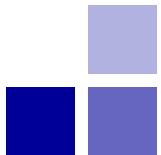


Machine Vision System application notes (Filling, packaging, and packing applications)

Panasonic Industrial Devices SUNX Co., Ltd.



Automatic box packing of IV bags

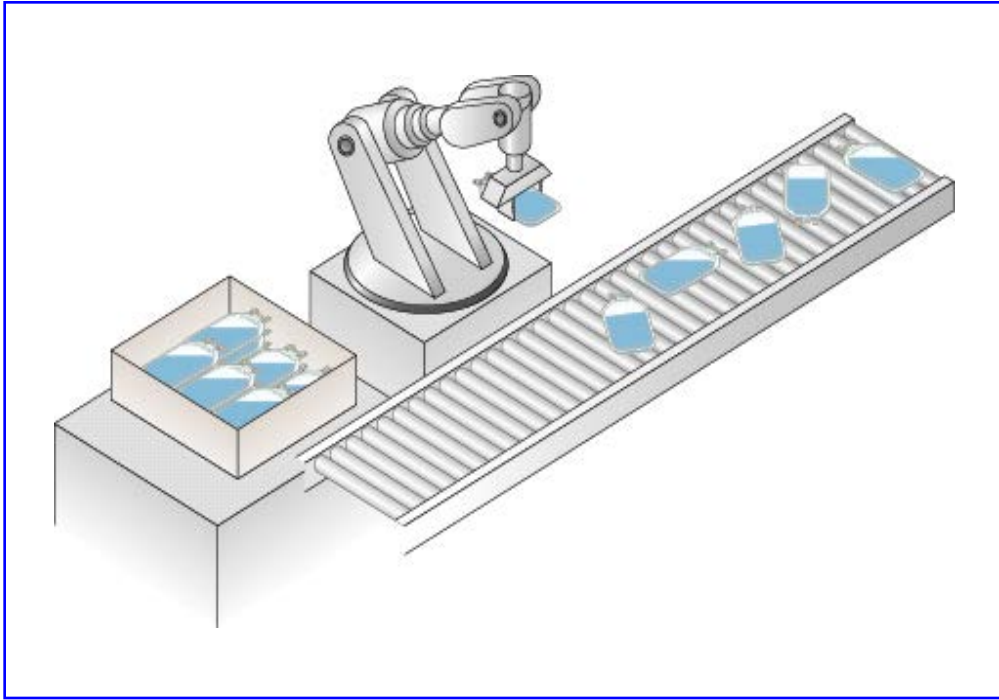
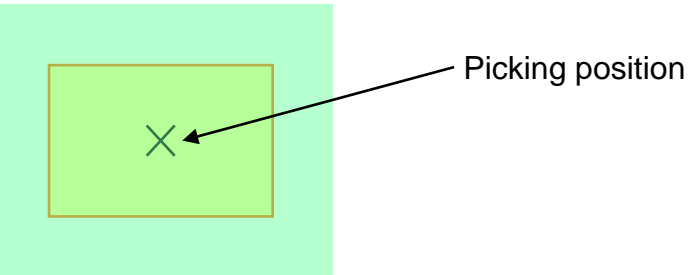


Image illustration



Description

- Automatically pack IV bags conveyed randomly on a line into boxes using a machine

Merits in purchasing our product

- Output picking positions of IV bags in robot coordinates
- Directly instructs the picking position (X, Y, θ) data to the robot

Examples of used functions

- Calibration function (conversion of camera coordinates to robot coordinates)
- Direct coordinates

Recommended model

PV260	
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Automatic box packing of components

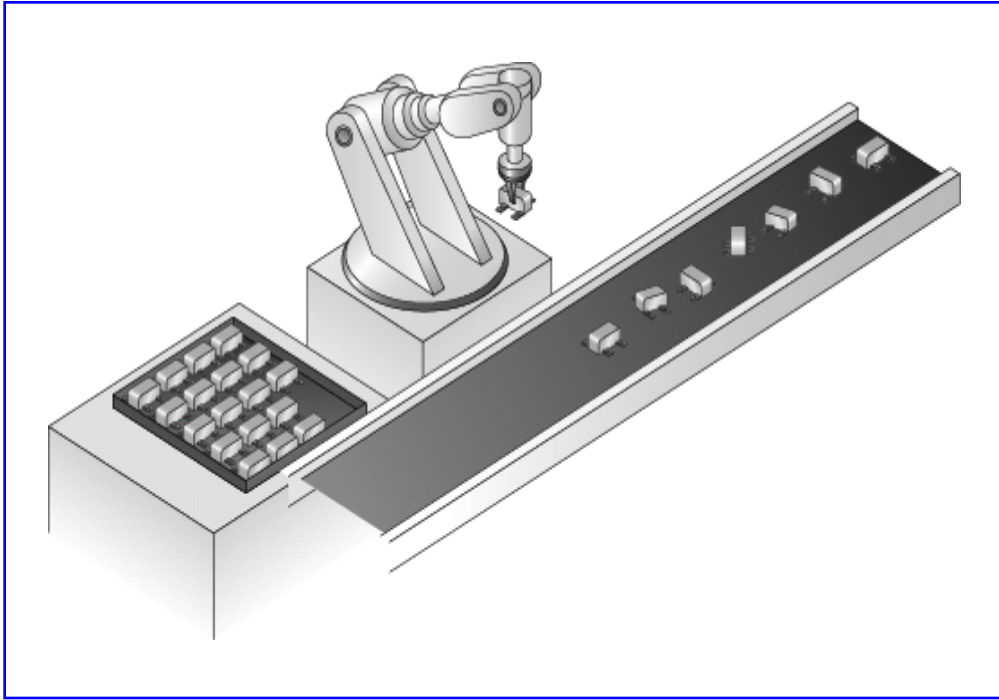
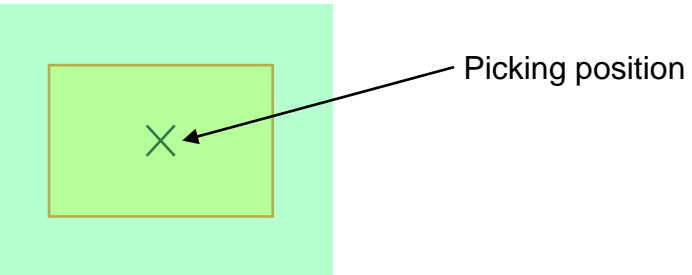


