



DS500-P311

Dx500

LONG RANGE DISTANCE SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
DS500-P311	1040477

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

Measurement range min ... max:	0.2 m ... 7 m, 90% remission factor ^{1) 2)} 0.8 m ... 7 m, 6% remission factor ^{1) 2)}
Target	Natural objects
Resolution	≤ 1 mm
Repeatability	1 mm
Accuracy	± 3 mm
Response time	150 ms

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

²⁾ Unique up to 7 m.

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

Output time	150 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 7 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

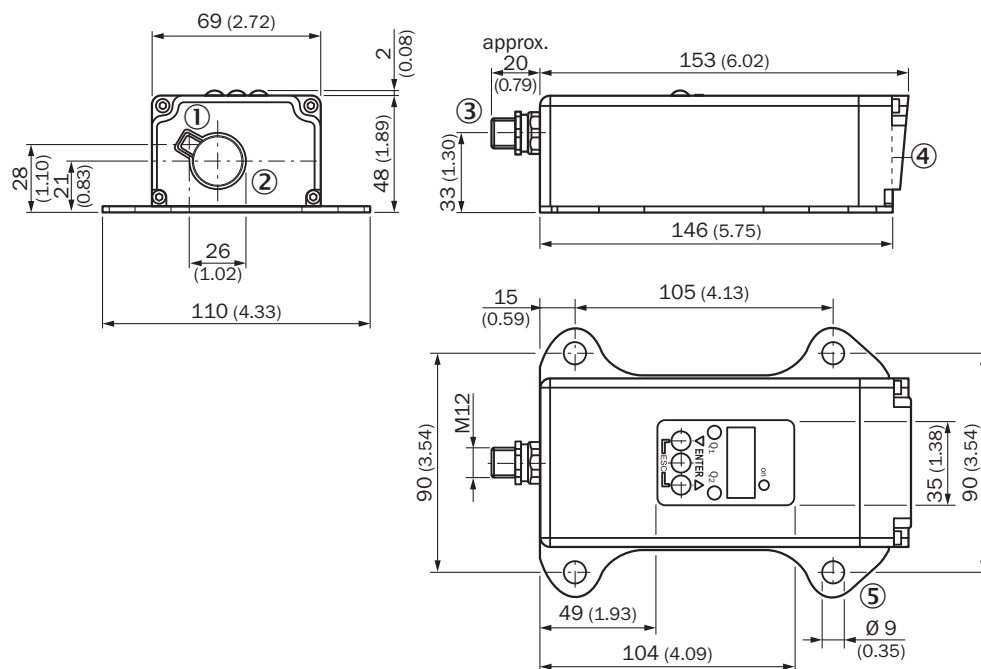
Electromagnetic compatibility (EMC)	EN 61000-6-2, EN 55011 EN 60947-5-7: 2003-9
Ambient temperature, operation	-10 °C ... +45 °C -10 °C ... +75 °C, operation with cooling case
Ambient temperature, storage	-25 °C ... +75 °C
Temperature drift	Typ. 0.05 mm/K
Typ. Ambient light immunity	≤ 3,000 lx
Mechanical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

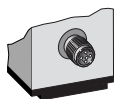
Dimensional drawing (Dimensions in mm (inch))



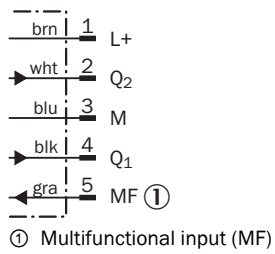
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Male connector M12, 5-pin
- ④ Zero level
- ⑤ Fixing hole

Connection type

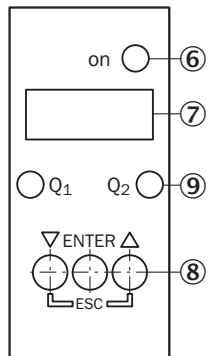
Male connector M12, 5-pin



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


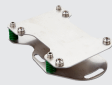
Function MF input

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

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