CVS4-R SERIES

Compact OCR sensor

- All in one OCR sensor
- Easy setup and High performance
- Built-in Calendar

Wide range line-up

CVS4-N23W-R Standard type
CVS4-N21W-R Small character type
CVS4-N20W-R Long range type
CVS4-N40W-R Macro view type
CVS4-N23RW-R Standard vertical type

Easy setup

You can setup easily just following the instruction on the screen.

User dictionary

You can make characters utilizing the images captured and transferred to PC.

Up to 16 Bank

16 Banks are available in small all in one package.

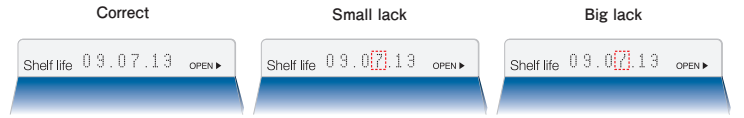
Built-in Calendar

It can check the date continuously overnight referring built-in calendar without error because of its tolerance of time.

All in one OCR sensor

Recognizes Alphabetic, Numeric and Special characters. It can check shelf life, date of manufacture and lot number. It recognizes characters of Thermal printer, Hot printer, Ink-jet printer and laser marker.

It compares the characters with internal Dictionary. You can setup as it determines NG when single character is wrong. You can also setup as it determines OK when the character has only small lack.



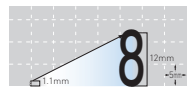
Storing NG image

When judge result changed from OK to NG, it stores NG image into internal memory up to 30 images. You can download the image data from CVS4-R through optional cable CVS-C2C.

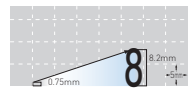
Wide range of line-up

You can choose a range from 4 ranges of line-up.

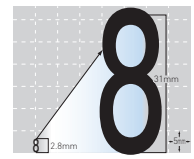
CVS4-N23W-R/ -N23RW-R



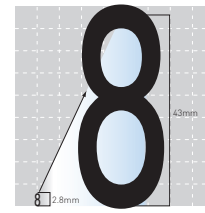
CVS4-N21W-R



CVS4-N20W-R



CVS4-N40W-R



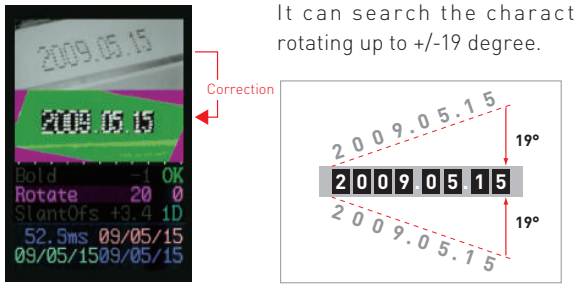
Character direction

CVS4-N23W-R/-N21W-R/ -N20W-R/-N40W-R

CVS4-N23RW-R

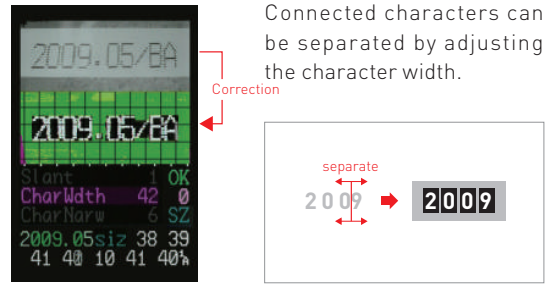
Features

Rotation search



It can search the characters rotating up to +/-19 degree.

Recognize connected characters



Connected characters can be separated by adjusting the character width.

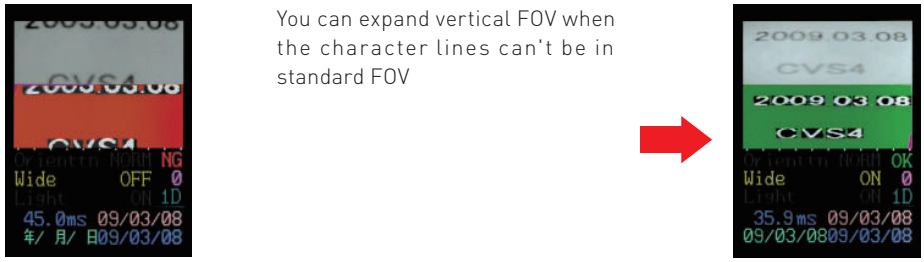
Double shutter

It captures twice by single trigger. If first image or 2nd image is OK, judge result is OK. This function is effective when the trigger timing is not stable and object position is not stable.