Image illustration



Description

- Automatically pack components conveyed randomly on a line into boxes using a machine

Merits in purchasing our product

- Output picking positions of components in robot coordinates
- Directly instructs the picking position (X, Y, θ) data to the robot

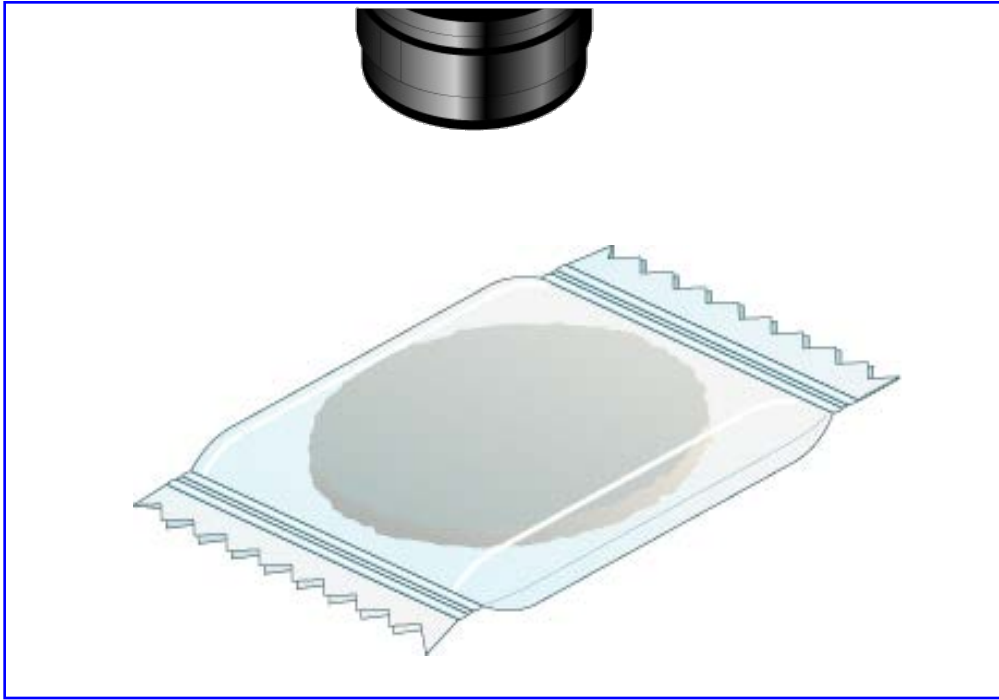
Examples of used functions

- Calibration function (conversion of camera coordinates to robot coordinates)
- Direct coordinates

Recommended model

PV260	
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Detection of vertical wrinkles and foreign substance jamming after heat sealing



Description

- Detect vertical wrinkles and foreign substance jamming after heat sealing of vacuum packaging products

Merits in purchasing our product

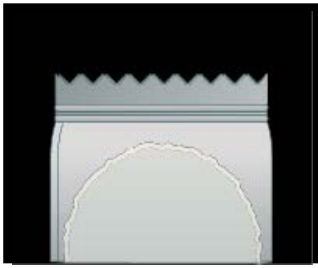
- Stable inspection using 21 types of abundant preprocessing filters

Examples of used functions

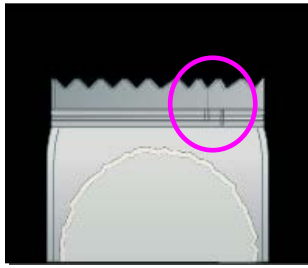
- Image preprocessing, image conversion
- Feature extraction
- Grayscale edge

Image illustration

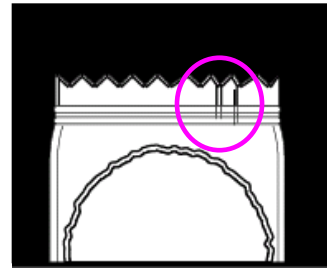
Illustration of preprocessing edge detection by X-ray



OK



NG
Vertical wrinkles present



Only the area where the gray value is changing in the horizontal direction is enhanced.
Only the vertical wrinkles are enhanced.

Recommended model

PV200	
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Beverage filling inspection

