

Compact Colour Vision System CV-301 Series

Keyence Revolutionises Machine Vision...

Click
COLOUR!



Just Point & Click



SHINY/MIRRORED SURFACES



Easily detected in shadows and reflections...

ROUND/CYLINDRICAL OBJECTS



Detection of labels in the edge shadows...

COLOUR DIFFERENTIATION



Only the red capsule is detected...

The world's smallest colour vision system...



Colour differentiation

The CV-301 quickly and reliably differentiates the target colour, making it ideal for applications that are impossible with black and white processing.

Easy operation

Simple "Point & Click" operation greatly reduces the time required for setting colour identification. No need for complex lighting techniques.

Inexpensive

With new technology reducing size and cost, colour inspection applications can now be solved with a minimal initial investment when compared to conventional systems.



offers simple setup.

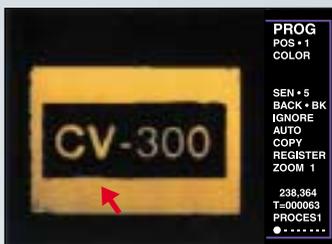


Simply "point & click" for accurate setting every time.

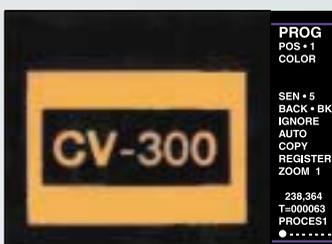
One click on the screen selects the colour at the cursor position.



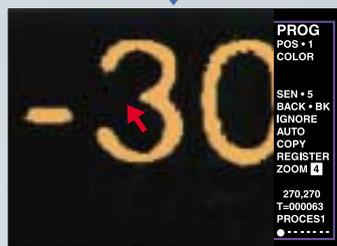
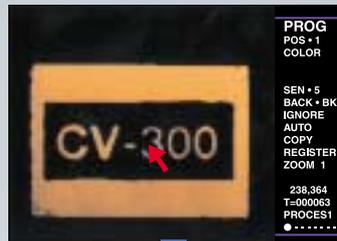
Click! ↓



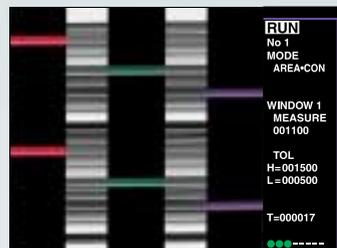
Click! ↓



The Zoom function allows accurate cursor positioning.



8 windows can be set in one program to identify different colours. Up to 16 programs can be registered.



Monochrome display function

The area outside the window is displayed in black-and-white for clear differentiation between the chosen colour and other colours.

Synchronizing shutter function

Images of fast moving targets can be reliably captured at the same position on the monitor screen each other. This enables accurate, high-precision inspection by capturing images using an external timing device.

Illumination adjustment function

Any brightness fluctuations due to changes in illumination over time are automatically corrected. External light interference is no longer a problem.

Tolerance output

Tolerances can be set and judged in each window. The judgment result is shown by the green or red indicator at the foot of the menu display. This judgment can be output from the controller to external devices such as PLC's.

Position adjustment function

The deviation of moving targets is corrected on the screen. This is useful for targets that cannot be easily positioned.

RS-232C

Data can be stored in and retrieved from a PC.

realizes superior inspection.

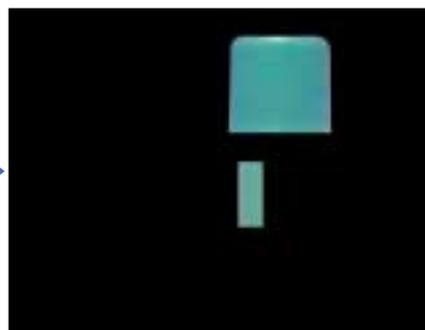
When the target colour is difficult to identify with monochrome image processing

As the illustration shows below, conventional binary imaging cannot differentiate between similar colours, e.g. green and blue. A colour filter cannot be used to differentiate several colours and often requires complex settings.

