

IVC-3D stainless steel smart cameras

Advanced 3D inspection for harsh environments

3D solution for food and beverage industry

The world's most proven 3D smart camera meets the tough challenges of the food and beverage industry. The IVC-3D stainless steel smart camera helps you ensure excellent product quality throughout the production process – even in harsh environments. This smart camera is specially designed for harsh environments and combines imaging, lighting and analysis in a single, rugged stainless steel housing.

Keep your lines up and running

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The unique IVC-3D stainless steel smart camera enables your high-speed production processes to run smoothly, ensuring precise shape and volume measurements are obtained with instant response.

Easy to clean

Food grade stainless steel housing and PMMA windows make the IVC-3D stainless steel perfect for a wide range of applications in the pharmaceutical and food and beverage industries. The hygienic, IP 67-rated design is easy to clean. Integration is simple using the hose adaptor and hose accessories to cover the cables. ECOLAB certification ensures resistance to industrially used cleaning agents and disinfectants.

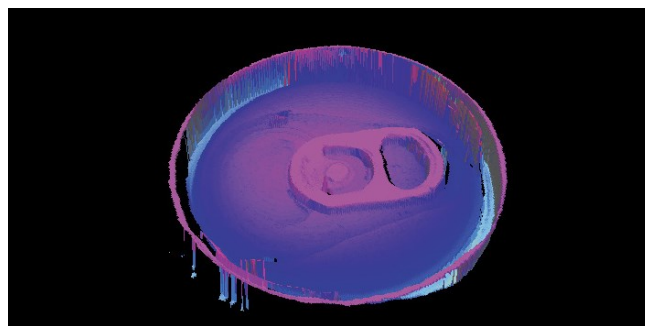
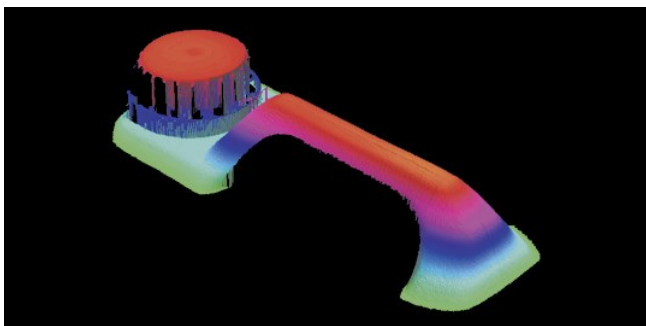
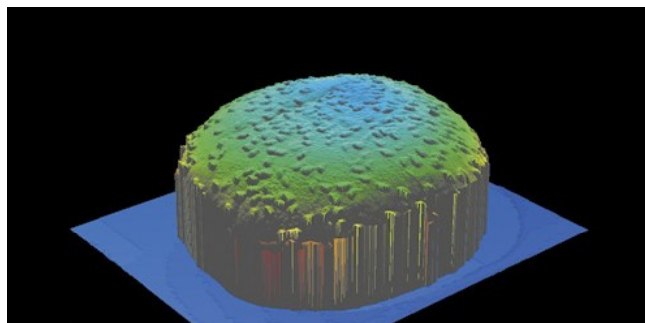
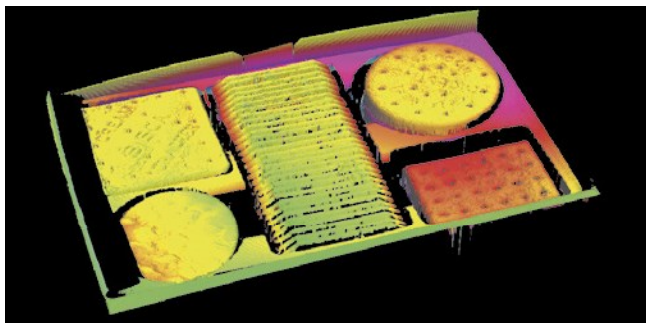
ECOLAB certification

- 28 days reaction time
- 20 °C temperature
- No swelling
- No embrittlement

ECOLAB[®]

IVC-3D stainless steel applications

The IVC-3D stainless steel is used to solve applications in harsh environments within the food, beverage and pharmaceutical industries.