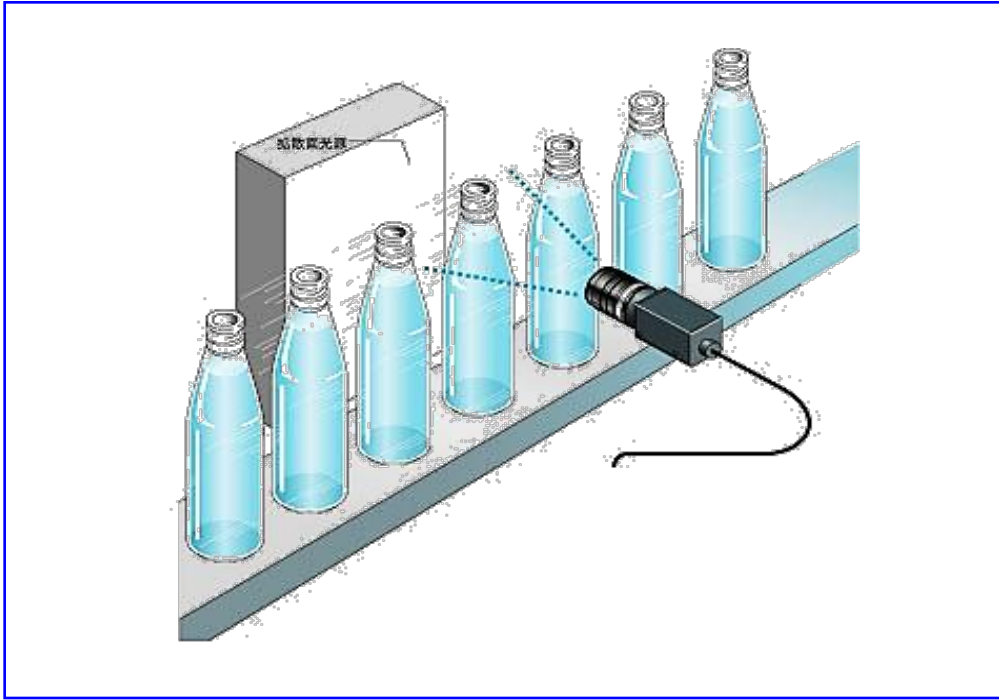
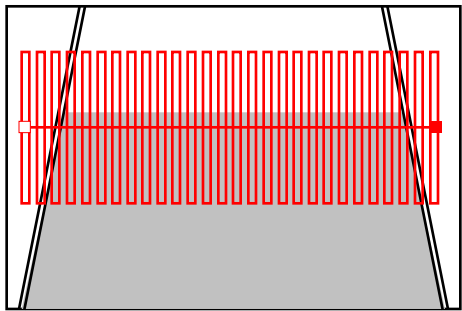


Image illustration



Description

- Filling inspection of bottled beverages

Merits in purchasing our product

- High-speed processing through parallel operation
- High-speed communication and storage (Ethernet, SD card, etc.) of position data indicating the amount of content and inspection judgment data
- Inspect the amount of content
- High-precision liquid level detection based on smart edge (line)

Examples of used functions

- Smart edge (line)
- Grayscale preprocessing

Recommended model

PV200	
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Empty bottle inspection

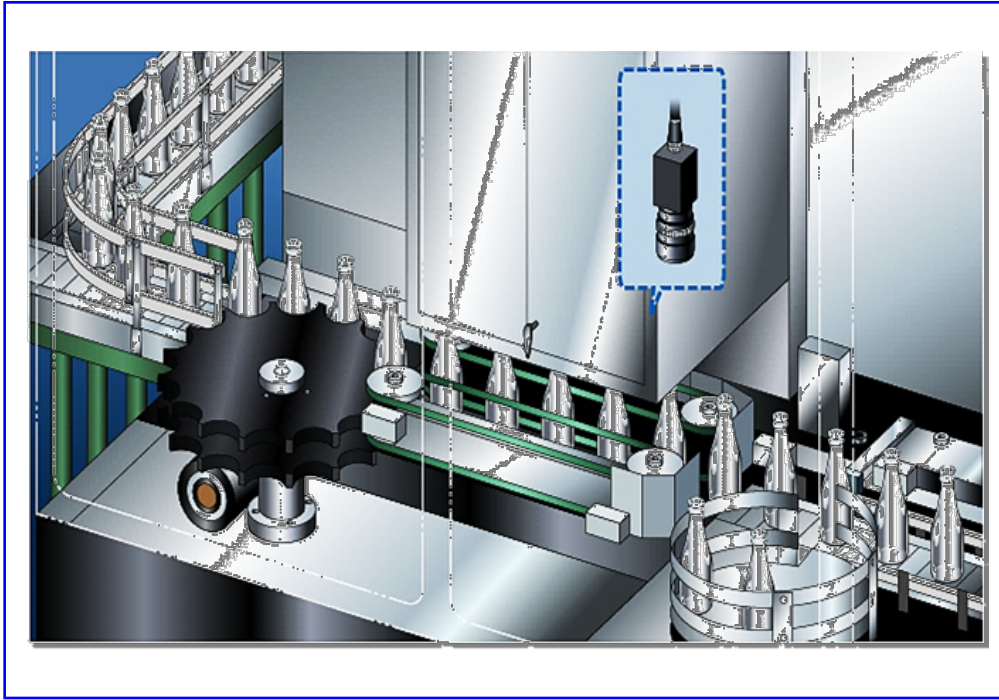
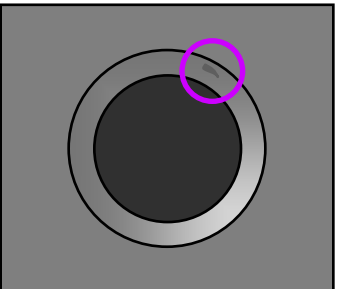
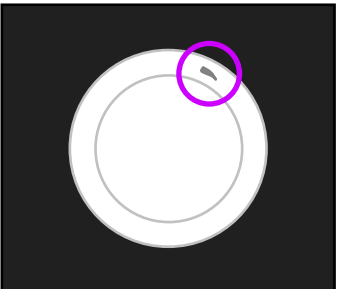


Image illustration



Camera image



NG
Damage present

Description

- Inspect bottles for cracks / chips and contamination

Merits in purchasing our product

- Supports multiproduct and multi-item inspections
- Quantification of the size of defects using smart edge (circle)
- Stable appearance inspection using 21 types of abundant preprocessing filters

Examples of used functions

- Smart edge (circle)
- Damage detection
- Grayscale preprocessing

Recommended model

PV200	Combined color and gray inspection
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Automatic box packing