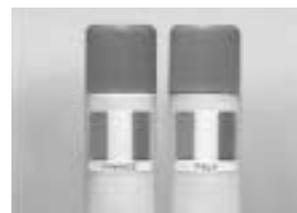
The CV-301 differentiates images by the difference in colour. Several colours can be differentiated simultaneously by using individual windows (8 max.) which can be set into one program. (Up to 16 programs can be registered.)



Real image



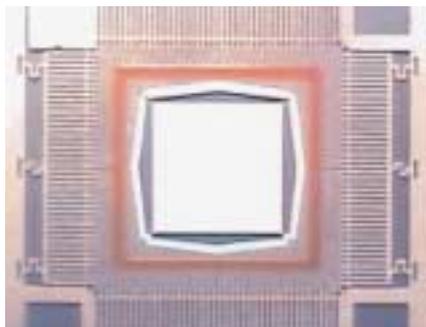
CV-301



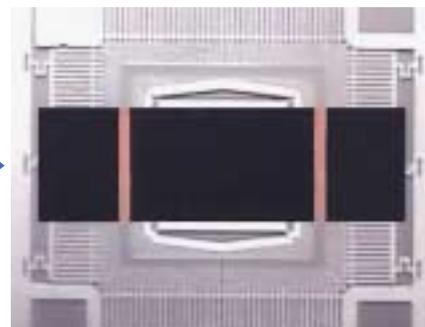
With a black-and-white display, it is almost impossible to differentiate among red, green, and blue.

When the target has little difference in shade

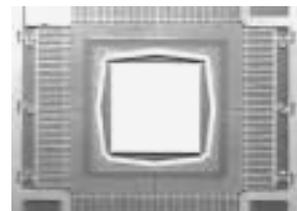
Binary conversion in black-and-white image-processing cannot be used for “gold plating”, “silver solder”, “yellow mark on white background”, and “dark blue on black background”, because they have little difference in shade. However, colour image-processing reliably identifies the colours of these targets. By identifying the colour component, the CV-301 even reliably differentiates metal targets which often have a shadow or halation due to uneven illumination or surface shape.



Real image



CV-301



With a black-and-white display, the difference in shade between a copper frame and a square film part is hard to recognize.

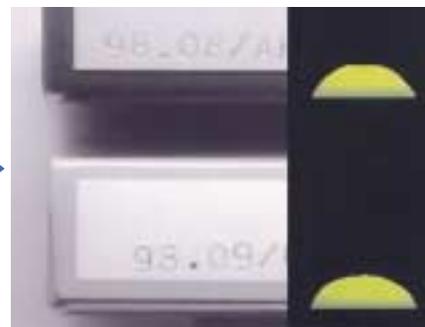
When the background changes frequently

A black and white system requires changing the binary level or the color filter every time the background colour changes.

The CV-301 identifies only the specified colour. It is unnecessary to change any settings when the background colour changes.



Real image



CV-301



With a black-and-white display, when the colour of the case in the background changes, the sticker may not be detected.