Rugged solutions for harsh operating conditions

3D imaging is ideal where height, shape and volume are important features in production. The IVC-3D makes high-speed production processes cost-effective and accurate.

High product quality and minimized packaging problems

The IVC-3D stainless steel is suitable for food production processes and easily measures features such as content, shape, volume and portions. With these unique capabilities, the IVC-3D enables manufacturers to optimize production costs and reduce waste.

Quality inspection

The IVC-3D smart camera records the 3D shape at high speed as the baked cakes pass by on the conveyor belt. The camera checks that there are no dents or missing chunks, and that the height, volume, roundness and diameter are correct. Fast detection of production errors enables production control, waste reduction and less downtime.

Reliable verification

The IVC-3D smart camera locates the cap and verifies that it is correctly assembled, independent of cap color. For many package types, the measurements in 3D can be made relative to the rest of the package. This gives a correct result even if the container itself is slightly tilted on the conveyor. The IVC-3D provides ruggedness that is superior to any 2D solution.

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The world's first 3D smart camera makes advanced vision easy



Product description

The IVC-3D smart camera performs inspection, location, and measurement of objects in order to increase throughput, control production and perform quality control. Applications that once required complicated camera and illumination technology can now easily be completed with the world's first 3D smart camera. The factory-calibrated IVC-3D combines imaging, lighting and analysis into one housing. Using laser triangulation, the IVC-3D can see three

dimensions. Highlighting surface defects is done during image capture with tools that measure height, volume, and shape independent of contrast and color. As a result, previously difficult measurement tasks are now easily solved. The IVC-3D is easily configured via a PC user interface, and has serial and EtherNet/IP interfaces. The IVC-3D needs no PC after configuration, and can operate stand-alone or as part of the factory network.

At a glance

- Easy 3D measurement – provides information about object height, shape and volume
- Independent of contrast and color
- Easy-to-use graphical user interface for fast application development
- Simple connection of PLCs, robots, and other control systems, e.g., via Ethernet/IP or OPC
- Scans up to 5,000 profiles per second
- Industrial, robust metal housing

Your benefits

- The IVC-3D makes advanced 3D shape inspections easy, enabling cost-efficient solutions
- Contrast-independent measurement provides greater reliability even at varying object color and when the object color is the same as the background
- Factory calibrated – instantly providing true metric dimensions at production speed
- The camera's OPC server and EtherNet/IP interface enables simple communication with PLCs, robots and control systems, making integration easy
- Stand-alone operation – no PC is needed after configuration

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Additional information

Detailed technical data.....F-101
Ordering information.....F-103

→ www.mysick.com/en/IVC-3D

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

	IVC-3D 30	IVC-3D 50	IVC-3D 100	IVC-3D 200	IVC-3D 300
Task	Positioning, inspection, measuring, reading				
Technology	3D, LineScan, image analysis				
Working distance					
Anodized aluminum	208 mm ... 239 mm ¹⁾	195 mm ... 279 mm ¹⁾	265 mm ... 404 mm ¹⁾	306 mm ... 683 mm ¹⁾	282 mm ... 1,153 mm ¹⁾
Stainless steel	–	189 mm ... 273 mm ¹⁾	259 mm ... 398 mm ¹⁾	300 mm ... 677 mm ¹⁾	276 mm ... 1,147 mm ¹⁾
Example field of view (H x W)	30 mm x 50 mm	50 mm x 150 mm	100 mm x 200 mm	200 mm x 600 mm	300 mm x 1,000 mm
Width at minimum working distance	53 mm	134 mm	179 mm	436 mm	417 mm
Width at maximum working distance	59 mm	174 mm	255 mm	810 mm	1,297 mm
Maximum height range	31 mm	84 mm	139 mm	377 mm	871 mm
Light source	Visible red light (laser, 658 nm, ± 15 nm)				
Laser class	2M (IEC 60825-1 : 2007)		2M (IEC 60825-1 : 2007) / 3B (IEC 60825-1 : 2007) (depending on type)	2M (IEC 60825-1 : 2007)	
Imaging angle	53°		61°	58°	60.5°
Offline support	Emulator				

¹⁾ The specified values are valid for single device installations. Please see operating instructions for details.

