Data sheet

TIM351-2134001

TiM

2D LIDAR SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
TIM351-2134001	1067299

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

Detailed technical data

Features

Application	Outdoor, Indoor
Measurement principle	HDDM$^+$
Light source	Infrared (850 nm)
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)
Aperture angle	
Horizontal	270°
Scanning frequency	15 Hz
Angular resolution	
Horizontal	1°
Working range	0.05 m ... 10 m
Scanning range	
At 10% remission factor	8 m

Mechanics/electronics

Connection type	1 x “Ethernet” connection, 4-pin M12 female connector 1 x connection “Power”, 12-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, 16 W with 4 max. loaded digital outputs
Output current	≤ 100 mA
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
MTBF	> 100 years

Safety-related parameters

$MTTF_D$	100 years

Performance

Response time	1 scan, typ. 67 ms 2 scans, ≤ 134 ms [1]
Detectable object shape	Almost any
Systematic error	± 60 mm [2]
Statistical error	< 20 mm [2]
Integrated application	Field evaluation
Number of field sets	16 field triples (48 fields, contour as reference; 1 triple (3 flexible fields) can be configured directly at the scanner)
Simultaneous evaluation cases	1 (3 fields) 2 (2 fields for detection and 1 field for contour as reference)

[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
Function	Service interface, parameterization
USB	✓
Remark	Micro USB
Function	Service interface, parameterization
Digital inputs/outputs	
Inputs	4
Outputs	3 (PNP, additional 1 x “Device Ready”)
Delay time	67 ms ... 30,000 ms (configurable)
Dwell time	67 ms ... 600,052 ms (configurable)
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]

[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.

	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]
Switch-on temperature	–10 °C ... +50 °C
Temperature change	–25 °C ... +50 °C, 10 cycles [5]
Damp heat	+25 °C ... +55 °C, 95 % RH, 6 cycles [6]
Permissible relative humidity	
Operation	< 80 %, Non-condensing (EN 60068-2-30:2005)
Storage	≤ 90 %, 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.

