

DS 500/DT 500

Laser sensor measures distances to 18 m – on black material in proximity mode



DS 500 – distance sensor with two user taught switch outputs. Suitable for precise and reliable detection of objects – even with black surfaces – at a distance of up to 18 m. The high resolution of the sensor enables exact background suppression even in the presence of bright surfaces in the background.

Typical applications are:

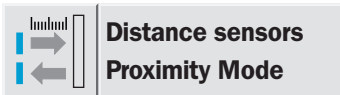
- Anti-collision control,
- detection of small parts over a large scanning distance,
- part detection in material handling applications.

DT 500 – distance sensor with an analogue output or serial RS 422 data output. A universal sensor for distance measurement of black objects at a distance of up to 18 m. The user can teach the sensor the start and end of the sensors measuring. i.e. it can be adapted optimally to the task.

With a resolution of 1 mm and an accuracy of 3 mm, the DT 500 can be used for precise measurement tasks.

Typical applications are:

- Contour detection,
- diameter measurement,
- difference measurements,
- positioning of parts,
- stack height measurement/classification.



The sensors within the DS/DT 500 series are ideal for applications in rough environmental conditions due to their robust metal housing. Using the time of flight principle, a red laser detects the precise distance to the target object. The measurement laser is clearly visible on the target even at large distances, similar to a laser pointer. An integrated display on the housing of the sensor illustrates the current measurement value and enables easy set-up of switch positions. For outdoor applications, versions are available with integrated heating and a weather protection hood.

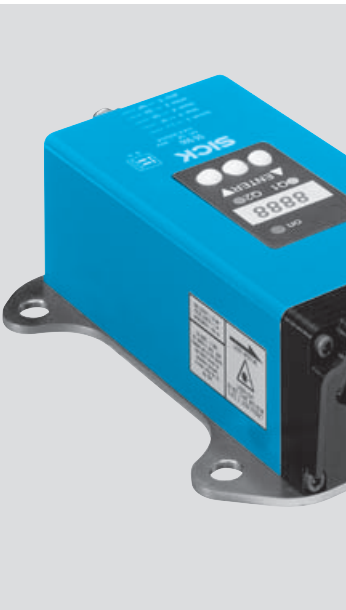
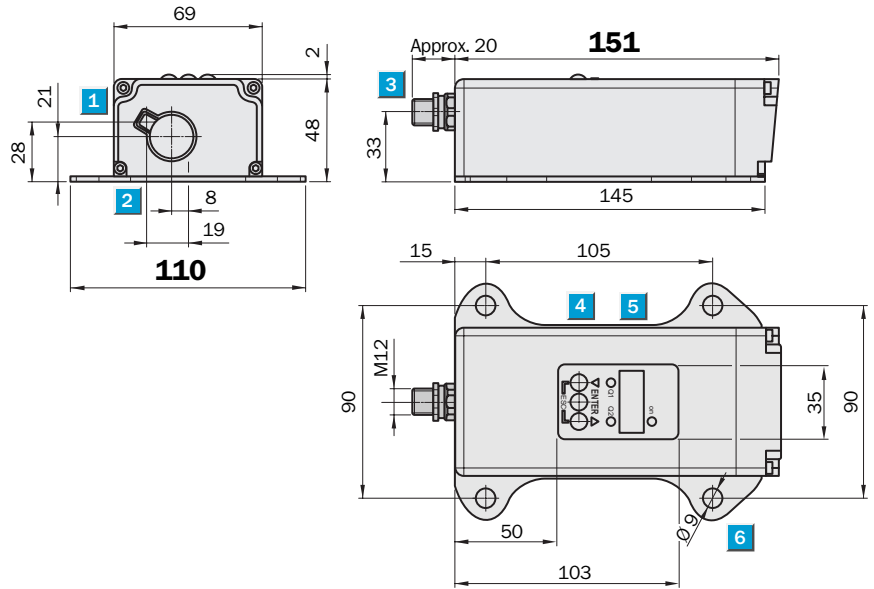
SICK

Scanning distance
0.2 ... 18 m

Distance sensor

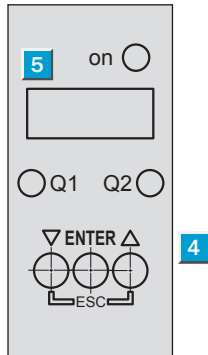
- High measurement accuracy thanks to time of flight measurement
- Simple alignment using red laser light
- Two distance switching outputs
- Metal housing with integral heating option
- Weather protection housing optional
- Alignment bracket optional

Dimensional drawing



Adjustments possible

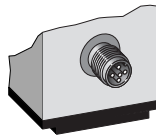
All types



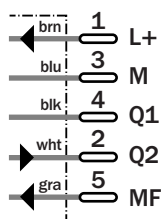
- 1 Optical axis – sender
- 2 Optical axis – receiver
- 3 M12 plug, 5-pin
- 4 Operating components
- 5 Indicator
- 6 Mounting hole

