TriSpector1000
INTUITIVE 3D INSPECTION

3D vision

SICK
Sensor Intelligence.

Stream
01101

Streaming cameras

Streaming cameras provide continuous data acquisition for external image processing on a PC. With a variety of data generation options, including 2D and 3D images, they offer maximum flexibility.

Program
>_

Programmable cameras

Programmable cameras facilitate high flexibility, and work independently without a PC. They have integrated image processing, and deliver results as output.

➜ www.sick.com/more-than-a-vision

MORE THAN A VISION

**Intelligent questions have more than one answer.
The best technology depends on the task at hand.**

In industrial environments, providing an effective solution for capturing reality requires more than just a vision. With SICK you have a choice. Multiple dimensions, one philosophy: customer needs come first.

For every application, the same question is asked: Which technology is best? And as always in life, there is never just one answer for every question. The best possible solution is always tailored to the individual technical and economic conditions of the application.

SICK supports you to realize your vision. Our broad 2D and pioneering 3D vision portfolio based on decades of innovation leadership helps customers worldwide. Our vision products range from easy-to-use vision sensors and programmable flexible cameras to high-speed streaming cameras.

Config

Configurable sensors

Configurable vision sensors make it quick and easy to set up parameters. Thanks to integrated image processing, the vision sensor works independently and provides results as an output.

- Configurable for ease-of-use
- Stand-alone operation, no PC needed
- Integrated image processing
- Result output

NEVER MIND THE BELLS AND WHISTLES

What is it that makes technology ground-breaking? Features, performance and ease-of-use? Of course. But in the end, true innovation is always judged by only one universal factor. If it can change your world.
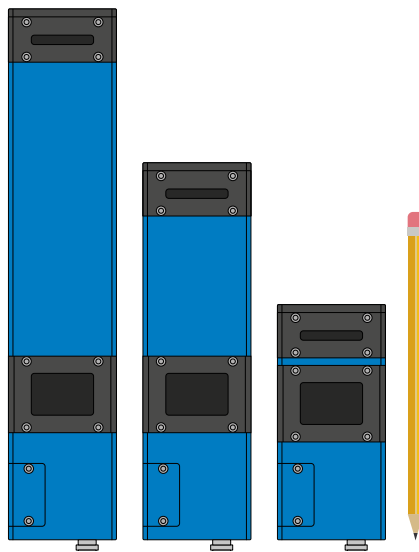
The TriSpector1000 can.

Easily capture 3D images

The TriSpector1000 is an intuitive, stand-alone vision sensor for cost-efficient 3D inspections. Its unrivalled ease-of-use and versatility are what sets it apart. No matter what shape, color or orientation objects come down the line, TriSpector1000 is up to the challenge. It delivers reliable results on site, with high accuracy and speed. And it literally has a mind of its own. Integrated data processing power lets it easily find, count and position objects, measure volume and object rotation, and acquire intensity data for label detection.

The TriSpector1000 is available with three different fields of view, for a wide range of applications.

TriSpector1000 features

- Intuitive user interface
- Easy replacement concept
- Embedded image analysis
- High resolution 3D image with intensity overlay
- Factory calibrated data, true mm values in all dimensions
- Rugged IP 67 metal housing with plastic windows

START YOUR TRISPECTOR1000 STORY

Your story starts with a decision to leave old configuration methods behind, and to discover something new and innovative instead. Choosing the TriSpector1000 is a giant leap when it comes to the opportunities it gives you, and how much flexibility it brings. But when it comes to ease-of-use, commissioning and operation, the step couldn't be much smaller.

① Installation
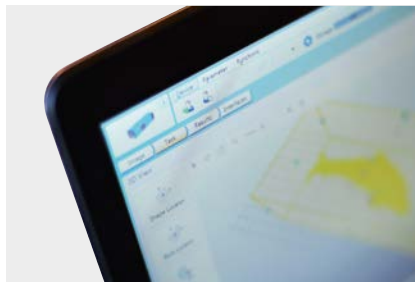
② Configuration

③ Operation

Efficiency from the get-go

Time is a dimension in itself, and in most cases, you want to save it. During installation, you'll notice our user-friendly approach to product design. Several features ensure that you'll get up and running in no time, both hardware- and software-wise. You save time thanks to factory calibrated data, and visual LED feedback indicates when the sensor is up and running.

