



Long range distance sensors Dx500, DS500

DS500-N311



Model Name > [DS500-N311](#)
Part No. > [1040481](#)



At a glance

- Measurement range 0.2 m ... 70 m
- Two switching outputs
- Highest measurement resolution, repeatability and accuracy without a reflector
- Simple adjustment using red laser light
- Metal housing with integrated heating option for cold store applications
- Weather protection housing optional
- Alignment bracket optional

Your benefits

- High-precision switching reliably indicates product position for exact machine control, reducing scrap and increasing throughput
- Red laser light as well as adjustable mounting brackets (optional accessory) enable fast and easy alignment, ensuring on-time and cost-effective installation
- A tough metal housing with internal heating ensures reliability in rough ambient conditions, such as cold store warehouses
- User-friendly display with easy-to-use menu along with external PC/PLC programming offers fast and costefficient setup
- Two individual programmable switching outputs offer flexible integration into application
- Wide measurement range of 0.2 m to 70 m enables automated measurement on natural targets where reflectors can't be used



Performance

Measuring range ¹⁾ :	0.2 m ... 7 m, 6 % ... 90 % remission
Resolution:	≤ 1 mm
Accuracy:	± 3 mm
Light source ²⁾ :	Laser, red
Typ. light spot size (distance):	10 mm (at 7 m) 100 mm (at 70 m) 45 mm (at 30 m)
Response time:	150 ms
Laser class:	2 (EN 60825/21 CFR 1.040)

¹⁾ Unique up to 7 m ²⁾ Average service life of 50,000 h at T_A = +25 °C

Interfaces

Output type ¹⁾ :	NPN (< 100 mA)
Hysteresis:	± 6 %
Multifunctional input (MF) ²⁾ , ³⁾ :	< 2 V

¹⁾ PNP: HIGH = $V_S - (< 2.5 \text{ V}) / \text{LOW} = < 2.5 \text{ V}$; NPN: HIGH = $< 2.5 \text{ V} / \text{LOW} = V_S$ ²⁾ Refer to function MF input ³⁾ NPN < 2 V; PNP > 2 V < V_S

Mechanics/electronics

Supply voltage V_S :	DC 10 V ... 30 V, reverse polarity protected, $U_S \geq \text{DC } 24 \text{ V}$ for devices with heating
Ripple ¹⁾ :	5 Vpp
Initialization time:	500 ms
Weight:	1,000 g
Power consumption:	Typ. 3 W
Connection type:	Connector M12, 5-pin

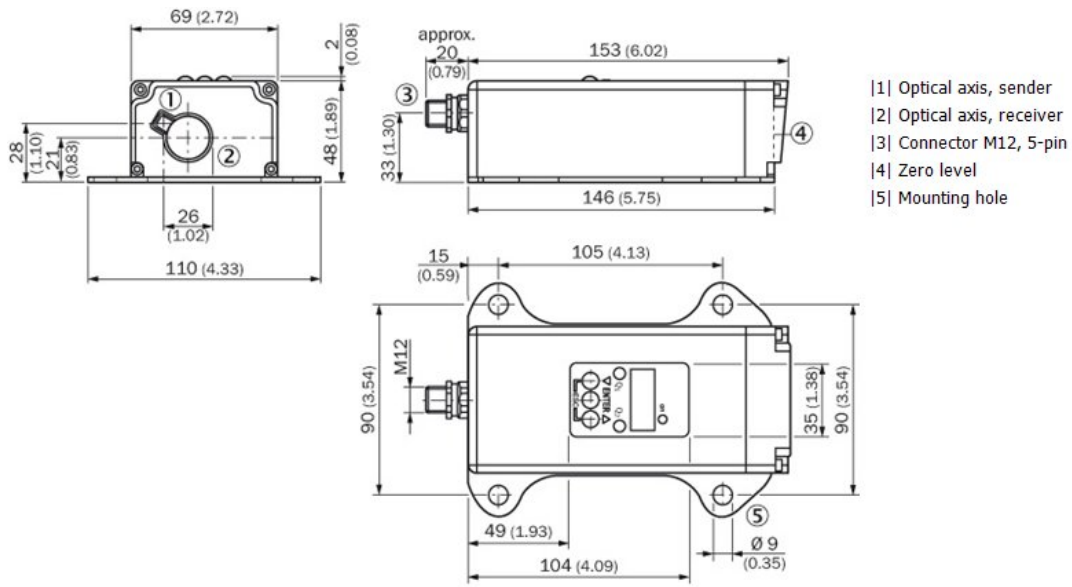
¹⁾ May not fall short of or exceed V_S tolerances

Ambient data

Enclosure rating:	IP 65
Protection class ¹⁾ :	II
Temperature drift:	Typ. 0.05 mm/K
Ambient temperature:	Operation: -10 ... 50 °C Operation with cooling case: -10 ... 75 °C Storage: -25 ... 75 °C
Mechanical load:	Noise: EN 600 68-2-64 Shock: EN 600 68-2-27 Sine: EN 600 68-2-6
Electromagnetic compatibility (EMC):	EN 61000-6-2, EN 55011/EN 60947-5-7: 2003-9

