



DS500-P111

Dx500

LONG RANGE DISTANCE SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|------------|----------|
| DS500-P111 | 1026519 |

Other models and accessories → www.sick.com/Dx500



Detailed technical data

Mechanics/electronics

| | |
|--|---|
| Supply voltage V_s | DC 10 V ... 30 V, reverse polarity protected $U_V \geq DC 24 V$ for devices with heating |
| Ripple | 5 V _{pp} ¹⁾ |
| Power consumption | Typ. 3 W |
| Initialization time | 500 ms |
| Housing material | Metal (Aluminum die cast) |
| Window material | Glass |
| Connection type | Male connector, M12, 5-pin |
| Weight | 1,000 g |
| Dimensions (W x H x D) | 69 mm x 50 mm x 153 mm |
| Enclosure rating | IP65 |
| Protection class | II ²⁾ |

¹⁾ May not fall short of or exceed V_s tolerances.

²⁾ Reference voltage DC 32 V.

Safety-related parameters

| | |
|-------------------------|-----------|
| MTTF_D | 101 years |
| DC_{avg} | 0% |

Performance

| | |
|------------------------|---|
| Measuring range | 0.2 m ... 30 m, 90% remission factor ^{1) 2)} 0.8 m ... 15 m, 6% remission factor ^{1) 2)} |
| Target | Natural objects |
| Resolution | ≤ 1 mm |
| Repeatability | 1 mm |
| Accuracy | ± 3 mm |
| Response time | 250 ms |

¹⁾ In ambient light, max. 1 klx of constant light.

²⁾ Unique up to 150 m.

³⁾ Average service life of 50,000 h at $T_A = +25 \text{ }^\circ\text{C}$.

| | |
|--|--|
| Output time | 250 ms |
| Light source | Laser, red ³⁾ visible red light |
| Laser class | 2, complies with 21 CFR 1040.10 and 1040.11 except for the conformance according to "Laser Notice No. 50" from June 24, 2007 (IEC 60825-1:2014, EN 60825-1:2014) |
| Typ. light spot size (distance) | 10 mm (at 7 m) 45 mm (at 30 m) 100 mm (at 70 m) |

¹⁾ In ambient light, max. 1 klx of constant light.

²⁾ Unique up to 150 m.

³⁾ Average service life of 50,000 h at T_A = +25 °C.

Interfaces

| | | |
|-----------------------------------|---------------------------------------|----------------------|
| Digital output | Number | 2 ¹⁾ |
| | Type | PNP |
| | Maximum output current I _A | ≤ 100 mA |
| Multifunctional input (MF) | | PNP ^{2) 3)} |
| Hysteresis | | ± 6 % |

¹⁾ HIGH = UV - (<2,5 V) / LOW = < 2,5 V; active HIGH / aktive LOW konfigurierbar.

²⁾ Refer to function MF input.

³⁾ HIGH = UV - (<2,5 V) / LOW = < 2,5 V; active HIGH.

Ambient data

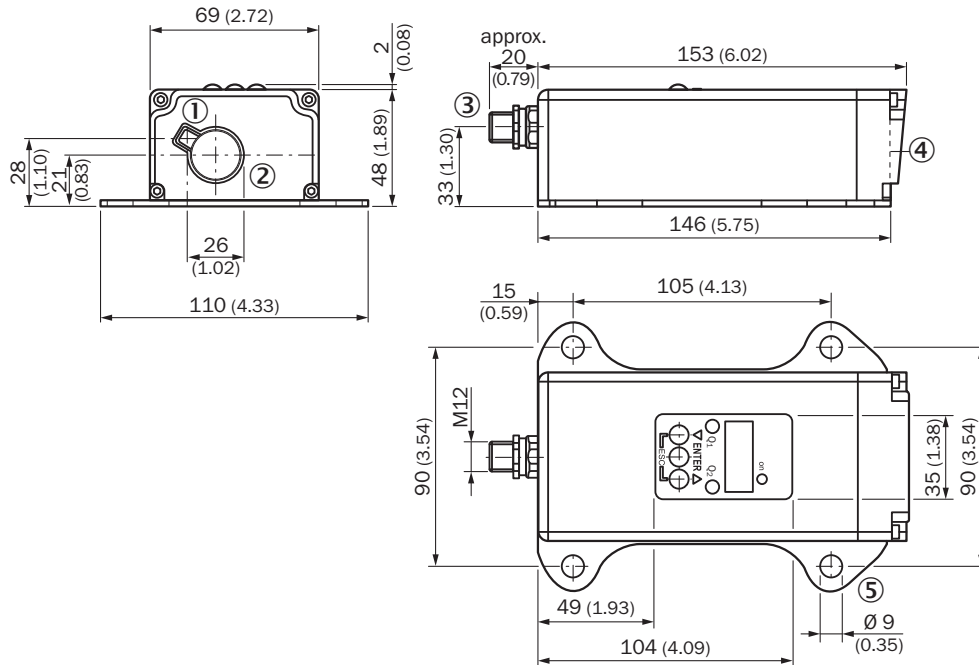
| | |
|--|---|
| Electromagnetic compatibility (EMC) | EN 61000-6-2, EN 55011 EN 60947-5-7: 2003-9 |
| Ambient temperature, operation | -10 °C ... +45 °C -10 °C ... +75 °C, operation with cooling case |
| Ambient temperature, storage | -25 °C ... +75 °C |
| Temperature drift | Typ. 0.05 mm/K |
| Typ. Ambient light immunity | ≤ 3,000 lx |
| Mechanical load | Shock: (EN 600 68-2-27) Sine: (EN 600 68-2-6) Noise: (EN 600 68-2-64) |

