TiM series

EFFICIENT AT DETECTION – ABSOLUTELY ACCURATE AT MEASURING

2D LiDAR sensors

SICK
Sensor Intelligence.

MINIMUM HOUSING DIMENSIONS WITH MAXIMUM PERFORMANCE – THE TiM series FOR DETECTION AND RANGING

Whether your application involves picking up the presence of an object in a specific area (detection) or determining its exact position (ranging), the LiDAR sensors in the TiM series are a highly efficient solution for both tasks.

- Low power consumption, typically < 4 W
- Compact design with a maximum housing height of just 86 mm
- Industrial design with M12 male connector
- "Touch and Teach" configuration without PC
- Long sensing range of up to 25 m (maximum) with 0.33° raster
- A compact and efficient solution for straightforward detection applications

Although each of these LiDAR sensors has its own particular strengths in surface monitoring, they all share some common and highly impressive features. All of the scanners in the TiM series work with the HDDM technology developed by SICK, for example, enabling them to deliver particularly stable measured values. Everything works highly efficiently too, because all the LiDAR sensors can be integrated into your plant quickly and easily.

HDDM/HDDM+ technology

SICK's innovative HDDM technology produces very stable measurements: Multiple laser pulses are emitted in a swift chronological sequence and their reflections from the measuring object are calculated to produce a mean value. This approach ensures seamless scanning and reliable results, even in the presence of dirt, dust, moisture, and ambient light. The LiDAR sensors in the TiM1xx product family use the more advanced HDDM+ technology. They are able to deliver even more reliable measured values due to low noise in the measured value data.

The laser scanner principle

The 2D LiDAR sensors in the TiM series are based on the principle of a laser scanner and utilize time-of-light measurement. Laser scanners scan their surroundings by emitting a laser pulse which they then direct in the required direction using a moving mirror. When the laser pulse hits an object in the scan range, it is reflected and sent back to the laser scanner's receiver. By calculating the temporal difference between sending and receiving, as well as the signal strength, the position of the object is detected with millimeter accuracy.
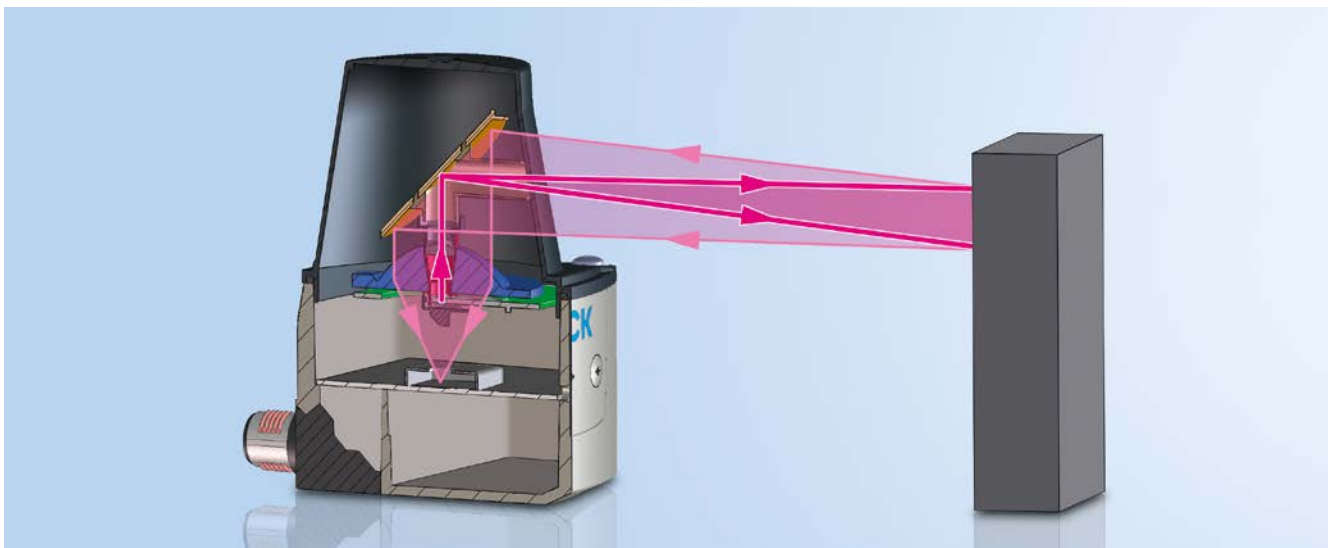
Efficient detection with the TiM series

LiDAR sensors have a specific job to do in detection applications: They detect whether or not an object is located in a defined scanning field. Switching outputs deliver the result "object in field" or "object not in field" within fractions of a second. The LiDAR sensors can detect whether a bay in a high-bay warehouse is full or empty, for example ➜ see page 4. Detection scanners are often used to prevent vehicle collisions. These non-contact laser scanners scan the environment and keep track of important objects at all times. If there is a risk of a collision, the scanners can be relied upon to output a warning via the switching outputs prior to an accident occurring.

## Ranging with the TiM series – complete measurement accuracy

LiDAR sensors for ranging applications detect the exact position of an object in the scanning field and output this data and the object's coordinates at the interface in digital, machine-readable format. This information includes distance data in the form of polar coordinates with distance and angle. Even the energy level of the reflected signal is fed back. The result is an accurate map of the scanned area. If objects or LiDAR sensors are mobile, the data can even be analyzed in 3D, with directions of movement being mapped.

THE TiM series: THREE LETTERS – THREE PRODUCT FAMILIES – NUMEROUS POSSIBLE APPLICATIONS

There are numerous tasks to be undertaken in the field of surface monitoring. Although all of the LiDAR sensors in the TiM series are able to rise to these challenges, each individual scanner plays its trump card in a different area.

TiM1xx – the efficient detection solution

The TiM1xx is all about combining reliable object detection with low running costs. Although its compact design allows it to be installed virtually unnoticed in plant systems, its field of view of 200° means that hardly anything passes by it unnoticed. IO-Link makes it ideal for networking.
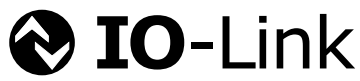
Rotating male connectors on the outside, modern HDDM⁺ technology on the inside

The TiM1xx can offer even more flexibility and leeway in installation, because the rotating male connector on its housing enables it to be mounted and aligned in various positions according to the needs of the application. Its internal values are impressive too. Built-in HDDM⁺ technology means that the TiM1xx can work unaffected by ambient light and other sources of ambient interference.

IO-Link

Typical applications
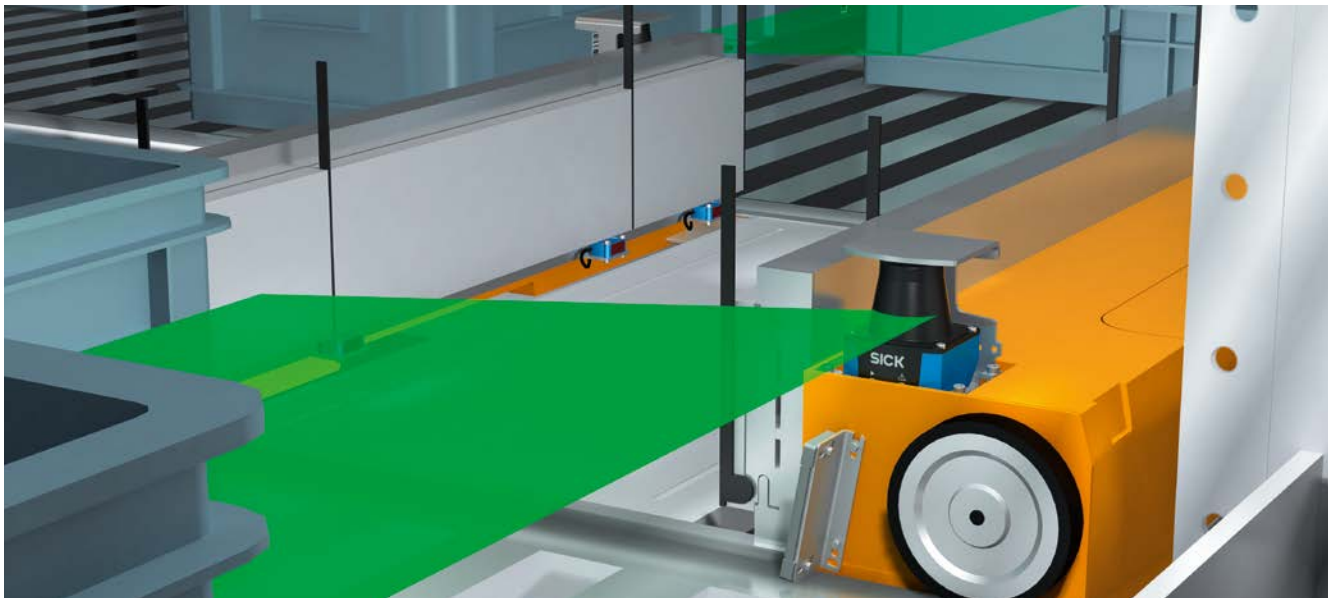
Empty bay detection in a tote storage area with TiM1xx.
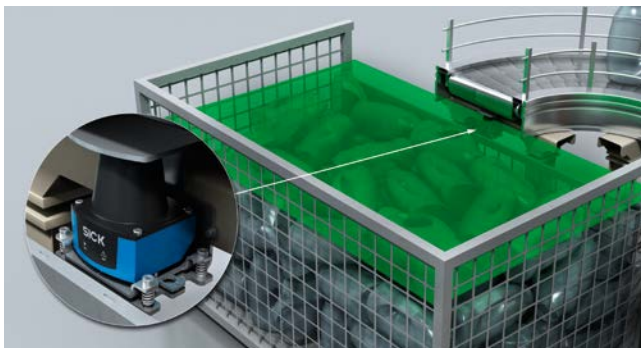
Protrusion monitoring and part counting at a material box.

