TiM SERIES

INCREDIBLY GOOD AT DETECTION – ABSOLUTELY ACCURATE AT MEASURING

2D laser scanners

SICK
Sensor Intelligence.

# TiM3xx AND TiM5xx: DETECTION AND RANGING ARE NOW PART OF THE FAMILY

Every family has one talented member, but the TiM product family has two! Where **detection** is concerned, the TiM3xx is leaving others trailing in its wake, and its big brother, the TiM5xx, is setting new standards in the field of **ranging**.

Although each of these laser scanners has its own particular strengths in area monitoring, when their genes are pooled they are an unbeatable combination. Since both laser scanners use SICK'S HDDM technology, you can be sure of incredibly accurate measurement values. And that's not all: whichever member of the family you choose, both scanners can be quickly and easily integrated into your operations.
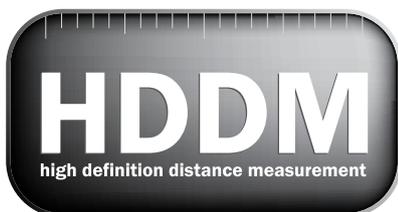
HDDM technology

SICK's HDDM technology can be relied upon for incredibly accurate measurements. It works by sending out multiple laser pulses and calculating a mean value from their reflections. This approach ensures seamless scanning and reliable results, even in the presence of dirt, dust, moisture, and ambient light.

HDDM
high definition distance measurement

Submeasuring points

TiM
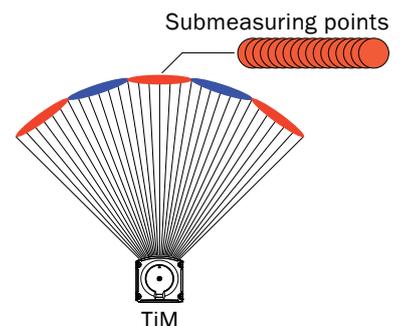
The laser scanner principle: Time of Flight

Laser scanners emit a laser pulse to scan the area in their vicinity. Like a beacon, laser scanners use a moving mirror to direct the laser pulse in the required direction. When the laser pulse hits an object, it is reflected back to the laser scanner's receiver. By calculating the temporal difference between sending and receiving and the signal strength, the position of the object is detected with millimeter accuracy.

## Detection with the TiM3xx: Incredibly good at detection

When used for **detection applications**, laser scanners have a very specific task. 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" in fractions of a second. This information helps the scanner to determine if a case is full or empty, for example.

Detection scanners are often used to prevent vehicle collisions. These non-contact laser scanners are able to scan the environment and keep track of important objects. If there is a risk of a collision, the scanners can be relied upon to output a warning prior to an accident occurring via the switching outputs.

Ranging with the TiM5xx: Absolutely accurate at measuring

Laser scanners 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. The energy content of the returning signal is also output as an echo value, producing an accurate image of the scanned area. If objects or scanners are mobile, the data can even be analyzed in 3D, with directions of movement being mapped.
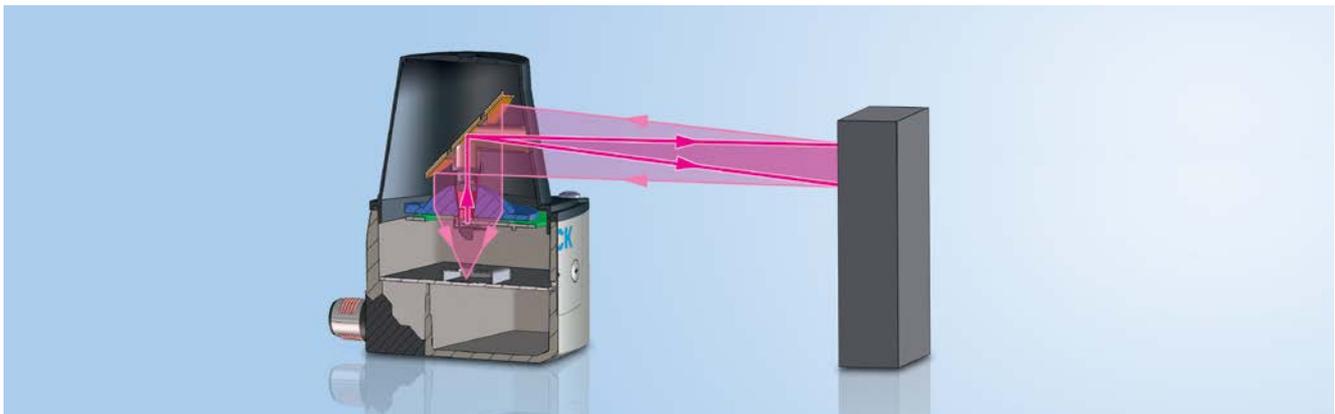
Cross-sectional view of the send/receive principle of a laser scanner based on the example of the TiM55x