Continuous capture

It will automatically capture and check the image continuously from single trigger until it gets OK image. If it gets Time-out before getting OK, it outputs NG.

Expandable FOV



You can expand vertical FOV when the character lines can't be in standard FOV

FOV can be vertically doubled by this function and it can detect the character lines in a FOV.

Mirror capture

It can capture mirror reversed image

Fast capture mode

It has Fast capture mode reducing vertical resolution down to half. This is effective for the objects that move fast.

Delayed Output function

It has timer to delay activating output for the period. This function can be utilized for controlling sorting stage located after the inspection stage.

Check character number

It can just check number of characters to see existence of the printing for example.

Delayed NG mode

It can turn output to NG only when it detect NG certain times continuously. This is effective for detecting ink runs out and some special error that happens rarely.

Wild card for verifying characters

You can use "?" as a wild card to determine a character as OK whatever the character is. This function is effective when the character can be any characters.

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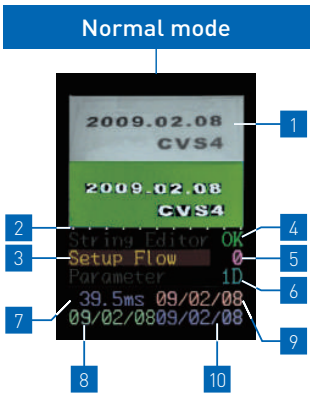
Display



1 Captured image
You can change by VIEW button. When it's detached mode, background is Green for OK and Red for NG.

2 Scale
Scale for adjust character size in FOV

3 Display mode
Shows display mode in yellow

4 Judge result
OK : Data/Time is in threshold and string matches
NG : Any lines doesn't match
ER : Backup error of calendar timer

5 Current Bank No.

6 Inspection item on screen
1D : The 1st date 2D : The 2nd date
1T : The 1st time 2T : The 2nd time
CH : Number of characters and character string

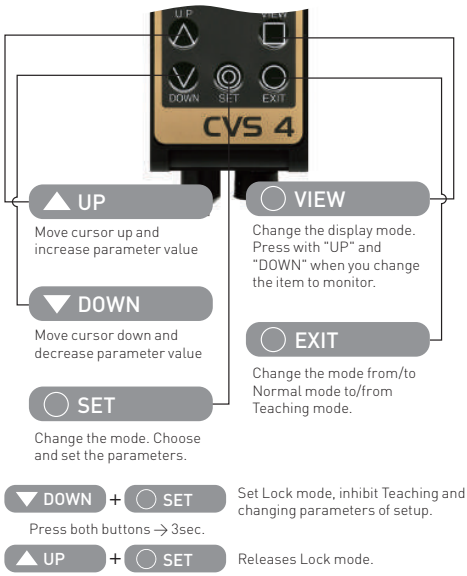
7 Response time from Sync. input to Judge output

8 Recognized Date/Time

9 Upper limit of Date/Time

10 Lower limit of Date/Time

Switches



Specifications

Model	CVS4-N20W-R CVS4-P20W-R	CVS4-N21W-R CVS4-P21W-R	CVS4-N40W-R CVS4-P40W-R	CVS4-N23W-R CVS4-P23W-R	CVS4-N23RW-R CVS4-P23RW-R
Detection angle	20°		40°	20°	
Working distance	90 to 150mm	31 to 39mm	50 to 100mm	44 to 56mm	44 to 56mm
Field of view	53x25mm to 79x38mm	21x10mm (±10%)	53x25mm to115x53mm	30x15mm (±10%)	30x15mm (±10%)
Light source	White LED 12 pcs built-in				
Image sensor	330,000 Pixel CMOS monochrome image sensor				
Supply Voltage	12 to 24V DC±10%				
Power consumption	Max. 140mA / 24V DC				
Resolution	512 x 244				244 x 512
LED light duration	Approx.100,000 hours(In normal temperature and humidity. Brightness level down by 1/2 of the initial level)				
Response time	23ms to 48ms (20 characters in 2 lines,Rotation search up to ±10°)				
Output	NPN or PNP open collector output x 2 (OK/NGoutput,External light control output) max. 100mA Residual voltage 1.0V or less				
Input	Bank select 0 (Pulse input), Bank select 1 ("String +" input), Bank select 2 (Teach in), Bank select 3 (Sync input)				
Operating temperature	0 to 40℃ (No condensation)				
Operating humidity	35 to 85%RH				
Storage temperature/humidity	-20 to 70℃, 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)				
Recognizable character number	60 characters / 6 lines				
Character number per line	30 characters				
Number of date/time/string	Up to 2 x Date / 2 x Time / 4 x Strings with 22 characters (up to 4 items)				
User Dictionary	56 characters				
Built-in Timer accuracy	-45 sec. to 75 sec. per month				
Back up period of built-in timer	5 years by built-in non-rechargeable battery / Life of super capacitor : 7.8 years (when its capacity gets down to the level that keep timer 3 days)				

