TriSpector1000
INTUITIVE 3D INSPECTION

3D vision

SICK
Sensor Intelligence.
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.

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

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 reinstallation 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 P 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
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 flexibility, 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.

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**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
Detailed technical data ............. 11
Ordering information .............. 12
Dimensional drawings .......... 13
Field of view ..................... 14
Recommended accessories ...... 15

⇒ www.sick.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

<table>
<thead>
<tr>
<th>Feature</th>
<th>TriSpector1008</th>
<th>TriSpector1030</th>
<th>TriSpector1060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Positioning, inspection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>3D, LineScan, image analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toolkit</td>
<td>Shape, Area detection, blob locator, volume, find plane, fixed plane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working distance</td>
<td>56 mm ... 116 mm</td>
<td>141 mm ... 541 mm</td>
<td>321 mm ... 1,121 mm</td>
</tr>
<tr>
<td>Example field of view</td>
<td>65 mm x 15 mm</td>
<td>270 mm x 100 mm</td>
<td>540 mm x 200 mm</td>
</tr>
<tr>
<td>Light source</td>
<td>Visible red light (laser, 660 nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser class</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width at minimum working distance</td>
<td>40 mm</td>
<td>90 mm</td>
<td>180 mm</td>
</tr>
<tr>
<td>Width at maximum working distance</td>
<td>75 mm</td>
<td>330 mm</td>
<td>660 mm</td>
</tr>
<tr>
<td>Maximum height range</td>
<td>60 mm</td>
<td>400 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Factory calibrated</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging angle</td>
<td>65°</td>
<td>67°</td>
<td></td>
</tr>
<tr>
<td>Offline support</td>
<td>Emulator</td>
<td></td>
<td></td>
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### Performance

<table>
<thead>
<tr>
<th>Feature</th>
<th>TriSpector1008</th>
<th>TriSpector1030</th>
<th>TriSpector1060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum performance</td>
<td>2,000 3D profiles/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum number of profiles</td>
<td>2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height resolution</td>
<td>20 μm ... 50 μm</td>
<td>40 μm ... 280 μm</td>
<td>80 μm ... 670 μm</td>
</tr>
<tr>
<td>3D profile resolution</td>
<td>760 px</td>
<td>700 px</td>
<td>790 px</td>
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</tbody>
</table>

### Interfaces

<table>
<thead>
<tr>
<th>Feature</th>
<th>TriSpector1008</th>
<th>TriSpector1030</th>
<th>TriSpector1060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration software</td>
<td>SOPAS ET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication interfaces</td>
<td>Gigabit Ethernet (TCP/IP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital inputs</td>
<td>3 (non-isolated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital outputs</td>
<td>4 (non-isolated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encoder interface</td>
<td>RS-422 / TTL (DBS36E-BBCP02048)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum encoder frequency</td>
<td>300 kHz</td>
<td></td>
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</table>

### Mechanics/electronics

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetic compatibility (EMC)</td>
<td>EN 61000-6-2:2005 / EN 51000-6-3:2007</td>
</tr>
<tr>
<td>Shock load</td>
<td>15 g / 6 ms (EN 60068-2-27)</td>
</tr>
<tr>
<td>Vibration load</td>
<td>5 g, 10 Hz ... 150 Hz (EN 60068-2-6)</td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>0 °C ... +40 °C</td>
</tr>
<tr>
<td>Ambient storage temperature</td>
<td>-20 °C ... +70 °C</td>
</tr>
</tbody>
</table>

*Permissible relative air humidity: 0 % ... 90 % (non-condensing)*

Ordering information

<table>
<thead>
<tr>
<th>Sub product family</th>
<th>Window material</th>
<th>Type</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TriSpector1008</td>
<td>Glass</td>
<td>V3T115-MR12A7</td>
<td>1075604</td>
</tr>
<tr>
<td></td>
<td>PMMA</td>
<td>V3T115-MR12A8</td>
<td>1060426</td>
</tr>
<tr>
<td>TriSpector1030</td>
<td>Glass</td>
<td>V3T125-MR32A7</td>
<td>1072923</td>
</tr>
<tr>
<td></td>
<td>PMMA</td>
<td>V3T125-MR32A8</td>
<td>1060427</td>
</tr>
<tr>
<td>TriSpector106C</td>
<td>Glass</td>
<td>V3T135-MR62A7</td>
<td>1075605</td>
</tr>
<tr>
<td></td>
<td>PMMA</td>
<td>V3T135-MR62A8</td>
<td>1060428</td>
</tr>
</tbody>
</table>

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/Detx
7. LED; Result
8. LED; Laser
9. Fastening threads (M8 x 8.6 mm length)
10. Optical receiver (center)
11. Optical sender (center)
12. Micro SD memory card
TriSpector1030

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
Trispector1000 3D VISION

Trispector106C

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/Act
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

Width at max. working distance

Trispector1030

Typ. field of view in mm (inch)

W
330
(12.99)
270 x 100
(10.63 x 3.94)
H
141
(5.55)
400
(15.75)

Trispector1060

Typ. field of view in mm (inch)

W
660
(25.98)
540 x 200
(21.26 x 7.87)
H
291
(11.46)
800
(31.50)

Trispector1008

Typ. field of view in mm (inch)

W
75
(2.95)
65 x 15
(2.56 x 0.59)
H
56
(2.20)
60
(2.36)
## Recommended accessories

<table>
<thead>
<tr>
<th>Brief description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting brackets and mounting plates</td>
<td></td>
</tr>
<tr>
<td>Mounting bracket set consisting of L-shaped cooling plate and L-shaped bracket including skew angle display</td>
<td>2076735</td>
</tr>
<tr>
<td>Plug connectors and cables</td>
<td></td>
</tr>
<tr>
<td>Head A: male connector, M12, 8-pin, straight, X-coded</td>
<td>6049728</td>
</tr>
<tr>
<td>Head B: male connector, RJ45, 8-pin, straight</td>
<td></td>
</tr>
<tr>
<td>Cable: Gigabit Ethernet/PoE, shielded, 2 m</td>
<td></td>
</tr>
<tr>
<td>Head A: female connector, M12, 12-pin, straight</td>
<td>6034604</td>
</tr>
<tr>
<td>Head B: Cable</td>
<td></td>
</tr>
<tr>
<td>Cable: unshielded, 2 m</td>
<td></td>
</tr>
<tr>
<td>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</td>
<td>5034950</td>
</tr>
<tr>
<td>Incremental encoders</td>
<td></td>
</tr>
<tr>
<td>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</td>
<td>1068997</td>
</tr>
<tr>
<td>Small photoelectric sensors</td>
<td></td>
</tr>
<tr>
<td>Photoelectric proximity sensor for object detection and triggering 3D image acquisition, M12, 4-pin</td>
<td>1049049</td>
</tr>
</tbody>
</table>

More accessories can be found online → [www.mysick.com/en/TriSpector1000](http://www.mysick.com/en/TriSpector1000)