



DT50-N1123

Dx50

TIME-OF-FLIGHT SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | part no. |
|------------|----------|
| DT50-N1123 | 1047397 |

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



Detailed technical data

Features

| | |
|--|--|
| Measuring range | 200 mm ... 10,000 mm, 90% remission factor 200 mm ... 5,000 mm, 18% reflection factor 200 mm ... 2,500 mm, 6% remission factor |
| Target | Natural objects |
| Resolution | 1 mm |
| 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⁾ |
| Light source | Laser, red |
| Type of light | Visible red light |
| Laser class | 1 (IEC 60825-1:2014, EN 60825-1:2014) ⁷⁾ |
| Typ. light spot size (distance) | 15 mm x 15 mm (10 m) |
| Additional function | Set moving average: fast/slow Switching mode: distance to object (DtO) 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 |

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

| | |
|--|-----------|
| Average laser service life (at 25 °C) | 100,000 h |
| 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/slow.
4) 90% remission factor.
5) Lateral entry of the object into the measuring range.
6) Continuous change of distance in measuring range.
7) Wavelength: 658 nm; max. output: 120 mW; pulse duration: 2.5 ns; duty cycle: 1/400.

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) 2)} |
| Power consumption | ≤ 2.1 W ³⁾ |
| Ripple | ≤ 5 V _{pp} ⁴⁾ |
| Initialization time | ≤ 250 ms |
| Warm-up time | ≤ 15 min |
| Display | LC display, 2 x LED |
| Enclosure rating | IP65 |
| Protection class | III |

- 1) Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
2) For DT50-xxxx4: V_S > 15 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 |
| Connection type | Male connector, M12, 5-pin |

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 |

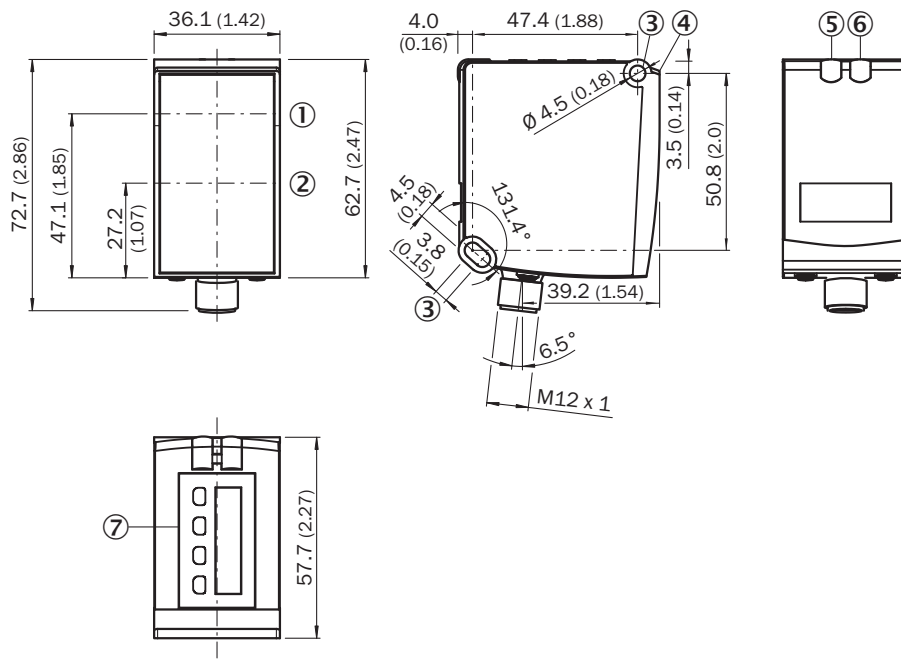
Certificates

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

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 |

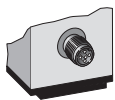
Dimensional drawing



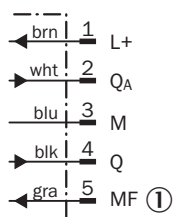
Dimensions in mm (inch)

- ① optical axis, sender
- ② optical axis, receiver
- ③ 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)

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 Cover 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 |

| | 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: HIPERFACE® Cable: 5 m, 5-wire, PUR, halogen-free Description: HIPERFACE®, shielded Note: Sensor/actuator cable Application: Zones with oils and lubricants, Drag chain operation | DOL-1205-W05MAC | 6041751 |
|  | <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: Zones with chemicals, Uncontaminated zones | 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: Uncontaminated zones, 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, angled, 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: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YG2A15-020UB5XLEAX | 2095772 |
|  | <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: Zones with chemicals, Uncontaminated zones | 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, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YG2A15-C60UB5XLEAX | 2145540 |
|  | <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, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YG2A15-030UB5XLEAX | 2145543 |
|  | <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, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YG2A15-010UB5XLEAX | 2145541 |
|  | <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: Zones with chemicals, Uncontaminated zones | 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: Zones with chemicals, Uncontaminated zones | 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 | YG2A15-030VB5XLEAX | 2145575 |

| | Brief description | Type | part no. |
|---|---|--------------------|----------|
|  | <ul style="list-style-type: none">• Application: Zones with chemicals, Uncontaminated zones• 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: Zones with chemicals, Uncontaminated zones | 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: Zones with chemicals, Uncontaminated zones | 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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