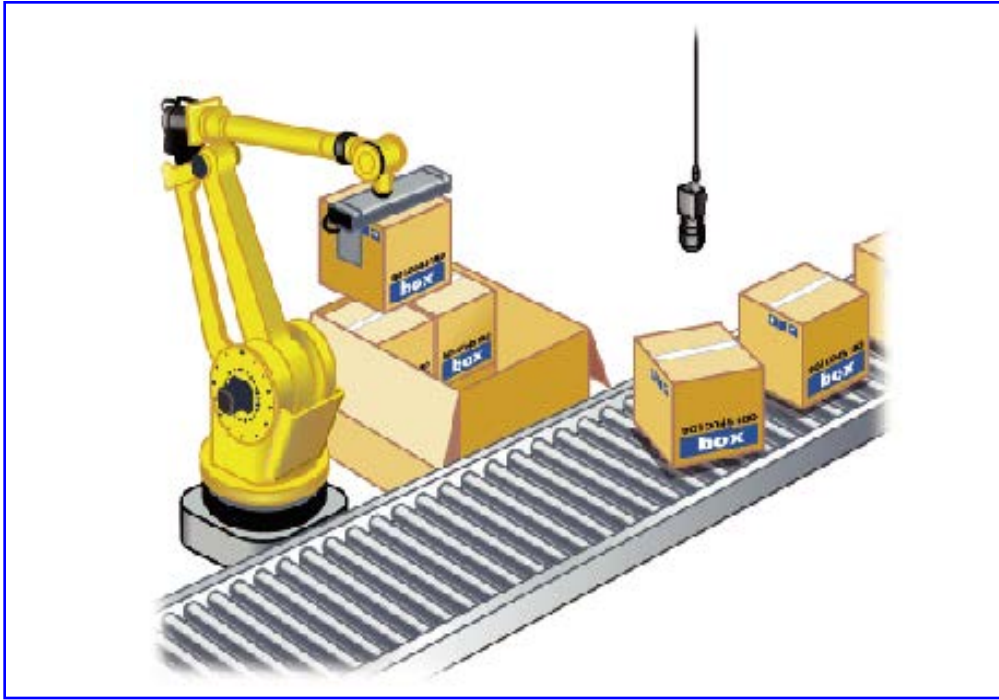
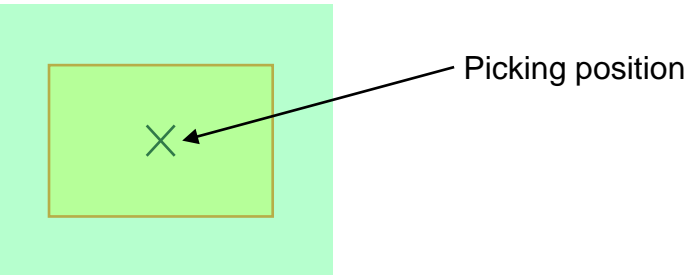


Image illustration



Description

- Automatically pack goods conveyed randomly on a line into boxes using a machine

Merits in purchasing our product

- Output picking positions of goods in robot coordinates
- Directly instructs the picking position (X, Y, θ) data to the robot

Examples of used functions

- Calibration function (conversion of camera coordinates to robot coordinates)
- Direct coordinates

Recommended model

PV260	
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Score line presence inspection

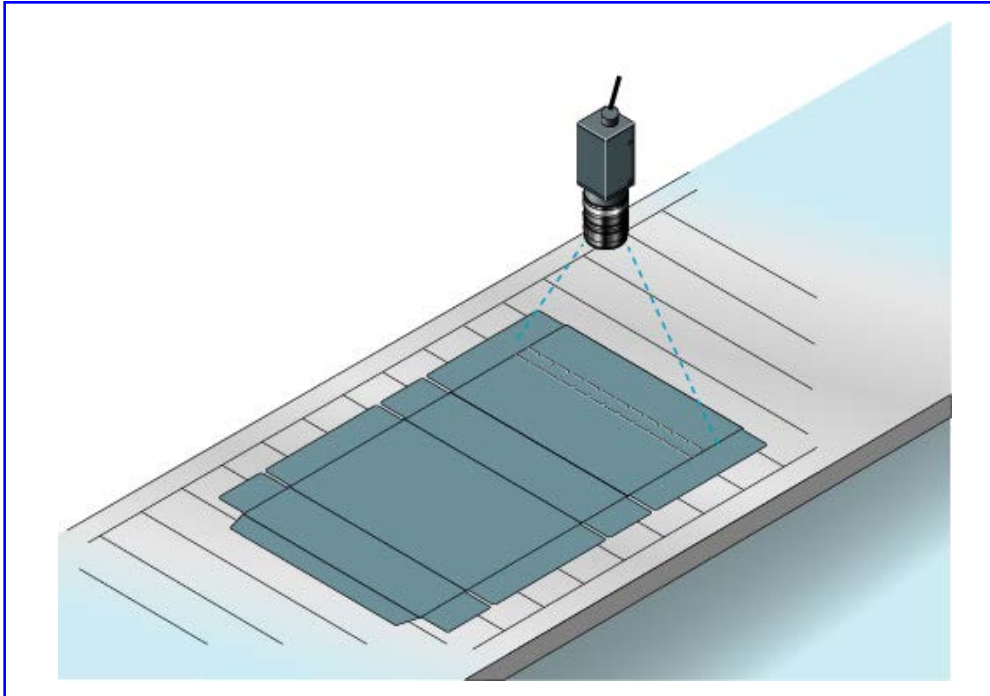
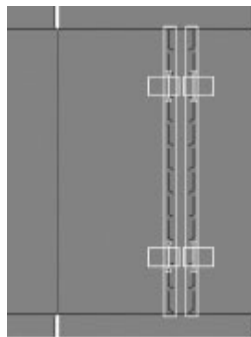


Image illustration



■ Description

- Inspect the presence of score lines in fast moving cardboards

■ Merits in purchasing our product

- Inspect fast moving objects at up to 30 μ s shutter speed
- Enhancement of score lines with unclear edges using 21 types of abundant preprocessing filters for stable inspection

