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DATA SHEET

DL50-P2225

Dx50
Time-of-flight sensors

SICK Sensor Intelligence



TIME-OF-FLIGHT SENSORS

DL50-P2225

ORDERING INFORMATION

Type	part no.
DL50-P2225	1048418

Further device versions and accessories at www.sick.com/Dx50

DETAILED TECHNICAL DATA

FEATURES

Measuring range	200 mm ... 50,000 mm, on “diamond grade” reflective tape [1]
Target	Reflector
Resolution	100 µm
Repeatability	≥ 0.25 mm [2] [3] [4]
Measurement accuracy	± 3 mm [5]
Response time	10 ms ... 160 ms, 10 ms / 40 ms / 160 ms [3] [6]
Output time	2.5 ms [7] [8]
Emitted beam	
Light source	Laser, red
Type of light	Visible red light
Typ. light spot size (distance)	15 mm x 15 mm (10 m)
Key laser figures	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	1 [9] [10]
Average laser service life (at 25 °C)	100,000 h

[1] On “diamond grade” reflective tape.

[2] Equivalent to 1 σ.

[3] Dependent on the averaging setting: fast/medium/slow.

[4] Typical value.

[5] 200 mm ... 4,000 mm: ≤ ± 5 mm.

[6] Lateral entry of the object into the measuring range.

[7] For baud rate 115,200 bps.

[8] Continuous change of distance in measuring range.

[9] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

[10] Wavelength: 658 nm; max. output: 80 mW; pulse duration: 2.5 ns; duty cycle: 1/240.

Additional function	Set moving average fast/medium/slow Switching mode: distance to object (DtO) Teach-in, scaling and inversion of digital output Set hysteresis Multifunctional input and output: Laser off, external teach, digital output 2, deactivated Adjustable resolution of the SSI distance output: 0.0625 mm / 0.1 mm / 0.125 mm / 1 mm Unique measurement value Crosstalk safety Switch-off display Reset to factory default Lock user interface
Safety-related parameters	
$MTTF_D$	101 years
DC_{avg}	0%

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INTERFACES

Serial	✓ , RS-422
Digital output	
Number	1 ... 2 [1) 2)]
Type	PNP
Function	Dependent on the set function MF: digital output 2 / laser off, external teach
Maximum output current I_A	≤ 100 mA
Multifunctional input (MF)	– / 1 x [3) 4) 5)]
Hysteresis	1 mm ... 1,000 mm

[1] Output Q short-circuit protected.

[2] PNP: HIGH = V_S - (< 2.5 V) / LOW = 0 V.

[3] Dependent on the set function MF: digital output 2 / laser off, external teach.

[4] Response time ≤ 60 ms.

[5] PNP: HIGH = V_S / LOW = ≤ 2.5 V.

ELECTRONICS

Supply voltage U_B	DC 10 V ... 30 V [1)]
Power consumption	≤ 2.1 W [2)]
Ripple	≤ 5 V_{pp} [3)]
Initialization time	≤ 250 ms
Warm-up time	≤ 15 min
Display	LC display, 2 x LED

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

[2] Without load.

[3] May not fall short of or exceed V_S tolerances.

Enclosure rating	IP65
Protection class	III
Connection type	Male connector, M12, 8-pin

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

[2] Without load.

[3] May not fall short of or exceed V_S tolerances.

MECHANICS

Dimensions (W x H x D)	36.1 mm x 62.7 mm x 57.7 mm
Housing material	Metal (zinc diecast)
Window material	Plastic (PMMA)
Weight	200 g

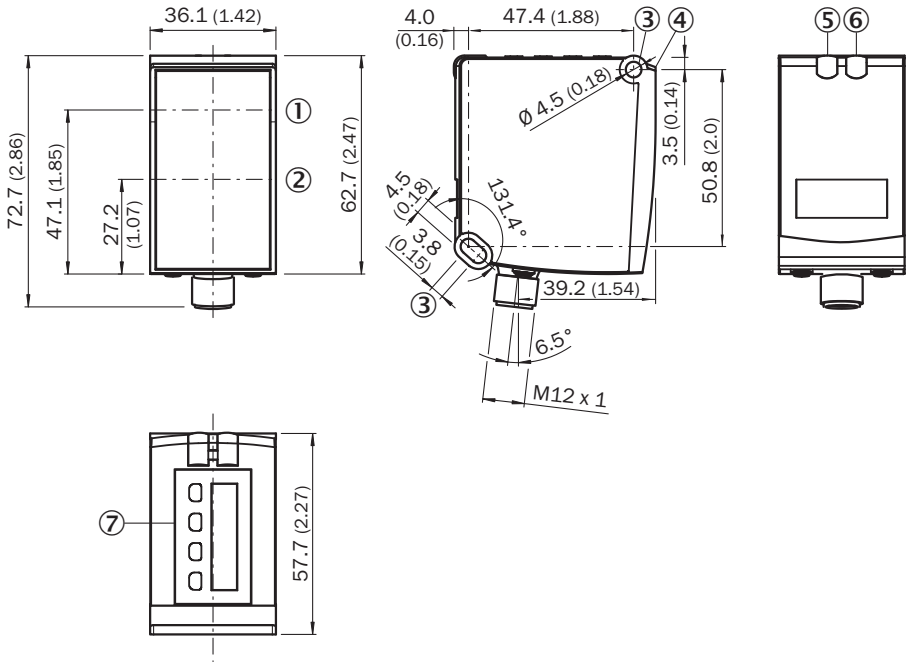
AMBIENT DATA

Ambient temperature, operation	–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
Ambient temperature, storage	–40 °C ... +75 °C
Max. rel. humidity (not condensing)	≤ 95 %
Typ. Ambient light immunity	40,000 lx
Vibration resistance	EN 60068-2-6, EN 60068-2-64
Shock resistance	EN 60068-2-27

CERTIFICATES

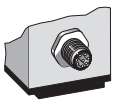
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓

DIMENSIONAL DRAWING

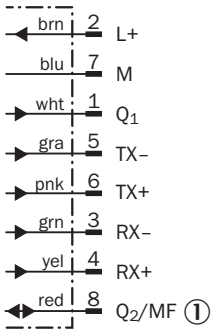


Dimensions in mm (inch)
① optical axis, sender
② optical axis, receiver
③ fixing hole
④ Reference surface = 0 mm
⑤ Status indicator digital output Q_1 (orange)
⑥ DT50 / DT50 Hi/DL50: Status display for supply voltage active (green), DS50 / DL50 Hi: Status display of digital output Q_2 (orange)
⑦ Control elements and display

CONNECTION TYPE MALE CONNECTOR M12, 8-PIN



CONNECTION DIAGRAM



① Multifunctional in- and output

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1048418

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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