Protection of valuable objects in a museum.

TiM3xx – the intelligent solution for collision avoidance and object detection

The TiM3xx is a highly intelligent device inside a compact housing. This combination makes it a flexible and user-friendly LiDAR sensor for mobile and stationary applications. Low power consumption means that it is perfect for use in collision avoidance applications for automated vehicles or for presence detection in high-bay warehouses in a monitoring zone of up to ten meters.

Multiple fields with a single touch of a button: "Touch and Teach"

Depending on the model, the TiM3xx gives you 16 pre-configured field sets, each containing three fields that can be selected and evaluated via input wiring. Rectangular, radial, or user-defined field shapes can be selected. The dimensions of the field shape are also very easy to adjust, as the "Touch and Teach" automated teach-in program can be started at the touch of a button without ever connecting to a computer. It takes less than two minutes to configure the TiM3xx and make it ready for operation. Alternatively, the settings can be made on a PC using SOPAS software.
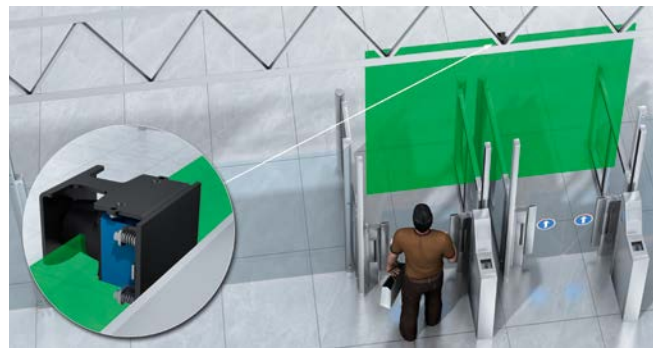
Rectangular   Radial   Free form

Typical applications

Collision protection on electrical overhead conveyors.

Barrier control with the TiM351 as an induction loop replacement.

Anti-climb monitoring at automated boarding gates.

TiM5xx – flexible with Ethernet interface

The TiM5xx is incredibly flexible. Meticulously measuring its surroundings with coverage of up to 25 meters and a 0.33° raster, it monitors and signals movements in the scanning field.
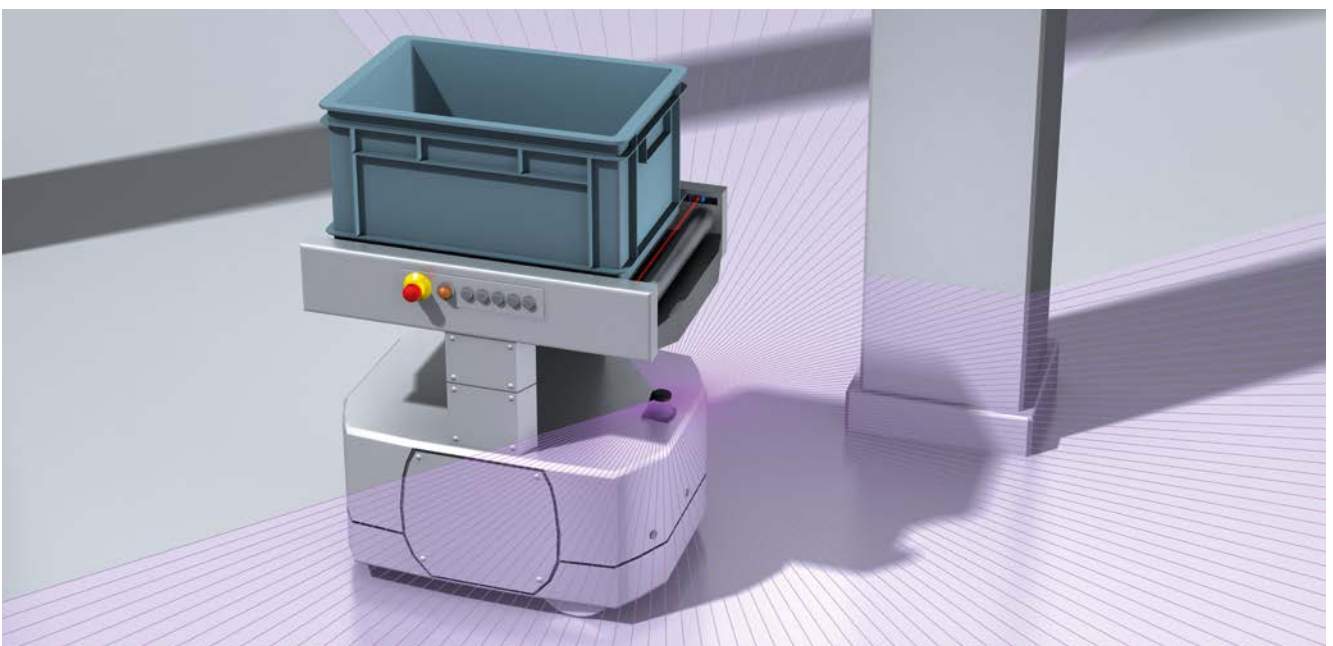
Integrated Ethernet interface included

The TiM5xx outputs measurement data for each individual angle in the form of a machine-readable data string (ASCII/binary format). Everything – including object distance and signal strength – is relayed via a USB or Ethernet interface. The data can be visualized in SOPAS or imported into a customer-specific application. With its compact design, the TiM5xx is even suitable for narrow and angular installation conditions.

Typical applications

Monitoring of open spaces.

Simultaneous localization and mapping for service robots.

PRODUCT FAMILY OVERVIEW

	TiM1xx	TiM3xx	TiM5xx
	Sensor for area monitoring: small, simple, cost-effective	Incredibly good at detection	Complete measurement accuracy

Technical data overview			
Field of application	Indoor	Indoor / Outdoor	Indoor / Outdoor
Aperture angle	200°	270°	270°
Angular resolution	1°	1° / 0.33°	3° 1° 0.33°
Operating range	0.05 m … 3 m	0.05 m … 10 m	0.05 m … 25 m
Max. range with 10 % reflectivity	1.5 m	2 m / 8 m	2 m / 8 m
Scanning frequency	14.5 Hz	15 Hz	15 Hz
Ambient operating temperature	–10 °C … +50 °C	–25 °C … +50 °C	–25 °C … +50 °C
IO-Link	✔	–	–
Serial (RS-232)	–	–	✔ / –
Ethernet	–	– / ✔	– / ✔
USB	–	✔ , micro USB	✔ , micro USB
Weight	90 g	150 g / 250 g	150 g / 250 g

At a glance			
	• Small, simple, and cost-effective sensor for area monitoring • Monitoring of an area of up to 15.7 m² • Low weight of just 90 g • Field evaluation using integrated software algorithms • Low power consumption of typically 2.2 W • Configuration and cloning using IO-Link • Industrial design	• Configure without a PC using "touch and teach" • Small, lightweight and economical measurement sensor • Field evaluation using intelligent algorithms • Set parameter interface is accessible while device is mounted • One of the smallest LiDAR sensor on the market • Proven industrial design • Low power consumption (typ. 4 W)	• Monitoring area of up to 1,470 m² with just one sensor • High ambient light tolerance due to HDDM technology • Rugged housing with up to an IP 67 enclosure rating • Low power consumption (typ. 4 W) • Compact design with a housing height of just 86 mm maximum • Integrated Ethernet interface • Long sensing range of up to max. 25 m • Industry-standard design and M12 male connector
Detailed information	➜ 8	➜ 12	➜ 20

SENSOR FOR AREA MONITORING: SMALL, SIMPLE, COST-EFFECTIVE

Product description

TiM1xx is a small, simple, cost-effective laser scanner for a wide variety of area-monitoring applications. It is the starter model of the 2D LiDAR sensors from SICK and opens up new application possibilities with its compact design. TiM1xx is the ideal sensor for challenging presence-monitoring applications. The HDDM⁺ technology ensures reliable object detection and offers maximum machine availability even under difficult conditions. With the TiM1xx, detection fields of up to 15.7 m² are easy to configure via teach-in or software. The integrated IO-Link interface makes sure that commissioning can be performed as quickly as possible and enables flexibility during application as well as simple parameter cloning.