¹⁾ Reference voltage DC 32 V

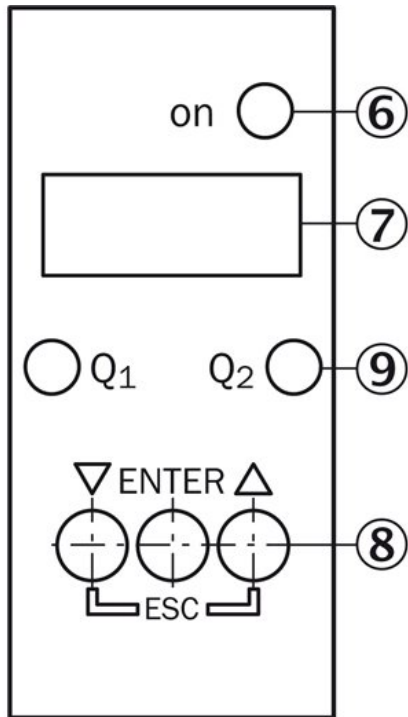
Dimensional drawing



- |1| Optical axis, sender
- |2| Optical axis, receiver
- |3| Connector M12, 5-pin
- |4| Zero level
- |5| Mounting hole

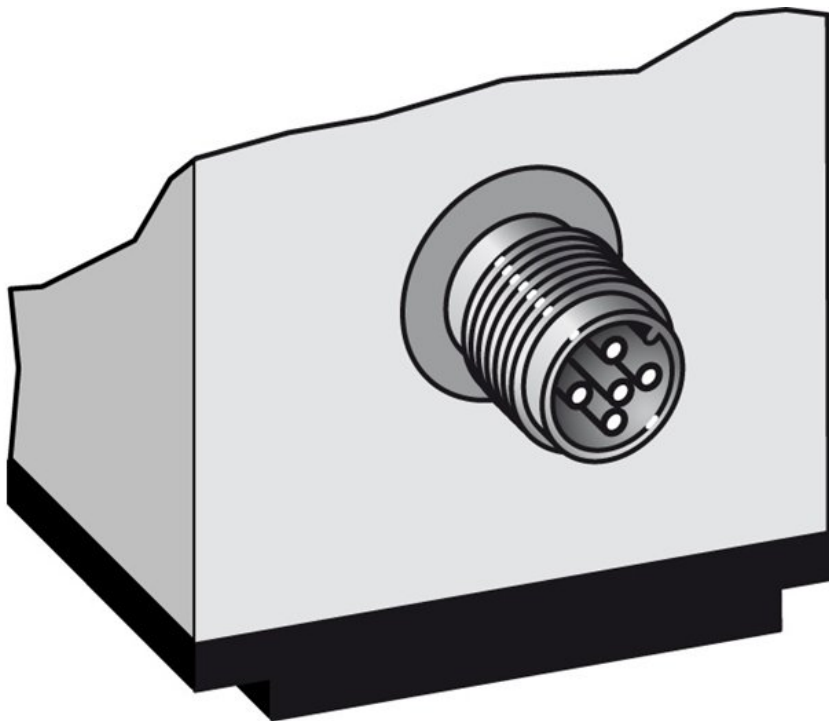
All dimensions in mm (inch)

Adjustment possible

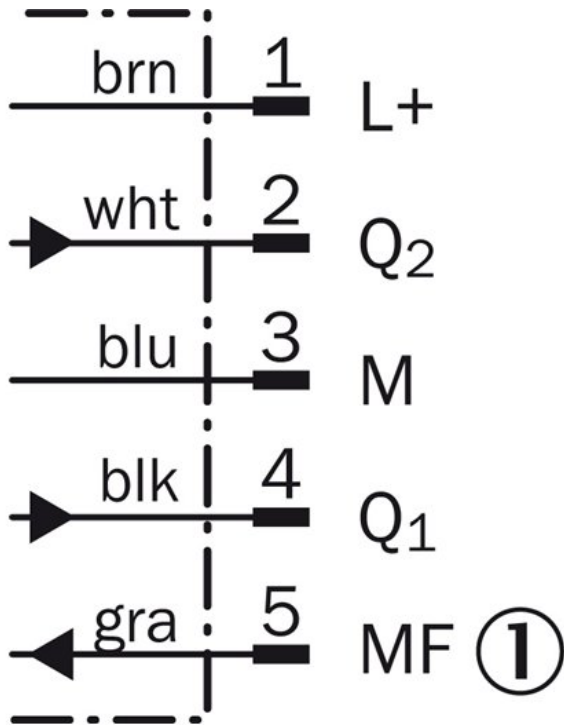


- |6| Operating indicator
- |7| Indicator panel, 7-segment display
- |8| Control panel
- |9| Switching output indicator

Connection type



Connection diagram



[1] Multifunctional input (MF)

Function MF input

Function MF input

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

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

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