Flexible inspection

The graphical user interface is both intuitive designed with user in mind, it will be your best friend when configuring the TriSpector1000. Whatever objects you need to inspect, a solid configuration is easily achieved. The TriSpector1000's guaranteed field of view enables quick replacement or relocation of the device and a simple reuse of your settings.

Built to last

The TriSpector1000 is both sturdy and clever, and handles all your inspections rapidly and precisely. It operates autonomously and relays information and instructions to later stages in the production process. It is housed in a rugged IP 67-rated metal casing with plastic windows, which makes it at home even in demanding industrial environments.

Do you think inside the box?

Complex challenges don't always require complex answers. Like the challenge of efficiently inspecting objects packed in boxes. The answer? TriSpector1000. It handles inspection of box integrity, including content verification, completeness and emptiness check. And much more. It handles 3D inspections, but also 2D inspections like label positioning and integrity detection, thanks to its ability to acquire intensity data.

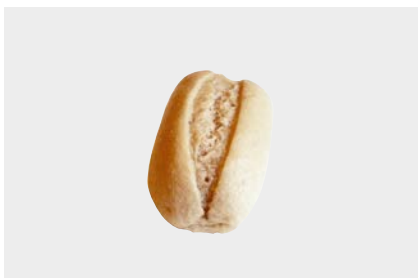# Applications within Packaging/Consumer goods

Completeness and emptiness check

Counting and positioning
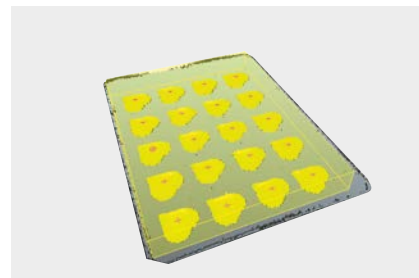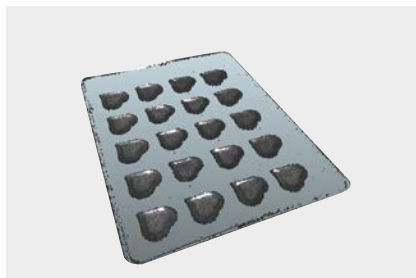

Product dimensioning

THE TRISPECTOR1000 TOOL RANGE

Locate and inspect. A tool for every occasion.

Even if the TriSpector1000 is high-tech, its functionality is actually very easy to understand. In short, it locates the desired object and then inspects it. Lightning-fast, accurately and intuitively. The four TriSpector1000 tools are all about flexiblity, and combined, they offer almost limitless opportunities. And it's all child's play to set up, in the user-friendly graphical interface.

Shape Locator

When time, and varied objects on conveyor belts fly by, the Shape Locator is your best friend. In SOPAS, you set a 3D shape for the TriSpector1000 to recognize. It then quickly and precisely locates objects that match that shape. The Shape Locator can identify the right object even if differently shaped objects surround it. It also locates the desired objects regardless of where it is placed on the conveyor belt. This is a tool that adds flexibility to any production or assembly line, and it relays valuable data to later stages in the inspection process.
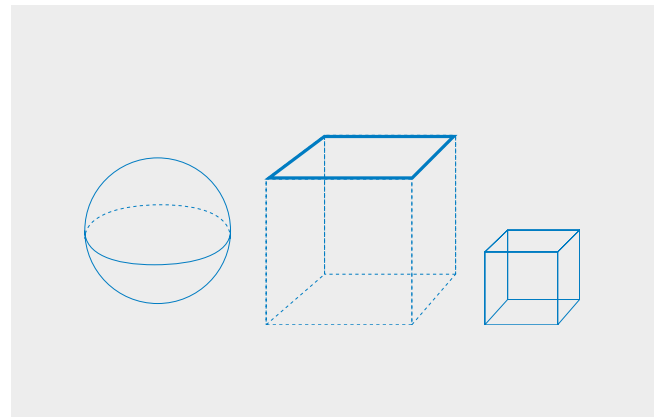
Area Tool