■ Examples of used functions

- Grayscale preprocessing
- Smart edge (line)
- Grayscale edge

■ Recommended model

PV200

Inspection of seals on the mouth of seasoning containers

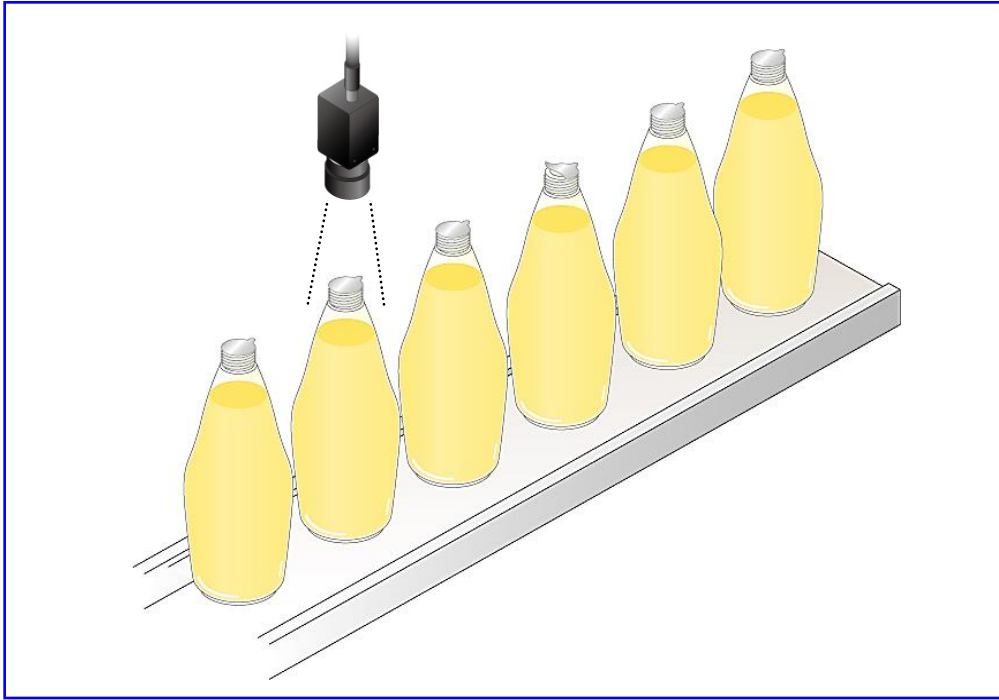
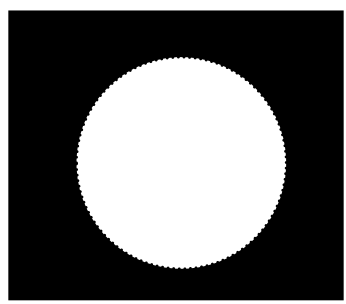
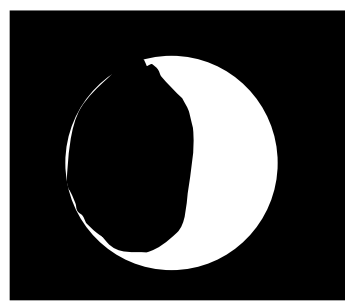


Image illustration



OK



NG

An unsealed area exists.

Description

- Inspect the presence or the peeling of seals affixed to the mouth of tubes containing paste products

Merits in purchasing our product

- Supports multiproduct and multi-item inspections
- Stable inspection using 21 types of abundant preprocessing filters
- Fine-tune the inspection area or preprocessing without stopping the inspection (read/write data while running)
- Simultaneous output of several types of inspection control data for traceability

Examples of used functions

- Grayscale preprocessing, grayscale conversion
- Binarization window
- Feature extraction

Recommended model

PV200	Combined color and gray inspection
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Inspection of the mouth of seasoning containers for contamination

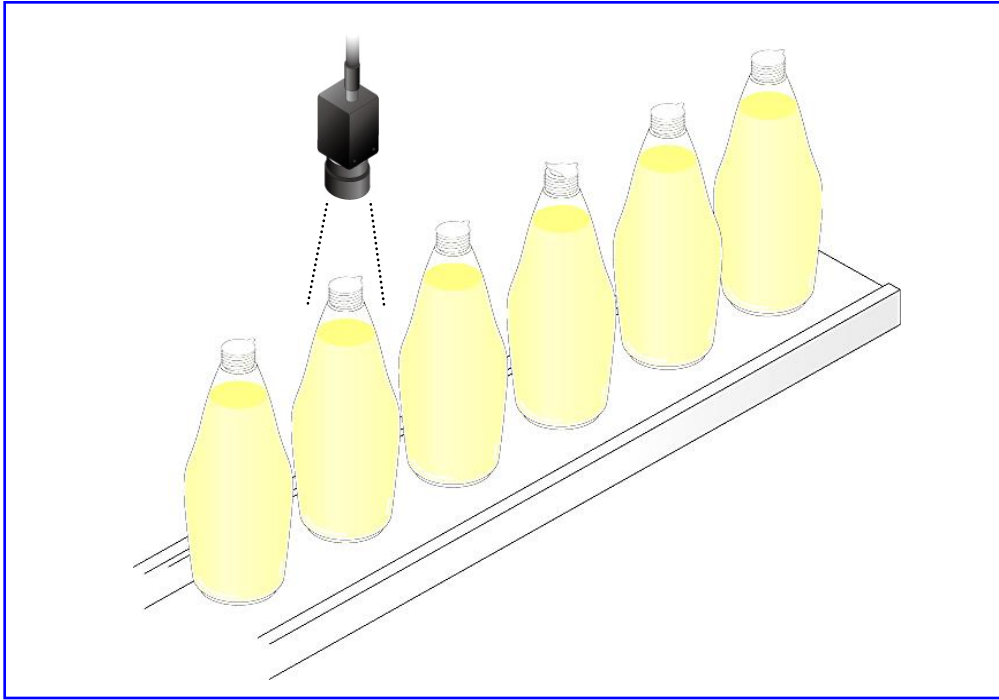
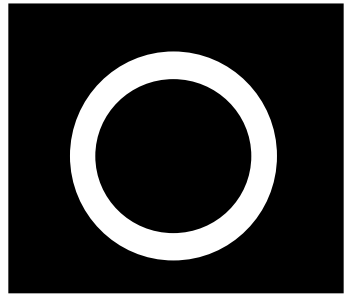
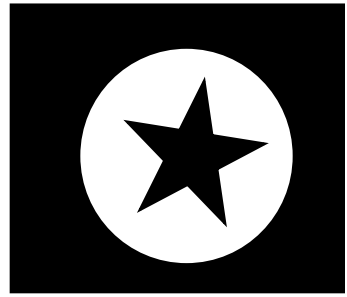