TiM3xx: SMALL BUT WITH BIG POTENTIAL

How much intelligence is there inside a small housing? In the case of the TiM3xx, a great deal! The TiM3xx is the flexible, cost-effective, and user-friendly laser scanner for mobile and stationary applications. Despite its compact dimensions, its powerful detection capabilities have a massive impact on minimizing downtime.

It refuses to be sidetracked. Low power consumption makes it perfect for use in collision avoidance applications for automatic vehicles or for presence detection in high-bay warehouses. A monitoring zone of up to four meters is supported in both cases. Not bad for a little one, hey?

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

The areas analyzed with scanners are called fields. The TiM3xx gives you 16 pre-configured field sets, each containing three fields that can be selected via input wiring. The shape is easy to select: rectangular, radial, or free, depending on which version you choose.

Rectangular | Radial | Free form

The dimensions of the field shape are also very easy to adjust, as the „Touch and Teach" automatic 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 parameterize the sensor and make the TiM3xx ready for operation. Alternatively, the settings can be made on a PC using SICK SOPAS software.

Overhead conveyors

Automated guided vehicles

Visit www.sick.com/TiM300 for more information

Checking storage space occupancy/checking for projections

TiM5xx: COMPACT CHAOS CONTROL INSIDE AND OUT

The TiM5xx is incredibly flexible. At short range, it is able to see, report, and monitor its surroundings. It measures the area in its vicinity with incredible detail – up to 10 meters in 1° increments. If something is amiss in the scanning field, it will spot it.

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/Ethernet interface for subsequent visualization in SOPAS. Integration in customer-specific applications is also supported.

And now for the really crazy thing: the TiM5xx is surprisingly small. As a result, it can be integrated into a wide range of environments – detecting distances from containers in ports or the movement of people inside a building, for example. Never one to be distracted by dirt, dust, moisture, or ambient light, it is unbelievably easy to network harsh environments.
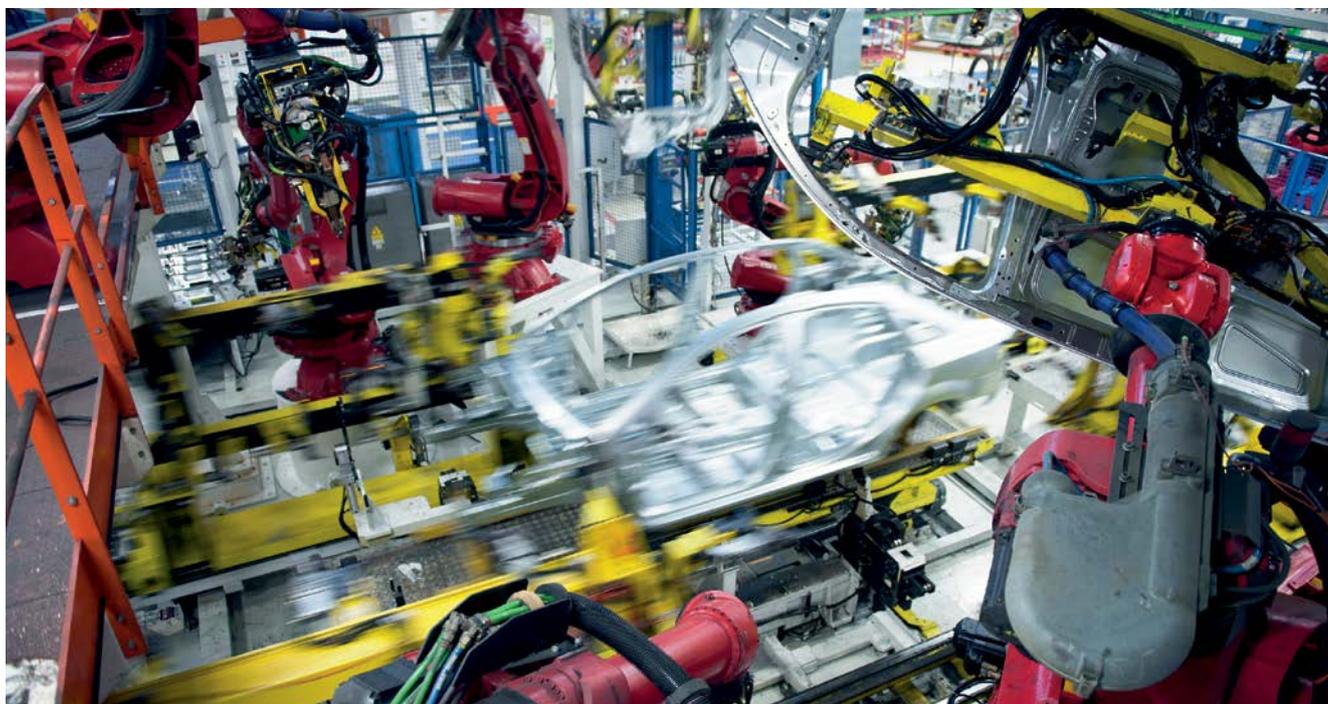