Is the glass half-full or half-empty? When it comes to production lines, neither is usually a good answer. With the Area Tool, you define a 3D "box." The TriSpector1000 then measures if an object, or part of an object, is in the box or not. The Area Tool has many areas of application. For example, it can tell you if a stack of crackers is high enough, or too low. It can determine if a jar of jam is filled to the right amount, or if those banana crates contain too many bananas to be stacked on top of each other. Let your imagination decide where it will be used, and the TriSpector1000 will handle the details.
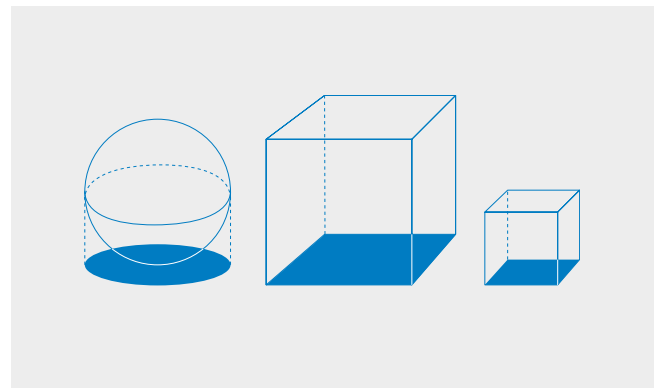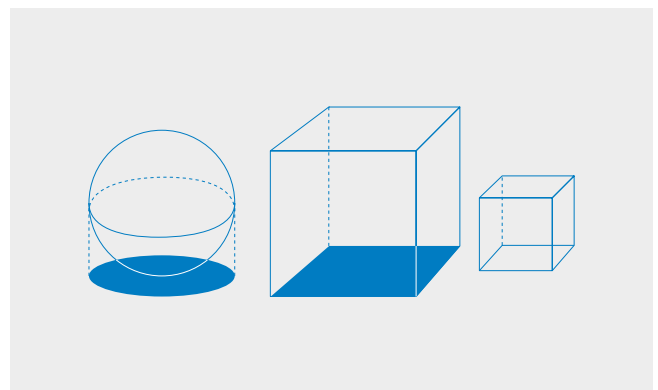
Plane Tool

