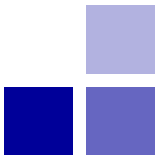


Machine Vision System application notes (Auto assembly applications)

Panasonic Industrial Devices SUNX Co., Ltd.



Determining the orientation of components

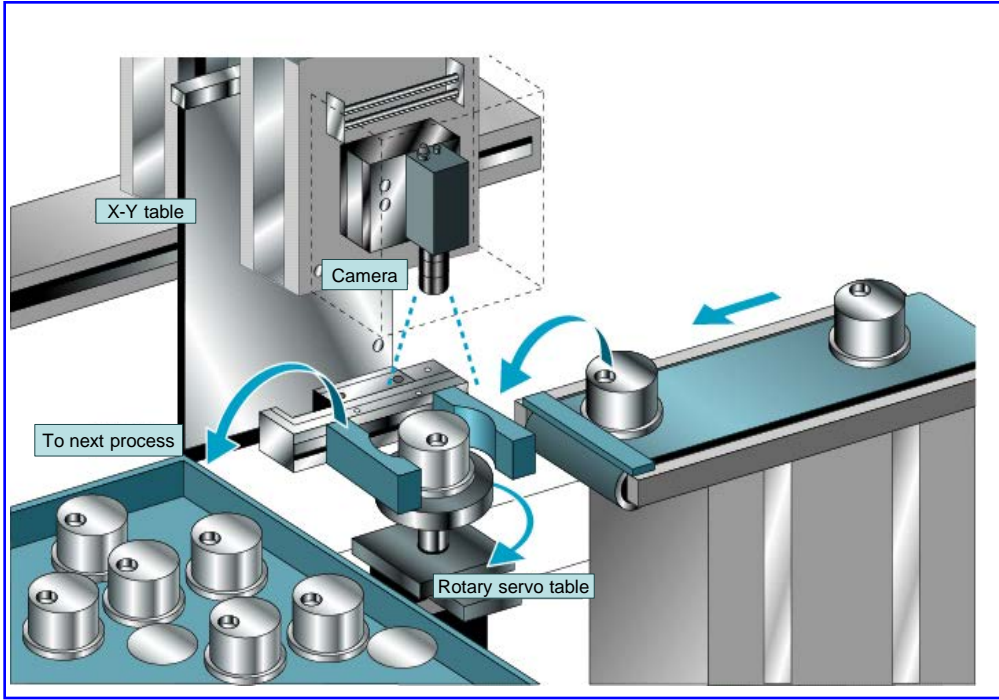
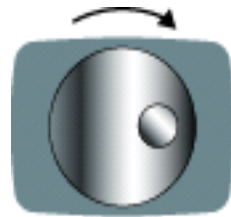


Image illustration



Detect the orientation of the workpiece



Rotate in the specified direction

Description

- Determine the orientation of components and turn the table based on that data to align the orientation of components

Merits in purchasing our product

- Determine product types and automatically control the orientation of components by combining an image processing device and PLC
- Stable detection based on smart matching