Robotics

Building automation

Ports

Visit www.sick.com/TiM5xx
for more information

Product family overview

	TiM3xx	TiM5xx
	Incredibly good at detection	Complete measurement accuracy
Technical data overview		
Field of application	Indoor	Indoor/outdoor
Field of view	270°	270°
Operating range	0.05 m … 4 m	0.05 m … 10 m
Max. range with 10 % reflectivity	2 m	2 m / 8 m
Scanning frequency	15 Hz	15 Hz
Serial (RS-232)	–	✔ / –
Ethernet	–	– / ✔
USB	✔ , micro USB	✔ , micro USB
Weight	150 g	150 g / 250 g
At a glance		
	Detection	Ranging
	• 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 laser scanners on the market • Proven industrial design • Low power consumption (typ. 3 W)	• Monitoring area of up to 235 m² with just one sensor • High ambient light tolerance due to HDDM technology • Rugged housing with up to IP 67 enclosure rating • Low power consumption of just 3 W • Compact design with a housing height of just 86 mm maximum • Integrated Ethernet interface • Long sensing range of up to max. 10 m • Industry-standard design and M12 male connector
Detailed information	➜ 8	➜ 12

INCREDIBLY GOOD AT DETECTION

Detection
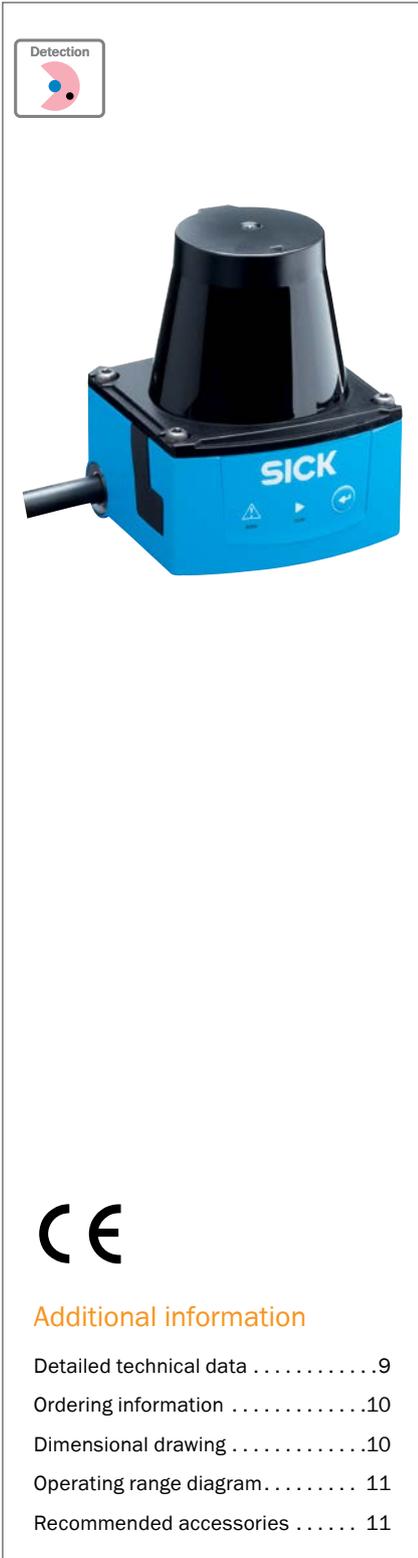
Product description

The TiM3xx is the next step in the evolution of laser scanners. The 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 4 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 laser scanner 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 laser scanners on the market
- Proven industrial design
- Low power consumption (typ. 3 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
- No wiring necessary between sender and receiver