Classifications

| | |
|---------------------|----------|
| eCl@ss 5.0 | 27270801 |
| eCl@ss 5.1.4 | 27270801 |
| eCl@ss 6.0 | 27270801 |
| eCl@ss 6.2 | 27270801 |
| eCl@ss 7.0 | 27270801 |
| eCl@ss 8.0 | 27270801 |
| eCl@ss 8.1 | 27270801 |
| eCl@ss 9.0 | 27270801 |
| eCl@ss 10.0 | 27270801 |
| eCl@ss 11.0 | 27270801 |
| eCl@ss 12.0 | 27270916 |

| | |
|-----------------------|----------|
| ETIM 5.0 | EC001825 |
| ETIM 6.0 | EC001825 |
| ETIM 7.0 | EC001825 |
| ETIM 8.0 | EC001825 |
| UNSPSC 16.0901 | 41111613 |

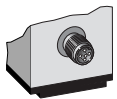
Dimensional drawing (Dimensions in mm (inch))



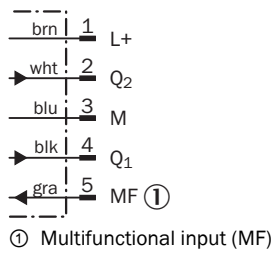
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Male connector M12, 5-pin
- ④ Zero level
- ⑤ Fixing hole

Connection type

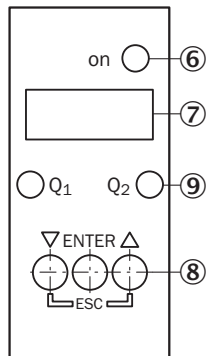
Male connector M12, 5-pin



Connection diagram



Adjustment possible



- ⑥ Operating indicator
- ⑦ Indicator panel, 7-segment display
- ⑧ Control panel
- ⑨ Digital output display

Functional principle

Additional information

Extern Teach ET via MF ①

| Teach-in | MF active | Model |
|----------------|-----------|--|
| Q ₁ | 100 ms | Current measurement value is used as switching threshold |
| \bar{Q}_1 | 200 ms | |
| Q ₂ | 300 ms | |
| \bar{Q}_2 | 400 ms | |
| Laser off | > 450 ms | |

① Multi functional input.

Error performance or no object in measurement range

Measurement not possible

| Measurement value output display | Switching outputs |
|----------------------------------|---|
| 0.000 | Switching stage $\hat{=}$ measurement value 0 m |

No object in measurement range or laser off

| Measurement value output display | Switching outputs |
|----------------------------------|---|
| 99.99 | Switching stage $\hat{=}$ measurement value 99.99 m |


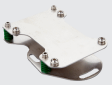
Function MF input

Function MF input

| | | |
|-----------|-------------|----------------------|
| Teach in | Q_1 | 60 ms < MF < 150 ms |
| Teach in | \bar{Q}_1 | 150 ms < MF < 250 ms |
| Teach in | Q_2 | 250 ms < MF < 350 ms |
| Teach in | \bar{Q}_2 | 350 ms < MF < 450 ms |
| Laser off | - | 450 ms < MF < ∞ |

Recommended accessories

Other models and accessories → www.sick.com/Dx500

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YF2A15-020VB5XLEAX | 2096239 |
| | Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A15-050VB5XLEAX | 2096240 |
| | Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m | YF2A15-100VB5XLEAX | 2096241 |
| Terminal and alignment brackets | | | |
|  | Alignment unit for DS/DT500, stainless steel (1.4541), incl. mounting material, mounting hardware included | BEF-DSDT | 2031377 |

Recommended services

Additional services → www.sick.com/Dx500

| | Type | Part no. |
|--|--|----------|
| Extended warranty | | |
| <ul style="list-style-type: none"> Product area: Identification solutions, machine vision, Distance sensors, Detection and ranging solutions Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). Duration: Five-year warranty from delivery date. | Extended warranty for a total of five years from delivery date | 1680671 |

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com