At a glance

- Small, simple, and cost-effective sensor for area monitoring
- Monitoring of an area of up to 15.7 m²
- Low weight of just 90 g
- Field evaluation using integrated software algorithms
- Low power consumption of typically 2.2 W
- Configuration and cloning using IO-Link
- Industrial design

Your benefits

- Low installation effort thanks to monitoring of a 200° field of view
- Low overall operating costs
- Low space requirements thanks to compact dimensions
- Rapid commissioning thanks to simple configuration of the detection zone with teach-in or software
- Low installation costs and rapid replacement thanks to rotatable connector, IO-Link, and parameter cloning
- Particularly suitable for use in battery-operated vehicles thanks to low power consumption

Additional information

➜ **www.sick.com/TiM1xx**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Detailed technical data

Features

Light source	Infrared (850 nm)
Laser class	1, eye-safe (IEC 60825-1:2014)
Aperture angle	200°
Scanning frequency	14.5 Hz
Operating range	0.05 m ... 3 m
Max. range with 10 % reflectivity [1]	1.5 m

[1] Sensing range 1.2¬m to 1.5¬m for objects with 10% remission, depending on the angle.

Performance

Response time	Typ. 70 ms
Detectable object shape	Almost any
Systematic error [1]	± 100 mm
Statistical error [1]	20 mm
Integrated application	Field evaluation
Number of field sets	1 field set (can be configured directly on the scanner via teach-in)
Simultaneous evaluation cases	1 (1 field)

[1] Typical value; actual value depends on environmental conditions.

Interfaces

IO-Link	✔
Function	AUX, parameterization
Switching inputs	1
Delay time	69 ms ... 30,015 ms (configurable)
Dwell time	69 ms ... 30,015 ms (configurable)
Optical indicators	2 LEDs (ON, switching status)

Mechanics/electronics

Operating voltage	9 V DC ... 28 V DC [1]
Power consumption	Typ. 2.2 W
Enclosure rating	IP 65 (IEC 60529:1989+AMD1:1999+AMD2:2013)
Protection class	III (IEC 61140:2016-1)
Weight	90 g, without connecting cables
Dimensions (L x W x H)	60 mm x 60 mm x 75.8 m

[1] When using IO-Link output V_s > 18 V.

Ambient data

|	
Electromagnetic compatibility (EMC)	IEC 61000-6-3:2006+AMD1:2010 / IEC 61000-6-2:2005
Vibration resistance	IEC 60068-2-6:2007
Shock resistance	IEC 60068-2-27:2008
Ambient operating temperature	–10 °C ... +50 °C
Storage temperature	–30 °C ... +70 °C
Ambient light immunity	80,000 lx

Ordering information

- **Sub product family:** TiM10x
- **Field of application:** Indoor
- **Electrical connection:** 1 x 5-pin M12 male device connector (rotatable)

Switching outputs	Angular resolution	Object remission	Housing color	Type	Part no.
1	1°	4 % ... > 1,000 %, reflectors	Light blue (RAL 5012)	TIM100-3010200	1077524

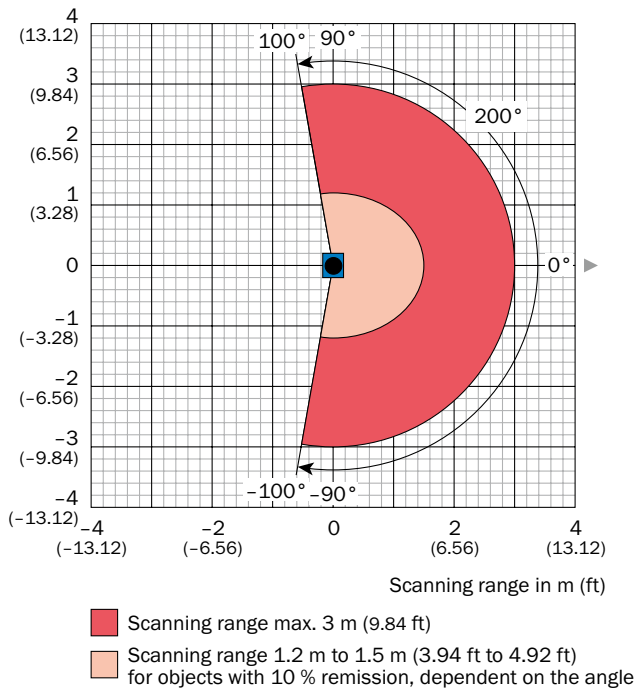## Dimensional drawing (Dimensions in mm (inch))

TiM1xx
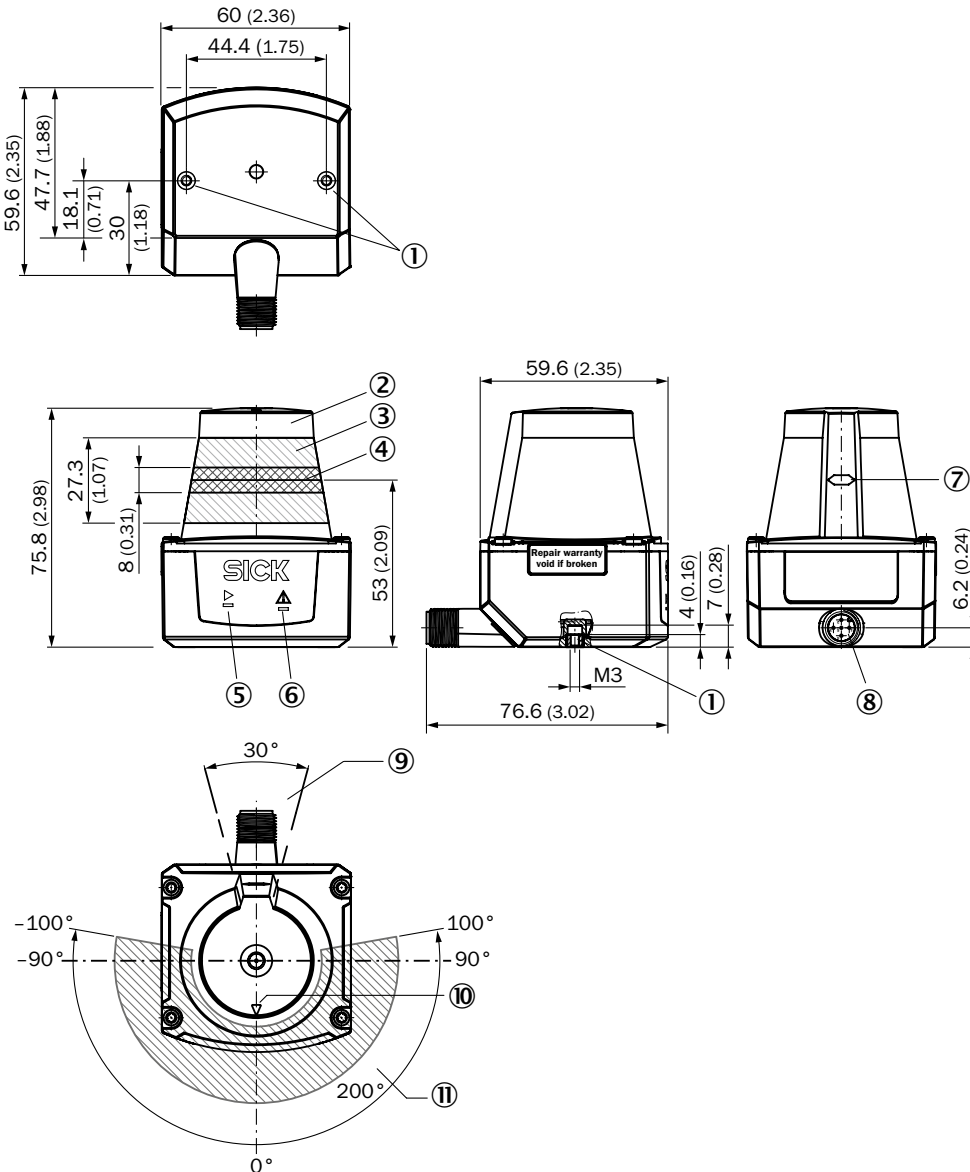
① M3 threaded mounting hole, 2.8 mm deep (blind hole thread), tightening torque 0.8 Nm
② Optical hood
③ Receiving range (light inlet)
④ Transmission range (light emission)
⑤ Green LED
⑥ Red LED
⑦ Marking for the position of the light emission level
⑧ 5-pin M12 male connector (rotatable)
⑨ Area in which no reflective surfaces are allowed for mounted devices
⑩ bearing marking to support alignment (0° axis)
⑪ Aperture angle 200° (scanning angle)

Operating range diagram

TiM10x

Scanning range in m (ft)

Scanning range in m (ft)

■ Scanning range max. 3 m (9.84 ft)

■ Scanning range 1.2 m to 1.5 m (3.94 ft to 4.92 ft)
for objects with 10 % remission, dependent on the angle

Recommended accessories

Mounting systems

Mounting brackets and plates

|	Brief description	Part no.
Illustration may differ	Q-lock mounting system	2083311

Connection systems

Plug connectors and cables

	Signal type/ application	Connection type head A	Connection type head B	Cable	Cable length	Part no.
	Power, I/O	Female connector, M12, 5-pin, straight	Cable	5-wire, drag chain use, UL	2 m	6025906
	Digital I/Os	Female connector, M12, 5-pin, straight, A-coded	Male connector, M12, 5-pin, straight, A-coded	5-wire, drag chain use, UL	2 m	6025931

Modules and gateways

	Brief description	Type	Part no.
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790