$C \in$

Additional information

→ **www.mysick.com/en/TiM3xx**

For more information, just 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 (EN 60825-1 (2007-10))
Field of view	270°
Scanning frequency	15 Hz
Operating range	0.05 m ... 4 m
Max. range with 10 % reflectivity	2 m

Performance

	TiM31x	TiM32x
Response time	Typ. 134 ms	
Detectable object shape	Almost any	
Systematic error	± 40 mm [1]	
Statistical error	± 30 mm [1]	
Integrated application	Field evaluation	Field evaluation with flexible fields
Number of field sets	16 field triples (48 fields, 1 triple (3 fields) programmable directly at the scanner)	16 field triples (48 fields, 1 triple (3 flexible fields) programmable directly at the scanner)
Simultaneous processing cases	1 (3 fields)	

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

Interfaces

USB		✔, micro USB
	Function	AUX
Switching inputs		4
Delay time		134 ms ... 30,000 ms (programmable)
Dwell time		67 ms ... 10,000 ms (programmable)
Optical indicators		2 LEDs (ON, switching status)

Mechanics/electronics

Operating voltage	10 V DC ... 28 V DC
Power consumption	Typ. 3 W, without output load
Enclosure rating	IP 65 (EN 60529/A1:2000-02)
Protection class	III (EN 60950-1/A11 (2009-03))
Weight	150 g, without connecting cables
Dimensions	60 mm x 60 mm x 79 mm

Ambient data

Electromagnetic compatibility (EMC)	EN 61000-6-3 (2007-01) / EN 61000-6-2 (2005-08)
Vibration resistance	EN 60068-2-6 (2008-02)
Shock resistance	EN 60068-2-27 (2009-05)
Ambient operating temperature	–10 °C ... +50 °C
Storage temperature	–30 °C ... +70 °C
Ambient light safety	15,000 lx

Ordering information

- **Version:** Short Range
- **Field of application:** Indoor
- **Switching outputs:** 3 (plus 1 x "device ready")
- **Angular resolution:** 1°
- **Object remission:** 4 % ... > 1,000 %, reflectors
- **Housing color:** light blue (RAL 5012)

Sub product family	Electrical connection	Model name	Part no.
TiM31x	1 x 15-pin D-sub HD plug (0.9 m)	TIM310-1030000	1052627
	1 x M12 12-pin plug (0.8 m)	TIM310-1130000	1056550
TiM32x	1 x 15-pin D-sub HD plug (0.9 m)	TIM320-1031000	1063467
	1 x M12 12-pin plug (0.8 m)	TIM320-1131000	1062219

Dimensional drawing (Dimensions in mm (inch))

TiM3xx Short Range
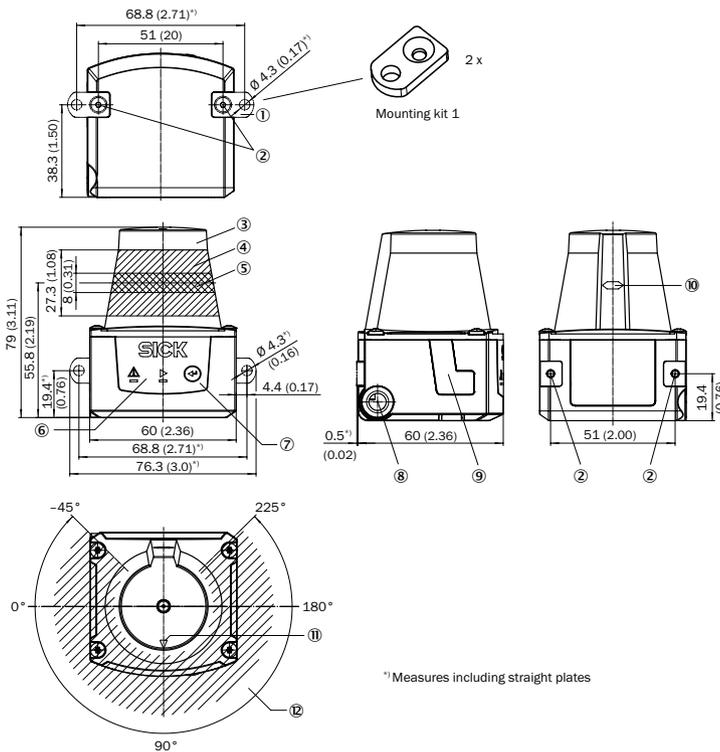
*) Measures including straight plates