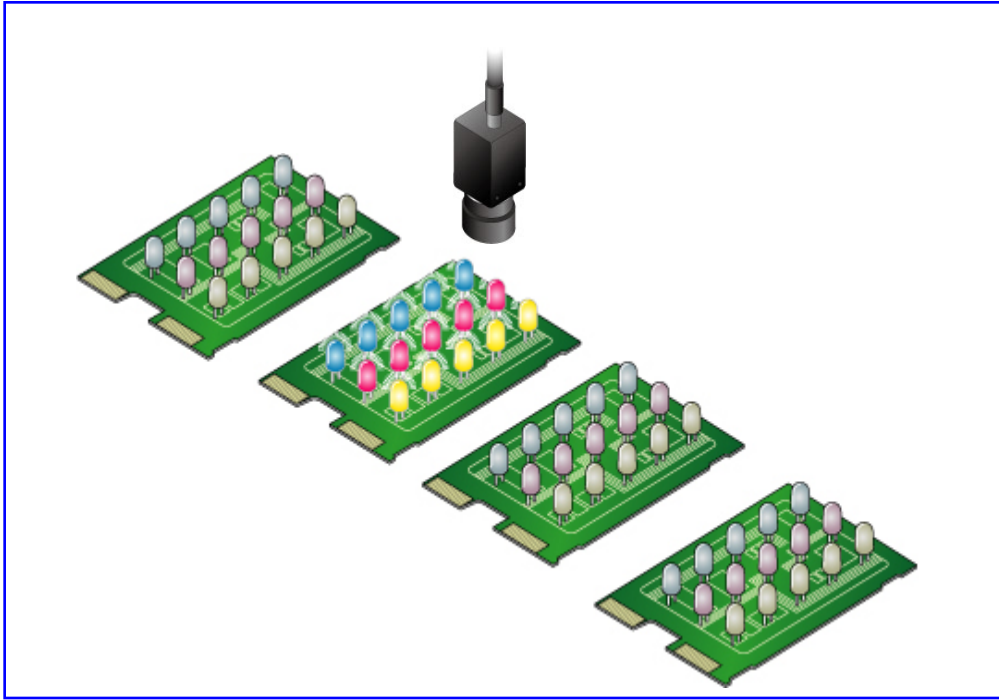
Examples of used functions

- Smart matching

Recommended model

PV200	
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Panel LED inspection



Description

- Inspect the LED light patterns on the circuit board of the operation display block in remote controllable household products

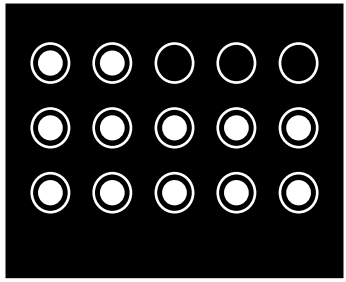
Merits in purchasing our product

- Simultaneously detect up to 128 colors. Supports multiple complex light patterns
- Supports various kinds of circuit boards
- Externally switch product type images

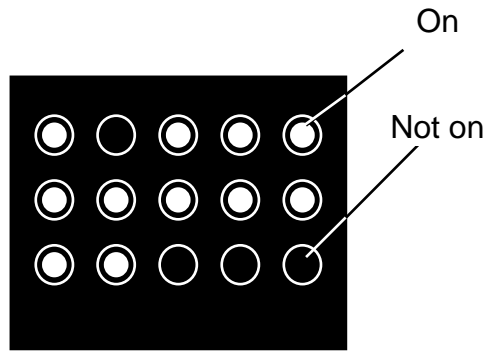
Examples of used functions

- Color extraction
- Color window

Image illustration



Light pattern 1



Light pattern 2

Recommended model

PV200	
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Switch block inspection