INCREDIBLY GOOD AT DETECTION
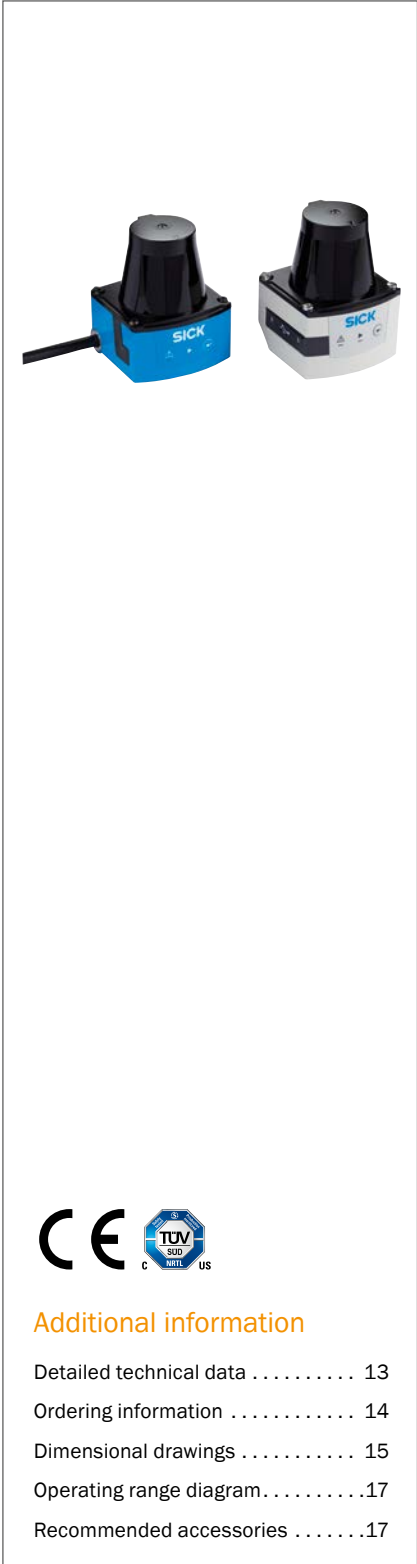
Product description

The TiM3xx is the next step in the evolution of laser scanners. The 2D LiDAR sensor uses SICK's new HDDM (High-definition Distance Measurement) technology, which reduces machine downtime due to its extremely high measurement reliability and immunity to ambient light. The design of the TiM3xx offers a large detection range of up to 10 m. This compact sensor is one of the smallest laser scanners on the market, making it easily hidden from view. Its "touch and teach" feature enables users to set the sensor's surveillance area without a PC. In addition, 16 preconfigured fieldsets (3 fields per set) can be selected via the inputs. The TiM3xx is a flexible, cost-efficient and easy-to-use LiDAR sensor for applications in logistics and factory automation. It can be used on fixed applications or mobile vehicles. With its low power consumption and rugged design, plus optional protection cover and shock absorber, the TiM3xx is ideal for AGVs and other industrial vehicles.

At a glance

- Configure without a PC using "touch and teach"
- Small, lightweight and economical measurement sensor
- Field evaluation using intelligent algorithms
- Set parameter interface is accessible while device is mounted
- One of the smallest LiDAR sensors on the market
- Proven industrial design
- Low power consumption (typ. 4 W)

Your benefits

- Low cost of ownership
- Easily hidden from view due to small dimensions
- Low installation costs and exchange time due to M12 x 12 or D-Sub connector
- Long operation for battery-driven vehicles
- Preconfigured fields ensure short installation time
- Reduced hardware costs since only one sensor can be used for large anti-collision fields (up to 235 m^2)
- No wiring necessary between sender and receiver

Additional information

➜ **www.sick.com/TiM3xx**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Detailed technical data

Features

	TiM31x	TiM32x	TiM35x	TiM36x
Light source	Infrared (850 nm)			
Laser class	1, eye-safe (IEC 60825-1:2014)			
Aperture angle	270°			
Scanning frequency	15 Hz			
Operating range	0.05 m ... 4 m		0.05 m ... 10 m	
Max. range with 10 % reflectivity	2 m		8 m	

Performance

	TiM31x	TiM32x	TiM35x	TiM36x
Response time	Typ. 134 ms		Typ. 67 ms	
Detectable object shape	Almost any			
Systematic error [1]	± 40 mm		± 60 mm	
Statistical error [1]	30 mm		20 mm	
Integrated application	Field evaluation	Field evaluation with flexible fields		
Number of field sets	16 field triples (48 fields, 1 triple (3 fields) configurable directly at the scanner)	16 field triples (48 fields, 1 triple (3 flexible fields) configurable directly at the scanner)	16 field triples (48 fields, contour as reference; 1 triple (3 fields) configurable directly at the scanner)	
Simultaneous evaluation cases	1 (3 fields)		1 (3 fields) 2 (2 fields for detection and 1 field for contour as reference)	

[1] Typical value; actual value depends on environmental conditions.

Interfaces

	TiM31x	TiM32x	TiM35x	TiM36x
Ethernet	–		✔	
USB	✔, micro USB			
Function	AUX, parameterization			
Switching inputs	4			
Delay time	134 ms ... 30,000 ms (configurable)		67 ms ... 30,000 ms (configurable)	
Dwell time	67 ms ... 10,000 ms (configurable)			
Optical indicators	2 LEDs (ON, switching status)		–	

Mechanics/electronics

	TiM31x	TiM32x	TiM35x	TiM36x
Operating voltage	9 V DC ... 28 V DC			
Power consumption	Typ. 4 W			
Enclosure rating	IP 65 (IEC 60529:1989+AMD1:1999+AMD2:2013)		IP 67 (IEC 60529:1989+AMD1:1999+AMD2:2013)	
Protection class	III (IEC 61140:2016-1)			
Weight	150 g, without connecting cables		250 g, without connecting cables	
Dimensions (L x W x H)	60 mm x 60 mm x 79 mm		60 mm x 60 mm x 86 mm	

Ambient data

|	TiM31x	TiM32x	TiM35x	TiM36x
Electromagnetic compatibility (EMC)	IEC 61000-6-3:2006+AMD1:2010 / IEC 61000-6-2:2005			
Vibration resistance	IEC 60068-2-6:2007			
Shock resistance	IEC 60068-2-27:2008			
Ambient operating temperature	–10 °C … +50 °C		–25 °C … +50 °C	
Storage temperature	–30 °C … +70 °C		–40 °C … +75 °C	
Ambient light immunity	15,000 lx		80,000 lx	

Ordering information

- **Object remission:** 4 % … > 1,000 %, reflectors

| Sub product family	Field of application	Electrical connection	Switching outputs	Angular resolution	Housing color	Type	Part no.
TiM31x	Indoor	Open wires (2.0 m)	3 (NPN, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM310-0130000S02	1069932
		1 x 15-pin D-sub HD male connector (0.9 m)	3 (PNP, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM310-1030000	1052627
			3 (NPN, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM310-1030000S02	1062221
		1 x M12 12-pin male connector (0.8 m)	3 (PNP, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM310-1130000	1056550
			3 (NPN, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM310-1130000S02	1067917
TiM32x	Indoor	Open wires (2.0 m)	3 (NPN, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM320-0131000S02	1069933
		1 x 15-pin D-sub HD male connector (0.9 m)	3 (PNP, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM320-1031000	1063467
		1 x M12 12-pin male connector (0.8 m)	3 (PNP, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM320-1131000	1062219
			3 (NPN, additional 1 x "Device Ready")	1°	Light blue (RAL 5012)	TIM320-1131000S02	1067919
TiM35x	Outdoor	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	3 (PNP, additional 1 x "Device Ready")	1°	Gray (RAL 7032)	TIM351-2134001	1067299
			3 (NPN, additional 1 x "Device Ready")	1°	Gray (RAL 7032)	TIM351-2134001S02	1080181
TiM36x	Outdoor	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	3 (PNP, additional 1 x "Device Ready")	0.33°	Gray (RAL 7032)	TIM361-2134101	1071399
			3 (NPN, additional 1 x "Device Ready")	0.33°	Gray (RAL 7032)	TIM361-2134101S02	1080182

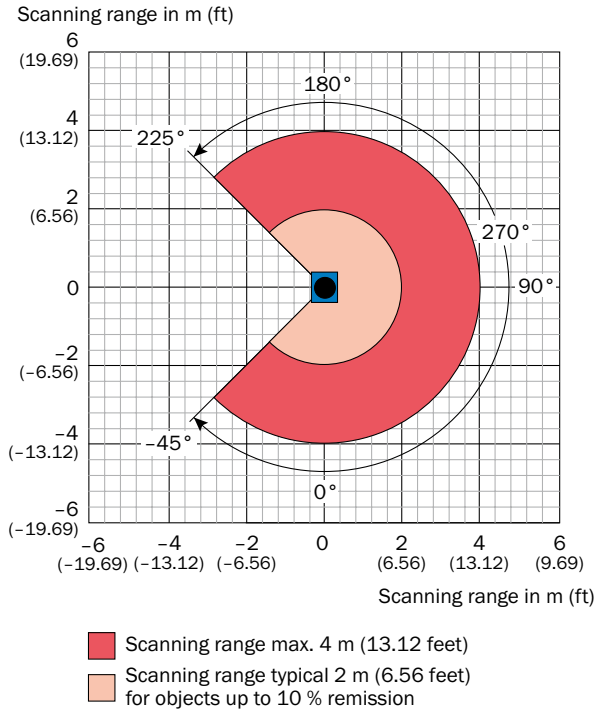## Dimensional drawings (Dimensions in mm (inch))