SPECIFICATIONS

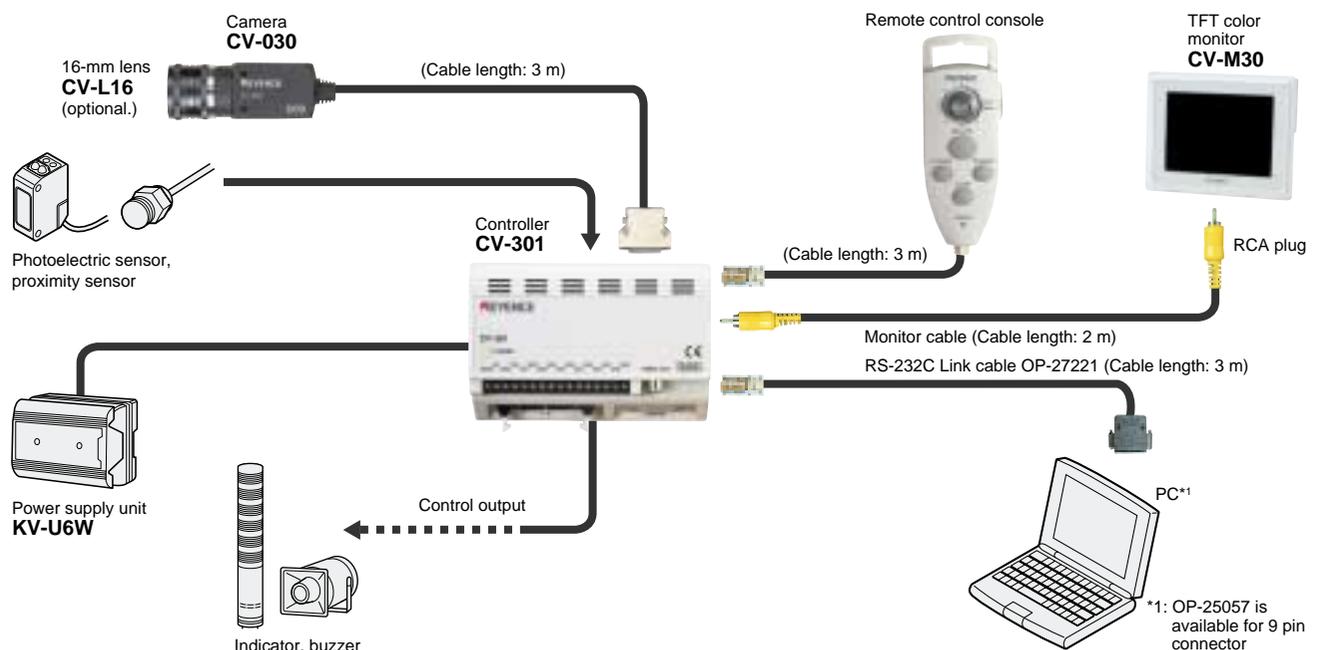
Controller

Model		CV-301		
No. of pixels		500(H)X480(V), 240,000 pixels		
Process cycle		60 cycle/sec. *Varies depending on setting.		
Binary level		Resolution:16,770,000 colors, Setting available for each window (Area sensor: 8 windows, Position adjustment: 2 windows)		
Program registration		16 programs *Can be selected externally.		
Functions	Detection function	Area sensor	8 max./setting, Colour/background selection, Window shape: circle, rectangle	
		Absolute position detection	1/setting, Pattern search and line sensor, Detection range setting allowed, Window shape: rectangle	
		Relative position detection	1/setting, Pattern search and line sensor, Detection range setting allowed, Window shape: rectangle	
	Adjustment function	Position adjustment	X-axis/Y-axis directions	
		Illumination adjustment	1 Illumination adjustment window/setting	
Other	Screen registration	Can be set externally (non-voltage input)		
Input	Camera input		1	
	Control input	External trigger	1 (non-voltage input)	
		Coordinate selection input	X-axis output/Y-axis output selection: 1 (non-voltage input)	
		Program change input	4 points for data input, 16-program selection (non-voltage input)	
Output	Comparator output		NPN open-collector: 9, 50 mA max. (30V max.)	
	Numerical value output		NPN open-collector: Binary 9-bit output (X/Y coordinate output), 10mA max. (30V max.)	
	Colour video output		Conforms to NTSC standards	
	Monochrome video output		Conforms to NTSC standards, External synchronization available	
Communication (RS-232C interface)	Communication protocol	Duplex	Full	
		Synchronization	Start/stop	
		Data format	ASCII	
		Baud rate	9600/19200/38400 bits/sec.	
		Data length	8 bits	
		Parity check	None	
		Stop bit length	1 bit	
	Setting data I/O		Output setting: save/load, Setting: save/load, Registered screen: save/load, Pattern data: save/load, Screen registration, Program No.: load	
	Control output		Program No.: save, Program/Run mode selection	
	Data output		Comparator, No. of pixels, Coordinate, Matching rate, input screen: load	
Trigger input		Trigger input		
Power supply		24 VDC ± 10%		
Current consumption		600 mA		
Ambient temperature		0 to + 40°C		
Relative humidity		35 to 85%		
Weight		Controller: Approx. 360 g, Remote control console: Approx. 160 g		

