

CVS1-easy N10 / P10 : 210 - 270 mm

CVS1-easy N20 / P20 : 90 - 150 mm

CVS1-easy N21 / P21 : 31 - 39 mm

CVS1-easy N40 / P40 : 50 - 270 mm



# Simple & Easy

**World's First Palm Size Vision Sensor**  
including Camera, Display and Lighting with Pushbutton Teach.

# Simple and Easy Setup

For those applications that have required multiple sensors, or when they cannot be used to solve the application. The New CVS1 EASY Vision Sensor is now available, it features an easy to use Three Step Teaching set-up that can be completed in a matter of minutes.

## Easy No.1

### Three Step Teaching

Setup can be completed in 30 seconds.  
The Teach-in process is as simple as that of a photosensor.

#### step 1

Start by going to the Teaching Mode.



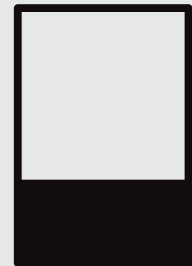
#### step 2

Use the Zoom In / Zoom Out to set the view area. There are 20 steps of zoom to set the field of view.



#### step 3

Determine the color to detect. Move the arrow to the area where the color is located.



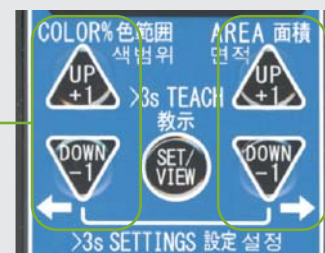
➔ Then, TEACH-IN is complete.

## Easy No.2

### Precise Setting

If the sensitivity needs to be adjusted, the Color and Area can be changed by using the buttons on the CVS1 EASY.

Color button



Area button

➔ Complete.


Self-contained all-in-one design



Store up to 8 complete sets of parameters

A maximum of 8 banks are available to store settings.  
Product changeover is fast and easy.

Cable function and bank number



Line color	Signal
Brown	12-24 V DC
Blue	0 V
Orange / Black	Bank switch 0
Yellow / Black	Bank switch 1 / Lower limit output
Rose	Bank switch 2 / Teach input
Purple	Synchronous input
Black	Output

Bank No.							
0	1	2	3	4	5	6	7
OFF	ON	OFF	ON	OFF	ON	OFF	ON
OFF	OFF	ON	ON	OFF	OFF	ON	ON
OFF	OFF	OFF	OFF	ON	ON	ON	ON

ON	NPN: OPEN or connect with the brown line. PNP: OPEN or connect with the blue line.
OFF	NPN: connect with the blue line. PNP: connect with the brown line.

## Simple Wiring

Stand-alone system does not require complicated wiring. Simply connect the power cable to the main unit of the CVS1 EASY.

If additional lighting is needed to illuminate the target connect the External Light CVS-LW1.

To setup or monitor the target remotely, simply connect the CVS-M1 Remote Monitor. The CVS-M1 has an LCD display and all control functions can be accessed.

### Remark :

- ① A maximum of three CVS-LW1 external lights can be connected to the CVS1 EASY.
- ② The CVS-M1 remote monitor can be used up to 15 meters away from the sensor by using the CVS-C3S extension cable (a maximum of 4 cables can be connected in series).
- ③ The CVS-M1 remote monitor has a 3 meter cable (standard).



## Professional parameters - For more convenience

As you become more familiar with the operation of the CVS1 EASY, there are adjustment parameters that can be used to change the operation of the sensor.

Table of Setting Value

Function name	LCD display	Setting range (Default)	Description
Brightness	<b>BRIGHT</b>	0 to 255 (100)	Specifies the brightness of the screen (shutter time). The optimal value is set at teaching. The shutter time is calculated with "the setting value x 54.5μs."
Initializing setting value	<b>INITIAL</b>	NO, YES (NO)	Initializes all the set values in writing with the set value set to "YES."
Off delay	<b>OFF DLY</b>	0 to 5000 (0)	Sets the Off delay time of output. When set to one shot (ONESHOT = ON), the oneshot output time is selected. (Unit: ms)
On delay	<b>ON DLY</b>	0 to 5000 (0)	Sets the On delay time of output. (Unit: ms)
One shot	<b>ONESHOT</b>	OFF, ON (OFF)	Switches to the oneshot output. The time to be turned ON is specified at the set value of OFF DLY.
Output reverse	<b>OUTSIDE</b>	LOW, HIGH (LOW)	Switches the relationship between the area and the output. <b>LOW:</b> The output turns on when the current area is at the area lower limit or more. <b>HIGH:</b> The output turns on when the current area is at less than the area lower limit.
Resolution	<b>RESOLUT</b>	LOW, HIGH (LOW)	Specifies the resolution of shooting screen. <b>LOW:</b> Reduces the horizontal direction of screen to the half resolution and cuts the response time to half. <b>HIGH:</b> Shoots at a high resolution. To be used to judge the slight color difference.
Synchronous input	<b>SYNCHRO</b>	OFF, ON (OFF)	<b>OFF:</b> Shoots continuously. <b>ON:</b> Shoots once at the rising of synchronous input line (purple).

