, 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 |
| **Average laser service life (at 25 °C)** | 100,000 h |

1) For speed setting Slow.
2) See repeatability characteristic lines.
3) Equivalent to 1 σ.
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

| | |
|---|---|
| **IO-Link** | ✓, IO-Link V1.1, COM3 (230,4 kBaud) |
| Function | Process data, parameterization, diagnosis, data storage |
| **Digital output** | |
| Number | 1 ... 2 [1) 2) 3)] |
| Type | Push-pull: PNP/NPN |
| Function | Complementary digital outputs (Q, $\bar{Q}$)<br>Output $Q_2$ adaptable: Current output / Voltage output / Digital output / $Q_1$ not / deactivated |
| Maximum output current $I_A$ | ≤ 100 mA |
| **Analog output** | |
| Number | 1 |
| Type | Current output / voltage output |

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

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| | |
|---|---|
| Function | Output $Q_2$ adaptable: Current output / Voltage output / Digital output / $Q_1$ not / deactivated |
| Current | 4 mA ... 20 mA, ≤ 450 Ω |
| Voltage | 0 V ... 10 V, ≥ 50,000 Ω |
| Resolution | 16 bit |
| **Multifunctional input (MF)** | 1 x [4] |
| **Hysteresis** | 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.

## Ambient data

| | |
|---|---|
| **Ambient temperature, operation** | –40 °C ... +65 °C, $U_V$ ≤ 24 V<br>–30 °C ... +80 °C, operation with 2 cooling plates<br>–30 °C ... +140 °C, operation with 2 cooling plates and protection filter |
| **Ambient temperature, storage** | –40 °C ... +75 °C |
| **Max. rel. humidity (not condensing)** | ≤ 95 % |
| **Typ. Ambient light immunity** | 40,000 lx |
| **Vibration resistance** | (IEC 60068-2-6:2007) Sinusoidal resonance measurement: 10 Hz ... 1,000 Hz<br>(IEC 60068-2-64:2008) Noise test: 20 Hz ... 500 Hz, 10 g RMS, 2 h / axis |
| **Shock resistance** | (IEC 60068-2-27:2008) 30 g, 11 ms, 6 axes, ± 3 single shocks / axis<br>(IEC 60068-2-27:2008) 10 g, 6 ms, 6 axes, ± 500 shocks / axis<br>(IEC 60068-2-27:2008) 70 g, 6 ms, 1 axis, ± 100,000 shocks / axis |

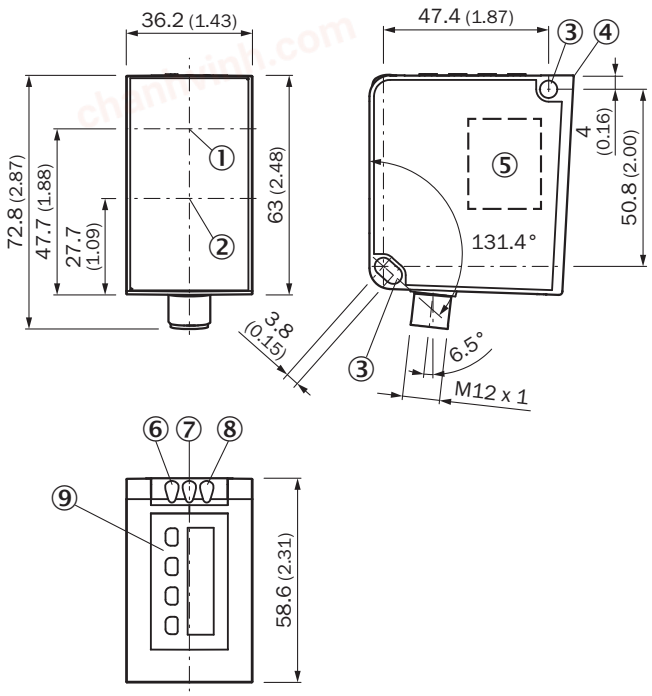
## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270801 |
| **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 |

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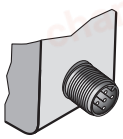


