

CVSE1-RA SERIES

MVS Series

CVS Series

CVS Series APPLICATION

CVSE1-RA

CVS1-RA

CVS2-RA

CVS3-RA

CVS4-R

OPTIONS



Simple & Easy setup Color area sensor

- All in one color vision sensor
- Color resolution : 15,000 colors
- Stable color detection by calculating hue of each pixel



Wide range line-up

CVSE1-N20-RA Standard type
CVSE1-N10-RA Long range type
CVSE1-N40-RA Macro view type
CVSE1-N21-RA Narrow view type

Three-Step-Teaching

Teaching is easily done by three steps even in 30 seconds just like a color sensor.

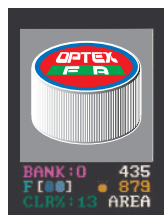
Step1 Set field of view



Step2 Set color

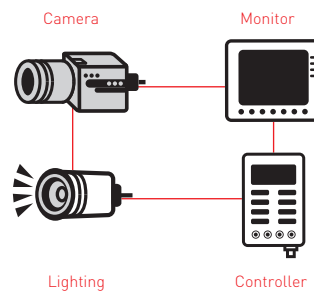


Step3 Completed with the final adjustment



All in one

The sensor has a built-in Camera, LED Lighting, Display monitor and Controller. This structure enables water resistance IP67.

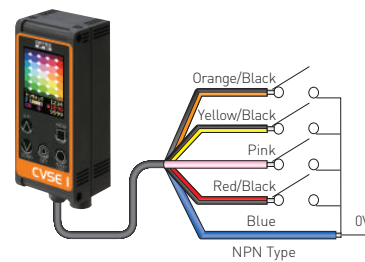


Quick change over

16 Banks are available. You can remotely select the bank to use by PLC or other equipments.

Color Resolution

Up to 15,000 colors are available to detect.



Stable inspection

It calculates color hue of each pixel so stable inspection is available.

Wide coverage line-up

You can choose from 4 inspection range/field of view according to inspection target condition.

High performance

Setup Adjustable while line is running

CVSE1-RA provides output with the setup parameters given even while you are adjusting setup. You don't have to stop the line.



CVSE1-RA has two processing unit individually so it can change parameters while vision processing is running without delay.

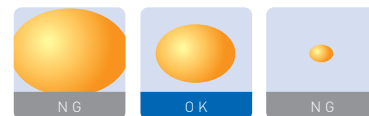
One threshold mode

Determine OK when the area that the color matches exceeds the threshold.



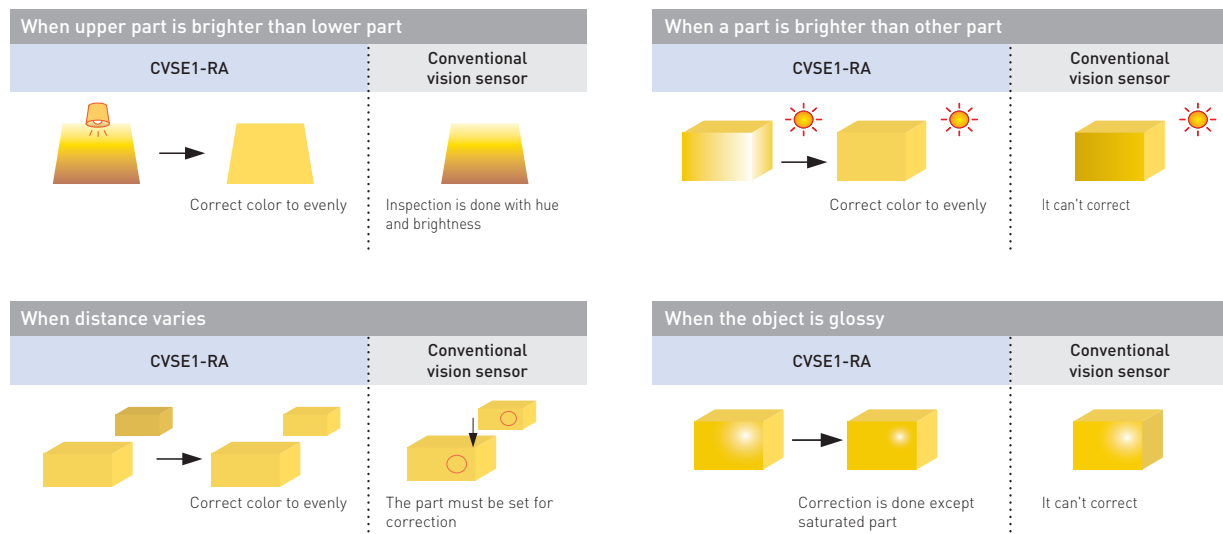
Two threshold mode

Determine OK when the area that the color matches is in two thresholds.



Stable inspection

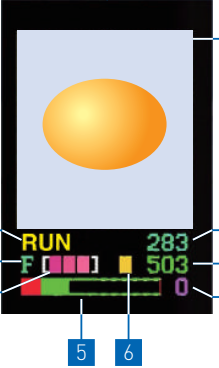
It calculates color hue of each pixel that prevents miss-inspection affected by external light and brightness changes of lighting. Stable inspection is available and you can setup CVSE1-RA just like you do for photoelectric sensor.



Display

There are two modes : Normal / Setup

Normal mode



1 View
Captured image.

2 Mode
RUN: Sensor running.
Others: Teaching or setting parameter

3 Screen mode
Screen display mode.
D: displays the captured image.
F: displays the image after correction process.
2: displays the detected image.