When it comes to lids, there's really no room for compromise. They have to be shut tight, or you'll probably have to start cleaning floors. The Trispector1000 Plane Tool automatically scans the angle of surfaces, like lids or a bottle caps, and measures if they are horizontal or put on crookedly. Conveyor belts, for example, can be used as reference planes for 3D measuring of the volume of objects in combination with the Blob Locator. The Plane Tool also has a manual mode, for setting reference planes that are obstructed or outside the field of view.
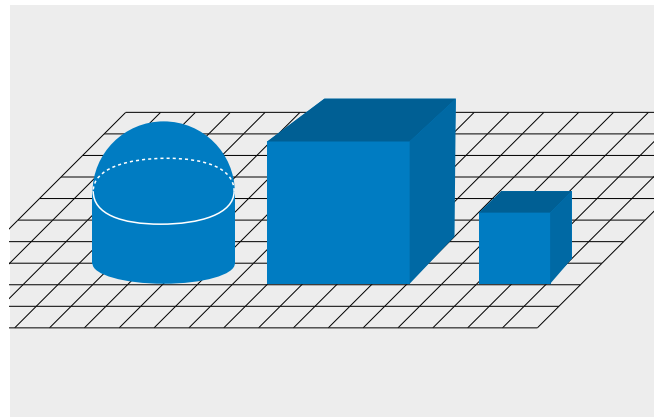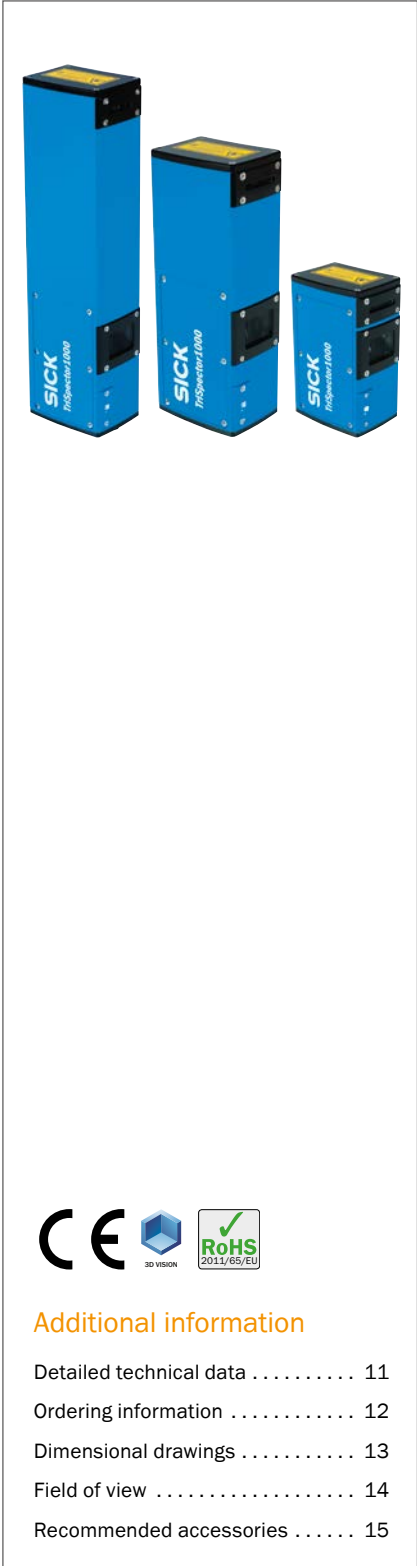

Blob Locator

Not everybody likes surprises, especially not the packaging industry. Here, you pretty much want to know exactly what a box contains, at all times. With the Blob Locator Tool, the TriSpector1000 locates objects within a user-specified size range, even if the objects vary in shape. For instance, this lets you automatically inspect if a box of chocolates contains the right number of chocolates. And the TriSpector1000 can determine three-dimensional coordinates of where in the box there's a piece of chocolate missing. Or any other product. It's all up to you.

INTUITIVE 3D INSPECTION

Product description

The TriSpector1000 is a stand-alone configurable sensor for cost-efficient 3D inspections. No matter what the shape, color or orientation of the product, the sensor is up to the challenge. Now content, completeness and emptiness can be verified in all dimensions. It is perfectly suited for solving quality control applications in the consumer goods and packaging industry. Thanks to its intuitive user interface, the TriSpector1000 ensures easy commissioning and operation. Even quick device replacement is easy with guaranteed field of view and re-use of saved settings.

At a glance

- 3D inspection of moving parts
- Intuitive user interface
- Embedded image analysis
- Easy replacement concept
- High resolution 3D image with intensity overlay
- Factory calibrated 3D data, true mm values in all dimensions
- Rugged IP67 metal housing with plastic windows

Your benefits

- Reliable 3D inspection even when part color, position and height varies
- Easy commissioning and operation thanks to an intuitive user interface
- Embedded image analysis for fast configuration
- Quick device replacement due to guaranteed field of view and re-use of saved settings
- Intensity data enhances 3D navigation, allows checking presence of label, printed pattern or object rotation.
- Factory calibrated data simplifies setup and reduces time and effort
- Withstands harsh or food processing environments

