



DATA SHEET

DT50-P1113

Dx50
Time-of-flight sensors



TIME-OF-FLIGHT SENSORS

DT50-P1113

ORDERING INFORMATION

Type	part no.
DT50-P1113	1044369

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



DETAILED TECHNICAL DATA

FEATURES

Measuring range	200 mm ... 10,000 mm, 90% remission factor 200 mm ... 6,500 mm, 18% remission factor 200 mm ... 4,000 mm, 6% remission factor
Target	Natural objects
Resolution	1,000 µm
Repeatability	≥ 2.5 mm ^{1) 2) 3)}
Measurement accuracy	± 10 mm ⁴⁾
Response time	20 ms ... 30 ms, 20 ms / 30 ms ^{3) 5)}
Output time	≥ 4 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/slow Switching mode: distance to object (DtO)

¹⁾ Equivalent to 1 σ.
²⁾ 6% ... 90% remission factor.
³⁾ Dependent on the averaging setting: fast/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 DC _{avg}	101 years 0%

¹⁾ Equivalent to 1 σ .

²⁾ 6% ... 90% remission factor.

³⁾ Dependent on the averaging setting: fast/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 Type Maximum output current I _A	1 ^{1) 2)} PNP $\leq 100 \text{ mA}$
Analog output	Number Type Current Resolution	1 Current output 4 mA ... 20 mA, $\leq 300 \Omega$ 16 bit
Multifunctional input (MF)		1 x ^{3) 4)}
Hysteresis		10 mm ... 1,000 mm

¹⁾ Output Q short-circuit protected.

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

³⁾ Response time $\leq 15 \text{ ms}$.

⁴⁾ PNP: HIGH = V_S / LOW = $\leq 2.5 \text{ V}$.

ELECTRONICS

Supply voltage U _B	DC 10 V ... 30 V ^{1) 2)}
Power consumption	$\leq 2.1 \text{ W}$ ³⁾
Ripple	$\leq 5 \text{ V}_{pp}$ ⁴⁾
Initialization time	$\leq 250 \text{ ms}$
Warm-up time	$\leq 15 \text{ min}$
Display	LC display, 2 x LED
Enclosure rating	IP65
Protection class	III
Connection type	

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

²⁾ For DT50-xxx4: V_S > 15 V.

³⁾ Without load.

⁴⁾ May not fall short of or exceed V_S tolerances.

	Male connector, M12, 5-pin
--	----------------------------

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

²⁾ For DT50-xxxx4: $V_s > 15\text{ V}$.

³⁾ Without load.

⁴⁾ 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

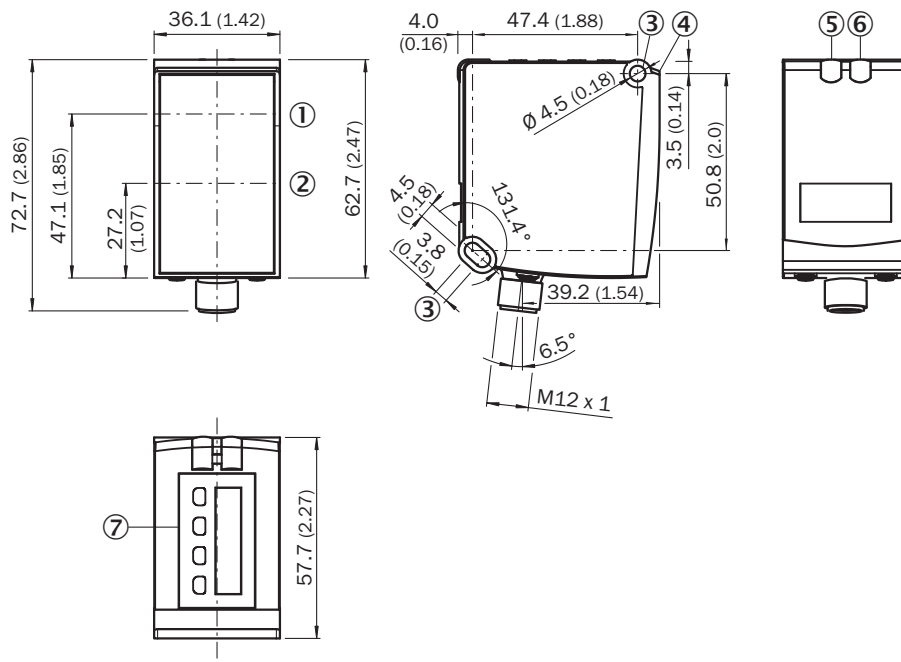
AMBIENT DATA

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	✓
Optical radiation safety (GB 44703:2024) declaration of manufacturer (low risk)	✓

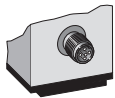
DIMENSIONAL DRAWING



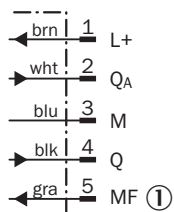
Dimensions in mm (inch)

- ① optical axis, sender
- ② optical axis, receiver
- ③ fixing hole
- ④ Reference surface = 0 mm
- ⑤ Status indicator digital output Q₁ (orange)
- ⑥ DT50 / DT50 Hi/DL50: Status display for supply voltage active (green), DS50 / DL50 Hi: Status display of digital output Q₂ (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/1044369



SICK AG
WALDKIRCH
GERMANY
SICK.COM

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

SICK
Sensor Intelligence