Product data sheet

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

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 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

Performance

Measurement range min ... max:	200 mm ... 30,000 mm, 90% remission factor [1) 2)] 200 mm ... 17,000 mm, 18 % remission 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)] 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, $\bar{Q}$) 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.

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.

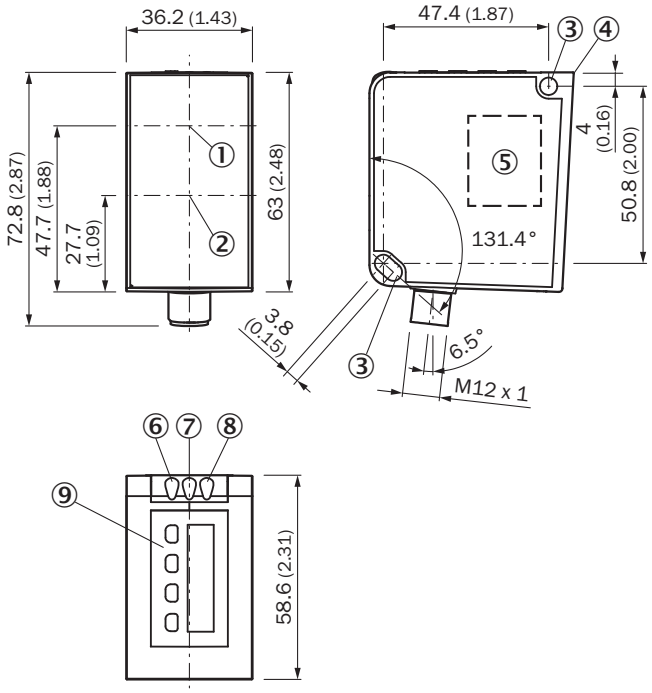
Ambient data

Ambient temperature, operation	–40 °C ... +65 °C, U_V ≤ 24 V –30 °C ... +80 °C, operation with 2 cooling plates –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 (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 (IEC 60068-2-27:2008) 10 g, 6 ms, 6 axes, ± 500 shocks / axis (IEC 60068-2-27:2008) 70 g, 6 ms, 1 axis, ± 100,000 shocks / axis

Classifications

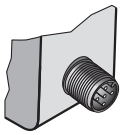
ECLASS 5.0	27270801
ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC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

Dimensional drawing (Dimensions in mm (inch))

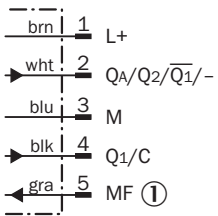


① Optical axis, sender
② Optical axis, receiver
③ Mounting hole, Ø 4.5 mm
④ Reference surface = 0 mm
⑤ Laser warning label
⑥ Status indicator output Qa/Q2
⑦ Status LEDs output Q_1
⑧ Supply voltage status display
⑨ Control elements and display

Connection type



Connection diagram

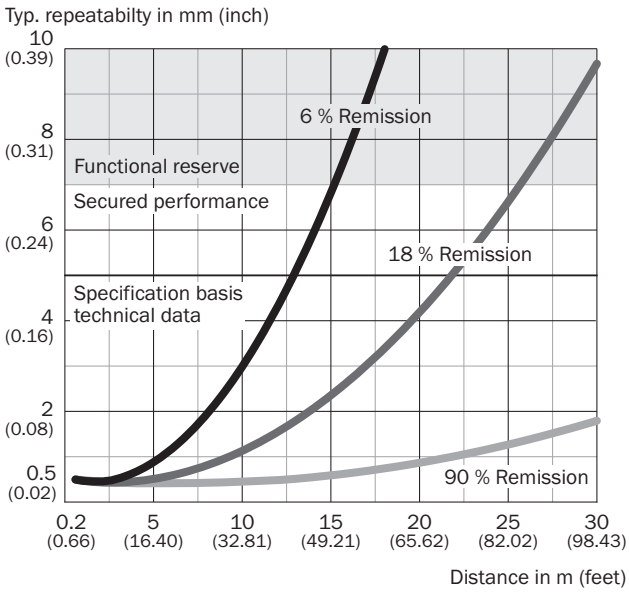


① Multifunctional input (MF)