Performance

	IVC-3D 30	IVC-3D 50	IVC-3D 100	IVC-3D 200	IVC-3D 300
Height resolution	0.015 mm	0.04 mm	0.05 mm	0.2 mm	1.2 mm
3D profile resolution	2,048 points				1,400 points

Interfaces

Operator interface	Application specific operator interfaces can be created using ActiveX (COM) or as web page. Included OPC server enables data exchange with e.g. SCADA systems.
Configuration software	IVC Studio
Data store and retrieve	Images and data can be stored to and retrieved from flash and external FTP servers
Communication interfaces	RS-485, Fast Ethernet (10/100 Mbit/s): TCP/IP, UDP/IP, EtherNet/IP, OPC server included
Digital inputs	3 program controlled inputs (1 trigger input), HIGH = 10 V ... 28.8 V
Digital outputs	3 B-type program controlled outputs, Total output load < 100 mA, trigger output
Encoder interface	RS-422
Maximum encoder frequency	2 MHz



Mechanics/electronics

	IVC-3D 30	IVC-3D 50	IVC-3D 100	IVC-3D 200	IVC-3D 300
Connectors	Ethernet: M12, 4-pin female, D-coded, RS-485: M12, 8-pin female, Power I/O: M12, 8-pin male, Encoder: M12, 5-pin male				
Connector material	Anodized aluminum: Nickel plated brass Stainless steel: - Stainless steel				
Supply voltage	24 V DC, ± 20 %				
Ripple	< 5 V _{pp}				
Current consumption	< 1 A without output load				
Enclosure rating	Anodized aluminum: IP 65 Stainless steel: - IP 67				
Protection class	II, III				
Weight	Anodized aluminum: 3.2 kg Stainless steel: - 5.5 kg 4 kg 6.7 kg				
Dimensions (L x W x H)	Anodized aluminum: 294 mm x 69 mm x 163 mm Stainless steel: - 311 mm x 103 mm x 187 mm 387 mm x 69 mm x 163 mm 404 mm x 103 mm x 187 mm				
Optics	Fixed				

Ambient data

Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +40 °C
Ambient storage temperature	-20 °C ... +70 °C

Ordering information

Accessories available at www.mysick.com/en/IVC-3D

- **Processor:** 800 MHz
- **Memory:** 128 MB RAM, 16 MB flash
- **Image sensor:** CMOS
- **Maximum performance:** 5,000 3D profiles/s

Sub product family	Housing material	Window material	Product name	Type	Part no.
IVC-3D 30	Anodized aluminum	Safety glass	IVC-3D 30	IVC-3D31111	1041205
		PMMA	IVC-3D 30, plastic windows	IVC-3D31112	1046810
IVC-3D 50	Anodized aluminum	Safety glass	IVC-3D 50	IVC-3D21111	1027538
		PMMA	IVC-3D 50, plastic windows	IVC-3D21112	1041710
	Stainless steel	PMMA	IVC-3D 50, stainless steel	IVC-3D21113	1050157
IVC-3D 100	Anodized aluminum	Safety glass	IVC-3D 100	IVC-3D51111	1043579
		PMMA	IVC-3D 100, plastic windows	IVC-3D51112	1046912
		Safety glass	IVC-3D 100, class IIIb / 3B laser	IVC-3D51121	1046868
	Stainless steel	PMMA	IVC-3D 100, stainless steel	IVC-3D51113	1050158
IVC-3D 200	Anodized aluminum	Safety glass	IVC-3D 200	IVC-3D11111	1027539
		PMMA	IVC-3D 200, plastic windows	IVC-3D11112	1042152
	Stainless steel	PMMA	IVC-3D 200, stainless steel	IVC-3D11113	1048004
IVC-3D 300	Anodized aluminum	Safety glass	IVC-3D 300	IVC-3D41111	1041204
		PMMA	IVC-3D 300, plastic windows	IVC-3D41112	1048269
	Stainless steel	PMMA	IVC-3D 300, stainless steel	IVC-3D41113	1049024