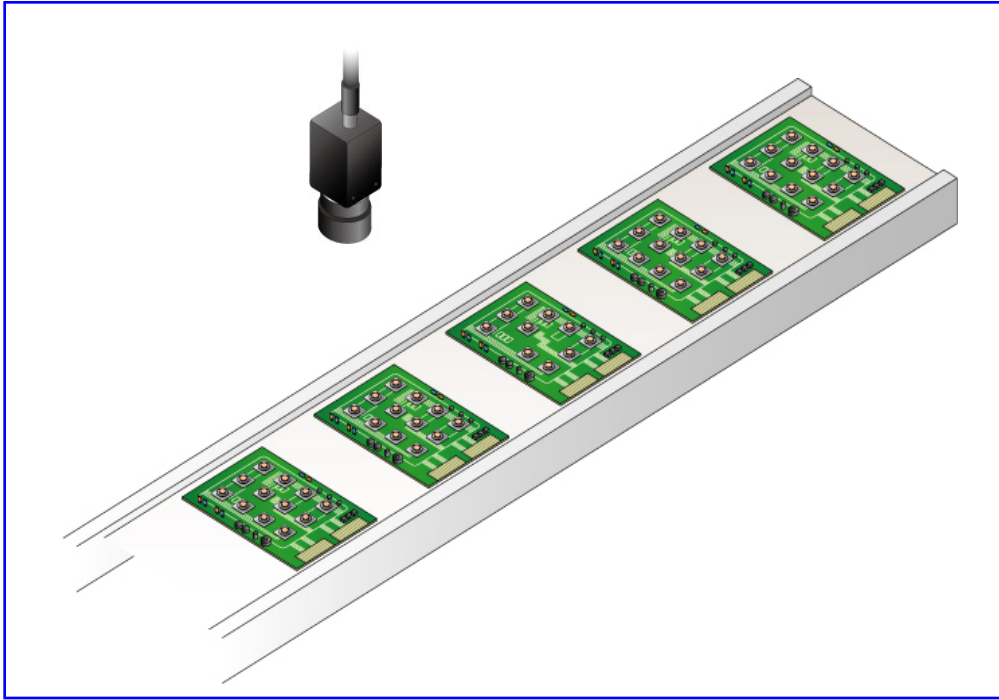
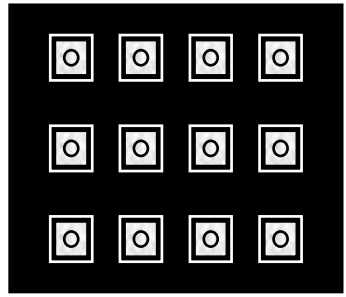
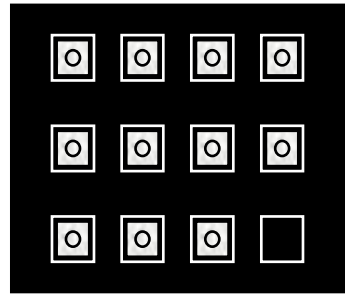


Image illustration



OK



NG

Component missing

Description

- Inspection of switches mounted on switch block circuit boards

Merits in purchasing our product

- Simultaneously inspect the presence of mounted switches and position misalignment
- Supports various kinds of circuit boards
- Externally switch product type images
- Stable inspection using 21 types of preprocessing filters

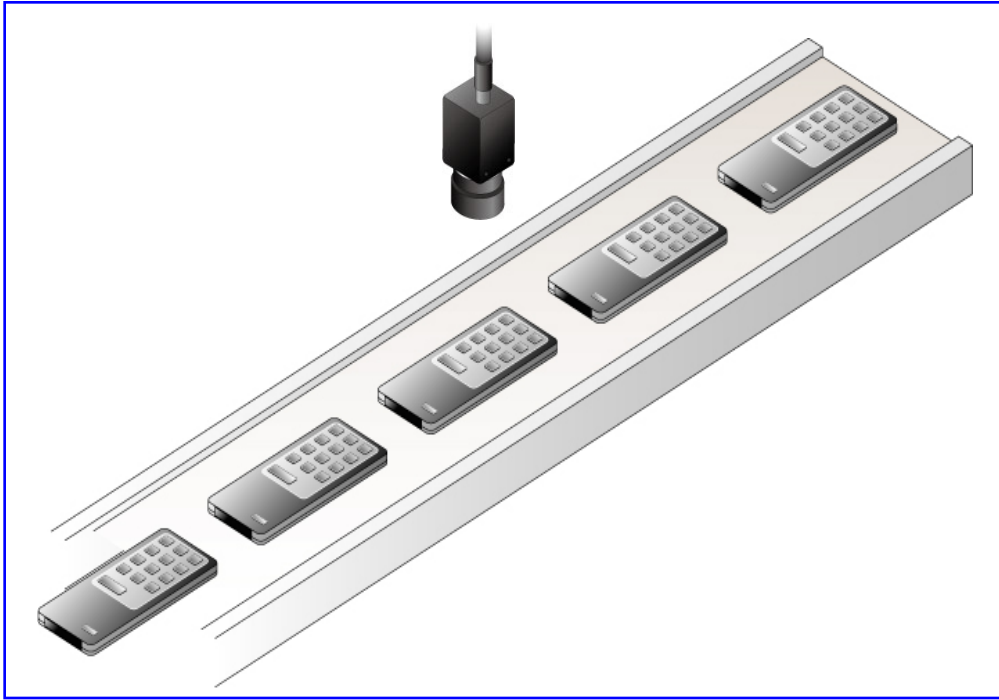
Examples of used functions

- Binarization window
- Image preprocessing, image conversion

Recommended model

PV200	
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Appearance inspection of remote switches