Repeatability

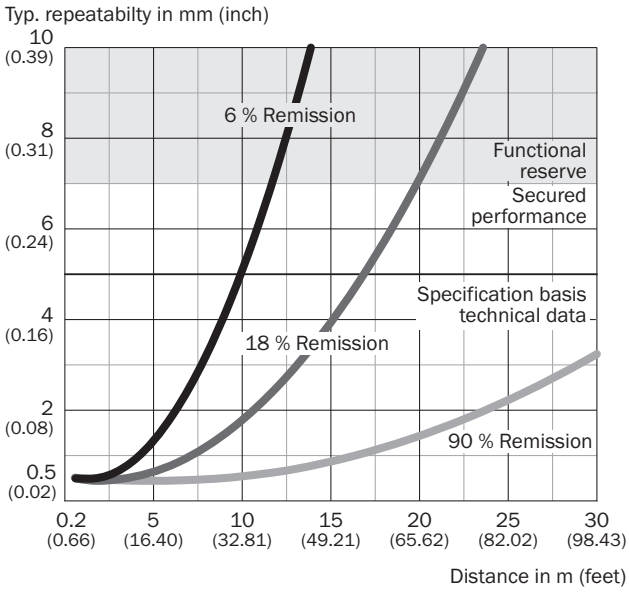
Characteristic curve 1) Super Slow

Super Slow



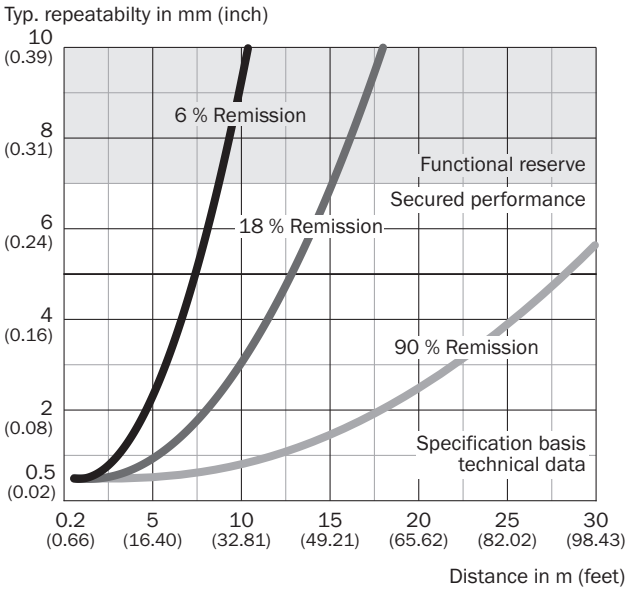
Characteristic curve 2) Slow

Slow



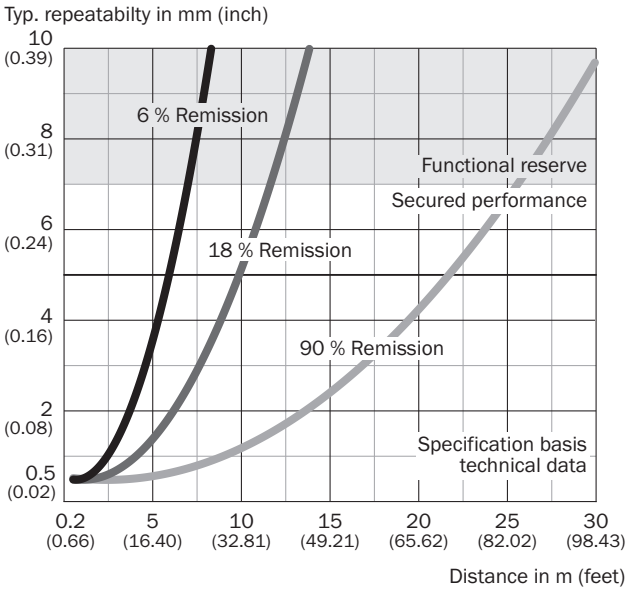
Characteristic curve 3) Medium

Medium



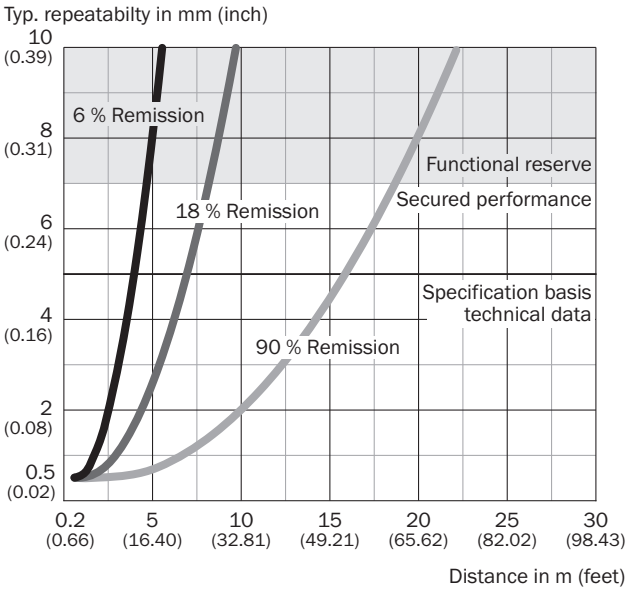
Characteristic curve 4) Fast

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

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

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:

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