



## Easy-to-Use Image Sensors for Advanced Inspection, Measurement and Positioning Applications



High imaging speed, high processing  
speed and high output speed

### Class Top Speed\*

Equipped with a high-speed CMOS sensor, dual core CPU and gigabit Ethernet, the **SV** series realizes class-top\* imaging speed and achieves high-speed inspection using original algorithm.

\* As of December 2020, in-company survey

Excellent versatility to enable intended inspections

### A Wealth of Inspection Functions

The **SV** series image sensors are integrated-type units. They are equipped with inspection functions similar to those of box-type image processing equipment. The **SV** series can output not only pass / fail judgment results but also numeric measurements.

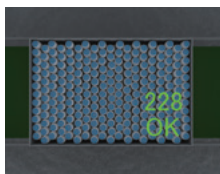
Realization of IoT with remote setting  
and monitoring capabilities

### Extensive Network Function

The **SV** series is installed with “**SV Web Console**” that utilizes the built-in Web server. By allowing remote monitoring using the Web browser on a PC or smartphone, the **SV** series reduces the manhours required for the inspection and confirmation work on the production floor.

**NEW**

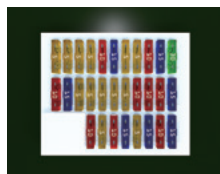
5 Megapixels  
(color / monochromatic)  
SV-N500C / SV-N500M



Counting bottles

**NEW**

3 Megapixels  
(color / monochromatic)  
SV-N300C / SV-N300M

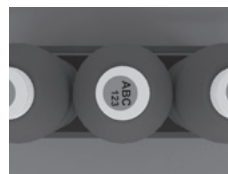


Inspecting fuse  
arrangement

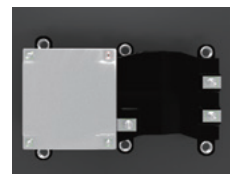


Inspecting lead frame  
dimensions

1.2 Megapixels  
(color / monochromatic)  
SV-N120C / SV-N120M



Detecting label



Inspecting the presence /  
absence of mounted parts

## High imaging speed, high processing speed and high output speed

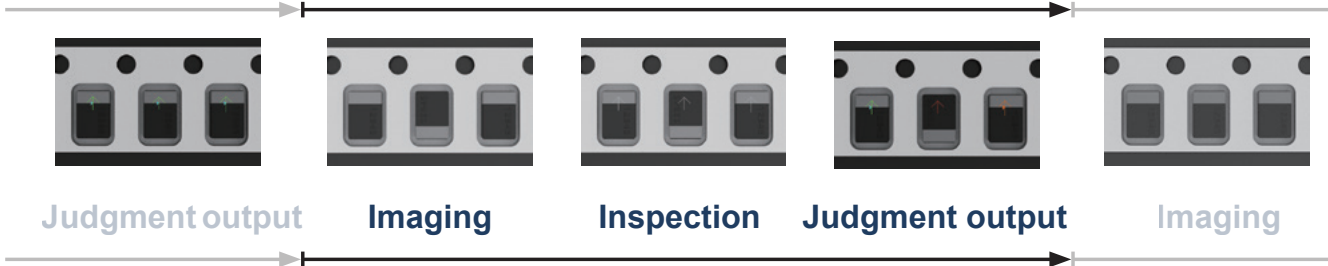
### Examples of applications

#### Inspection of orientation of electronic parts

Determination of orientation of electronic parts on tape based on the detected directions of dark / light edges and the measurement of area size.

**Approx. 2 ms\***

Approx. 2 ms for imaging, inspection and judgment output



\* Typical value obtained at 120,000 pixels using the partial image capture function. The manufacturer does not guarantee that this value can be achieved in all inspections.

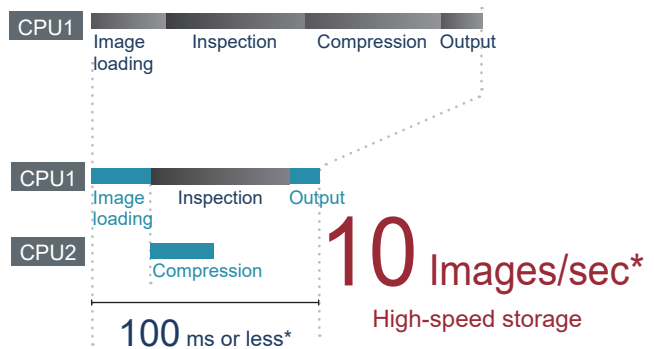
## High-speed storage\* of inspection images

### BEFORE Conventional system (single task)

Image processing equipment of conventional system compresses captured images in a single task after executing the inspection. Therefore, the equipment cannot take advantage of the reduced data communication time achieved by the image compression.