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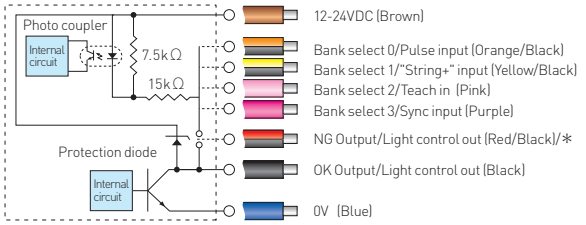
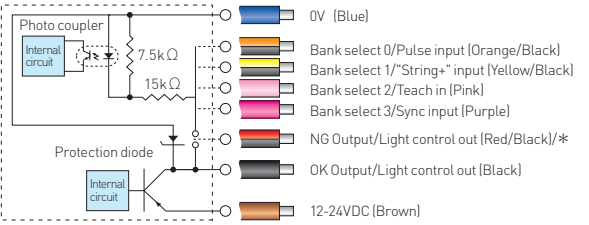
Connection diagram

(NPN)



(PNP)



* Bank select 0 to 3/"String+"/Teach in

Bank table

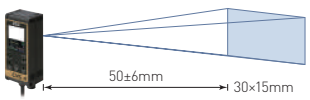
Bank No.	Bank select input			
	3(Purple)	2(Pink)	1(Yellow/Black)	0(Orange/Black)
0	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON
10	ON	OFF	ON	OFF
11	ON	OFF	ON	ON
12	ON	ON	OFF	OFF
13	ON	ON	OFF	ON
14	ON	ON	ON	OFF
15	ON	ON	ON	ON

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

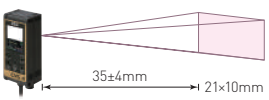
Parameter				Function of Bank selection input				Selectable range
Bank	Synchron	String+	SyncPlus	Orange / Black	Yellow/ Black	Pink	Purple	
BKIN	CONT	OFF	Others	Bank selection 0	Bank slctn 1	Bank slctn 2	Bank slctn 3	0–15
			ON					
		ON,SCLR	Others		String+			0,1,4,5,8, 9,12,13
			ON					
	UP,HIGH DOWN, LOW	OFF	Others		Bank slctn 1		Synchro-nous input	0–7
			ON	Pulse que				0,2,4,6
		ON,SCLR	Others	Bank slctn0	String+			0,1,4,5
			ON	Pulse que				0,4
TCH	CONT	OFF	Others	Bank selection 0	Bank slctn 1	External Teaching	Bank slctn 3	0–3, 8–11
			ON					
		ON,SCLR	Others		String+			0,1,8,9
			ON					
	UP,HIGH DOWN, LOW	OFF	Others		Bank slctn 1		Synchro-nous input	0–3
			ON	Pulse que				0,2
		ON,SCLR	Others	Bank slctn0	String+			0,1
			ON	Pulse que				0
0–15, COMM	CONT	OFF	Others	NA	NA		NA	0–15 (Bank is set by parameter and through RS232I/F)
			ON					
		ON,SCLR	Others		String+			
			ON					
	UP,HIGH DOWN, LOW	OFF	Others		NA		Synchro-nous input	
			ON	Pulse que				
		ON,SCLR	Others	NA	String+			
			ON	Pulse que				