TiM31x
TiM32x
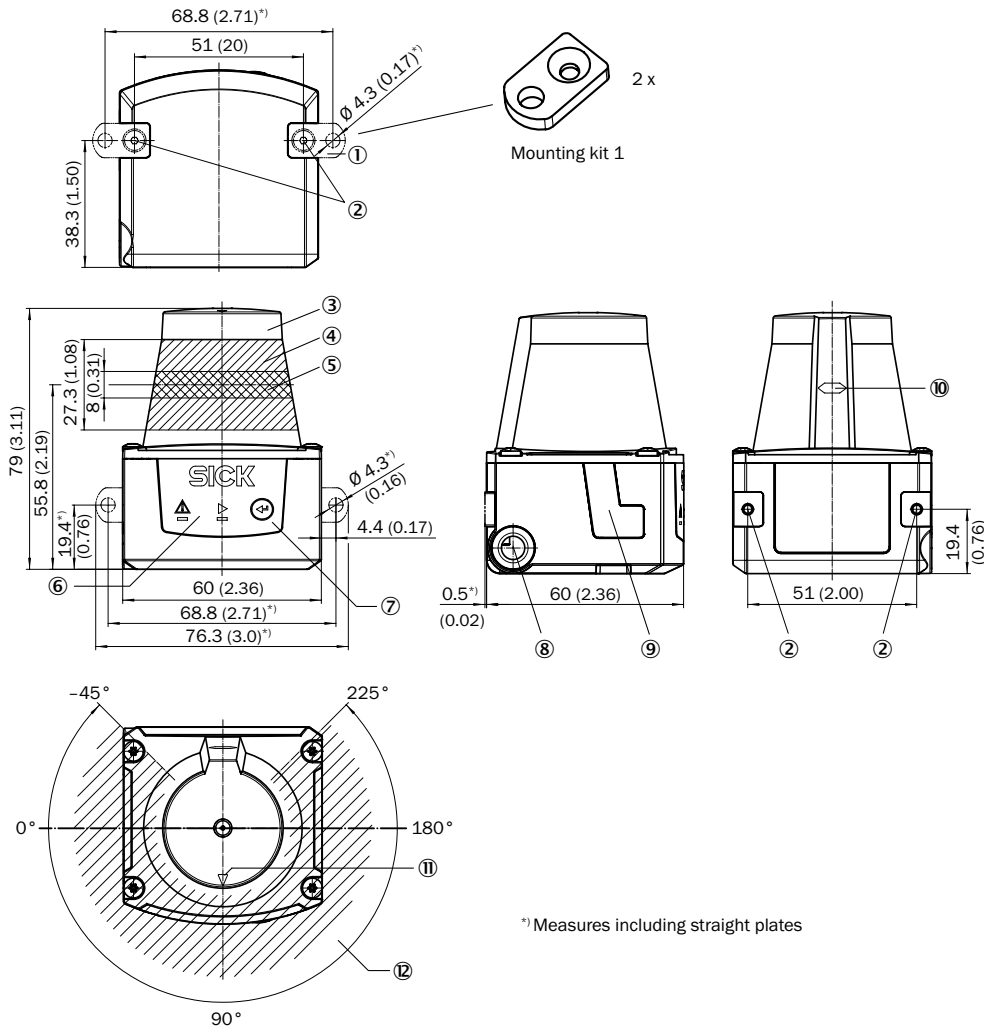
Mounting kit 1

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)
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 exit ("power/ switching inputs/outputs" connection)
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)

*) Measures including straight plates

TiM35x
TiM36x
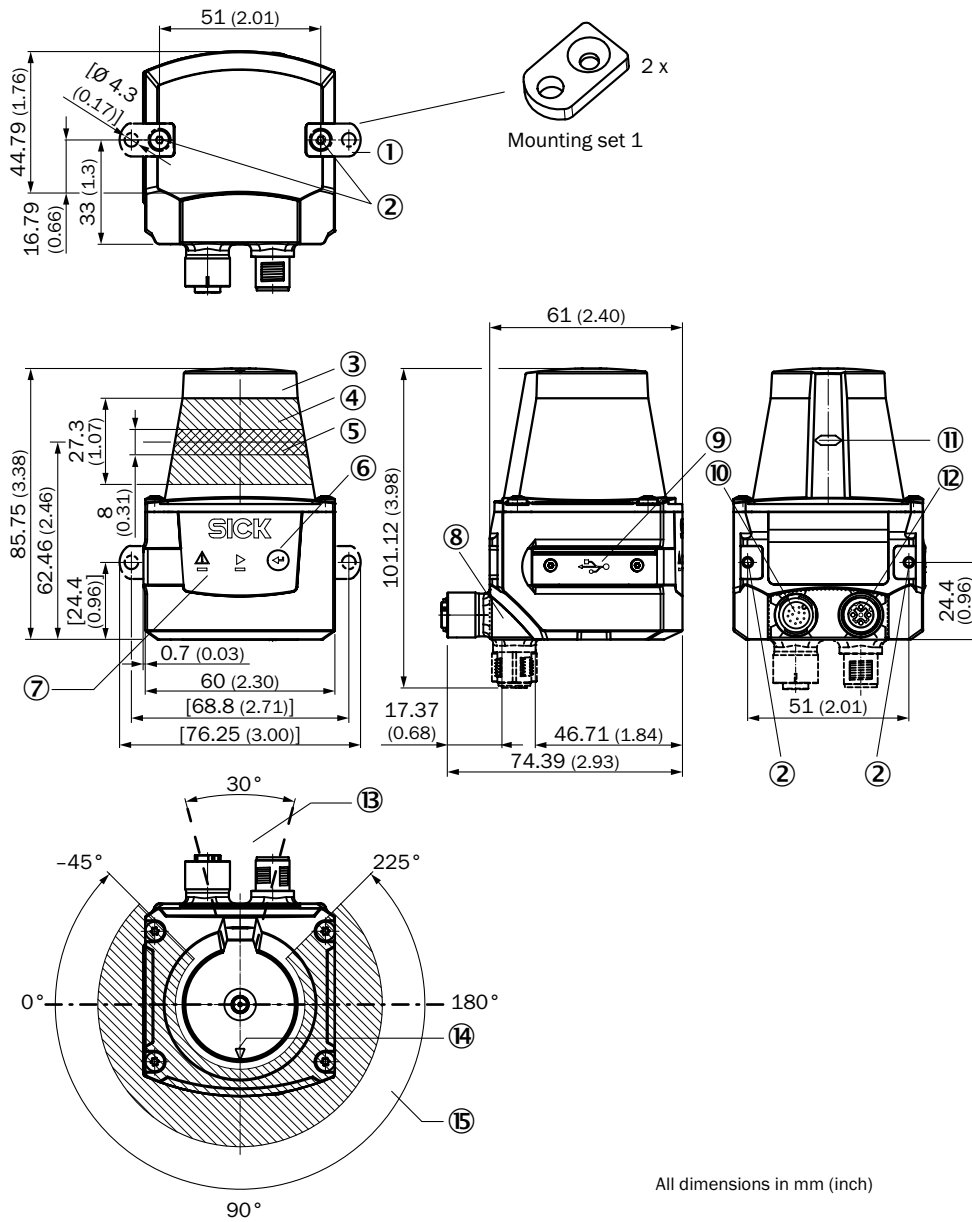
Mounting set 1

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)
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)

All dimensions in mm (inch)

Operating range diagram

TiM31x
TiM32x
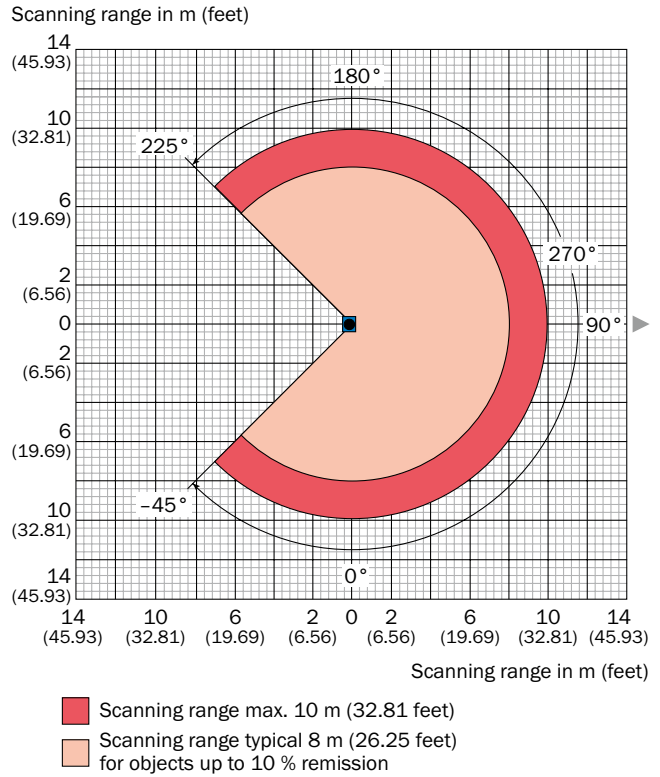
Scanning range in m (ft)