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 Exit of the connecting cable ("Power/switching inputs/outputs" connection)
⑨ Micro USB socket, behind black rubber plate ("Aux interface" connection for configuration with PC)
⑩ Marking for the position of the light emission level
⑪ Bearing marking to support alignment (90° axis)
⑫ Aperture angle 270° (scanning angle)

Operating range diagram

TiM31x Short Range
TiM32x Short Range
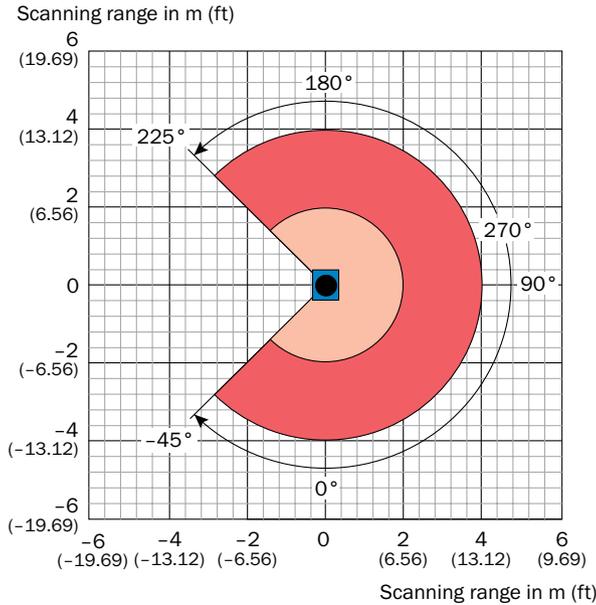
Scanning range in m (ft)

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

Recommended accessories

Connection systems

Modules

	Brief description	Model name	Part no.
Illustration may differ	Small connection module for one sensor, 4 cable glands (only for TiM3xx-10xxxxx)	CDB730-001	1055981

Plug connectors and cables

	Connection type head A	Connection type head B	Cable	Cable length	Part no.
	Connector, USB-A	Connector, Micro-B	USB 2.0, unshielded	2 m	6036106
	Female connector, D-Sub-HD, 15-pin, straight	Cable	Shielded	2 m	2043413

Mounting systems

Mounting brackets/plates

Brief description	Part no.
Mounting set 2, fender and alignment aid	2061776

➔ For additional accessories, please see page 17

COMPLETE MEASUREMENT ACCURACY

Ranging

Product description

More than simple object detection: The TiM5xx 2D laser scanner is a non-contact ranging solution within the TiM series from SICK. Thanks to its HDDM technology (High Definition Distance Measurement), 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 (AGV) and other mobile applications.

At a glance

- Monitoring area of up to 235 m² with just one sensor
- High ambient light tolerance due to HDDM technology
- Rugged housing with up to IP 67 enclosure rating
- Low power consumption of just 3 W

- Compact design with a housing height of just 86 mm maximum
- Integrated Ethernet interface
- Long sensing range of up to max. 10 m
- Industry-standard design and M12 male connector

Your benefits

- Reliable object detection independent of the surface and ambient light
- Rugged IP 67 housing withstands both indoor and outdoor conditions
- Easy integration into compact automated guided vehicles (AGV) due to small size
- Ethernet interface makes easy implementation and remote maintenance possible

- 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 sensor telegrams for laser measurement sensors in the SICK portfolio

$C\epsilon$

Additional information

➔ **www.mysick.com/en/TiM5xx**

For more information, just 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
Light source	Infrared (850 nm)	
Laser class	1, eye-safe (EN 60825-1 (2007-10))	
Field of view	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

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

Interfaces

	TiM51x	TiM55x
Serial (RS-232)	✔	–
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
Operating voltage	10 V DC ... 28 V DC	
Power consumption	Typ. 3 W, without output load	
Enclosure rating	IP 65 (EN 60529/A1:2000-02)	IP 67 (EN 60529/A1:2000-02)
Protection class	III (EN 60950-1/A11 (2009-03))	
Weight	150 g, without connecting cables	250 g, without connecting cables
Dimensions	60 mm x 60 mm x 79 mm	60 mm x 60 mm x 86 mm

Ambient data

	TiM51x	TiM55x
Electromagnetic compatibility (EMC)	EN 61000-6-3 (2007-01) / EN 61000-6-1 (2007-10)	EN 61000-6-3 (2007-01) / EN 61000-6-2 (2005-08)
Vibration resistance	EN 60068-2-6 (2008-02)	
Shock resistance	EN 60068-2-27 (2009-05)	
Ambient operating temperature	–10 °C ... +50 °C	–25 °C ... +50 °C
Storage temperature	–30 °C ... +70 °C	
Ambient light safety	15,000 lx	80,000 lx

