



TIM510-9950000S01

TiM

2D LIDAR SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
TIM510-9950000S01	1062210

Other models and accessories → www.sick.com/TiM



Detailed technical data

Features

Application	Indoor
Measurement principle	HDDM ⁺
Light source	Infrared (850 nm)
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014)
Aperture angle	Horizontal 270°
Scanning frequency	15 Hz
Angular resolution	Horizontal 1°
Working range	0.05 m ... 4 m
Scanning range	At 10% remission factor 2 m

Mechanics/electronics

Connection type	1 x cable with 12-pin M12 male connector (0,3 m) 1 x Micro USB female connector, type B
Supply voltage	9 V DC ... 28 V DC
Power consumption	Typ. 4 W
Output current	≤ 100 mA
Housing color	Light blue (RAL 5012)
Enclosure rating	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013)
Protection class	III (IEC 61140:2016-1)
Weight	150 g, without connecting cables
Dimensions (L x W x H)	60 mm x 60 mm x 79 mm
MTBF	> 100 years

Safety-related parameters

MTTF_D	100 years
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Performance

Response time	1 scan, typ. 67 ms 2 scans, ≤ 134 ms ¹⁾
Detectable object shape	Almost any
Systematic error	± 40 mm ²⁾
Statistical error	< 30 mm ²⁾
Integrated application	Output of measurement data

¹⁾ At +45° to +225° of the working range; max. 150 ms at -45° to +45° of the working range.

²⁾ Typical value at 90% remission up to maximum scanning range; real value depends on ambient conditions.

Interfaces

Serial	✓, RS-232
	Function Data interface (read result output)
	Data transmission rate 460.8 kBaud
USB	✓
	Remark Micro USB
	Function Service interface, parameterization
Digital inputs	0
Digital outputs	1 (PNP, "SYNC"/"device ready")
Optical indicators	2 LEDs (ON, switching status)

Ambient data

Object remission	4 % ... 1,000 % (reflectors)
Electromagnetic compatibility (EMC)	Emitted radiation Residential area (EN 61000-6-3:2007+AMD:A1:2011)
	Electromagnetic immunity Industrial environment (EN 61000-6-2:2005)
Vibration resistance	Sine resonance scan 10 Hz ... 1,000 Hz ¹⁾
	Sine test 10 Hz ... 500 Hz, 5 g, 10 frequency cycles ¹⁾
	Noise test 10 Hz ... 250 Hz, 4.24 g RMS, 5 h ²⁾
Shock resistance	50 g, 11 ms, ± 3 single shocks/axis ³⁾
	25 g, 6 ms, ± 1,000 continuous shocks/axis ³⁾
	50 g, 3 ms, ± 5,000 continuous shocks/axis ³⁾
Ambient operating temperature	-10 °C ... +50 °C ⁴⁾
Storage temperature	-30 °C ... +70 °C ⁴⁾
Temperature change	-25 °C ... +50 °C, 10 cycles ⁵⁾
Damp heat	+25 °C ... +55 °C, 95 % RH, 6 cycles ⁶⁾
Permissible relative humidity	

¹⁾ IEC 60068-2-6:2007.

²⁾ IEC 60068-2-64:2008.

³⁾ IEC 60068-2-27:2008.

⁴⁾ IEC 60068-2-14:2009.

⁵⁾ EN 60068-2-14:2009.

⁶⁾ EN 60068-2-30:2005.

	Operation	< 80 %, Non-condensing (EN 60068-2-30:2005)
	Storage	≤ 95 %, Non-condensing (EN 60068-2-30:2005)
Ambient light immunity		80,000 lx

- ¹⁾ IEC 60068-2-6:2007.
- ²⁾ IEC 60068-2-64:2008.
- ³⁾ IEC 60068-2-27:2008.
- ⁴⁾ IEC 60068-2-14:2009.
- ⁵⁾ EN 60068-2-14:2009.
- ⁶⁾ EN 60068-2-30:2005.