### AFTER SV series (multi-task)

The SV series is equipped with a dual core CPU so it can compress images into JPEG files while performing inspection by multi-tasking. This significantly reduces the processing time before outputting the judgment result. The SV series lets you store all inspection images.



\* Typical value obtained when storing JPEG-compressed 1.2-megapixel images

## FTP client function

Today's growing market demand for higher product quality is fueling the need for the improvement of traceability of all inspection data.

The SV series features a built-in FTP client function so the inspection data can be stored directly into a PC or NAS\* server.

The SV series boasts high imaging speed to enable the storage of all inspection images.

\* NAS: Network Attached Storage  
A hard disk with network function



Inspection + Image storage  
100 ms or less\*  
(approx. 600 images/min)

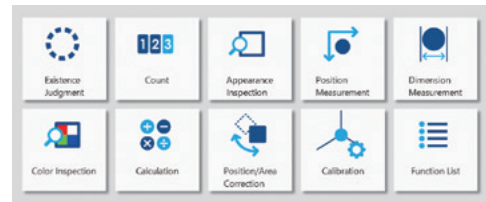
\* In the case of an output image size of 0.2 MB (JPEG compression), actual time varies depending on inspection conditions and NAS server specifications.

## Easy setting by simply selecting the purpose of inspection

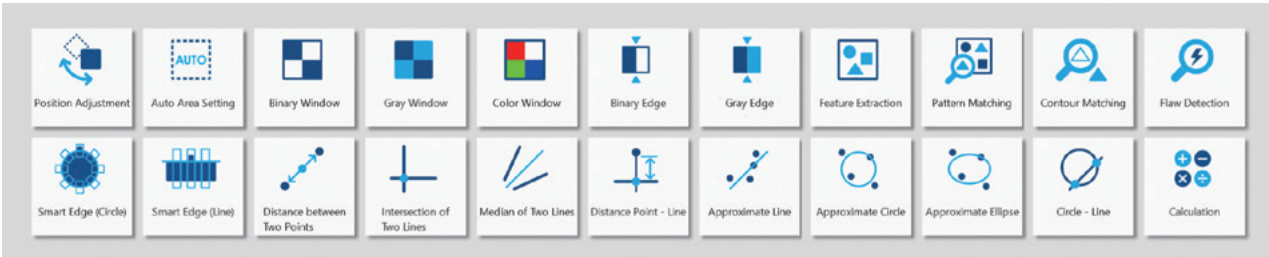
The setting can be made in one of the following two methods according to the application.

- Select the icon of the type of inspection you want to execute, such as “Dimension Measurement.”
- Select the icon of the function, such as “Pattern Matching,” from the available functions.

▼ Select the type of inspection.

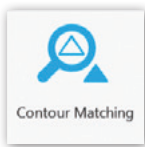


▼ Select from the available functions.



### Example of functions

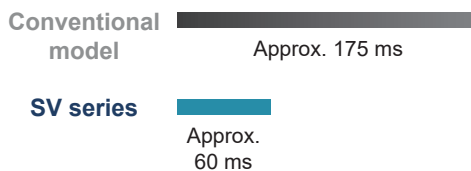
## High-speed contour matching



After the contour data of the image to be detected is registered as a template by the operator, this function detects sections similar resembling the template in shape.

The built-in algorithm detects positions accurately without receiving adverse effects from chipped sections or the like of the detection target. The **SV** series can output the pass / fail judgment results of detected quantity, correlation value, detected coordinates, detected angle, scale, etc.

Approx. **3** times faster

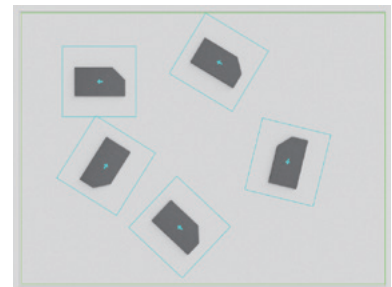
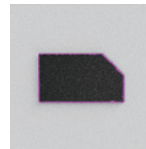


Search area: 1,280 × 960

Template: 200 × 200

360° Detection

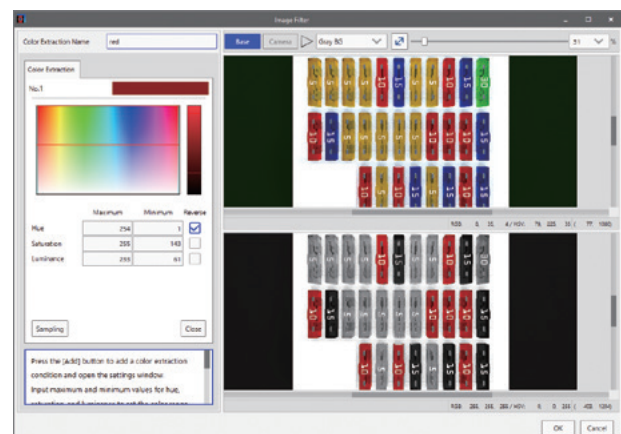
Template:



### Example of filter

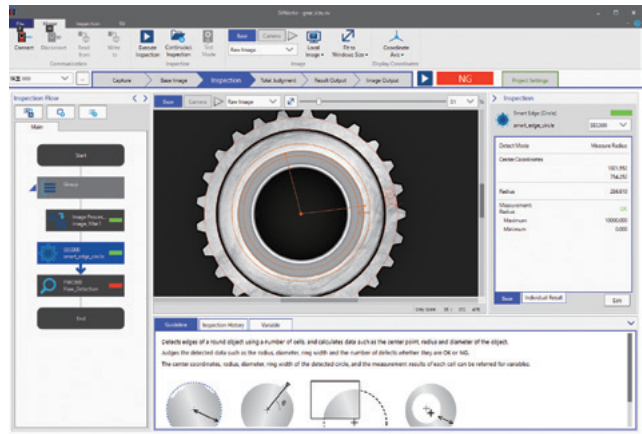
## Color extraction

Using the H (Hue), S (Saturation) and V (Value) parameters that are very close to the human eye's sensitivity to color differences, the **SV** series simultaneously extracts multiple colors (up to 128 colors). It discerns even subtle color differences based on the upper- and lower-limit threshold values, thus achieving high inspection accuracy. Necessary setting values can be extracted from a captured image by using the sampling function.



## “SVWorks” easy setting software

The operation screen is simple to understand since the use of technical terms related to imaging processing is minimized. The guideline display shows the explanations of setting parameters. This software employs a flowchart-type program commonly used in high-performance image processing equipment and provides assistance in setting the inspection exactly as you desire. The setting is as simple as following the displayed procedure. Inspection items and output setting can be easily entered by following the simple directions.



## SV Web Console

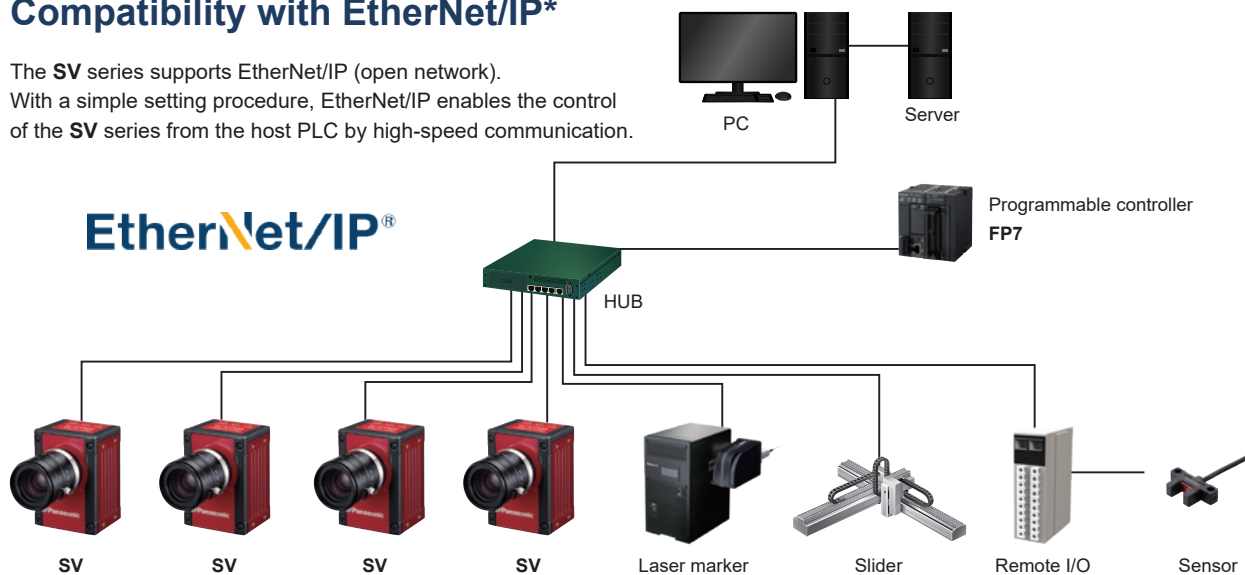
The built-in **SV Web Console** (Web server function) enables remote monitoring of the inspection screen and inspection condition using a PC in the office. Use of a tablet allows the adjustment of lights and camera setup conditions in real time while directly looking at them. By connecting to the main unit via network using **SVWorks**, the installed **SV** sensor units can be operated remotely.



Conduct a check in the office before visiting the work site.

## Compatibility with EtherNet/IP\*

The **SV** series supports EtherNet/IP (open network). With a simple setting procedure, EtherNet/IP enables the control of the **SV** series from the host PLC by high-speed communication.



\* Functions as an adapter (slave) on EtherNet/IP network.  
EtherNet/IP is a registered trademark or trademark of ODVA.

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