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DATA SHEET

DT50-N2113

Dx50
Time-of-flight sensors

SICK Sensor Intelligence



TIME-OF-FLIGHT SENSORS

DT50-N2113

ORDERING INFORMATION

Type	part no.
DT50-N2113	1047398

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

DETAILED TECHNICAL DATA

FEATURES

Measuring range	200 mm ... 20,000 mm, 90% remission factor 200 mm ... 8,500 mm, 18% reflection factor 200 mm ... 5,000 mm, 6% remission factor
Target	Natural objects
Resolution	1,000 µm
Repeatability	≥ 1 mm [1) 2) 3)]
Measurement accuracy	± 7 mm [4)]
Response time	15 ms ... 80 ms, 15 ms / 30 ms / 80 ms [3) 5)]
Output time	≥ 2 ms [6)]
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	2 [7) 8)]
Average laser service life (at 25 °C)	100,000 h
Additional function	Set moving average fast/medium/slow Switching mode: distance to object (DtO)

1) Equivalent to 1 σ.

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

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

	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
Safety-related parameters	
$MTTF_D$	101 years
DC_{avg}	0%

[1] Equivalent to 1 σ.

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

[8] Wavelength: 658 nm; max. output: 180 mW; pulse duration: 5 ns; duty cycle: 1/200.

INTERFACES

Digital output	
Number	1 [1) 2)]
Type	NPN
Maximum output current I_A	≤ 100 mA
Analog output	
Number	1
Type	Current output
Current	4 mA ... 20 mA, ≤ 300 Ω
Resolution	16 bit
Multifunctional input (MF)	1 x [3) 4)]
Hysteresis	10 mm ... 1,000 mm

[1] Output Q short-circuit protected.

[2] NPN: HIGH = < 2.5 V / LOW = V_S.

[3] Response time ≤ 15ms.

[4] NPN: HIGH = ≤ 2.5 V / LOW = V_S.

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
Enclosure rating	IP65
Protection class	III
Connection type	Male connector, M12, 5-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

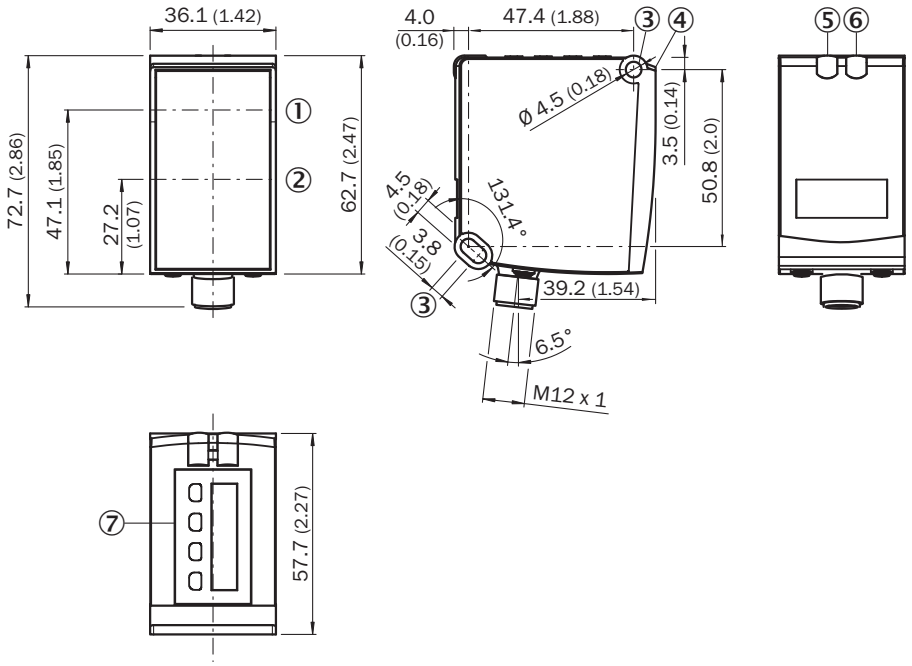
AMBIENT DATA

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

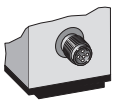
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓

DIMENSIONAL DRAWING

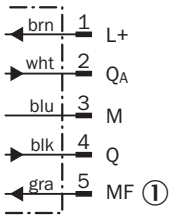


Dimensions in mm (inch)
① optical axis, sender
② optical axis, receiver
③ fixing hole
④ Reference surface = 0 mm
⑤ Status indicator digital output Q_1 (orange)
⑥ DT50 / DT50 Hi/DL50: Status display for supply voltage active (green), DS50 / DL50 Hi: Status display of digital output Q_2 (orange)
⑦ Control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

CONNECTION TYPE PLUG, M12, 5-PIN



CONNECTION DIAGRAM



① Multifunctional input (MF)

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/1047398

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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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