



## Long range distance sensors Dx500, DS500

DS500-N511



**Model Name** > **DS500-N511**  
**Part No.** > **1040483**



**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 cost-efficient 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**

Measurement range:	0.2 m ... 30 m, 90 % remision 0.2 m ... 70 m, 90 % remision
Resolution:	≤ 1 mm
Accuracy:	± 3 mm
Light source <sup>1)</sup> :	Laser, red
Typ. light spot size (distance):	10 mm (at 7 m) 100 mm (at 70 m) 45 mm (at 30 m)
Response time:	0.15 s ... 6 s
Laser class:	2 (EN 60825/21 CFR 1.040)

<sup>1)</sup> Average service life of 50,000 h at T<sub>A</sub> = +25 °C

## Interfaces

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

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

## Mechanics/electronics

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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 <sup>1)</sup> :	5 Vpp
Initialization time:	500 ms
Weight:	1,000 g
Power consumption:	Typ. 3 W
Connection type:	Male connector, M12, 5-pin

<sup>1)</sup> May not fall short of or exceed  $V_S$  tolerances

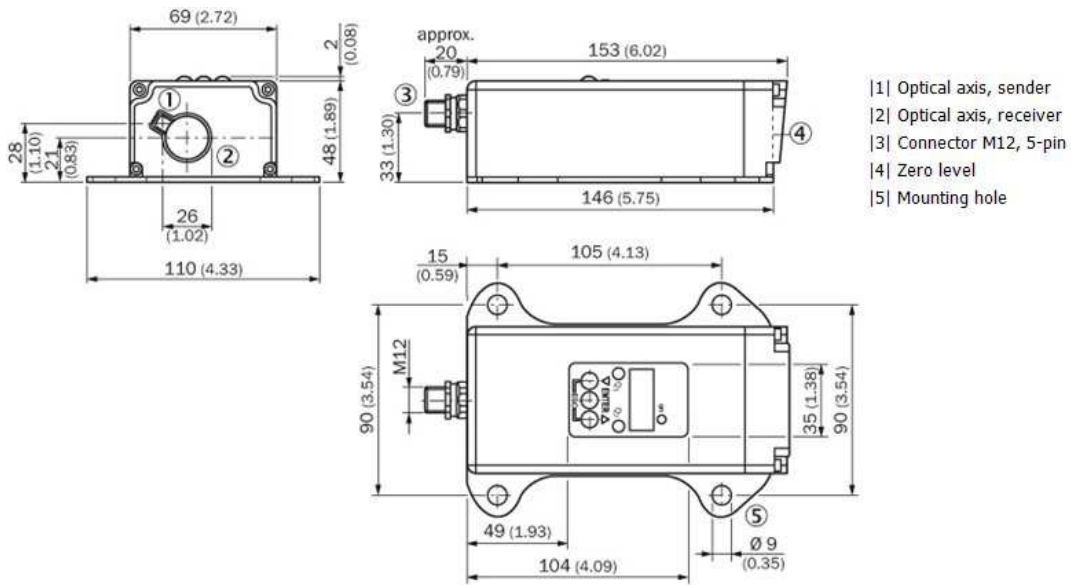
## Ambient data

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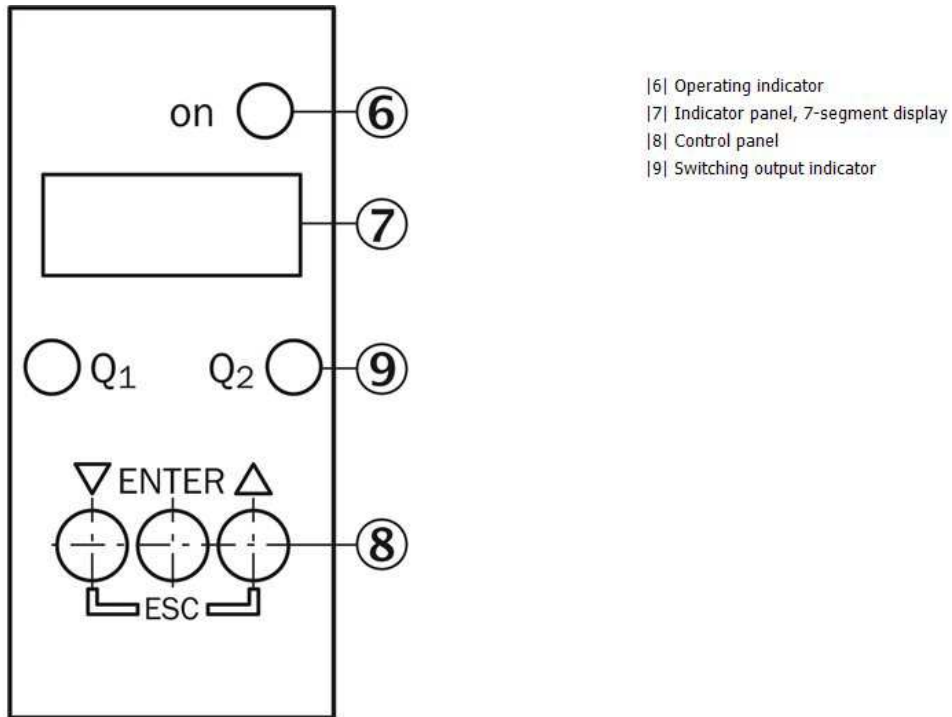
Enclosure rating:	IP 65
Protection class <sup>1)</sup> :	II
Temperature drift:	Typ. 0.05 mm/K
Ambient temperature:	Operation: -10 ... +50 °C Operation with cooling case: -10 ... +75 °C Storage: -25 ... +75 °C
Mechanical load:	Noise: EN 600 68-2-64 Shock: EN 600 68-2-27 Sine: EN 600 68-2-6
Electromagnetic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

