Product data sheet



TiM581-2050101

TiM5xx

2D LIDAR SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
TiM581-2050101	1099504

Other models and accessories ➜ www.sick.com/TiM5xx

Detailed technical data

Features

Measurement principle	HDDM$^+$
Application	Outdoor
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	0.33°
Working range	0.05 m ... 25 m
Scanning range	
At 10% remission	8 m

Mechanics/electronics

Connection type	1 x “Ethernet” connection, 4-pin M12 female connector 1 x connection “Power/Synchronization output” 5-pin, M12 male connector 1 x Micro USB female connector, type B
Supply voltage	9 V DC ... 28 V DC
Power consumption	Typ. 4 W
Housing color	Gray (RAL 7032)
Enclosure rating	IP67, applies only when the plastic cover of the “Aux interface” is closed (IEC 60529:1989+AMD1:1999+AMD2:2013)
Protection class	III (IEC 61140:2016-1)
Weight	250 g, without connecting cables
Dimensions (L x W x H)	60 mm x 60 mm x 86 mm

Performance

Response time	1 scan, typ. 67 ms

[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.

	2 scans, ≤ 134 s [1]
Detectable object shape	Almost any
Systematic error	± 60 mm [2]
Statistical error	< 20 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

Ethernet	✓, TCP/IP
USB	✓
Remark	Micro USB
Function	AUX, parameterization
Digital inputs	0
Digital outputs	1 (PNP, "SYNC"/"device ready")
Optical indicators	2 LEDs (ON, "device ready")

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	–25 °C ... +50 °C [4]
Storage temperature	–40 °C ... +75 °C [4]
Temperature change	–25 °C ... +50 °C, 10 cycles [5]
Damp heat	+25 °C ... +55 °C, 95 % rF, 6 cycles [6]
Permissible relative humidity	
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.