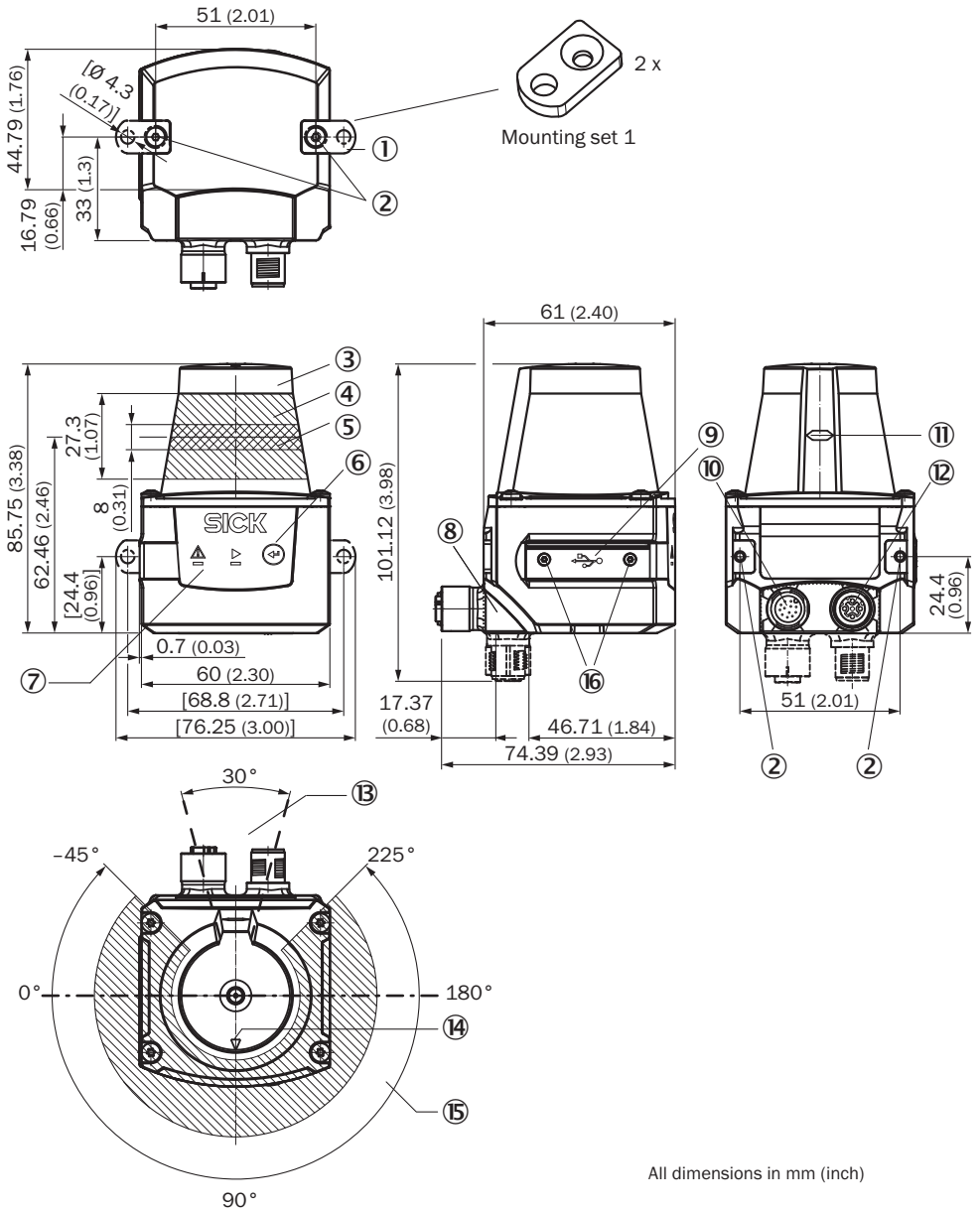
General notes

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

Classifications

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

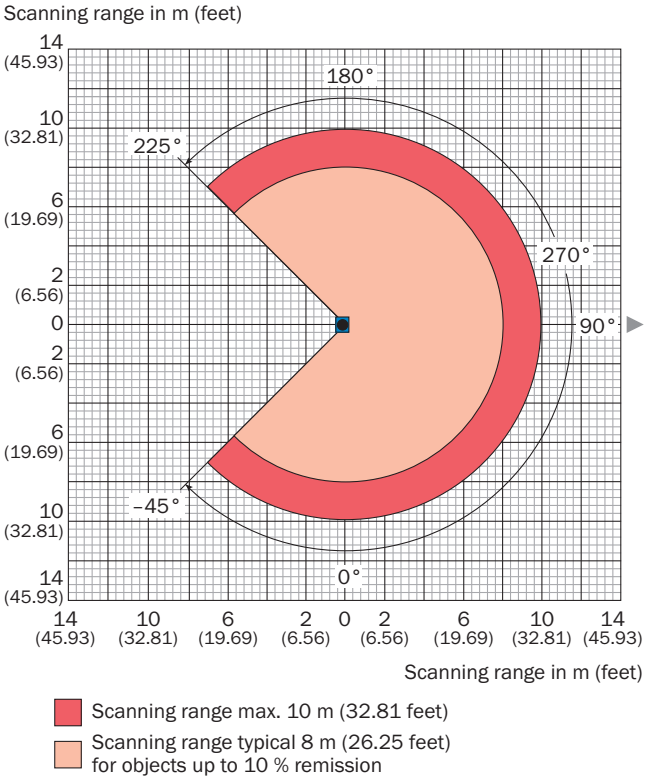


All dimensions in mm (inch)

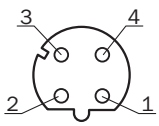
Dimensions in mm (inch)

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 Function button for teach-in
⑦ Red and green LED (status displays)
⑧ swivel connector unit
⑨ Micro USB female connector, type B
⑩ connection “Power”, 12-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

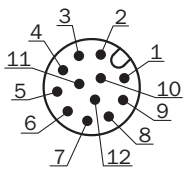


Connection type Ethernet



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

PIN assignment Power I/O connection



Connecting cable with male connector or M12 male connector, 12-pin, A-coded
① GND
② DC 9 V ... 28 V
③ In_1
④ In_2

⑤ OUT1
⑥ OUT2
⑦ OUT3
⑧ OUT4
⑨ PNP: INGND, NPN: IN 9 V ... 28 V
⑩ In3
⑪ In4
⑫ nc

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Mounting kit with shock absorber • **Material:** Anodized aluminum • **Details:** Anodized aluminum • **Items supplied:** Mounting hardware included • **Suitable for:** TiM3xx, TiM5xx, TiM7xx	Mounting kit	2086074
connectors and cables			
	Strich		On request
	Strich		On request

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.”

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