Ordering information

- **Version:** Short Range
- **Field of application:** Indoor/outdoor
- **Switching outputs:** 1 ("SYNC"/"device ready")
- **Object remission:** 4 % ... > 1,000 %, reflectors

| Sub product family	Electrical connection	Angular resolution	Housing color	Model name	Part no.
TiM51x	1 x cable 0,3 m with 12-pin M12 male connector 1 x micro USB female connector, type B	3°	Light blue (RAL 5012)	TIM510-9950000S01	1062210
TiM55x	1 x 4-pin M12 male connector (Ethernet) 1 x 4-pin M12 male connector (power supply) 1 x micro USB female connector, type B	1°	Gray (RAL 7032)	TIM551-2050001	1060445

Dimensional drawings (Dimensions in mm (inch))

TiM51x Short Range
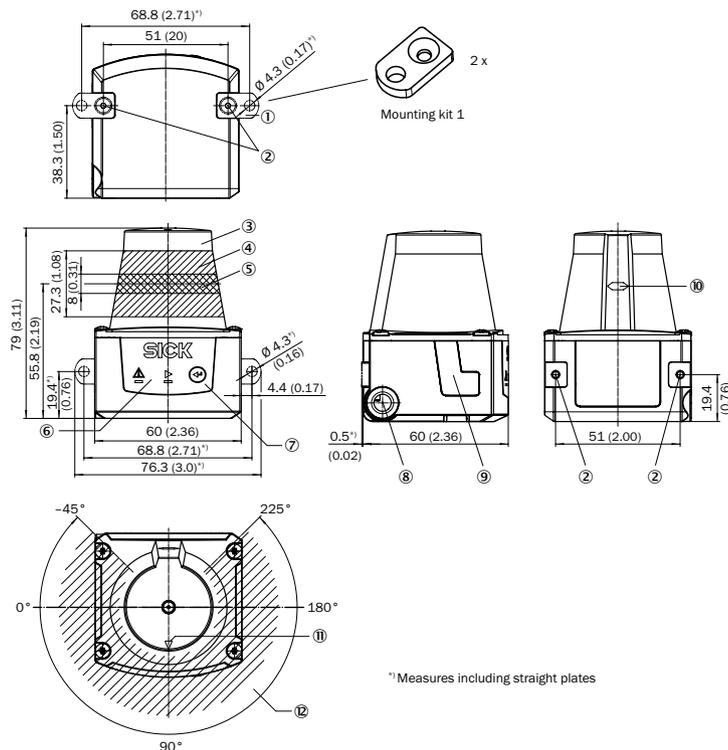
① 2 x straight plates with M3 x 4 mm screw (included in delivery)
② M3 threaded mounting hole, 2.8 mm deep (blind hole thread)
③ Optical hood
④ Receiving range (light inlet)
⑤ Transmission range (light emission)
⑥ Red and green LED (status displays)
⑦ Function button for teach-in
⑧ Exit of the 0.9 m (2.95 ft) connecting cable with 15-pin D-Sub HD plug ("Power/switching inputs/outputs" connection
⑨ Micro USB socket, behind black rubber plate ("Aux interface" connection for configuration with PC)
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 Short Range
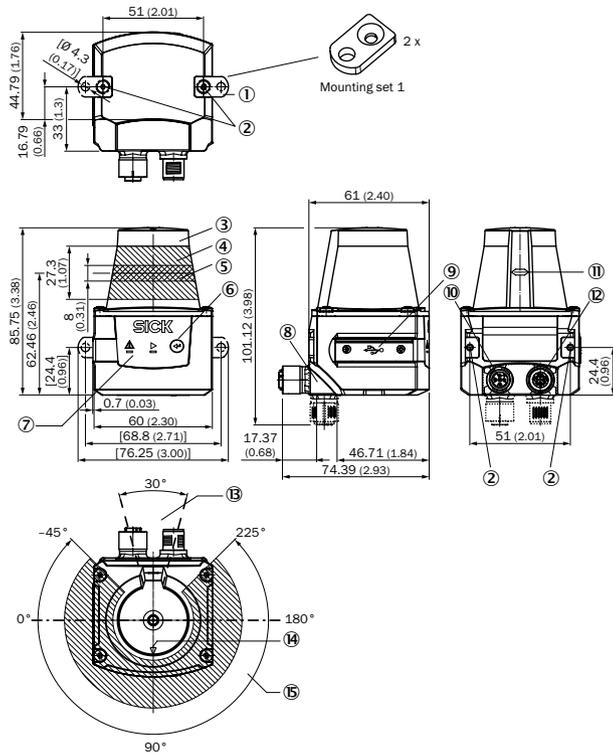
① 2 x straight plates with M3 x 4 mm screw (included in delivery)
② M3 threaded mounting hole, 2.8 mm deep (blind hole thread)
③ Optical hood
④ Receiving range (light inlet)
⑤ Transmission range (light emission)
⑥ Push-button (no function)
⑦ Red and green LED (status displays)
⑧ Swivel connector unit
⑨ Micro USB socket, behind black rubber plate ("Aux interface" connection for configuration with PC)
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 Short Range