## Dimensional drawing (Dimensions in mm (inch))

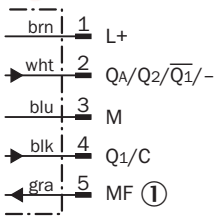



① Optical axis, sender
② Optical axis, receiver
③ Mounting hole, Ø 4.5 mm
④ Reference surface = 0 mm
⑤ Laser warning label
⑥ Status indicator output Qa/Q2
⑦ Status LEDs output $Q_1$
⑧ Supply voltage status display
⑨ Control elements and display

## Connection type



## Connection diagram




① Multifunctional input (MF)

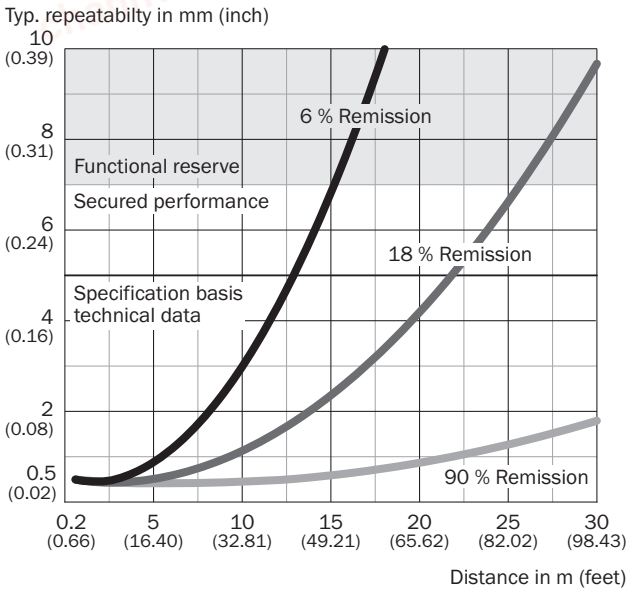
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## Repeatability