■ Scanning range max. 4 m (13.12 feet)

■ Scanning range typical 2 m (6.56 feet)
for objects up to 10 % remission

TiM35x
TiM36x

Scanning range in m (feet)

■ Scanning range max. 10 m (32.81 feet)

■ Scanning range typical 8 m (26.25 feet)
for objects up to 10 % remission

Recommended accessories
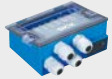
Mounting systems

Mounting brackets and plates

	Brief description	Part no.	TiM31x	TiM32x	TiM35x	TiM36x
Illustration may differ	Mounting set 2, fender and alignment aid	2061776	●	●	–	–
Illustration may differ	Mounting kit with sun shade/weather protection	2068398	–	–	●	●

Connection systems

Modules

	Brief description	Type	Part no.	TiM31x	TiM32x	TiM35x	TiM36x
Illustration may differ	Small connection module for one sensor, 4 cable glands (only for TiM3xx-10xxxxx)	CDB730-001	1055981	●	●	–	–

Plug connectors and cables

	Signal type/ application	Connection type head A	Connection type head B	Cable	Cable length	Part no.	TiM31x	TiM32x	TiM35x	TiM36x
	Power, serial, CAN, digital I/Os	Female connector, D-Sub-HD, 15-pin, straight	Cable	Extension cable, 15-wire, AWG26	2 m	2043413	●	●	–	–
	Power, I/O	Female connector, M12, 12-pin, straight, A-coded	Cable	12-wire	5 m	6054974	●	●	●	●
	Ethernet	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, drag chain use, AWG26	5 m	6034415	–	–	●	–
Illustration may differ				4-wire, suitable for refrigeration, Ecolab, AWG26	5 m	6050200	–	–	●	●
	USB 2.0	Male connector, USB-A	Male connector, Micro-B	–	2 m	6036106	●	–	–	–

For more accessories, see ➜ **27**

COMPLETE MEASUREMENT ACCURACY
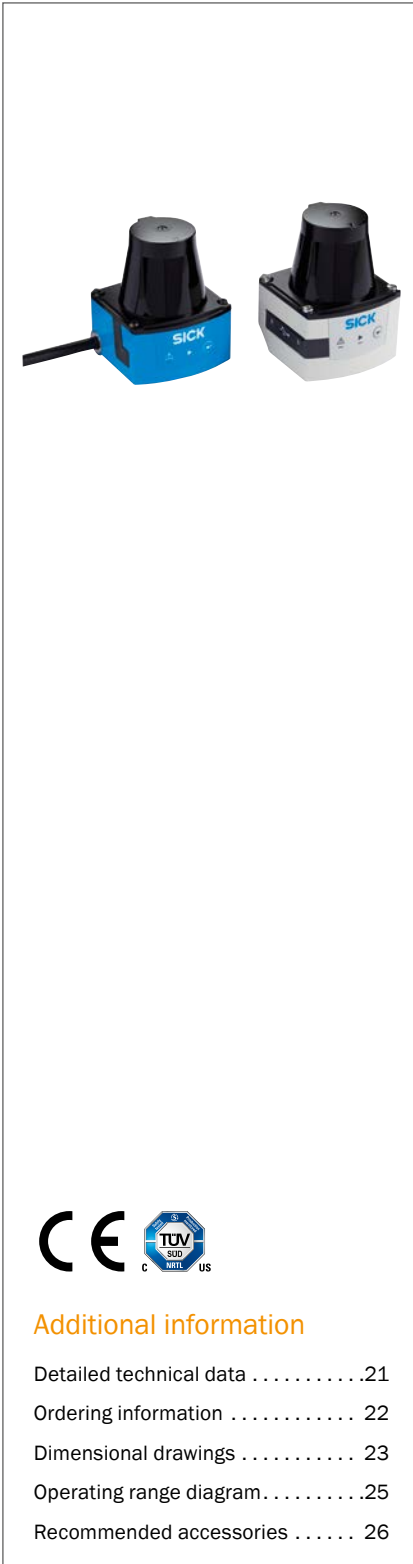
Product description

More than just object detection: The TiM5xx 2D LiDAR sensors is the measuring solution within the TiM series from SICK. Thanks to its HDDM technology, the TiM5xx monitors large areas in indoor and outdoor applications – regardless of the surface or ambient light. Enclosed in a compact, rugged housing, the TiM5xx provides accurate measurements of the scanned surface, making it possible to determine additional information such as the size and shape of objects. The TiM5xx can be used in variety of industrial applications as well as in building automation. The integrated Ethernet interface makes easy implementation and remote maintenance possible. The TiM5xx is an efficient solution for stationary use as well as for use on automated guided vehicles (AVG) and other mobile applications.

At a glance

- Monitoring area of up to 1,470 m^2 with just one sensor
- High ambient light tolerance due to HDDM technology
- Rugged housing with up to an IP 67 enclosure rating
- Low power consumption (typ. 4 W)
- Compact design with a housing height of just 86 mm maximum
- Integrated Ethernet interface
- Long sensing range of up to max. 25 m
- Industry-standard design and M12 male connector

Your benefits

- Reliable object detection independent of the surface and ambient light
- Rugged IP 67 enclosure rating withstands both indoor and outdoor conditions
- Easy integration into compact automated guided vehicles (AGV) due to small size
- Ethernet interface enables straightforward implementation and remote maintenance
- Can determine additional information such as object size, shape, etc. due to measured data output
- Low implementation costs due to scalability: Sensor telegram is identical to telegrams for LiDAR sensors in the SICK portfolio

Additional information

➜ www.sick.com/TiM5xx

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Detailed technical data

Features

	TiM51x	TiM55x	TiM56x	TiM57x
Light source	Infrared (850 nm)			
Laser class	1, eye-safe (IEC 60825-1:2014)			
Aperture angle	270°			
Scanning frequency	15 Hz			
Operating range	0.05 m … 4 m	0.05 m … 10 m		0.05 m … 25 m
Max. range with 10 % reflectivity	2 m	8 m		

Performance

	TiM51x	TiM55x	TiM56x	TiM57x
Response time	Typ. 67 ms			
Detectable object shape	Almost any			
Systematic error [1]	± 40 mm	± 60 mm		
Statistical error [1]	30 mm	20 mm		

[1] Technical data such as measurement errors and sensing range can only be guaranteed up to a sensing range of 10 m.

Interfaces

	TiM51x	TiM55x	TiM56x	TiM57x
Serial (RS-232)	✔	–		
Function	Host	–		
Data transmission rate	115.2 Baud	–		
Ethernet	–	✔		
USB	✔, micro USB			
Function	AUX, parameterization			
Switching inputs	0			
Optical indicators	2 LEDs (ON, switching status)	2 LEDs (ON, "device ready")		

Mechanics/electronics

	TiM51x	TiM55x	TiM56x	TiM57x
Operating voltage	9 V DC … 28 V DC			
Power consumption	Typ. 4 W			
Enclosure rating	IP 65 (IEC 60529:1989+AMD1:1999+AMD2:2013)	IP 67 (IEC 60529:1989+AMD1:1999+AMD2:2013)		
Protection class	III (IEC 61140:2016-1)			
Weight	150 g, without connecting cables	250 g, without connecting cables		
Dimensions (L x W x H)	60 mm x 60 mm x 79 mm	60 mm x 60 mm x 86 mm		

Ambient data

	TiM51x	TiM55x	TiM56x	TiM57x
Electromagnetic compatibility (EMC)	IEC 61000-6-3:2006+AMD1:2010 / IEC 61000-6-1:2016	IEC 61000-6-3:2006+AMD1:2010 / IEC 61000-6-2:2005		
Vibration resistance	IEC 60068-2-6:2007			