Image illustration



OK



NG
Contamination

Description

- Inspect for contamination that may have occurred during the processing of the mouth of tubes containing paste products or for improper inclusion of cap seals of bottles containing powder seasonings

Merits in purchasing our product

- Supports multiproduct and multi-item inspections
- Stable inspection using 21 types of abundant preprocessing filters
- Fine-tune the inspection area or preprocessing without stopping the inspection (read/write data while running)
- Simultaneous output of several types of inspection control data for traceability

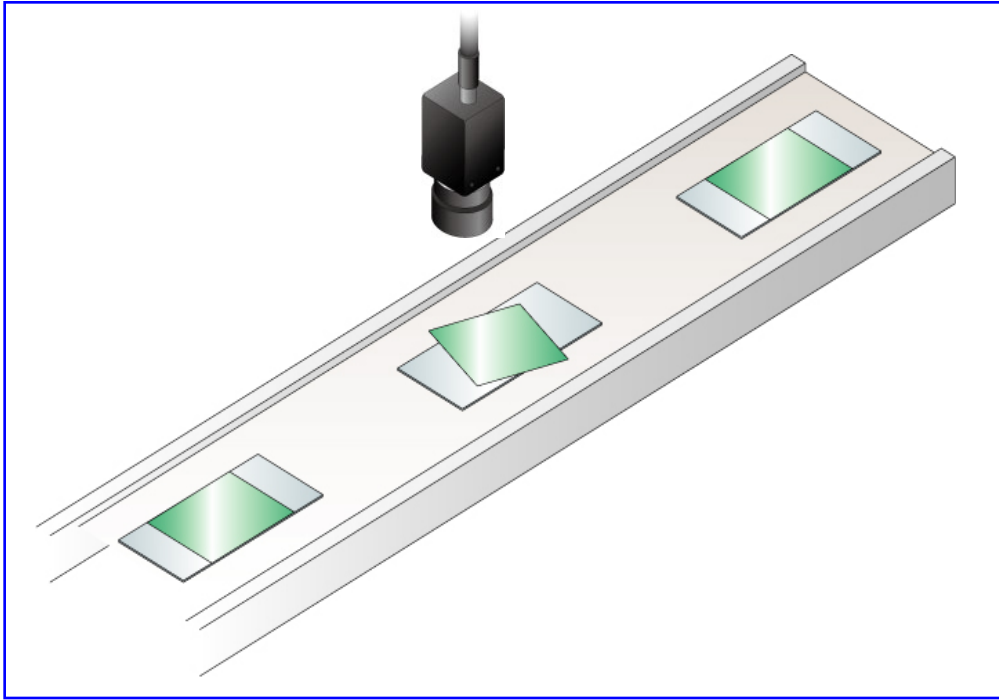
Examples of used functions

- Grayscale preprocessing, grayscale conversion
- Feature extraction
- Binarization window

Recommended model

PV200	Combined color and gray inspection
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Film lamination position measurement



Description

- Accurately detect the lamination position of film or the like

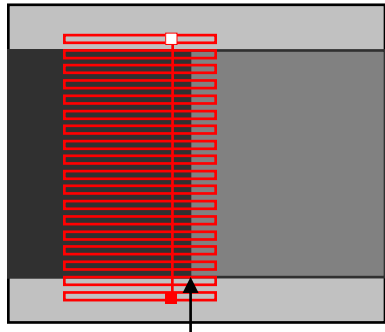
Merits in purchasing our product

- High-speed, high-precision position detection
- Stable inspection using 21 types of abundant preprocessing filters

Examples of used functions

- Grayscale preprocessing
- Smart edge (line)

Image illustration



Position detection

Recommended model

PV200	
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Filling inspection of liquid medicine

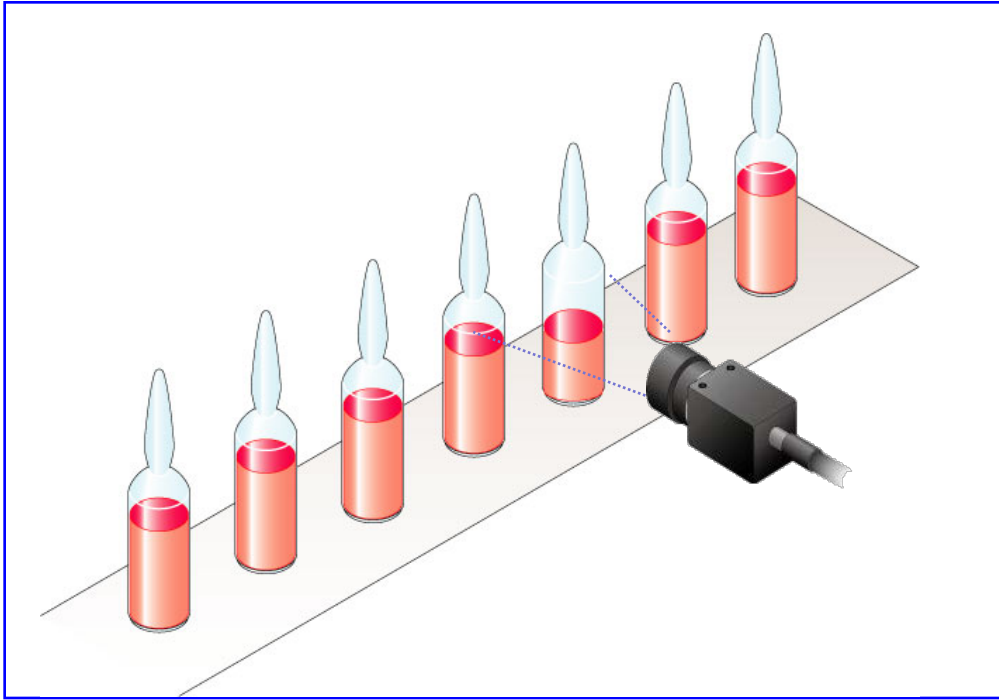
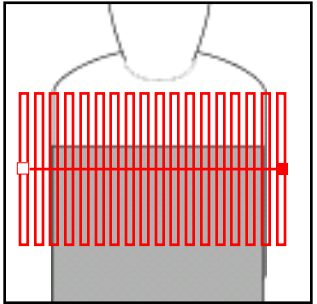