Connection type

All types




5-pin, M12



Accessories

- Cables and connectors
- Mounting systems
- Special accessories

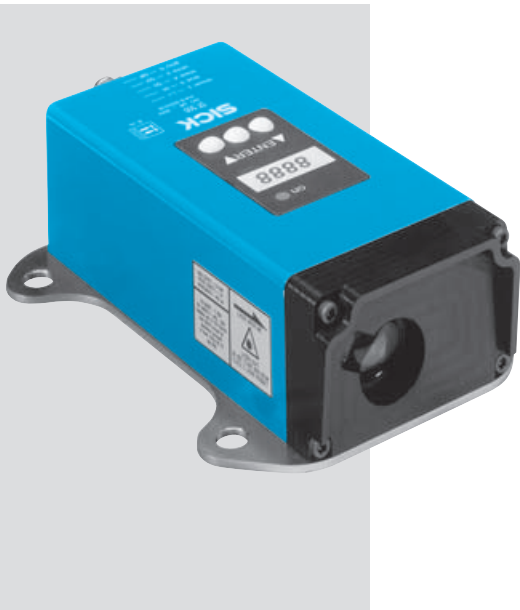
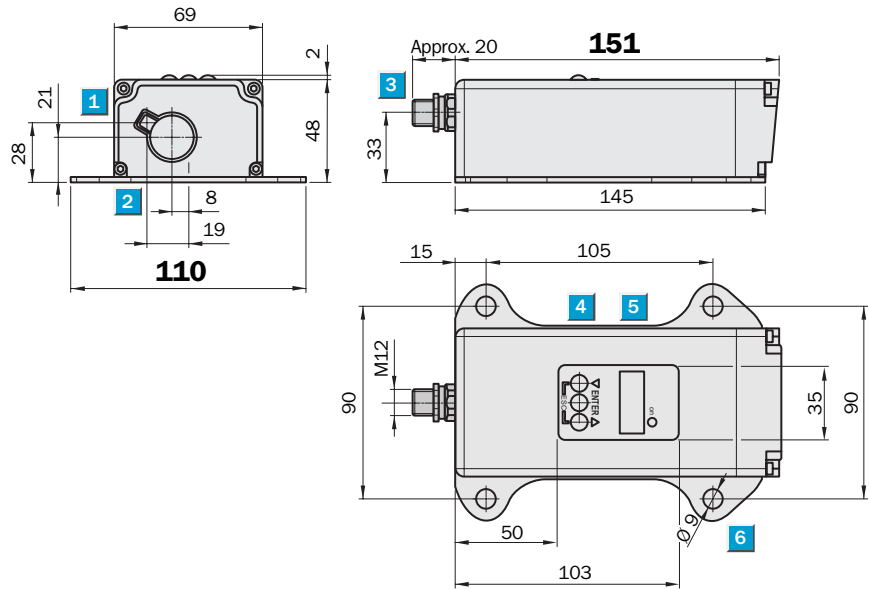
Teach-in	MF active	Model
Q1	100 ms	Current measurement value is
Q̄1	200 ms	
Q2	300 ms	used as switching threshold
Q̄2	400 ms	

 **Measurement range**
0.2 ... 18 m

Distance sensor

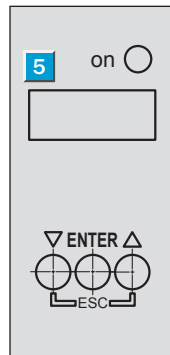
- High measurement accuracy thanks to time of flight measurement
- Simple alignment using red laser light
- Analogue current interface
- Serial RS 422 data output
- Metal housing with integral heating option
- Weather protection housing optional
- Alignment bracket optional

Dimensional drawing



Adjustments possible

All types

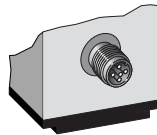
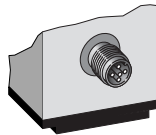


- 1 Optical axis – sender
- 2 Optical axis – receiver
- 3 M12 plug, 5-pin
- 4 Operating components
- 5 Indicator
- 6 Mounting hole

Connection type

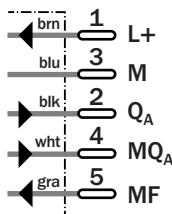
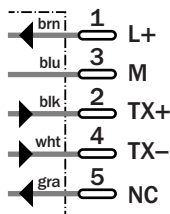
Serial (-A .. 2)

Analogue (-A .. 1)