**LCD Disp**

is displayed in yellow: the setting item is common to all banks.

**LCD Disp**

is displayed in purple: the setting item switches to the specific value of each bank.

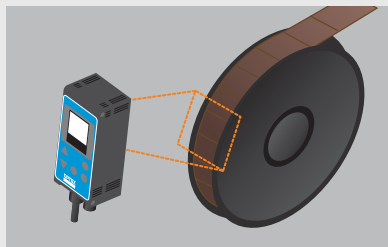


## CVS1 EASY - It's so easy !

Everyone wants a simple, easy to use Vision Sensor with the following features and advantages:

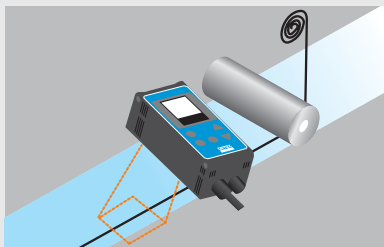
- **Reliable detection of features that conventional photosensors cannot.**
- **Verification of correct product assembly without the need for precise positioning or special fixturing.**
- **Indication of pass / fail result on the display for easy visual reference in addition to digital outputs.**
- **Easy operation without the need for special training or experience.**
- **Additional adjustment parameters to fine tune the operation.**
- **Industrial grade design with IP67.**

### Typical Applications



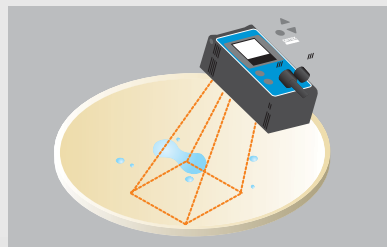
#### End of film detection

If the film is multi-colored, a photoelectric or mark sensor may not function stably. The CVS1 EASY can easily be setup to indicate the end of the film



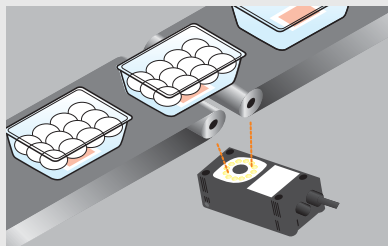
#### Packaging film

Conventional photosensors cannot detect the tear strip if the tape wanders. The CVS1 EASY does not require precise positioning of the tape.



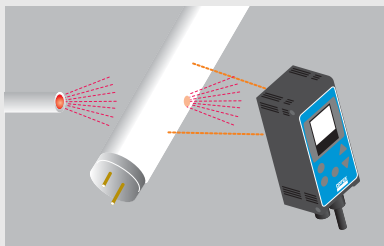
#### Presence of Wafer

The detection of water on a wafer is possible with the CVS1 EASY.



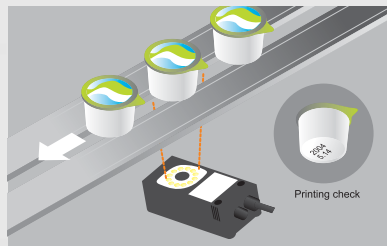
#### Presence of drying agent in the bottom of cookie container.

If the drying agent is a different color than the cookies, it is possible to detect the presence of the agent in the container.



#### Pinhole in fluorescent light

This is for the inspection process of a fluorescent light. By using a backlight and rotating the fluorescent tube the CVS1 EASY is able to identify a small pinhole.