Description

- Inspect the appearance of the remote switch

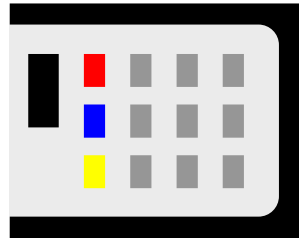
Merits in purchasing our product

- Simultaneously inspect remotes with different color covers
- Supports various kinds of products
- Externally switch product type images
- Back up inspection product type data to PCs

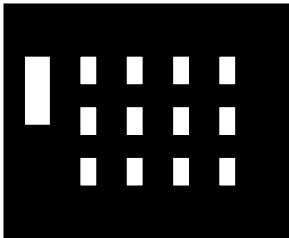
Examples of used functions

- Color extraction
- Color window

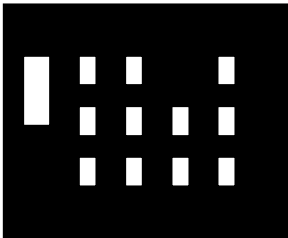
Image illustration



Color image



OK

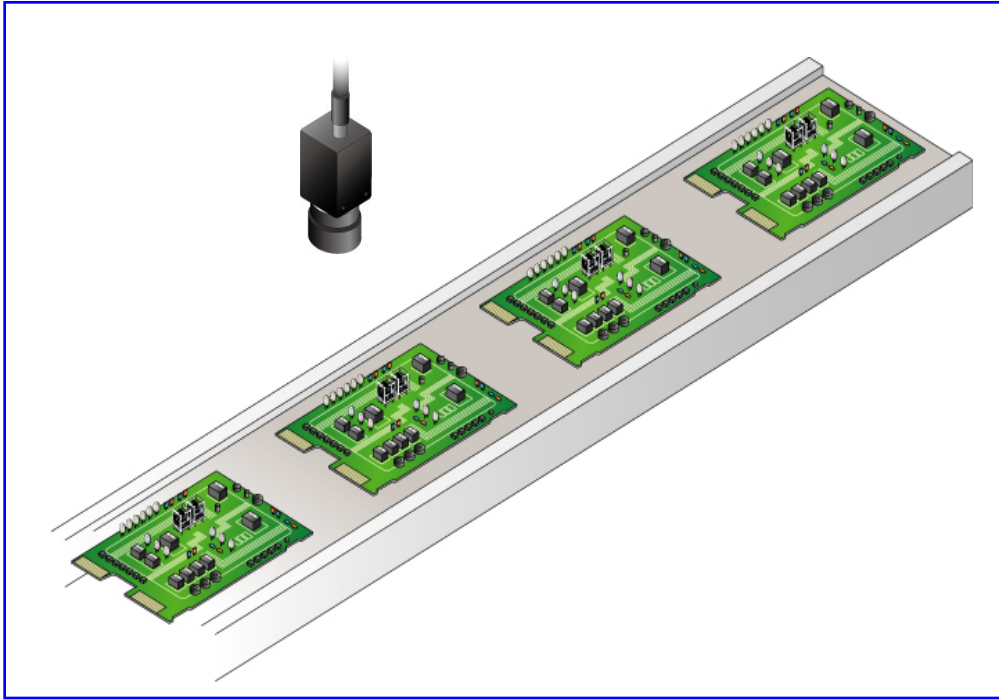


NG

Recommended model

PV200	
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Inspection of printed circuit board bonding agent application



Description

- Inspect the amount of bonding agent applied to the printed circuit board.

