



DS50-P1122

Dx50

TIME-OF-FLIGHT SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | part no. |
|------------|----------|
| DS50-P1122 | 1047405 |

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



Detailed technical data

Features

| | |
|---------------------------------------|--|
| Measuring range | 200 mm ... 10,000 mm, 90% remission factor 200 mm ... 6,000 mm, 18% reflection factor 200 mm ... 4,000 mm, 6% remission factor |
| Target | Natural objects |
| Resolution | 1,000 µm ... 1 mm ¹⁾ |
| Repeatability | ≥ 2.5 mm ^{2) 3) 4)} |
| Measurement accuracy | ± 10 mm ^{1) 5)} |
| Response time | 20 ms ... 100 ms, 20 ms / 100 ms ⁴⁾ |
| Switching frequency | 25 Hz / 5 Hz ⁴⁾ |
| 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 ⁶⁾ |
| | 7) |
| Average laser service life (at 25 °C) | 100,000 h |
| Additional function | Set moving average: fast/slow |

¹⁾ Related to distance value on the display.

²⁾ Equivalent to 1 σ.

³⁾ 6% ... 90% remission factor.

⁴⁾ Dependent on the averaging setting: fast/slow.

⁵⁾ 90% remission factor.

⁶⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

⁷⁾ Wavelength: 658 nm; max. output: 120 mW; pulse duration: 2.5 ns; duty cycle: 1/400.

| | | |
|----------------------------------|-------------------|---|
| | | Adjustable operating modes: Switching point (Dt0) / Switching window/Background (ObSB) Teach-in, scaling and inversion of digital output Set hysteresis Multifunctional input: laser off / external teach / deactivated 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% |

- 1) Related to distance value on the display.
2) Equivalent to 1 σ .
3) 6% ... 90% remission factor.
4) Dependent on the averaging setting: fast/slow.
5) 90% remission factor.
6) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.
7) Wavelength: 658 nm; max. output: 120 mW; pulse duration: 2.5 ns; duty cycle: 1/400.

Interfaces

| | | |
|-----------------------------------|---------------------------------------|----------------------|
| Digital output | | |
| | Number | 2 ^{1) 2)} |
| | Type | PNP |
| | Maximum output current I _A | ≤ 100 mA |
| Multifunctional input (MF) | | 1 x ^{3) 4)} |
| Hysteresis | | 1 mm ... 9,999 mm |

- 1) Output Q short-circuit protected.
2) PNP: HIGH = V_S - (< 2.5 V) / LOW = 0 V.
3) Response time ≤ 60 ms.
4) PNP: HIGH = V_S / LOW = ≤ 2.5 V.

Electronics

| | |
|-------------------------------------|-----------------------------------|
| Supply voltage U_B | DC 10 V ... 30 V ¹⁾ |
| Power consumption | ≤ 1.85 W ²⁾ |
| Ripple | ≤ 5 V _{pp} ³⁾ |
| Initialization time | ≤ 350 ms |
| Warm-up time | ≤ 15 min |
| Display | LC display, 2 x LED |
| Enclosure rating | IP65 |
| Protection class | III |
| Connection type | Male connector |

- 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 |

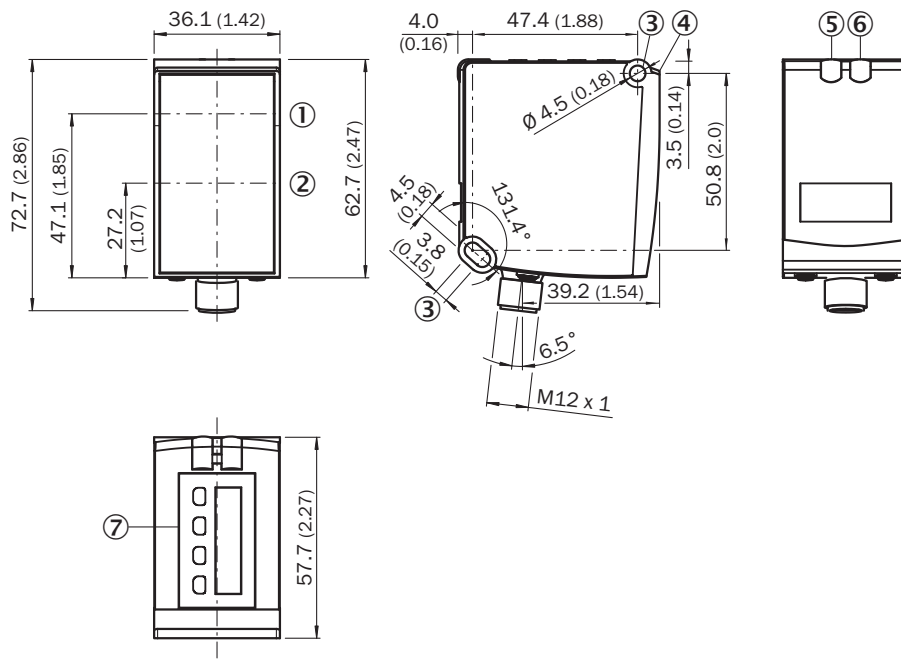
Classifications

| | |
|-----------------------|----------|
| 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 |

Certificates

| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |
| cULus certificate | ✓ |

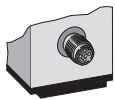
Dimensional drawing



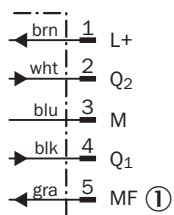
Dimensions in mm (inch)

- 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



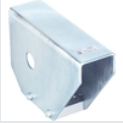



Connection diagram



① Multifunctional input (MF)

Recommended accessories

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

| | Brief description | Type | part no. |
|--|---|---------------------------------|----------|
| device protection and care | | | |
|  | <ul style="list-style-type: none"> Description: Weather protection hood for Dx35 / Dx50 / Dx50-2 / Dx80 | OBW-KHS-M02 | 2050205 |
|  | <ul style="list-style-type: none"> Description: Cooling plate for Dx50/Dx50-2/DT20 (for water cooling) Usable for: DT20 Hi, Dx50, Dx50-2 | BEF-KP-Dx50/DT20 | 2055755 |
|  | <ul style="list-style-type: none"> Description: Thermal shield for Dx50 with NIR filter, for use with 2x cold plate BEF-KP-Dx50/DT20 | Heat protection filter for Dx50 | 2057137 |
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Mounting bracket, steel, zinc coated Material: Steel Details: Steel, zinc coated Items supplied: Mounting hardware for the sensor included Suitable for: Dx50, Dx80, Dx50, Dx80 | BEF-WN-DX50 | 2048370 |

| | Brief description | Type | part no. |
|---|--|--------------------|----------|
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> 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: Uncontaminated zones, Zones with chemicals | YG2A15-020VB5XLEAX | 2096215 |
|  | <ul style="list-style-type: none"> 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, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation | YF2A15-020UB5XLEAX | 2095617 |
|  | <ul style="list-style-type: none"> 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: Uncontaminated zones, Zones with chemicals | YF2A15-020VB5XLEAX | 2096239 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 0.6 m, 5-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals | YG2A15-C60VB5XLEAX | 2145573 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 1 m, 5-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals | YG2A15-010VB5XLEAX | 2145574 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 3 m, 5-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals | YG2A15-030VB5XLEAX | 2145575 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 0.6 m, 5-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals | YF2A15-C60VB5XLEAX | 2145570 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 3 m, 5-wire, PVC Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with chemicals | YF2A15-030VB5XLEAX | 2145572 |

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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