Camera

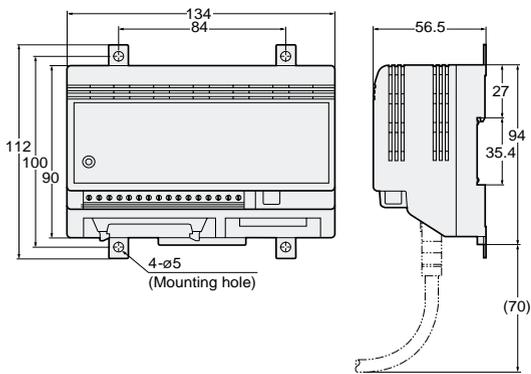
Model		CV-030	
Video element		Colour CCD video element	
Electronic shutter		1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000	
Lens mount method		C mount	
Ambient temperature		0 to + 40°C	
Relative humidity		35 to + 85%	
Weight		Approx. 330 g (including 3 m cable)	

SYSTEM CONFIGURATIONS

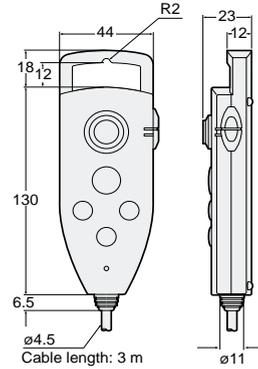


DIMENSIONS

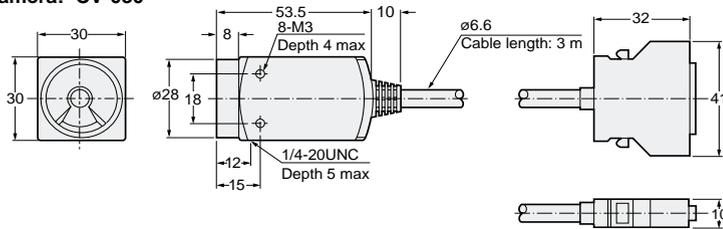
Controller: CV-301



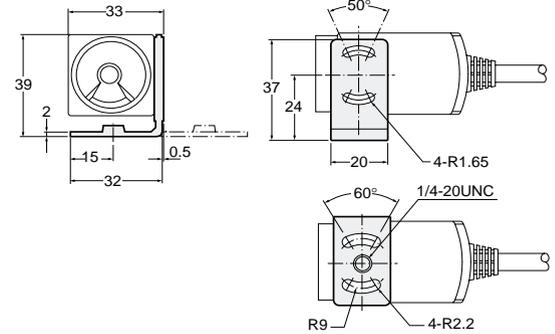
Remote control console



Camera: CV-030



When mounting bracket is attached.



OPTIONS



Ring lamp **CV-R11**



TFT colour monitor **CV-M30**



Power supply unit **KV-U6W**



Close-up adapter set



3.5 mm Lens **CV-L3**
6 mm Lens **CV-L6**
16 mm Lens **CV-L16**
50 mm Lens **CV-L50**

Monochrome vision system

CV-110



- The world's smallest vision system.
- Features grayscale imaging and a synchronizing shutter function.

Visit our website for Keyence products at <http://www.keyence.co.jp/international>

Specifications are subject to change without notice.

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