5-pin, M12

5-pin, M12



Accessories

Cables and connectors

Mounting systems

Special accessories

Technical data		DT500-	A111	A211	A112	A212						
Measuring range	0.2 ... 18 m (black), 6 % remission											
	0.2 ... 30 m (white), 90 % remission											
Accuracy	±3 mm											
Reproducibility ¹⁾	1 mm											
Measured value output	250 ms											
Temperature drift	Typ. 0.05 mm/K											
Light spot diameter	30 mm at 20 m											
Resolution	1 mm											
Light source ²⁾, light type	Laser diode, red light											
Laser class	2 (EN 60825/21 CFR 1040)											
Supply voltage V_S ³⁾	10 ... 30 V DC ⁴⁾											
Residual ripple ⁵⁾	5 V _{PP}											
Power consumption typ. without heating	2 W											
with heating	22 W											
Analogue output (adjustable)	0 ... 20 mA/4 ... 20 mA											
Serial interface	RS 422; 19,2 kBd; 8, n, 1											
Measurement value display in mm ⁶⁾	20.000 CR LF											
VDE protection class ⁷⁾	<input type="checkbox"/>											
Enclosure rating	IP 65											
Ambient temperature	without heating	Operation	-10 °C ... +50 °C									
	with heating	Operation	-40 °C ... +50 °C ⁴⁾									
		Storage	-25 °C ... +75 °C									
Weight	Approx. 1000 g											
Initialisation period	Typ. 500 ms											
EMC	EN 61000-6-2, EN 55011											
Mechanical load	Shock: EN 600 86-2-27/-2-29											
	Sine: EN 600 68-2-6											
	Noise: EN 600 68-2-64											

¹⁾ Statistical error 1 σ , environmental conditions constant

²⁾ Average service life 50.000 h at $T_A = +25$ °C

³⁾ Reverse-polarity protected

⁴⁾ $V_S \geq 24$ V DC for DT500-A2xx with heating

⁵⁾ May not exceed or fall short of V_S tolerances

⁶⁾ Without point, example output 20,000 mm

⁷⁾ Reference voltage 32 V DC

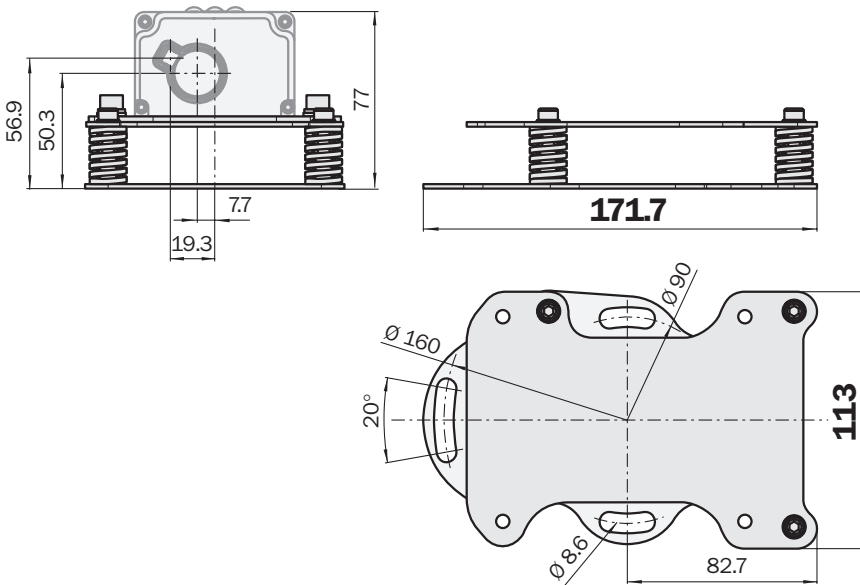
Error performance or no object in visibility field		Order information	
		Type	Order no.
Error:	Measurement value output display: 0.000	DT500-A111	1 026 515
	Analogue interface: 0/3.5 mA	DT500-A211	1 026 516
	Serial interface: 00000 CR LF	DT500-A112	1 026 517
No object in visibility field:	Measurement value output display: 99.99	DT500-A212	1 026 518
	Analogue interface: 20.5 mA		
	Serial interface: 99999 CR LF		