Additional information

➔ www.mysick.com/en/TriSpector1000

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

	TriSpector1008	TriSpector1030	TriSpector1060
Task	Positioning, inspection		
Technology	3D, LineScan, image analysis		
Toolkit	Shape, Area detection, blob locator, volume, find plane, fixed plane		
Working distance	56 mm ... 116 mm	141 mm ... 541 mm	321 mm ... 1,121 mm
Example field of view	65 mm x 15 mm	270 mm x 100 mm	540 mm x 200 mm
Light source	Visible red light (laser, 660 nm)		
Laser class	2M (IEC 60825-1:2007)		
Width at minimum working distance	40 mm	90 mm	180 mm
Width at maximum working distance	75 mm	330 mm	660 mm
Maximum height range	60 mm	400 mm	800 mm
Factory calibrated	✔		
Imaging angle	65°		67°
Offline support	Emulator		

Performance

	TriSpector1008	TriSpector1030	TriSpector1060
Maximum performance	2,000 3D profiles/s		
Maximum number of profiles	2,500		
Height resolution	20 µm ... 50 µm	40 µm ... 280 µm	80 µm ... 670 µm
3D profile resolution	760 px	700 px	790 px

Interfaces

Configuration software	SOPAS ET
Communication interfaces	Gigabit Ethernet (TCP/IP)
Digital inputs	3 (non-isolated)
Digital outputs	4 (non-isolated)
Encoder interface	RS-422 / TTL (DBS36E-BBCP02048)
Maximum encoder frequency	300 kHz

Mechanics/electronics

	TriSpector1008	TriSpector1030	TriSpector1060
Connections	M12, 12-pin male connector, A-coded (power I/O) M12, 8-pin female connector, X-coded (Gigabit Ethernet) M12, 8-pin female connector, A-coded (encoder)		
Connector material	Nickel plated brass		
Supply voltage	24 V DC, ± 20 %		
Ripple	< 5 V_{pp}		
Power consumption	≤ 11 W		
Current consumption	< 400 mA		
Enclosure rating	IP 67		
Protection class	III		
Housing material	Anodized aluminum		
Weight	0.9 kg	1.3 kg	1.7 kg
Dimensions (L x W x H)	136 mm x 62 mm x 84 mm	217 mm x 62 mm x 84 mm	307 mm x 62 mm x 84 mm
Optics	Fixed		

Ambient data

Electromagnetic compatibility (EMC)	EN 61000-6-2:2005 / EN 61000-6-3:2007
Shock load	15 g / 6 ms (EN 60068-2-27)
Vibration load	5 g, 10 Hz … 150 Hz (EN 60068-2-6)
Ambient operating temperature	0 °C … +40 °C [1]
Ambient storage temperature	−20 °C … +70 °C [1]

[1] Permissible relative air humidity: 0 % … 90 % (non-condensing)

Ordering information

Sub product family	Window material	Type	Part no.
TriSpector1008	Glass	V3T11S-MR12A7	1075604
	PMMA	V3T11S-MR12A8	1060426
TriSpector1030	Glass	V3T12S-MR32A7	1072923
	PMMA	V3T12S-MR32A8	1060427
TriSpector1060	Glass	V3T13S-MR62A7	1075605
	PMMA	V3T13S-MR62A8	1060428

Dimensional drawings (Dimensions in mm (inch))