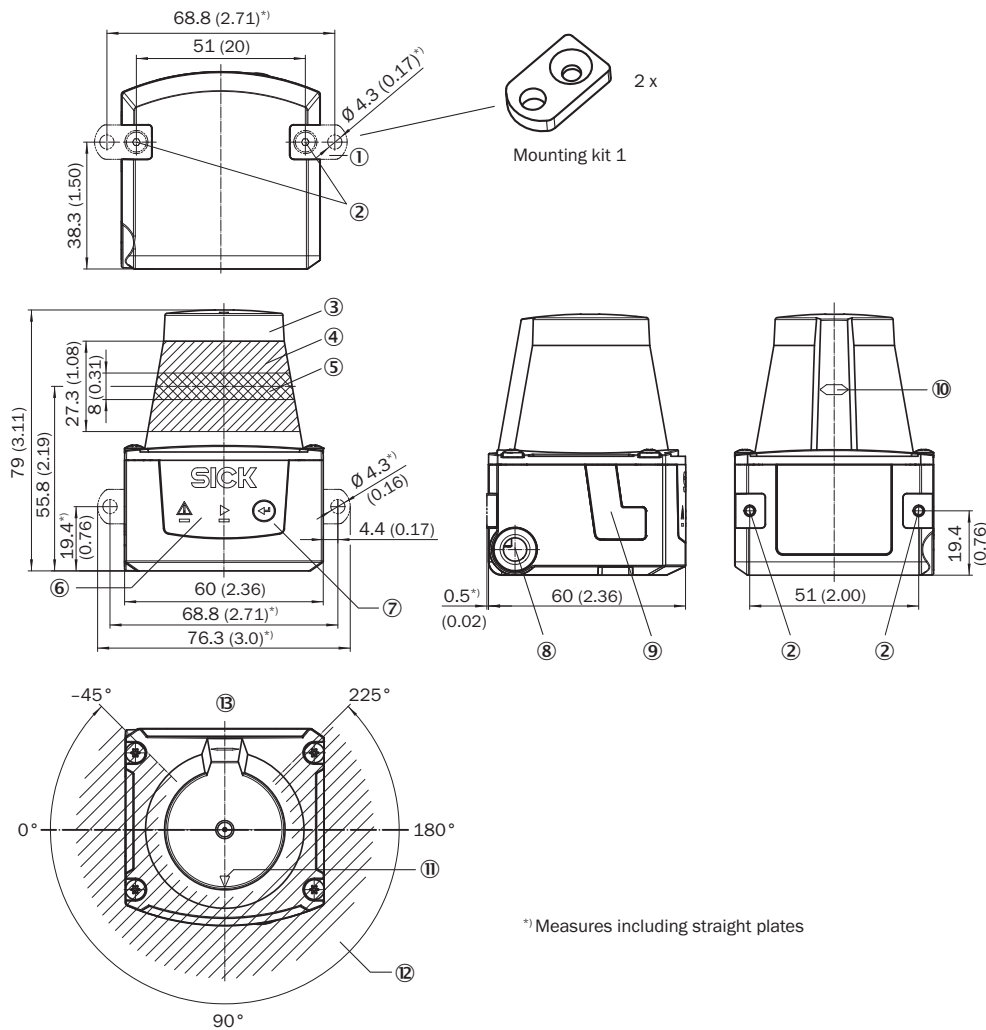
General notes

Note on use	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.
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Classifications

ECLASS 5.0	27270990
ECLASS 5.1.4	27270990
ECLASS 6.0	27270913
ECLASS 6.2	27270913
ECLASS 7.0	27270913
ECLASS 8.0	27270913
ECLASS 8.1	27270913
ECLASS 9.0	27270913
ECLASS 10.0	27270913
ECLASS 11.0	27270913
ECLASS 12.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	41111615