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 Short Range

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
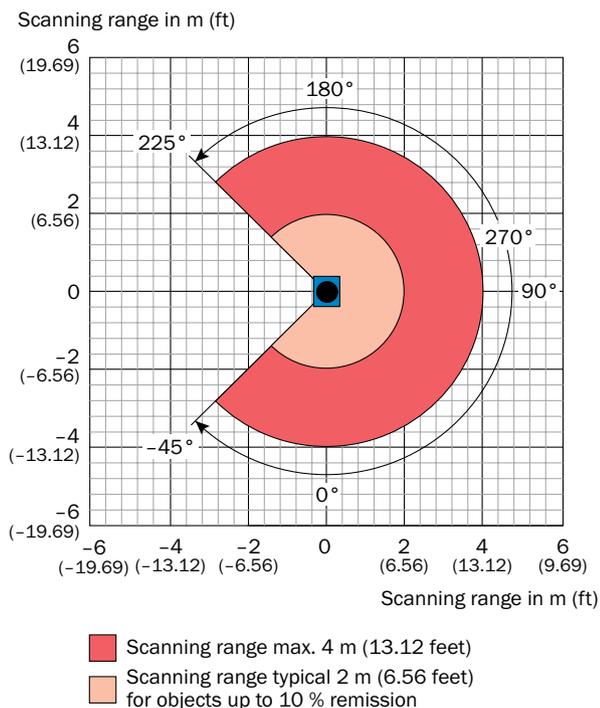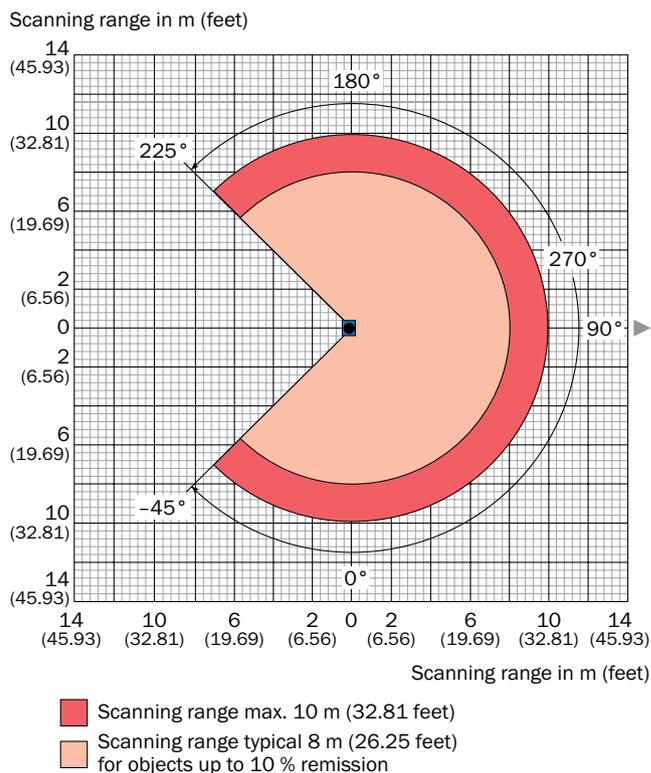
Recommended accessories

Connection systems

Plug connectors and cables

	Connection type head A	Connection type head B	Cable	Cable length	Part no.	TiM51x	TiM55x
	Female connector, M12, 5-pin, straight, A-coded	Cable	Shielded	5 m	6036159	–	●
	Connector, M12, 4-pin, straight, D-coded	Connector, RJ45, 8-pin, straight	Ethernet, shielded	5 m	6034415	–	●

Mounting systems

Mounting brackets/plates

Brief description	Part no.	TiM51x	TiM55x
Mounting kit with sun/weather protection	2068398	–	●