TriSpector1008
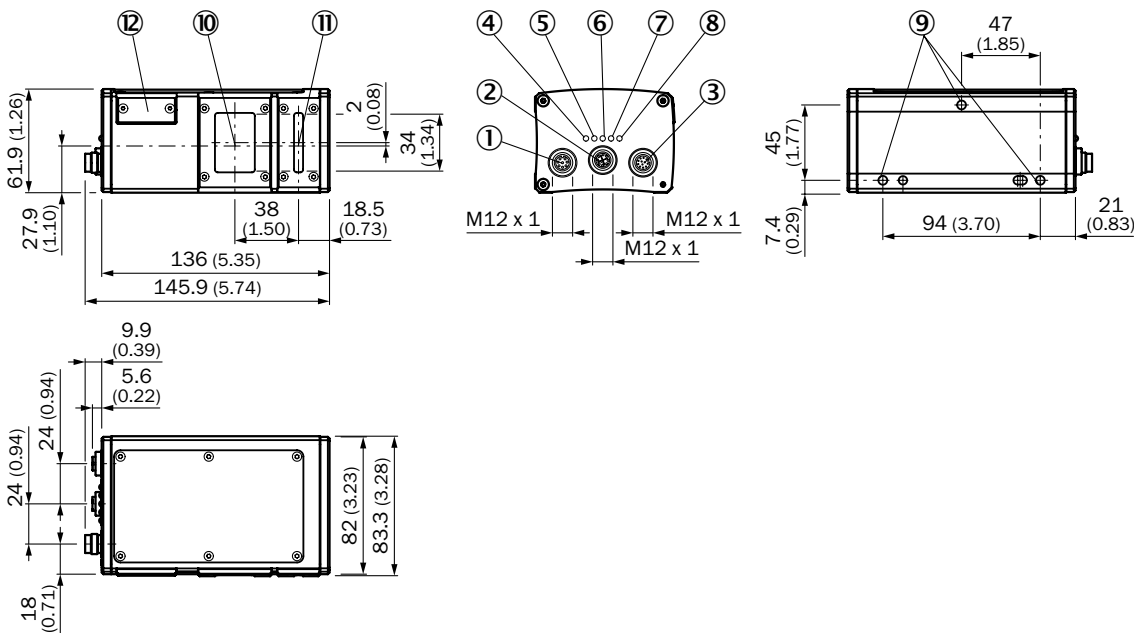
① Connector Encoder (thread inside)
② Connector Gigabit Ethernet (Gig E)
③ Connector Power I/O (thread inside)
④ LED; On
⑤ LED; State
⑥ LED; Link/Data
⑦ LED; Result
⑧ LED; Laser
⑨ Fastening threads (M5 x 8.5 mm length)
⑩ Optical receiver (center)
⑪ Optical sender (center)
⑫ Micro SD memory card

TriSpector1030
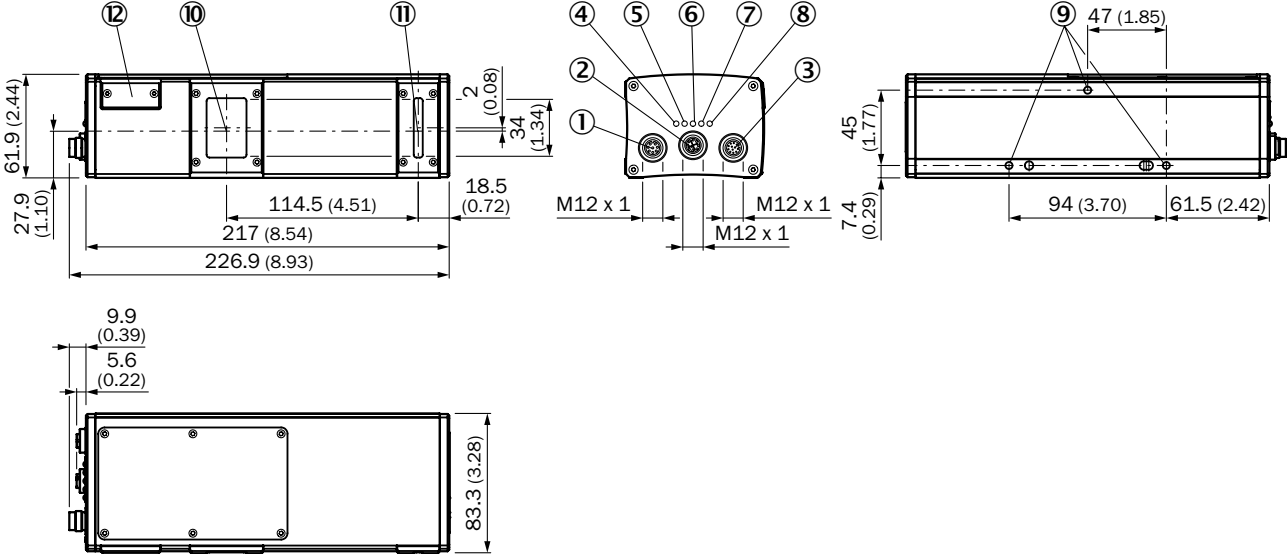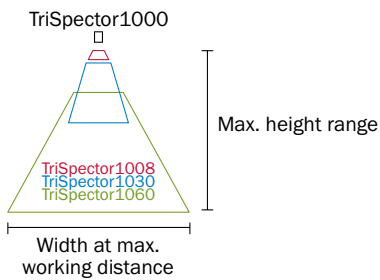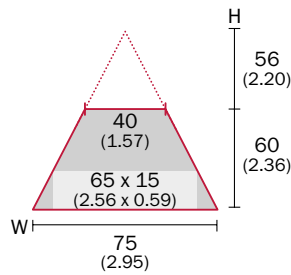
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⑥ LED; Link/Data
⑦ LED; Result
⑧ LED; Laser
⑨ Fastening threads (M5 x 8.5 mm length)
⑩ Optical receiver (center)
⑪ Optical sender (center)
⑫ Micro SD memory card