Field of View

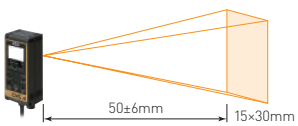
CVS4-N23W-R



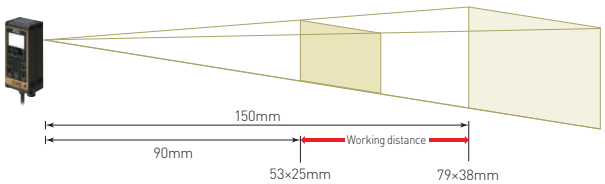
CVS4-N21W-R



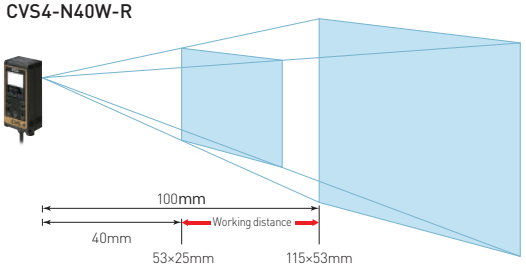
CVS4N23RW-R



CVS4-N20W-R



CVS4-N40W-R



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RS232 Communication

Available functions

1.Setup — You can download/modify/upload setup from/to CVS4-R.

2.User DIC — You can make unique character referring the image from CVS4-R.

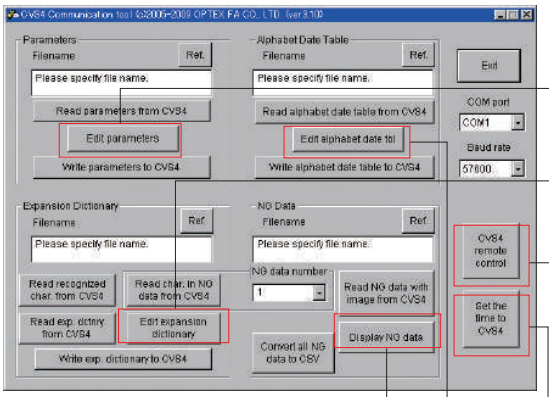
3.Downloading NG image — You can refer NG image and check what happened.

4.Remote control — You can control CVS4-R through RS232 I/F.

5.Timer setup — You can set the timer of CVS4-R copying from PC.

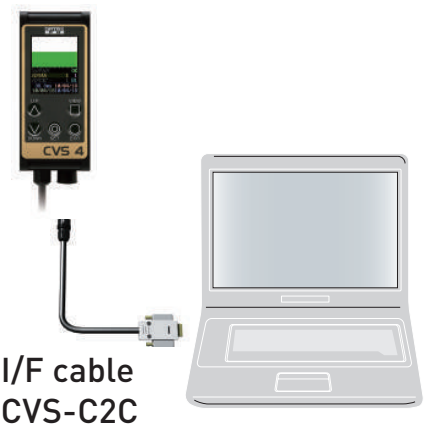
6.Code recognition — You can modify code table that shows simple codes mean Date/Time.

Main menu



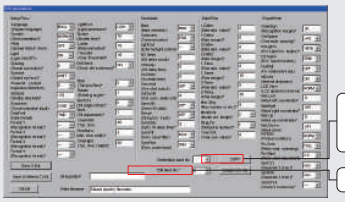
Required PC spec.
- Microsoft Windows 7
- RS232 I/F
- Cable CVS-C2C

Downloadable from http://www.optex-fa.com



I/F cable
CVS-C2C

1. Setup Modification

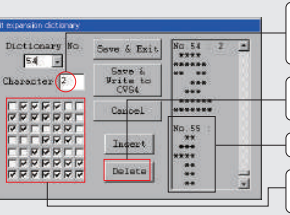


Parameter with "*" means that each Bank has individual setup.

Set destination Bank No. and click Execute to copy.

Bank No. to modify

2. User Dictionary



"?"means that couldn`t recognize the character. Please input the character you want to register.

Delete redundant one when it's same as another.

You can view the list

One character consists of 7 * 7 dots that you can modify.

3. Downloading NG image

Display when the moment of NG

Recognized characters

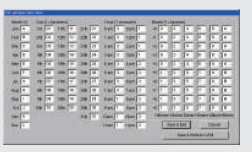
4. Remote control

You can control through RS232 I/F

5. Timer setup

You can copy the timer setup of PC to CVS4-R

6. Code recognition



CVS4-R can recognize Code of Month/Date/Hour/Minute. Example: "CAO H" --> "March 15th, 7 O'clock"