Image illustration



Description

- Inspect the filling of liquid medicine into ampoules

Merits in purchasing our product

- High-speed processing through parallel operation
- High-speed communication and storage (Ethernet, SD card, etc.) of position data indicating the amount of content and inspection judgment data
- Inspect the amount of content
- High-precision liquid level detection based on smart edge (line)

Examples of used functions

- Smart edge (line)
- Grayscale preprocessing

Recommended model

PV200	Combined color and gray inspection
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Missing pill inspection

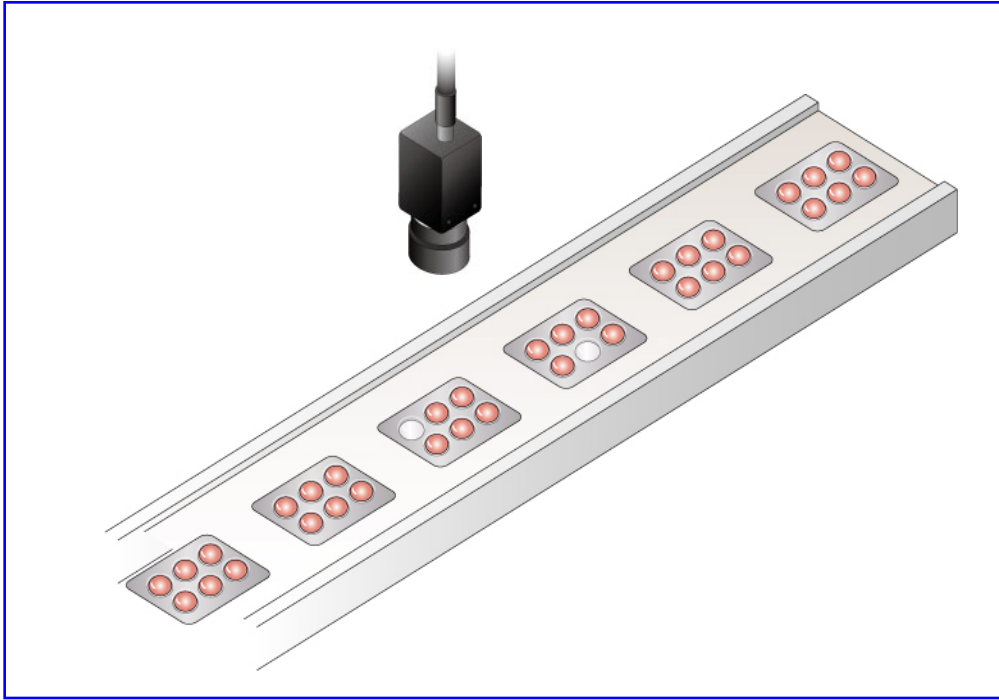
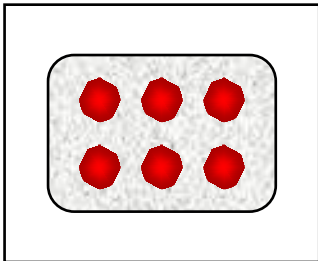
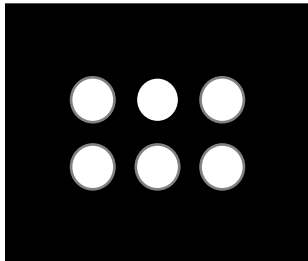


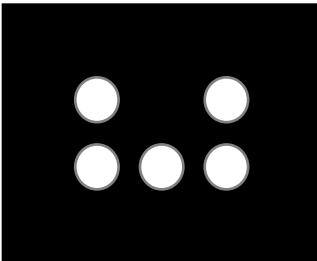
Image illustration



Camera's original picture



OK



NG
Pill missing

Description

- Inspect the presence of pills in blister packs

Merits in purchasing our product

- Supports multiproduct and multi-item inspections
- High-speed processing through parallel operation
- Simply set the register address of the PLC or device used in the apparatus to obtain inspection results or perform command operations.

Examples of used functions

- Color extraction
- Feature extraction

Recommended model

PV200	
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Detection of foreign substances in plastic sheets