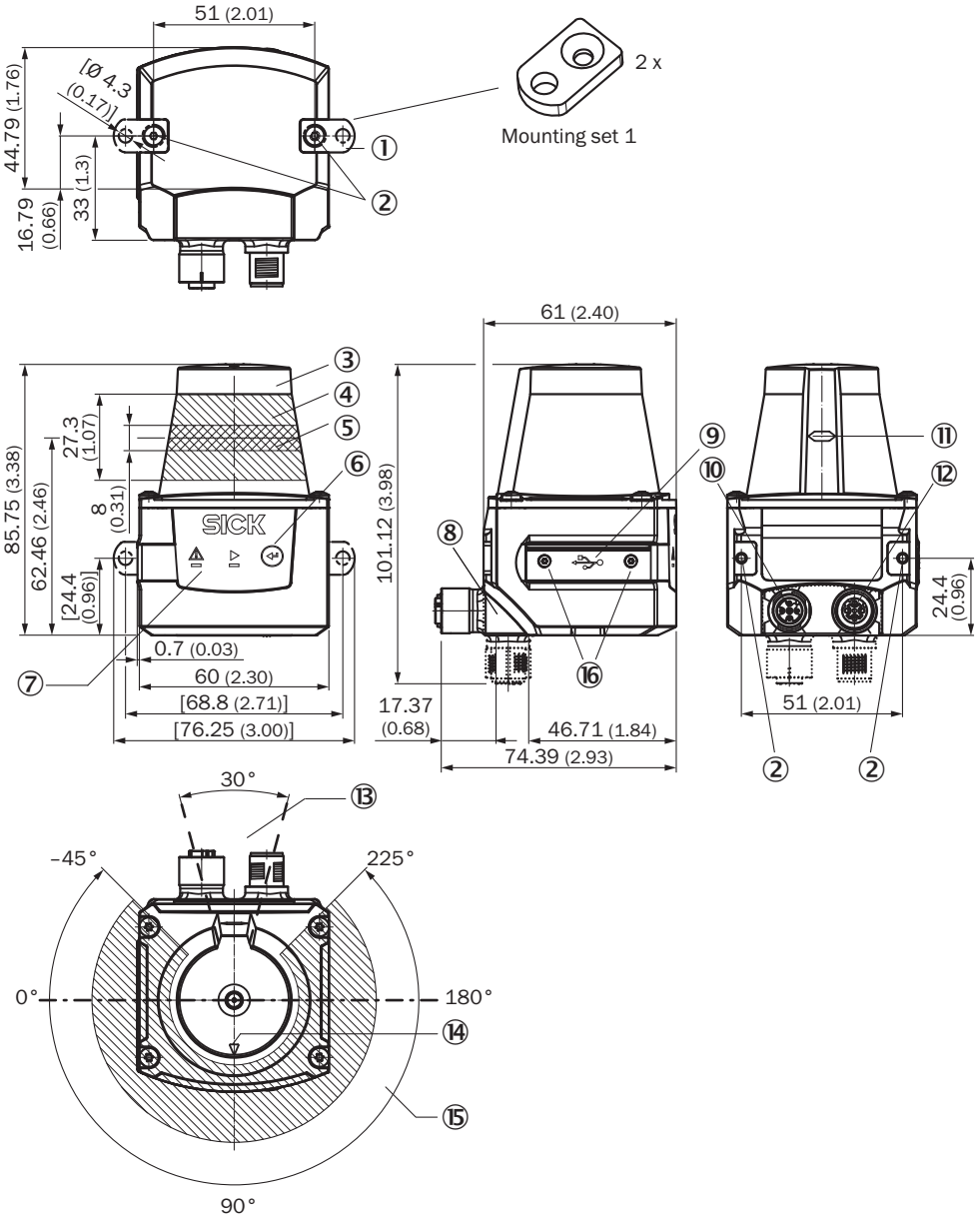
General notes

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

Classifications

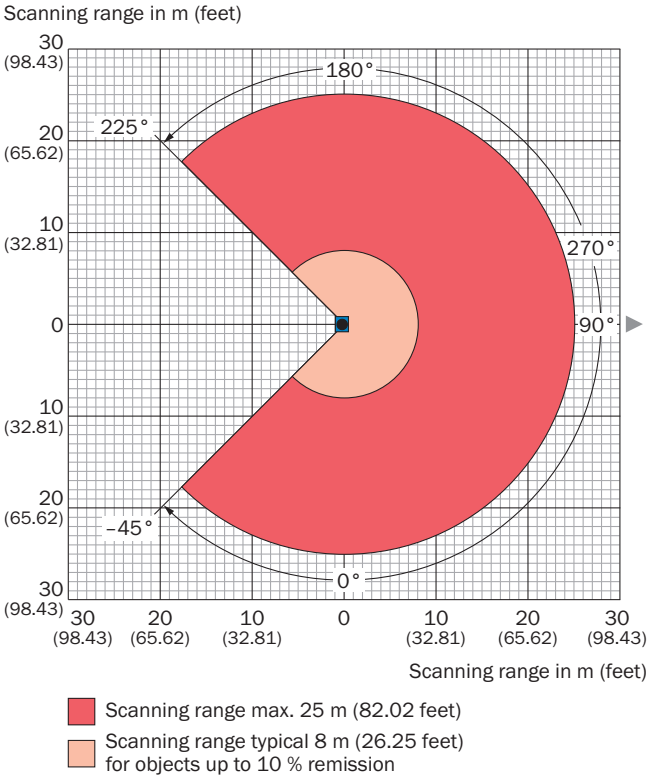
ECl@ss 5.0	27270990
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ECl@ss 10.0	27270913
ECl@ss 11.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	46171620

Dimensional drawing (Dimensions in mm (inch))



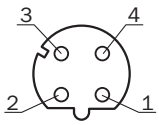
① 2 x straight plates with M3 x 4 mm screw (included in delivery)
② M3 threaded mounting hole, 2.8 mm deep (blind hole thread), max. tightening torque 0.8 Nm
③ Optical hood
④ Receiving range (light inlet)
⑤ Transmission range (light emission)
⑥ Push-button (no function)
⑦ Red and green LED (status displays)
⑧ Swivel connector unit
⑨ Micro USB female connector, type B
⑩ Connection “Power/Synchronization output” 5-pin, M12 male connector
⑪ Marking for the position of the light emission level
⑫ “Ethernet” connection, 4-pin M12 female connector
⑬ Area in which no reflective surfaces are allowed for mounted devices
⑭ Bearing marking to support alignment (90° axis)
⑮ Aperture angle 270° (scanning angle)
⑯ 2 x countersunk screw (Torx TX 6) M2 x 4 mm

Working range diagram



Connection type

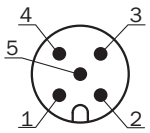
Ethernet



M12 female connector, 4-pin, D-coded
① TX+
② RX+
③ TX-
④ RX-

PIN assignment

Power



Connector M12, 5-pin, A-coded

① DC 9 V ... 28 V
② "SYNC"/"device ready"
③ GND
④ nc
⑤ nc

Recommended accessories

Other models and accessories ➜ www.sick.com/TiM5xx

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting kit with shock absorber, Anodized aluminum, mounting hardware included	Mounting kit	2086074
Plug connectors and cables			
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Power, PUR, halogen-free, shielded, 5 m	YF2A64-050XXXXLEAX	6036159
	Head A: male connector, USB-A Head B: male connector, Micro-B Cable: USB 2.0, unshielded, 2 m	USB cable	6036106
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, shielded, 5 m	YM2D24-050EB2MRJA4	6050200

Recommended services

Additional services ➜ www.sick.com/TiM5xx

	Type	Part no.
Product, system, and software training		
• **Range of services:** The training contents relate to the following 2D and 3D LiDAR sensors: LMS series, MRS1000, MRS6000, NAV series or TiM series, Training format and location can be worked out in collaboration with SICK	Training LMS/MRS/NAV/TiM	1612234
Commissioning		
• **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 of the LMS/MRS/NAV/TiM 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 • **Travel expenses:** The prices do not include travel costs such as hotel, flight, travel time and expenses. • **Duration:** Additional work will be invoiced separately	Commissioning LMS/MRS/NAV/TiM/LRS (Prime package)	1680672

	Type	Part no.
Maintenance		
• **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 • **Travel expenses:** The prices do not include travel costs such as hotel, flight, travel time and expenses.	Maintenance LMS/ MRS/NAV/TiM/LRS	1682593
Warranty extensions		
• **Product area:** Identification solutions, machine vision, Distance sensors, Detection and ranging solutions • **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase) • **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