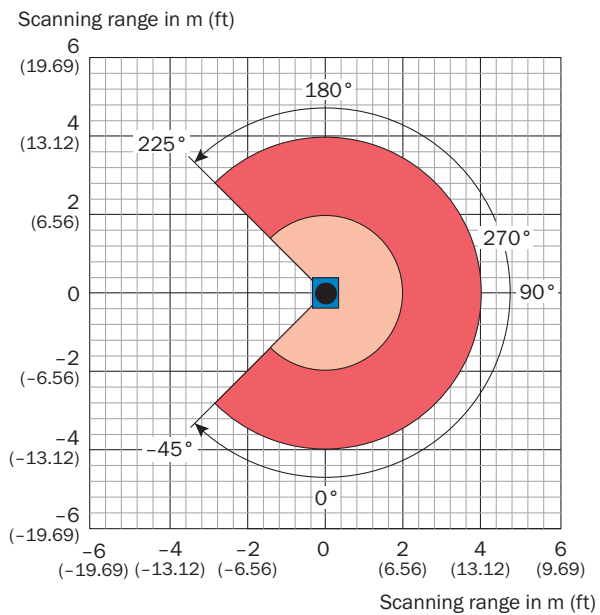
Dimensional drawing (Dimensions in mm (inch))



*1 Measures including straight plates

- ① 2 x straight plates with M3 x 4 mm screw (included in delivery)
- ② M3 threaded mounting hole, 2.8 mm deep (blind hole thread), max. tightening torque 0.8 Nm
- ③ Optical hood
- ④ Receiving range (light inlet)
- ⑤ Transmission range (light emission)
- ⑥ Red and green LED (status displays)
- ⑦ Function button for teach-in
- ⑧ Connecting cable outlet (connection for power/digital inputs/outputs)
- ⑨ Micro USB female connector, type B
- ⑩ Marking for the position of the light emission level
- ⑪ Bearing marking to support alignment (90° axis)
- ⑫ Aperture angle 270° (scanning angle)
- ⑬ Area in which no reflective surfaces are allowed for mounted devices

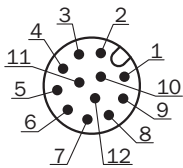
Working range diagram



- Scanning range max. 4 m (13.12 feet)
- Scanning range typical 2 m (6.56 feet) for objects up to 10 % remission

PIN assignment

Power







Cable with male connector M12, 12-pin, A-coded

- ① GND
- ② DC 9 V ... 28 V
- ③ nc
- ④ nc
- ⑤ nc
- ⑥ nc
- ⑦ nc
- ⑧ "SYNC"/"device ready"
- ⑨ nc
- ⑩ nc
- ⑪ TxD
- ⑫ RxD

Recommended accessories

Other models and accessories → www.sick.com/TiM

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting kit with shock absorber, Anodized aluminum, mounting hardware included	Mounting kit	2086074
	Mounting set 2, fender and alignment aid, Anodized aluminum, mounting hardware included	Mounting kit 2	2061776
Others			
	<ul style="list-style-type: none"> • Connection type head A: Male connector, Micro-B, 4-pin, straight • Connection type head B: Male connector, USB-A, 4-pin, straight • Signal type: USB 2.0 • Cable: 2 m, 4-wire • Description: USB 2.0, unshielded 	USB cable	6036106
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 12-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 12-wire, PUR, halogen-free • Description: Sensor/actuator cable, twisted pair, shielded • Connection systems: Flying leads • Application: Zones with oils and lubricants 	YF2A2B-050UD3XLEAX	6042735

Recommended services

Additional services → www.sick.com/TiM

	Type	Part no.
Maintenance		
<ul style="list-style-type: none"> • Product area: 2D LiDAR sensors, 3D LiDAR sensors • Range of services: Inspection, analysis and restoring of defined functions, Inspection and adaptation of basic settings, parameters of field application, filters for raw data output, and product-specific configuration • Duration: Additional work will be invoiced separately 	Maintenance of LiDAR sensors	1682593
Commissioning		
<ul style="list-style-type: none"> • Product area: 2D LiDAR sensors, 3D LiDAR sensors • Range of services: Inspection of connection, fine adjustment, configuration of monitored areas, configuration and optimization of parameters as well as tests, Setup of previously defined functions of basic settings, parameters of field application, filters for raw data output and product-specific configuration • Duration: Additional work will be invoiced separately 	Commissioning LiDAR sensors	1680672
Extended warranty		
<ul style="list-style-type: none"> • Product area: Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners • Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). • Duration: Five-year warranty from delivery date. 	Extended warranty for a total of five years from delivery date	1680671

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com