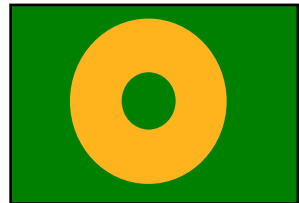
Merits in purchasing our product

- Supports different color (lightness) circuit boards
- Supports various kinds of mounted components
- Externally switch product type images
- Back up inspection product type data to PCs

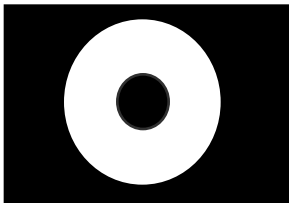
Examples of used functions

- Color extraction, grayscale conversion
- Feature extraction

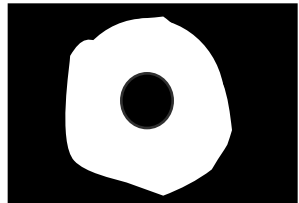
Image illustration



Color image



OK



NG
Too much application

Recommended model

PV200	
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Component position check and resin fill check

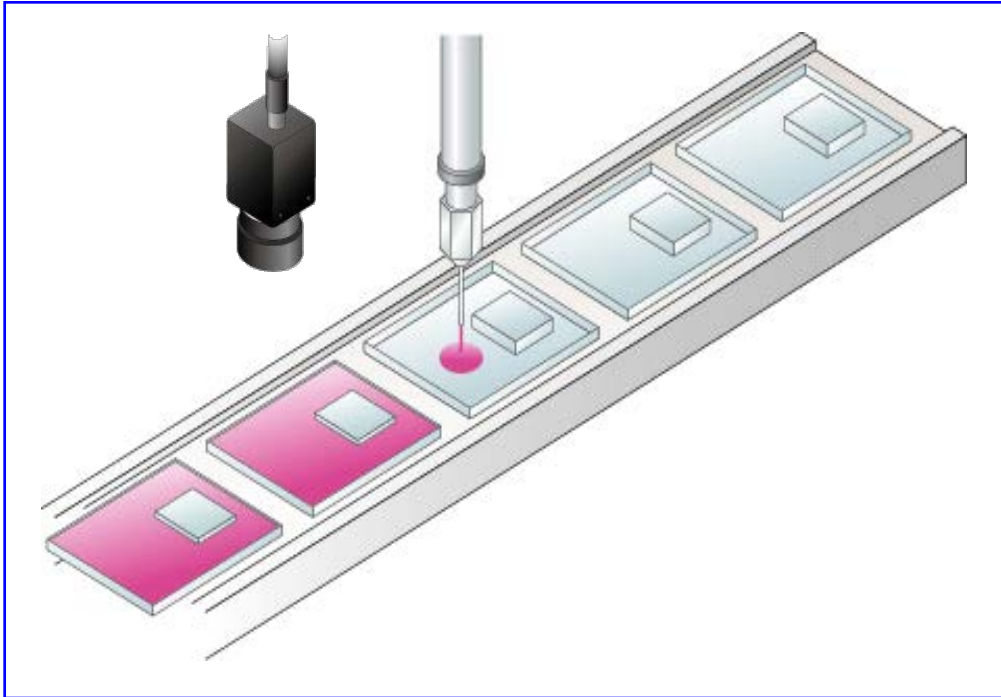
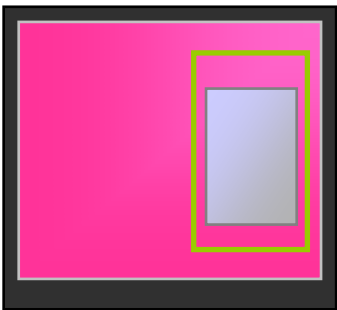
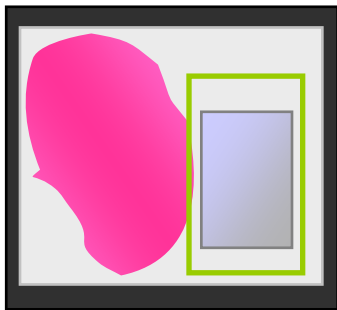