<sup>1)</sup> Reference voltage DC 32 V

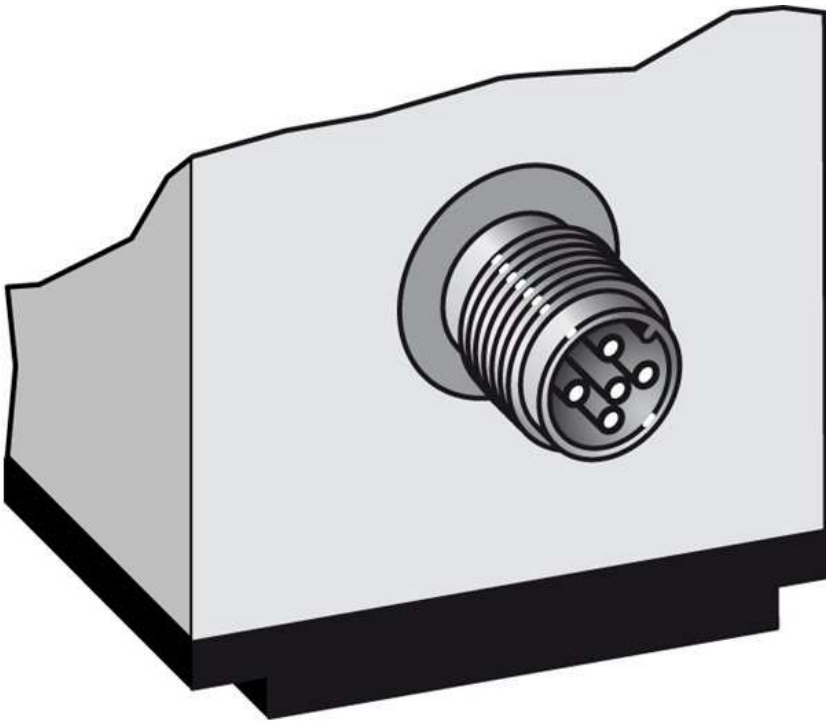
## Dimensional drawing



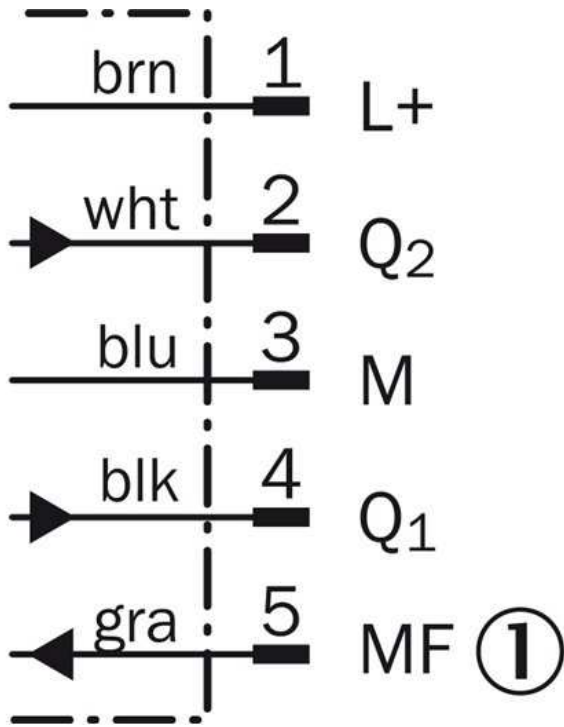
## Adjustment possible



Connection type



Connection diagram



[1] Multifunctional input (MF)

## 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 < ∞

### 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

**Australia**

Phone +61 3 9457 0600  
1800 33 48 02 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Česká republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail info@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederland**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)