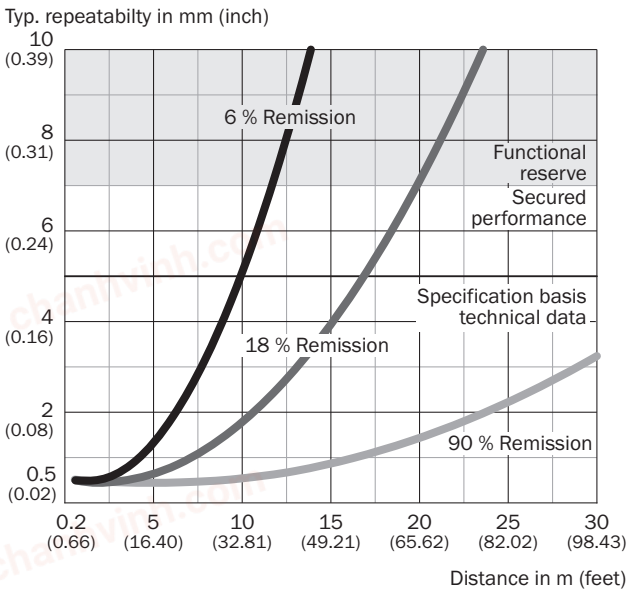
Characteristic curve 1) Super Slow

**Super Slow**




Characteristic curve 2) Slow

**Slow**

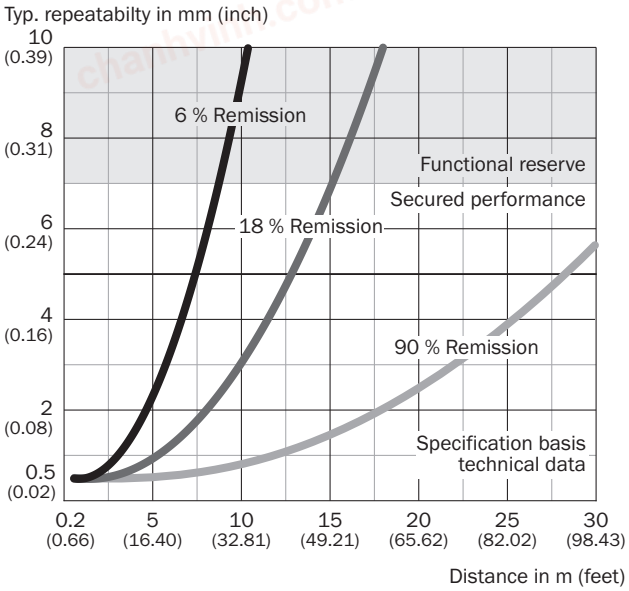


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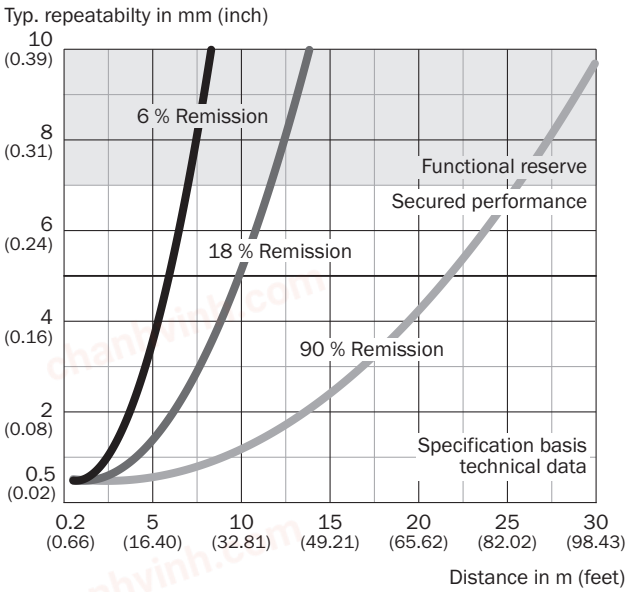
Characteristic curve 3) Medium

**Medium**



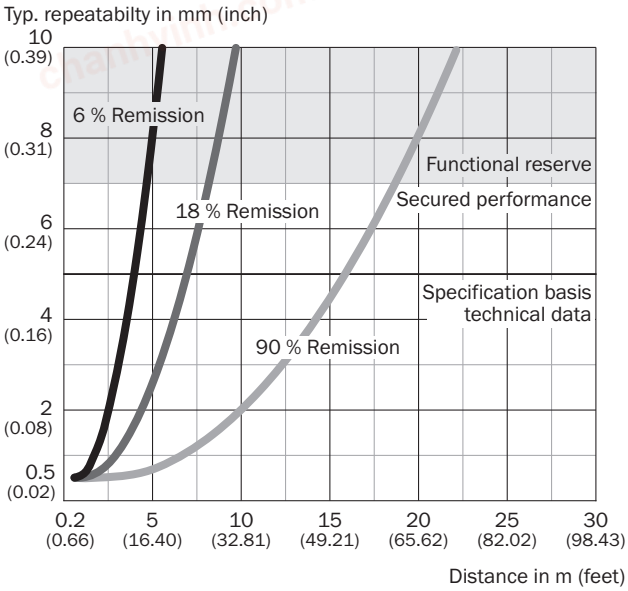

Characteristic curve 4) Fast

**Fast**



Characteristic curve 5) Super Fast

**Super Fast**




## Recommended accessories

Other models and accessories ➜ www.sick.com/Dx50-2

| | 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 |
| Plug connectors and cables | | | |
|  | • **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 5-wire, PVC<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with chemicals | YF2A15-020VB5XLEAX | 2096239 |
|  | • **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 5-wire, PVC<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with chemicals | YG2A15-020VB5XLEAX | 2096215 |
|  | • **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded<br>• **Connection type head B:** Male connector, M12, 5-pin, straight, A-coded<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 5-wire, PUR, halogen-free<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with oils and lubricants, Drag chain operation, Robot | YF2A15-020UB5M2A15 | 2096009 |

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| | Brief description | Type | Part no. |
|---|---|---|---|
| Terminal and alignment brackets | | | |
|  | Alignment unit, steel, zinc coated, mounting hardware for the sensor included | BEF-AH-DX50 | 2048397 |

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# 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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