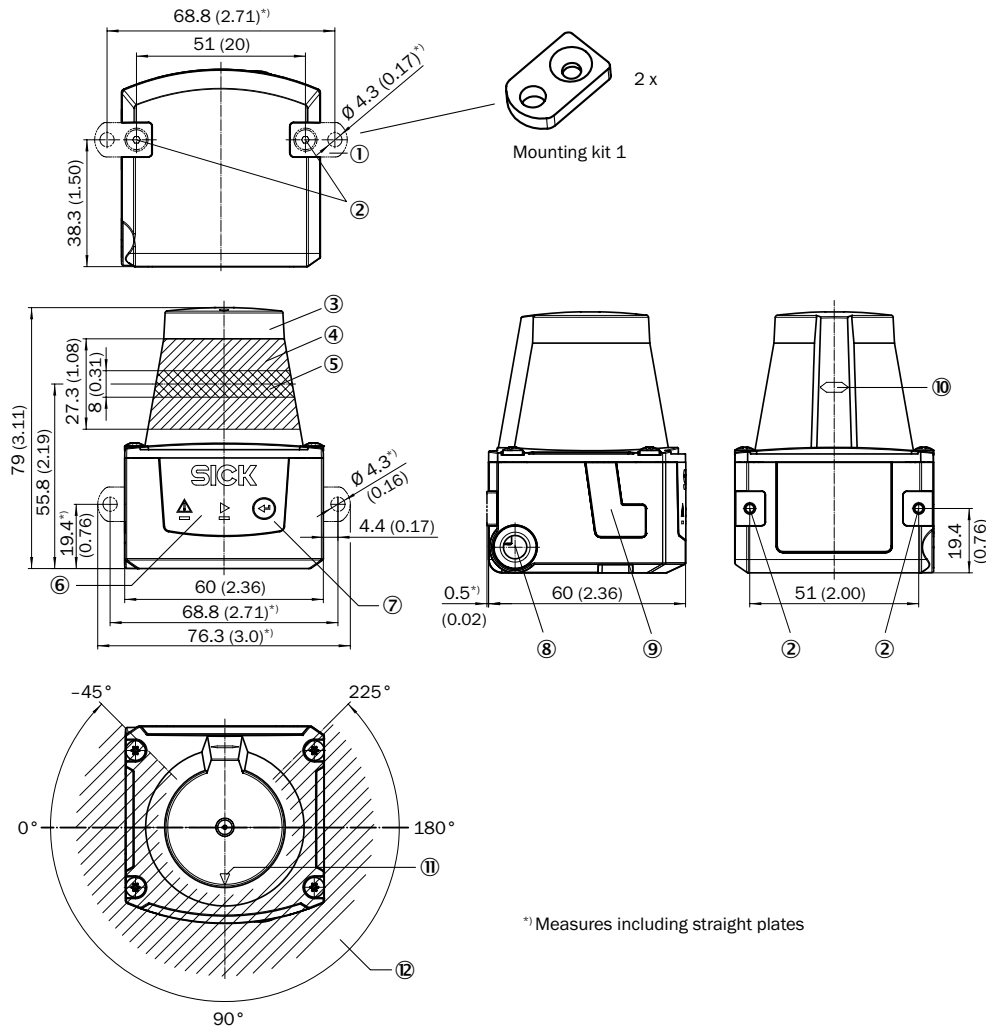|	TiM51x	TiM55x	TiM56x	TiM57x
Shock resistance	IEC 60068-2-27:2008			
Ambient operating temperature	–10 °C … +50 °C	–25 °C … +50 °C		
Storage temperature	–30 °C … +70 °C	–40 °C … +75 °C		
Ambient light immunity	80,000 lx			

Ordering information

- **Switching outputs:** 1 (PNP, "SYNC"/"device ready")
- **Object remission:** 4 % … > 1,000 %, reflectors

Sub product family	Field of application	Electrical connection	Angular resolution	Housing color	Type	Part no.
TiM51x	Indoor	1 x cable with 12-pin M12 male connector (0,3 m) 1 x Micro USB female connector, type B	3°	Light blue (RAL 5012)	TIM510-9950000S01	1062210
TiM55x	Outdoor	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	1°	Gray (RAL 7032)	TIM551-2050001	1060445
TiM56x	Outdoor	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	0.33°	Gray (RAL 7032)	TiM561-2050101	1071419
		1 x "Ethernet" connection, cable, with RJ45 male connector (1 m) 1 x "Power/Synchronization output" connection, 5-wire cable with open end (1 m) 1 x Micro USB female connector, type B	0.33°	Gray (RAL 7032)	TiM561-9950101S01	1079741
TiM57x	Outdoor	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	0.33°	Gray (RAL 7032)	TiM571-2050101	1075091
		1 x "Ethernet" connection, cable, with RJ45 male connector (1 m) 1 x "Power/Synchronization output" connection, 5-wire cable with open end (1 m) 1 x Micro USB female connector, type B	0.33°	Gray (RAL 7032)	TiM571-9950101S01	1079742

Dimensional drawings (Dimensions in mm (inch))

TiM51x

68.8 (2.71)*)
51 (20)
Ø 4.3 (0.17)*)
38.3 (1.50)
① ②

2 x

Mounting kit 1

③ ④ ⑤
79 (3.11)
27.3 (1.08)
8 (0.31)
55.8 (2.19)
19.4*) (0.76)
SICK
Ø 4.3*) (0.16)
4.4 (0.17)
60 (2.36)
68.8 (2.71)*)
76.3 (3.0)*)
⑥ ⑦

0.5*) (0.02)
60 (2.36)
⑧ ⑨

⑩

51 (2.00)
19.4 (0.76)
② ②

−45° 225°
0° 180°
⑪
90°
⑫

*) 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)
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 exit ("power/switching inputs/outputs" connection)
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)

TiM55x
TiM56x
TiM57x

51 (2.01)

44.79 (1.76)

[Ø 4.3 (0.17)]

33 (1.3)

16.79 (0.66)

2 x

① Mounting set 1

②

③
④
⑤
⑥

SICK

27.3 (1.07)

8 (0.31)

85.75 (3.38)

62.46 (2.46)

[24.4 (0.96)]

0.7 (0.03)

60 (2.30)

[68.8 (2.71)]

[76.25 (3.00)]

⑦

61 (2.40)

101.12 (3.98)

⑧

17.37 (0.68)

46.71 (1.84)

74.39 (2.93)

⑨
⑩

⑪
⑫

24.4 (0.96)

51 (2.01)

②   ②

30°

⑬

−45°   225°

0°   180°

⑭

⑮

90°

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)
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)

Operating range diagram

TiM51x
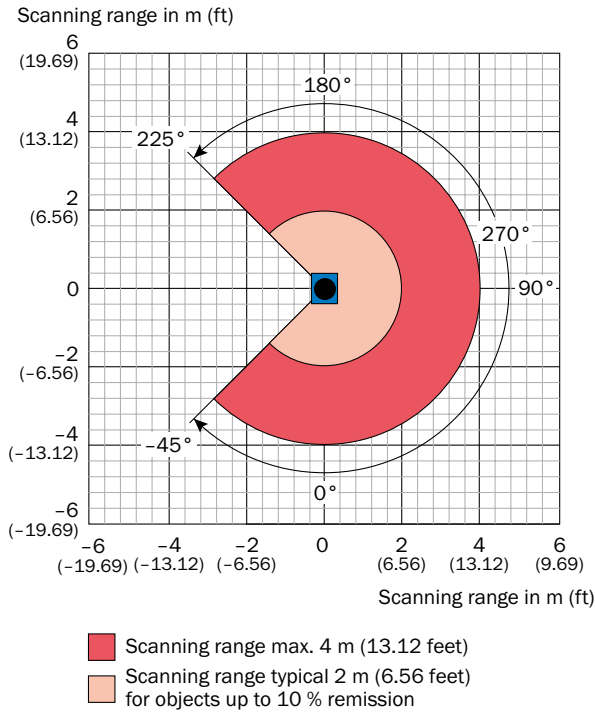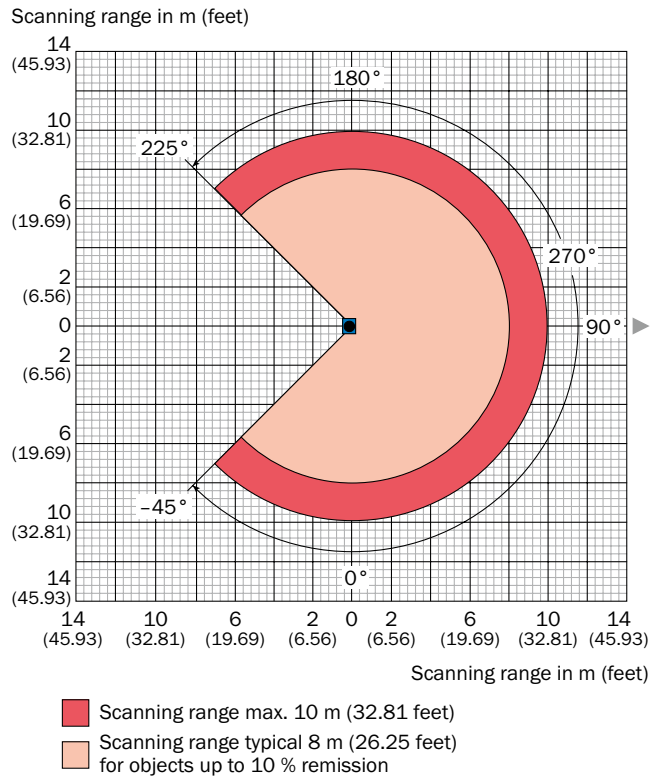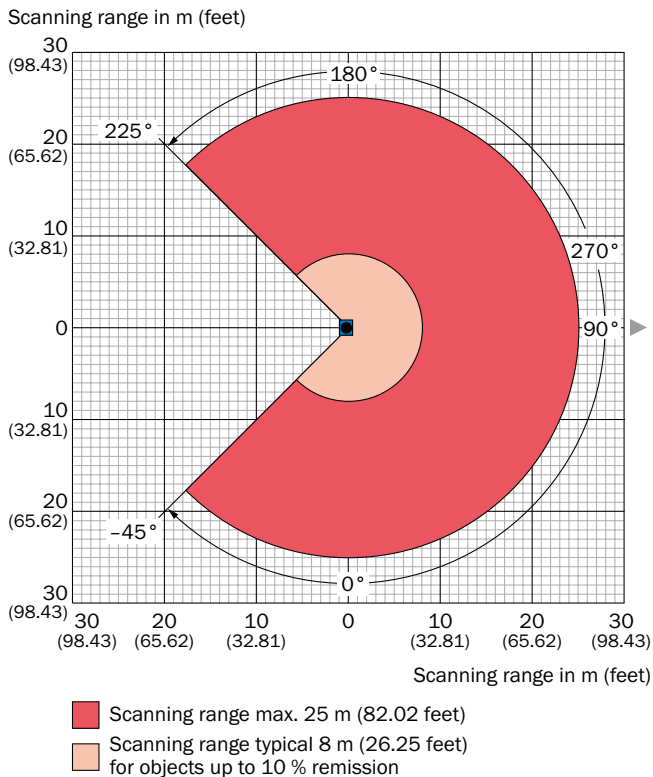
Scanning range in m (ft)