➜ For additional accessories, please see page 17

Accessories

Connection systems

Modules

	Brief description	Model name	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
Illustration may differ	Small connection module for one sensor, 4 cable glands (only for TiM3xx-10xxxxx)	CDB730-001	1055981	●	●	–	–

Plug connectors and cables

	Connection type head A	Connection type head B	Cable	Cable length	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
	Female connector, M12, 12-pin, straight, A-coded	Cable	RS-232, RS-422, shielded	5 m	6042735	●	–	–	–
	Female connector, M12, 5-pin, straight, A-coded	Cable	Shielded	5 m	6036159	–	–	–	●
	Connector, USB-A	Connector, Micro-B	USB 2.0, unshielded	2 m	6036106	●	●	●	●
	Connector, M12, 4-pin, straight, D-coded	Connector, RJ45, 8-pin, straight	Ethernet, shielded	5 m	6034415	–	–	–	●
	Female connector, D-Sub-HD, 15-pin, straight	Cable	Shielded	2 m	2043413	●	●	–	–
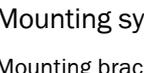
Mounting systems

Mounting brackets/plates

Brief description	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
Mounting kit with sun/weather protection	2068398	–	–	–	●
Mounting set 2, fender and alignment aid	2061776	●	●	●	–

Other accessories

Cleaning agent

	Brief description	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
	Plastic cleaner and care product, anti-static	5600006	●	●	●	●

Test and monitoring tools

	Brief description	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
	Scan finder, receiver to localize infra red scans	6020756	●	●	●	●

Reflectors/optics

Optics cloths

	Brief description	Part no.	TiM31x	TiM32x	TiM51x	TiM55x
	Lens cloth	4003353	●	●	●	●

WWW.MYSICK.COM – SEARCH ONLINE AND ORDER

Search online quickly and safely - with the SICK "Finders"

Product
Applications
Literature
Service
Accessories
Software
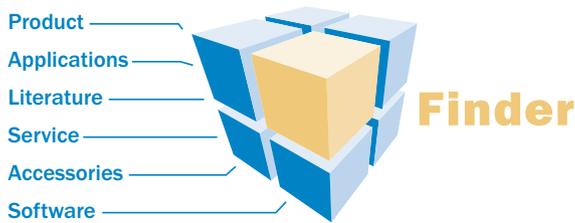
Finder

Product Finder: We can help you to quickly target the product that best matches your application.

Applications Finder: Select the application description on the basis of the challenge posed, industrial sector, or product group.

Literature Finder: Go directly to the operating instructions, technical information, and other literature on all aspects of SICK products.

Efficiency – with the E-Commerce-Tools from SICK
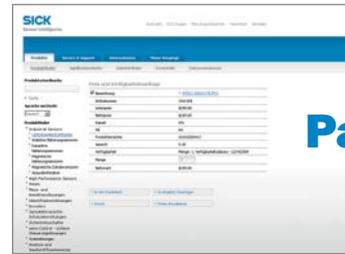
Partner Portal
www.mysick.com

Find out prices and availability
Determine the price and possible delivery date of your desired product simply and quickly at any time.

Request or view a quote
You can have a quote generated online here.
Every quote is confirmed to you via e-mail.

Order online
You can go through the ordering process in just a few steps.

FOR SAFETY AND PRODUCTIVITY: SICK LIFETIME SERVICES

SICK LifeTime Services is a comprehensive set of high-quality services provided to support the entire life cycle of products and applications from system design all the way to upgrades. These services increase the safety of people, boost the productivity of machines and serve as the basis for our customers' sustainable business success.

CONSULT
SUPPORT
TRAIN
SICK LifeTime Services
RETROFIT
CHECK

Consulting & Design
Globally available experts for cost-effective solutions

Product & System Support
Fast and reliable, by telephone or on location

Verification & Optimization
Checks and recommendations for increased availability

Upgrade & Retrofits
Uncovers new potential for machines and systems

Training & Education
Employee qualification for increased competitiveness

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for factory, logistics, and process automation. With more than 6,000 employees and over 40 subsidiaries worldwide, we are always close 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, Belgium/Luxembourg, Brasil, Ceská Republika, Canada, China, Danmark, Deutschland, España, France, Great Britain, India, Israel, Italia, Japan, México, Nederland, Norge, Österreich, Polska, România, Russia, Schweiz, Singapore, Slovenija, South Africa, South Korea, Suomi, Sverige, Taiwan, Türkiye, United Arab Emirates, USA.

Please find detailed addresses and additional representatives and agencies in all major industrial nations at: **www.sick.com**