TriSpector1060
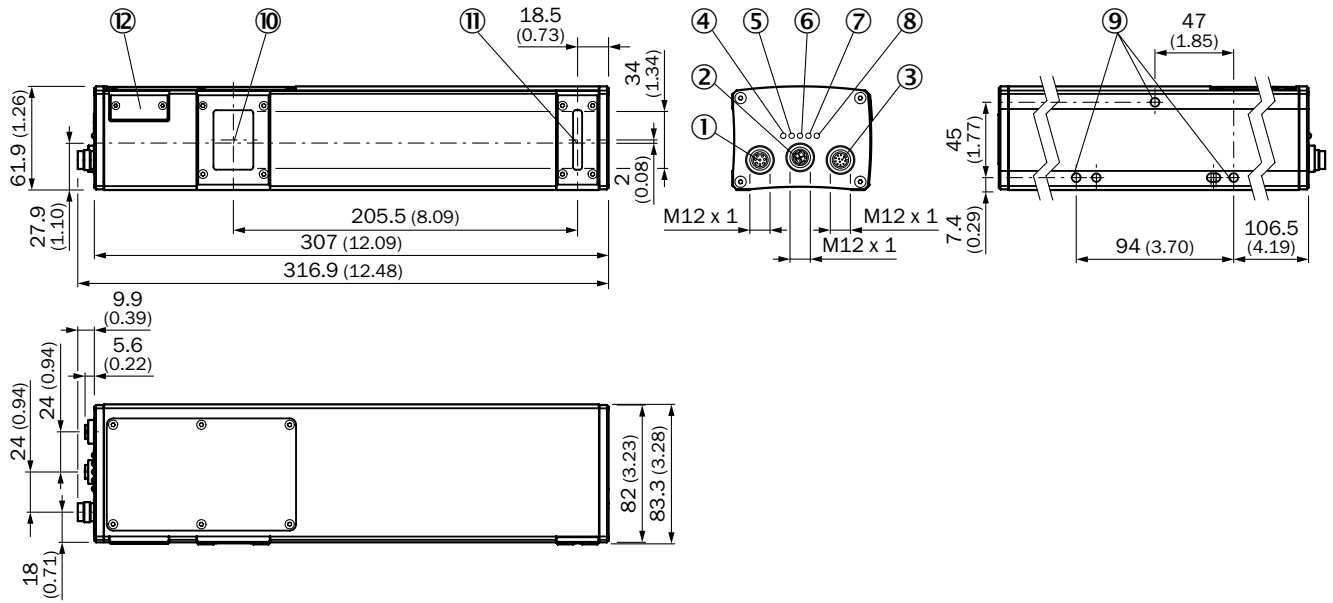
① Connector Encoder (thread inside)
② Connector Gigabit Ethernet (Gig E)
③ Connector Power I/O (thread inside)
④ LED; On
⑤ LED; State
⑥ LED; Link/Data
⑦ LED; Result
⑧ LED; Laser
⑨ Fastening threads (M5 x 8.5 mm length)
⑩ Optical receiver (center)
⑪ Optical sender (center)
⑫ Micro SD memory card