Image illustration



Component position detection OK
Amount of resin fill OK



Component position detection OK
Amount of resin fill too low

Description

- Detect the positions of components, control robots using PLCs or the like, check the resin fill position, and fill. Then, check the amount of resin application
- Simultaneously check the component position and the amount of resin fill using a single camera.
Also output component position data

Merits in purchasing our product

- Color image inspection and gray image inspection can be executed in parallel.
- Output component position data
- Detect liquid resin, which is difficult to detect with sensors

Examples of used functions

- Color extraction
- Feature extraction
- Smart matching

Recommended model

PV200	
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Inspection of the presence of bolt markings

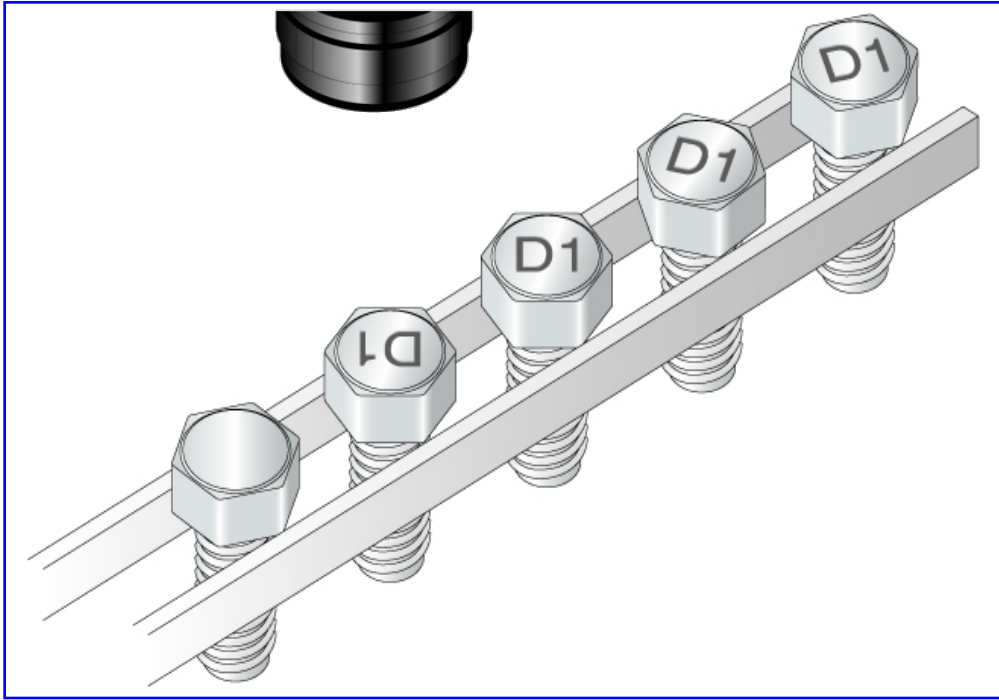
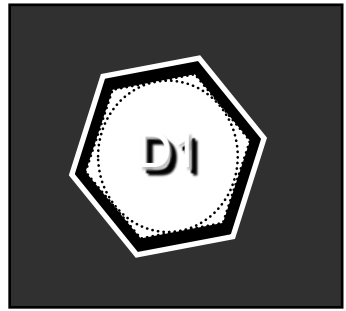
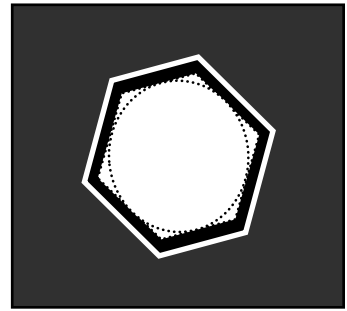


