



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

Performance

Measuring range	0.2 m ... 7 m, 90 % remission ^{1) 2)} 0.8 m ... 7 m, 6 % remission ^{1) 2)}
Target	Natural objects
Resolution	≤ 1 mm
Repeatability	1 mm
Accuracy	± 3 mm
Response time	150 ms
Output time	150 ms
Light source	Laser, red ³⁾
Laser class	2, complies with 21 CFR 1040.10 and 1040.11 except for the tolerance 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

Switching output	PNP (< 100 mA) ¹⁾
Multifunctional input (MF)	< 2 V ^{2) 3)}
Hysteresis	± 6 %

¹⁾ PNP: HIGH = V_S - (< 2.5 V) / LOW = < 2.5 V; NPN: HIGH = < 2.5 V / LOW = V_S.

²⁾ Refer to function MF input.

³⁾ NPN < 2 V.

Mechanics/electronics

Supply voltage V_s	DC 10 V ... 30 V, reverse polarity protected U _V ≥ DC 24 V for devices with heating
Ripple	5 V _{pp} ¹⁾

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

²⁾ Reference voltage DC 32 V.

Power consumption	Typ. 3 W
Initialization time	500 ms
Connection type	Male connector, M12, 5-pin
Weight	1,000 g
Enclosure rating	IP65
Protection class	II ²⁾

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

²⁾ Reference voltage DC 32 V.

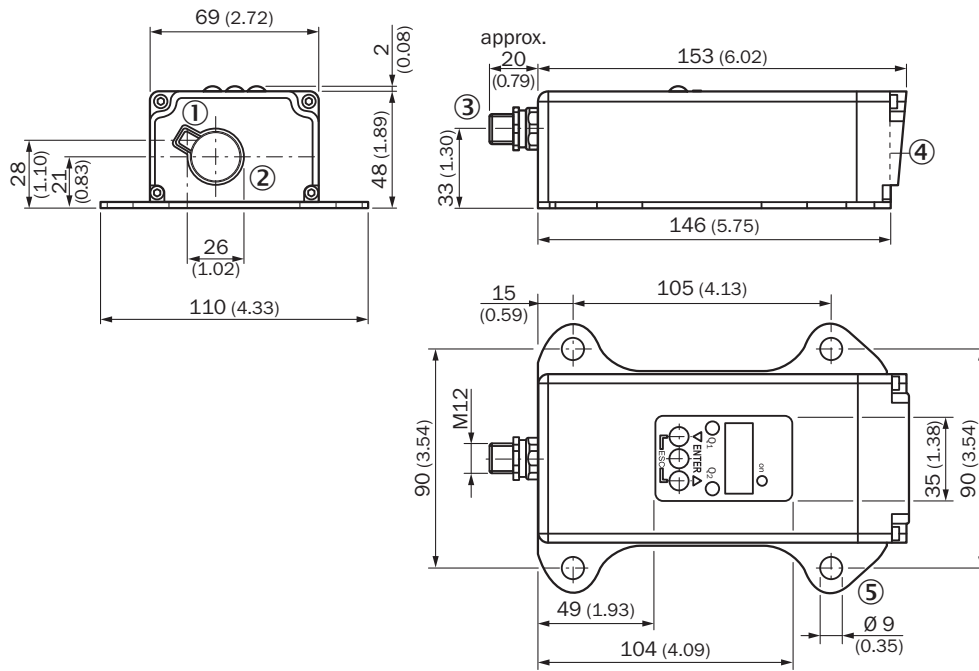
Ambient data

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 storage temperature	-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
ETIM 5.0	EC001825
ETIM 6.0	EC001825
UNSPSC 16.0901	41111613

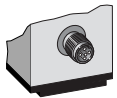
Dimensional drawing (Dimensions in mm (inch))



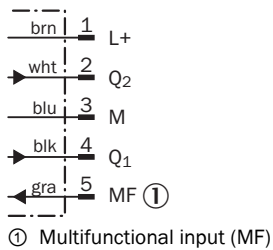
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Male connector M12, 5-pin
- ④ Zero level
- ⑤ Fixing hole

Connection type

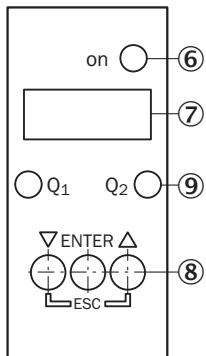
Male connector M12, 5-pin



Connection diagram



Adjustment possible



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

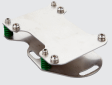

Function MF input

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.
Terminal and alignment brackets			
	Alignment unit for DS/DT500, stainless steel (1.4541), incl. mounting material, mounting hardware included	BEF-DSDT	2031377
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

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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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