Field of view

Typical field of view

TriSpector1000

Max. height range

TriSpector1008
TriSpector1030
TriSpector1060

Width at max.
working distance

TriSpector1008
Typ. field of view in mm (inch)

H
56 (2.20)
40 (1.57)
60 (2.36)
65 x 15 (2.56 x 0.59)
W
75 (2.95)

TriSpector1030
Typ. field of view in mm (inch)

H
141 (5.55)
90 (3.54)
400 (15.75)
270 x 100 (10.63 x 3.94)
W
330 (12.99)
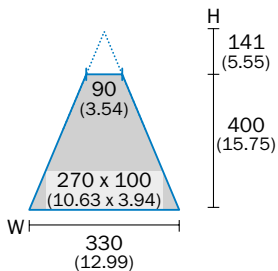
TriSpector1060
Typ. field of view in mm (inch)

H
291 (11.46)
180 (7.09)
800 (31.50)
540 x 200 (21.26 x 7.87)
W
660 (25.98)
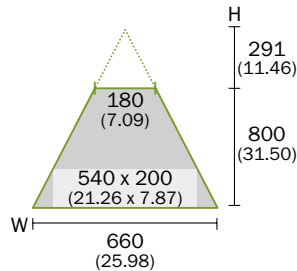
Recommended accessories

	Brief description	Part no.
Mounting brackets and mounting plates		
	Mounting bracket set consisting of L-shaped cooling plate and L-shaped bracket including skew angle display	2076735
Plug connectors and cables		
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Gigabit Ethernet/PoE, shielded, 2 m	6049728
	Head A: female connector, M12, 12-pin, straight Head B: Cable Cable: unshielded, 2 m	6034604
	Cable: PVC, unshielded, converter between sensor and ICL illumination, T-splitter to convert 12-pin to 8-pin, M12, 12-pin female, M12, 12-pin male, M12, 8-pin female	6034950
Incremental encoders		
Illustration may differ	Incremental encoder for triggering of each profile within the 3D image and control of conveyor belt speed, 2.500 pulses per revolution, RS-422/TTL, 8-pin open ended, cable length 1.5 m	1068997
Small photoelectric sensors		
Illustration may differ	Photoelectric proximity sensor for object detection and triggering 3D image acquisition, M12, 4-pin	1049049

More accessories can be found online ➜ **www.mysick.com/en/TriSpector1000**

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☑ 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.
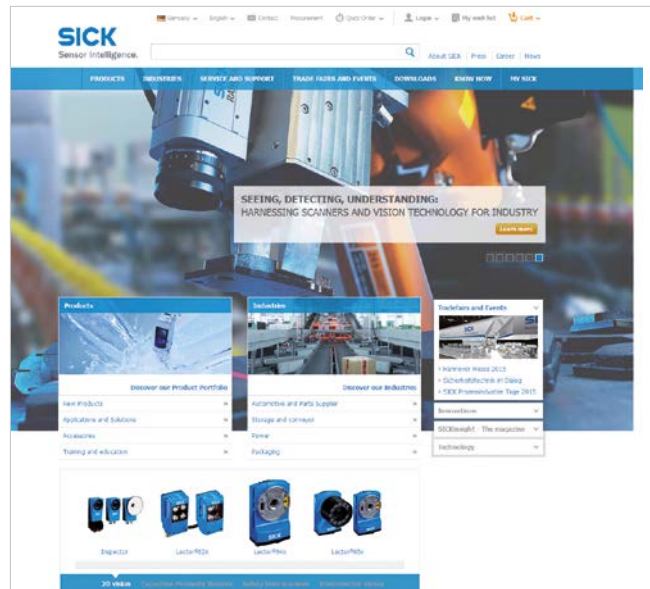
SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

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 almost 7,000 employees and over 50 subsidiaries and equity investments as well as numerous representative offices 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 additional representatives ➜ **www.sick.com**

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Sensor Intelligence.

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