Liquid crystal



Filling, packaging, and packing



IPD

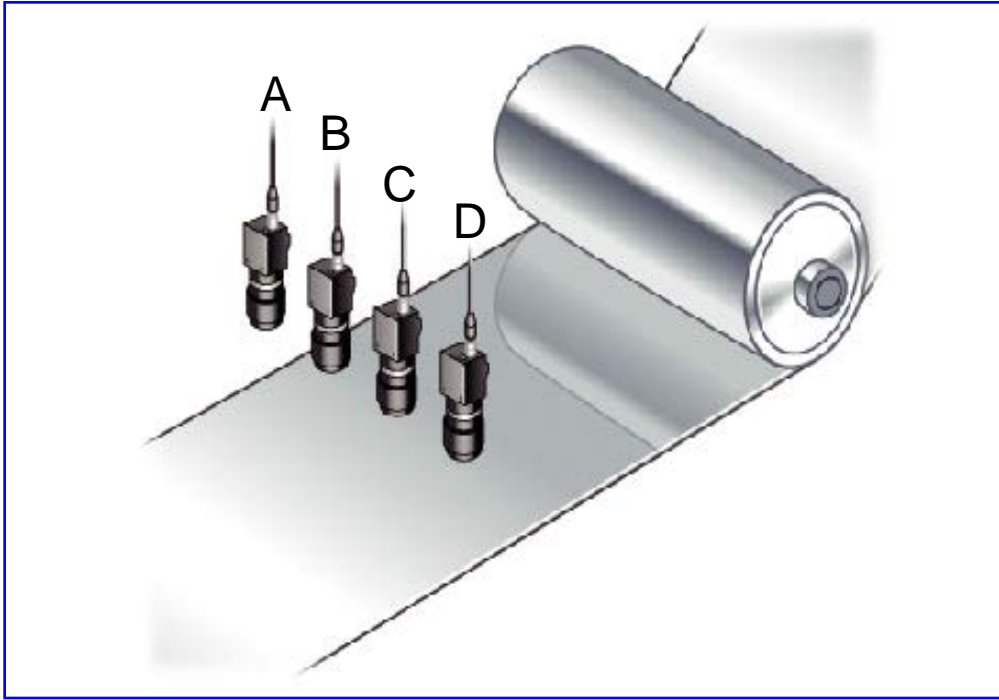
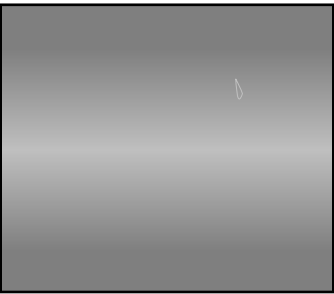


Image illustration



Camera image



NG
Damage present

Description

- Inspect for contamination that may have occurred during the processing of the mouth of tubes containing paste products or for improper inclusion of cap seals of bottles containing powder seasonings

Merits in purchasing our product

- Supports multiproduct and multi-item inspections
- Stable inspection using 21 types of abundant preprocessing filters
- Fine-tune the inspection area or preprocessing without stopping the inspection (read/write data while running)
- Simultaneous output of several types of inspection control data for traceability

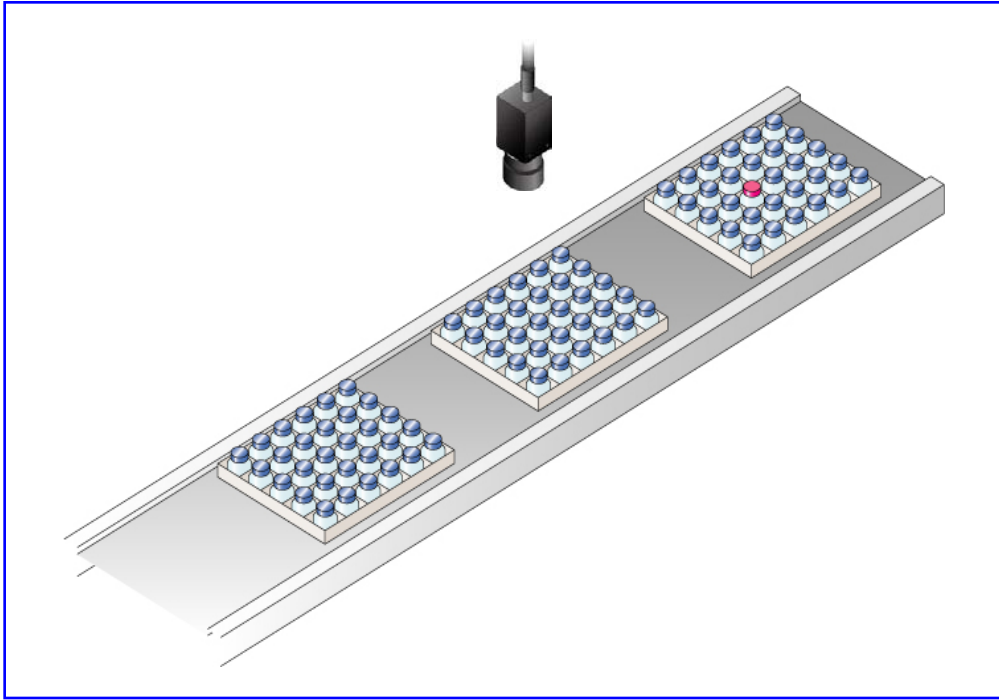
Examples of used functions

- Grayscale preprocessing, grayscale conversion
- Feature extraction
- Binarization window

Recommended model

PV200	Connect up to two 4 megapixel cameras
PV500V2	Connect up to four 3 megapixel cameras

Determination of the presence of caps and labels and inclusion of incorrect products



Description

- Determine the presence of caps and labels of products packed in boxes and prevent the inclusion of incorrect products

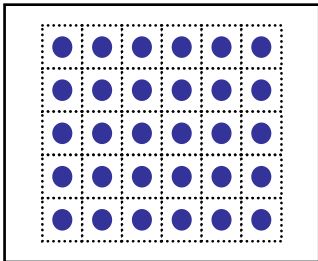
Merits in purchasing our product

- Supports various kinds of products
- High-speed processing through parallel operation
- Stable detection through color extraction and grayscale conversion

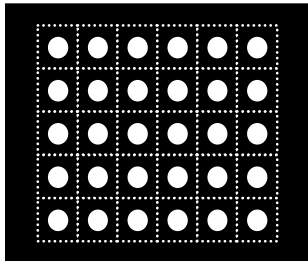
Examples of used functions

- Color extraction, grayscale conversion
- Feature extraction

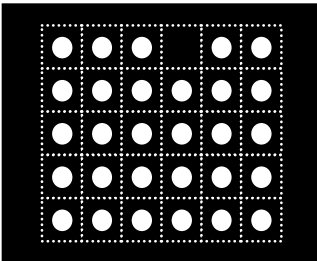
Image illustration



Color image



OK



NG Contamination

Recommended model

PV200	Inspection using color information
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