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

TiM55x
TiM56x

Scanning range in m (feet)

Scanning range in m (feet)

- ■ Scanning range max. 10 m (32.81 feet)
- ▫ Scanning range typical 8 m (26.25 feet)
  for objects up to 10 % remission

TiM57x

Scanning range in m (feet)

Scanning range in m (feet)

- ■ Scanning range max. 25 m (82.02 feet)
- ▫ Scanning range typical 8 m (26.25 feet)
  for objects up to 10 % remission

Recommended accessories

Mounting systems

Mounting brackets and plates

	Brief description	Part no.	TiM51x	TiM55x	TiM56x	TiM57x
Illustration may differ	Mounting set 2, fender and alignment aid	2061776	●	–	–	–
Illustration may differ	Mounting kit with sun shade/weather protection	2068398	–	●	●	●

Connection systems

Plug connectors and cables

	Signal type/ application	Connection type head A	Connection type head B	Cable	Cable length	Part no.	TiM51x	TiM55x	TiM56x	TiM57x
	Power, I/O	Female connector, M12, 12-pin, straight, A-coded	Cable	12-wire	5 m	6054974	●	–	–	–
	Power	Female connector, M12, 5-pin, straight, A-coded	Cable	4-wire	5 m	6036159	–	●	●	–
Illustration may differ	Ethernet	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, suitable for refrigeration, Ecolab, AWG26	5 m	6050200	–	●	●	–
				4-wire, drag chain use, AWG26	5 m	6034415	–	●	–	–
	USB 2.0	Male connector, USB-A	Male connector, Micro-B	–	2 m	6036106	●	–	–	–

For more accessories, see ➜ 27

TiM series

Mounting systems

Mounting brackets and plates
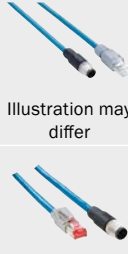
	Brief description	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
Illustration may differ	Q-lock mounting system	2083311	●	–	–	–	–	–	–	–	–
Illustration may differ	Mounting kit	2082188	●	–	–	–	–	–	–	–	–
Illustration may differ	Mounting set 2, fender and alignment aid	2061776	–	●	●	–	–	●	–	–	–
Illustration may differ	Mounting kit	2086761	–	–	–	●	●	–	●	●	●
Illustration may differ	Mounting kit with sun shade/weather protection	2068398	–	–	–	●	●	–	●	●	●

Connection systems

Modules and gateways

	Brief description	Type	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790	●	–	–	–	–	–	–	–	–
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	IOLP2ZZ-M3201 (SICK Memory Stick)	1064290	●	–	–	–	–	–	–	–	–
Illustration may differ	Small connection module for one sensor, 4 cable glands (only for TiM3xx-10xxxxx)	CDB730-001	1055981	–	●	●	–	–	–	–	–	–
	Relay connection box for wiring voltage supply and I/Os as well as four volt-free outputs; with cover contact.	Connection box	2082916	–	●	●	●	●	–	–	–	–

Plug connectors and cables

	Signal type/ application	Connection type head A	Connection type head B	Cable	Cable length	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
	Power, I/O	Female connector, M12, 5-pin, straight	Cable	5-wire, drag chain use, UL	2 m	6025906	●	–	–	–	–	–	–	–	–
		Female connector, M12, 5-pin, angled	Cable	5-wire, drag chain use, UL	2 m	6025909	●	–	–	–	–	–	–	–	–
			Male connector, M12, 5-pin, straight	5-wire, drag chain use, UL,	2 m	6029287	●	–	–	–	–	–	–	–	–
	Digital I/Os	Female connector, M12, 5-pin, straight, A-coded	Male connector, M12, 5-pin, straight, A-coded	5-wire, drag chain use, UL	2 m	6025931	●	–	–	–	–	–	–	–	–
	Power, I/O	Female connector, M12, 12-pin, straight, A-coded	Cable	12-wire	5 m	6054974	–	●	●	●	●	●	●	–	–
					5 m	6042735	–	●	●	●	●	●	●	–	–
					10 m	6042736	–	●	●	●	●	●	●	–	–
					10 m	6054973	–	●	●	●	●	●	●	–	–
					20 m	6042737	–	●	●	●	●	●	●	–	–
					20 m	6054972	–	●	●	●	●	●	●	–	–
	Power, serial, CAN, digital I/Os	Female connector, D-Sub-HD, 15-pin, straight	Cable	Extension cable, 15-wire, AWG26	2 m	2043413	–	●	●	–	–	–	–	–	–
	Power	Female connector, M12, 5-pin, straight, A-coded	Cable	4-wire	5 m	6036159	–	–	–	–	–	–	●	●	–
Illustration may differ	Ethernet	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, suitable for refrigeration, Ecolab, AWG26	5 m	6050200	–	–	–	●	●	–	●	●	–
					10 m	6050201	–	–	–	●	●	–	●	●	–
					20 m	6050596	–	–	–	●	●	–	●	●	–
				4-wire, drag chain use, AWG26	5 m	6034415	–	–	–	●	●	–	●	●	–
					10 m	6030928	–	–	–	●	●	–	●	●	–
					20 m	6036158	–	–	–	●	●	–	●	●	–
	USB 2.0	Male connector, USB-A	Male connector, Micro-B	–	2 m	6036106	–	●	●	●	●	●	●	●	–

Reflectors and optics

Optics cloths

|	Brief description	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
	Cloth for cleaning the front screen	4003353	●	●	●	●	●	●	●	●	●

Further accessories

Cleaning agent

	Brief description	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
	Plastic cleaner and care product, anti-static, 0.5 liter	5600006	●	●	●	●	●	●	●	●	●

Test and monitoring tools

	Brief description	Type	Part no.	TiM10x	TiM31x	TiM32x	TiM35x	TiM36x	TiM51x	TiM55x	TiM56x	TiM57x
Illustration may differ	Scan finder, receiver to localize infrared scans	Scan-Finder LS-80L	6020756	●	●	●	●	●	●	●	●	●

REGISTER AT WWW.SICK.COM TODAY AND ENJOY ALL THE BENEFITS

☑ Select products, accessories, documentation and software quickly and easily.

☑ Create, save and share personalized wish lists.

☑ View the net price and date of delivery for every product.

☑ Requests for quotation, ordering and delivery tracking made easy.

☑ Overview of all quotations and orders.

☑ Direct ordering: submit even very complex orders in moments.

☑ View the status of quotations and orders at any time. Receive e-mail notifications of status changes.

☑ Easily repeat previous orders.

☑ Conveniently export quotations and orders to work with your systems.
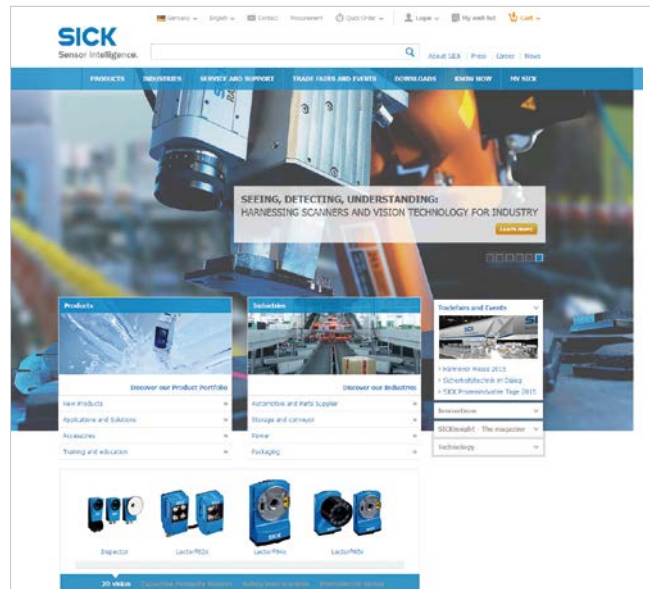
SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.

Consulting and design
Safe and professional

Product and system support
Reliable, fast and on-site

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe and economical

Training and education
Practical, focused and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 7,400 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our customers. 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 various 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 round out 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:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➜ www.sick.com

SICK
Sensor Intelligence.

SICK AG | Waldkirch | Germany | www.sick.com