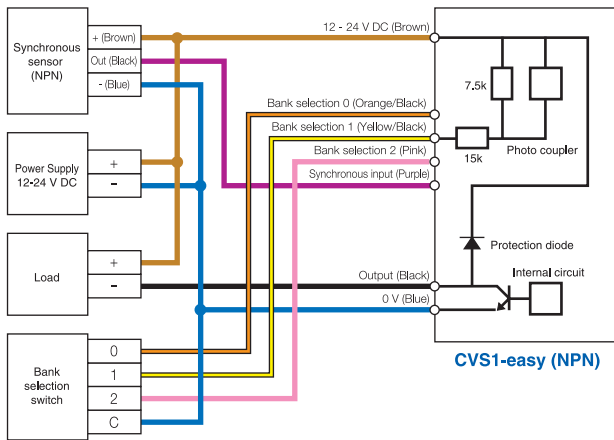


#### Presence of date code printed on the bottom of container

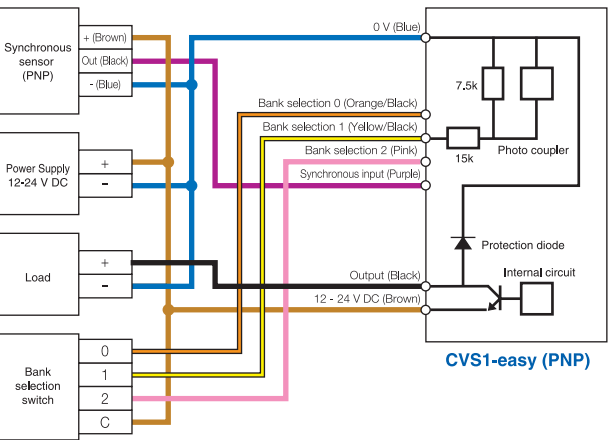
The CVS1 EASY can check for the presence of printing on a container.

# Connection with peripheral devices

## Wiring (NPN) and Internal Circuit



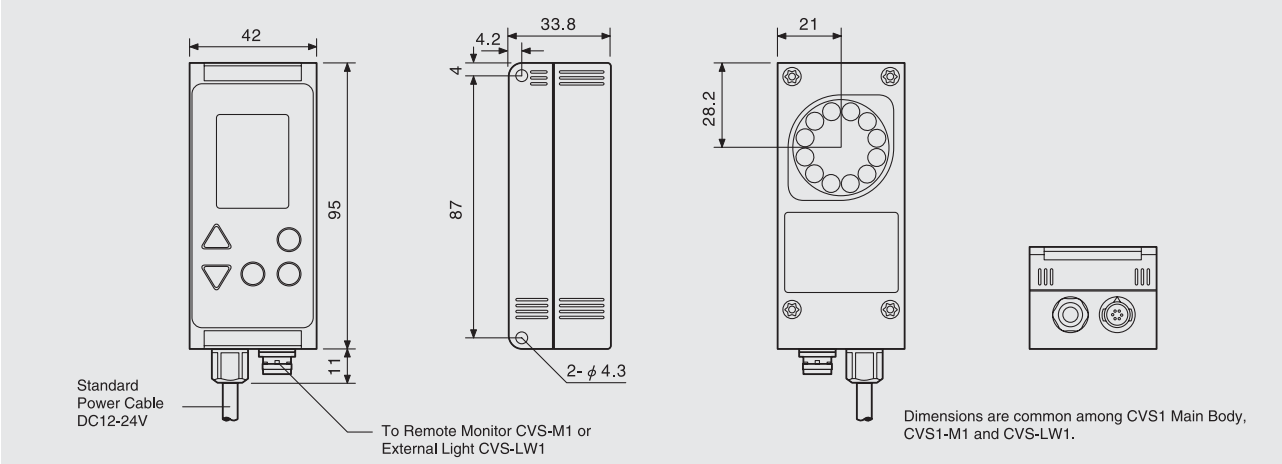
## Wiring (PNP) and Internal Circuit



## Specification

MODEL		CVS1-easy-N10 CVS1-easy-P10	CVS1-easy-N20 CVS1-easy-P20	CVS1-easy-N21 CVS1-easy-P21	CVS1-easy-N40 CVS1-easy-P40
View angle		10°	20°		40°
Sensing Range		210 to 270 mm	90 to 150 mm	31 to 39 mm	50 to 100 mm
Image view area (±10%)		40 × 50 to 55 × 65 mm	40 × 50 to 65 × 75 mm	17 × 20 mm	50 × 65 to 100 × 115 mm
Light source		White LED			
Light brightness		Approx. 77cd	Approx. 38cd	Approx. 21cd	
Image sensor		330000 pixel CMOS Color image sensor			
Supply voltage		12 to 24 V DC ±10 %			
Power consumption		Max. 120 mA / 24 V DC			
Resolution		5 x 12 to 200 × 240			
Lamp duration		Approx. 50000 hrs (In normal temperature and humidity, Brightness level down by 1/2 of the initial level)			
Response time		11ms (Factory setting), 5.0 ms (Min.), 22 ms (Max.)			
Output signal		NPN/PNP open collector output 1 point, max. 100 mA Residual voltage 1.0 V or less			
Input signal		Bank selection 3 points, Synchronous 1 point			
Entry constant		12 ms (max): Bank selection 48 μs (turn ON), 450 μs (turn OFF): Synchronous			
Temperature	Operating	0 to 40°C (No condensation), 35 to 85 %/RH			
/ humidity	Storage	-20 to 70°C, 25 to 95%/RH			
Vibration/shock resistance		10 to 55Hz Amplitude 1.5 mm, 500 m/s² (10 times)			
Material		ABS / Acryl / Polycarbonate			
Protection structure		IP67			
Weight		Approx. 180 g			

## Dimensions



- Specifications and technical information not mentioned here are written in Operation Manual. Or visit our website for details.
- All the warnings and cautions to know prior to use are given in Operation Manual.

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