Dimensional drawings and order information

Special accessories

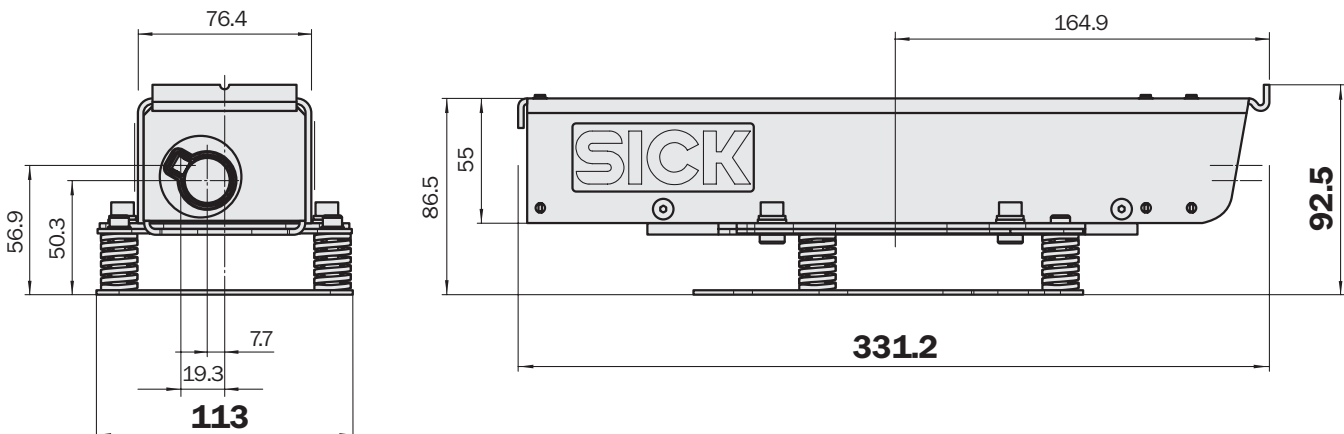
Alignment bracket

Type	Order no.
BEF-DSDT	2 031 377



Weather-protecting hood

Type	Order no.
WSG-DSDT	2 031 376



Dimensional drawings and order information

Cables and connectors

SENSICK screw-in system M12, 4- or 5-pin, enclosure rating IP 67

Female connector M12, 4- or 5-pin, straight

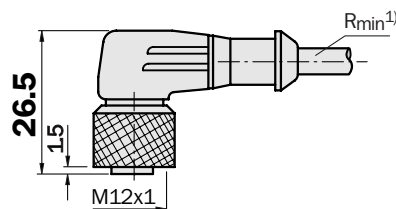
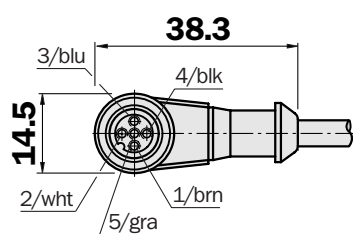
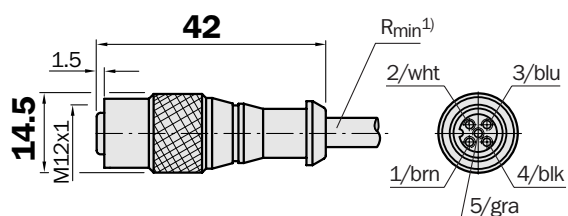
Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

Type	Order no.	Contacts	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m
DOL-1204-G15M	6 010 753	4	15 m
DOL-1205-G02M	6 008 899	5	2 m
DOL-1205-G05M	6 009 868	5	5 m
DOL-1205-G10M	6 010 544	5	10 m

Female connector M12, 4- or 5-pin, right angle

Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

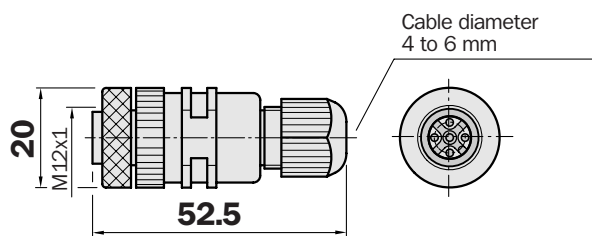
Type	Order no.	Contacts	Cable length
DOL-1204-W02M	6 009 383	4	2 m
DOL-1204-W05M	6 009 867	4	5 m
DOL-1204-W10M	6 010 541	4	10 m
DOL-1205-W02M	6 008 900	5	2 m
DOL-1205-W05M	6 009 869	5	5 m
DOL-1205-W10M	6 010 542	5	10 m



¹⁾ Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

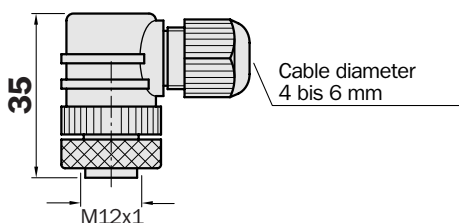
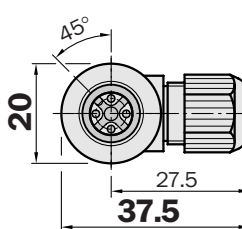
Female connector M12, 4- or 5-pin, straight

Type	Order no.	Contacts
DOS-1204-G	6 007 302	4
DOS-1205-G	6 007 719	5



Female connector M12, 4- or 5-pin, right angle

Type	Order no.	Contacts
DOS-1204-W	6 007 303	4
DOS-1205-W	6 007 720	5



Contact:

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The SICK logo consists of the word "SICK" in a bold, blue, sans-serif font. The letters are closely spaced and have a slight shadow effect.