All-In-One Unit - easier to use
Automatically checks work flow using image recognition & comparison
Revolutionises workplace work flow

RICOH SC-10A

Result log
CSV
Image log
JPG

Image recognition
Pattern matching
Color recognition
Texture check
Serial number input
Checks number of characters and character string
Work mistakes can be prevented by comparing currently captured images with preregistered correct work results.

RICOH SC-10A automatically checks similar part, incorrect part, work instruction and other assembly condition during the work process by pattern matching. The data can be used for work analysis and traceability by recording the work result images and the result such as serial number and work time.

**Operational errors prevented by image recognition**
- Mistakes during the working process are prevented by halting progress to the next stage until work is recognized as correct.

**Simple operation as all-in-one system**
- The camera, image recognition, and application are integrated into one system, which makes its setup easy.
- Work instructions are easily imported using dedicated software.

**Support for computerizing your workplace**
- Work analysis and traceability are facilitated by the recording of result data.
- Paper reduction by the digitalized instructions and check sheets.

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**Image of System Configuration**

Easy setup as all you need is a mouse, keyboard and monitor. Wiring and space reduced as a PC is not required.

**Work with external devices via external I/O.**

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**Monitor Display and Work Instruction Workflow**

Image recognition and work instructions are linked. The process does not advance to the next instruction if the work is incorrect.

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**What RICOH SC-10A can do**

- **Similar part checks**
  - Correct
  - Incorrect

- **Color check**
  - Correct
  - Incorrect

- **Work process, Incorrect part checks**
  - Smooth surface
  - Uneven surface

- **Texture check**
  - Correct
  - Incorrect

- **Character string check for barcode**
  - SC-10A
  - SC-10B

- **Work result recording**
  - Work data, work time, serial number, work result images and other information are recorded to SD card or shared folder on the network.

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*Requires a separate USB-connected barcode reader.
The inclusion of a high-magnification lens on the RICOH SC-10A(H) enables smaller objects to be targeted than the standard model. The orientation of parts mounted to electronic substrates and whether or not minute parts used for assembly are present can also be checked, expanding its potential uses.

Features a high-magnification lens  RICOH SC-10A(H)  NEW

Enable minute parts to be checked  Increased flexibility for installation distance

Usage and introduction examples for the RICOH SC-10A series (Customers' opinions in manufacturing industry)

Problem 1
Similar parts or labels have been erroneously mounted during assembly of equipment, such as brakes for cars and motorcycles. Low-cost and simple countermeasures against human error were required.

Opinion after installation
Quality has been improved by reducing assembly line errors. Work logs can also be retained automatically, so we have a positive outlook for reducing man-hours further enhancing quality.

Problem 2
On the assembly line for household appliances, parts have been erroneously mounted or parts of the wrong color but correct shape were wrongly attached due to human error. We wanted to automate the cell production work table in cooperation with existing production equipment.

Opinion after installation
Set-up is simple using a keyboard and mouse, which is very appealing, and prevents human error. The work date, time, serial number, and pictures of the work output can be automatically recorded, which also improved efficiency. It could be connected to external I/O equipment, and achieved collaboration with existing equipment, such as PLC.

Problem 3
There are over 50 visual checks to be made for manual mounting of the substrate used on vehicular audio devices. There are limitations to performing visual checks, leading to oversights in the checking process. A system that can check the orientation and mounting of minute parts was required.

Opinion after installation
The SC-10A(H)'s high-magnification lens enables fine parts to be checked. This rendered visual checks for almost 50 items related to relays, condensers, and coils, obsolete, and jumper and dip-switch statuses can also be checked, so a significant improvement is expected. Almost 50 checks are performed in around five seconds, so operational efficiency has also been improved.

Problem 4
In the manufacturing of household medical devices, a system that can check whether a coating has been applied or not and for any harness assembly status that causes variation in the assembly status is sought. Many foreign workers work on the manufacturing line, and passing on their know-how is often difficult, so we want to install a system that supports foreign languages.

Opinion after installation
The SC-10A not only performs pattern matching, but also has color recognition capability so it can detect inconsistent coatings, and countermeasures against human error could be implemented. Furthermore, work instruction image files can be created in foreign languages with the included software, making it easier for foreign workers to learn the process.
### RICOH SC-10A Basic Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard model</th>
<th>High-magnification model</th>
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</thead>
<tbody>
<tr>
<td><strong>Installation distance</strong></td>
<td>400 to 800 mm</td>
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<tr>
<td><strong>Field of view</strong></td>
<td></td>
<td></td>
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<tr>
<td>RICOH SC-10A</td>
<td></td>
<td>RICOH SC-10A(H)</td>
</tr>
<tr>
<td><strong>Image sensor / Number of pixels</strong></td>
<td>1/3-inch color CMOS</td>
<td>Number of pixels: 1280x720</td>
</tr>
<tr>
<td><strong>Work instruction</strong></td>
<td>(Work instruction image)</td>
<td>JPG format (610x680)</td>
</tr>
<tr>
<td><strong>Applicable languages</strong></td>
<td>Japanese, English, Chinese (simplified characters)</td>
<td></td>
</tr>
<tr>
<td><strong>Pattern matching</strong></td>
<td>Area specification (ROI): Specify area with absolute position</td>
<td>Position correction: Relative position correction from reference image</td>
</tr>
<tr>
<td><strong>Serial number input mode</strong></td>
<td>Number of characters check: Matches set numbers of characters</td>
<td>Character string check: Matches set character string on left</td>
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<tr>
<td><strong>Result logging</strong></td>
<td>Output method: Saved in CSV format to the specified path</td>
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<tr>
<td><strong>Image logging</strong></td>
<td>Output method: Saved in JPG format to the specified path</td>
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<tr>
<td><strong>External interfaces</strong></td>
<td>HDMI® (1920x1080/60Hz, 1280x1024/60Hz)</td>
<td>USB/SD card</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>DC12Va10% (IN connector for AC adapter) (Model including an AC adapter only)</td>
<td>DC12, 24Va10% (External connector)</td>
</tr>
<tr>
<td><strong>Environmental resistance</strong></td>
<td>Operating temperature range: 0 to +40 ºC</td>
<td>Storage temperature range: -20 to +60 ºC</td>
</tr>
<tr>
<td><strong>External dimensions</strong></td>
<td>78 (W) x 73.5 (H) x 126.5 (D) mm (excluding connectors)</td>
<td>50 (W) x 34 (H) x 88.5 (D) mm (excluding cable)</td>
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<tr>
<td><strong>Weight</strong></td>
<td>Approx. 400 g</td>
<td>Approx. 170 g</td>
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</table>

**External dimensions (mm)**

<table>
<thead>
<tr>
<th></th>
<th>CB6</th>
<th>CB8</th>
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<tbody>
<tr>
<td>Unit: mm</td>
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<tr>
<td></td>
<td>LAN</td>
<td>HDMI®</td>
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### For safe product use

- Carefully read the user guide and use the product correctly. Use the correct power supply and voltage as indicated.
- Do not install or use the products in locations with excessive water, humidity, steams, dust, smoke, etc.

**RICOH INDUSTRIAL SOLUTIONS INC.**

For orders and inquiries:

The information in this catalog is current as of October 2017.