4 Target colors
To detect colors at image. Left is darkest color and middle is middle tone, right is brightest color.

5 Area bar graph
Displays the Area in the bar graph.
Red: Out of range, Green: Within range.

6 Output
Output status ■ : ON ■ : OFF

7 Response time
Time from snapshot to output. per 0.1ms

8 Area
Area of detected colors.
Red: Out of range, Green: Within range.

9 Bank No.
Current bank number.

Switches



UP
Move cursor up and increase parameter value

DOWN
Move cursor down and decrease parameter value

VIEW
Change the display mode
F: Dark Compensated image
2: Shows only chosen color area
D: Shows original image

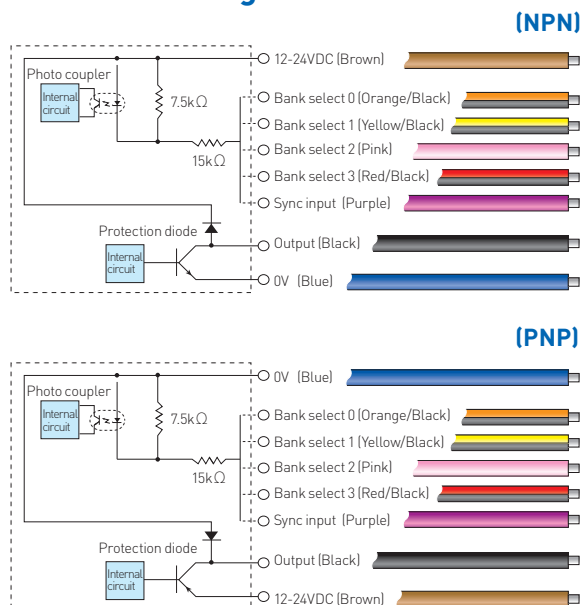
TEACH / EXIT
Change to Teaching mode by pressing 3 sec. or more.

SET
Change to setup mode.
Choose the parameter by pressing 3 sec. or more.

Specifications

Model	CVSE1-N10-RA CVSE1-P10-RA	CVSE1-N20-RA CVSE1-P20-RA	CVSE1-N21-RA CVSE1-P21-RA	CVSE1-N40-RA CVSE1-P40-RA
Detection angle	10°	20°		40°
Working distance	210 to 270mm	90 to 150mm	31 to 39mm	50 to 100mm
Field of view	40 x 50mm to 55 x 65mm	40 x 50mm to 65 x 75mm	17 x 20mm (±10%)	50 x 65mm to 100 x 115mm
Light source	White LED 12 pcs built-in			
Image sensor	330,000 Pixel CMOS color image sensor			
Supply Voltage	12 to 24V DC±10%			
Power consumption	Max. 120mA/24V DC			
Resolution	5 x 12 to 200 x 240			
LED light duration	Approx.50,000 hours (In normal temperature and humidity. Brightness level down by 1/2 of the initial level)			
Response time	2.9 to 27.7ms(Factory setting : 16.7ms) SYNCRO=ON, BRIGHT=100			
Output	NPN or PNP open collector output x 1 max.100mA Residual voltage 1.0V or less			
Input	Bank select 0 to 3, Sync input			
Operating temperature	0 to 40°C (No condensation)			
Operating humidity	35 to 85%RH			
Storage temperature/humidity	-20 to 70°C,35 to 95%RH (No condensation)			
Vibration/shock resistance	10 to 55Hz Amplitude 1.5mm/50G (500m/s ²)			
Material	Case:ABS/Display and Lens : Acryl or Polycarbonate			
Protection structure	IP67			
Weight	Approx.200g (including cable)			

Connection diagram



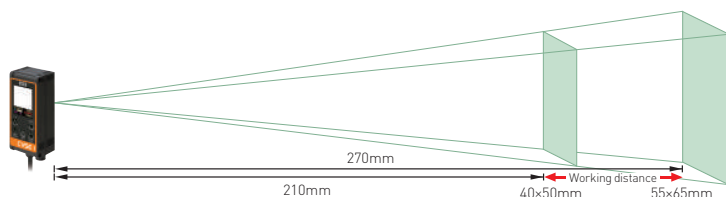
Bank table

Bank No.	Cable Color Signal			
	Orange/Black	Yellow/Black	Pink	Red/Black
	Bank selection 0 input	Bank selection 1 input	Bank selection 2 input	Bank selection 3 input
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

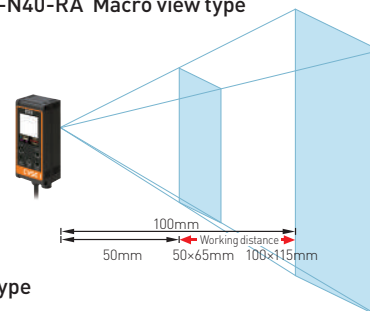
OFF	OPEN or connect with the brown line.
ON	Connect with the blue line.

Field of View

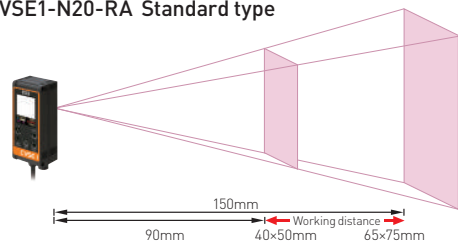
CVSE1-N10-RA Long range type



CVSE1-N40-RA Macro view type



CVSE1-N20-RA Standard type



CVSE1-N21-RA Narrow view type