Image illustration



OK



NG
No marking

Description

- Inspect whether bolts flowing through parts feeders have markings

Merits in purchasing our product

- Position correction enables proper inspection even when the orientation of characters are different.
- Stable inspection using 21 types of preprocessing filters
- Save inspection data (settings) in a PC and copy to multiple image processing devices

Examples of used functions

- Smart matching
- Feature extraction
- Image preprocessing, image conversion

Recommended model

PV200	
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Component orientation inspection

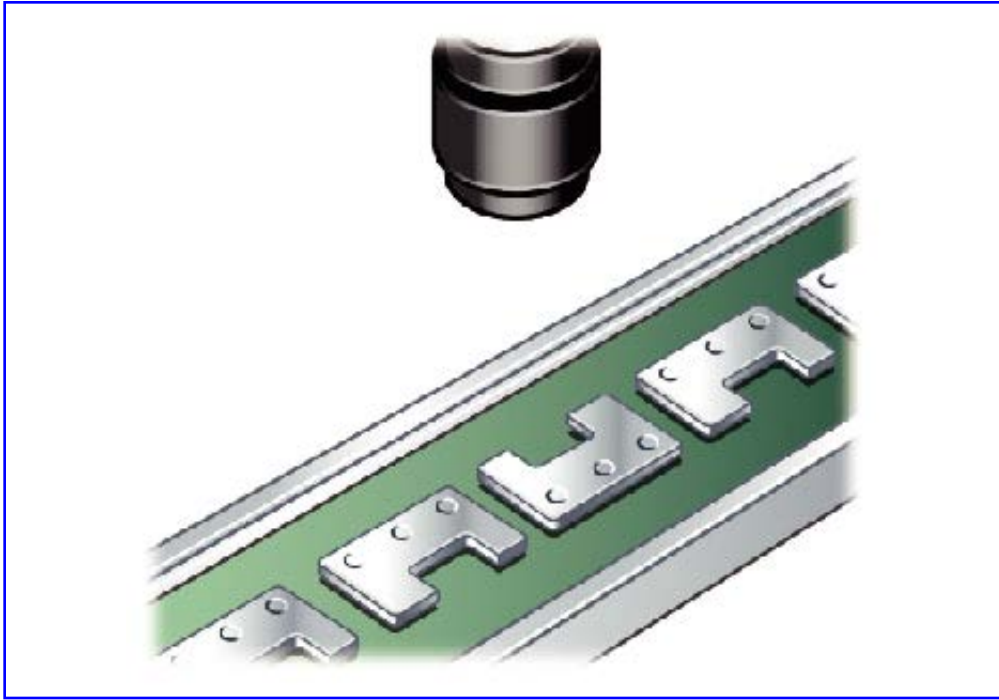
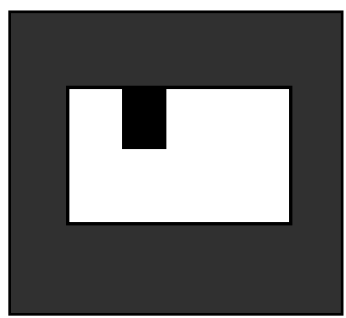
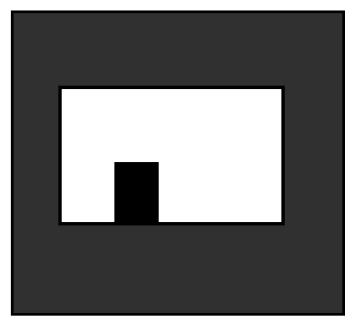


Image illustration



OK



NG

Top/bottom reversal, front-back reversal

Description

- Inspect the orientation of components flowing through parts feeders

Merits in purchasing our product

- Easy to set up by viewing the screen even for small components
- Save inspection data (settings) in a PC and copy to multiple image processing devices
- Simultaneously inspect the orientation of components and determine the front and back of components

Examples of used functions

- Binarized edge
- Smart matching

Recommended model

PV200	
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