# CVS1-RA SERIES



## Easy setup
## Color sensor

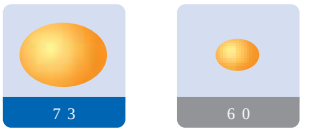
- All in one color vision sensor
- High speed : 0.6 - 22ms
- Stable color detection by calculating hue of each pixel

## Wide range line-up

-=:%!6&$!9+ :Q?LB?OB QVNC
-=:%!6%$!9+ 4MLE O?LEC QVNC
-=:%!6($!9+ 5?AOM SGCT QVNC
-=:%!6&%!9+ 6?OOMT SGCT QVNC

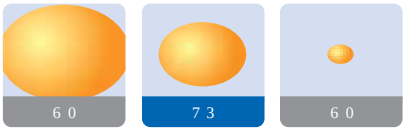
## One threshold mode

.CQCOKGLC 73 TFCL QFC ?OC? QF?Q QFC AMJMO K?QAFCP CUACCBP QFC QFOCPFMJB"



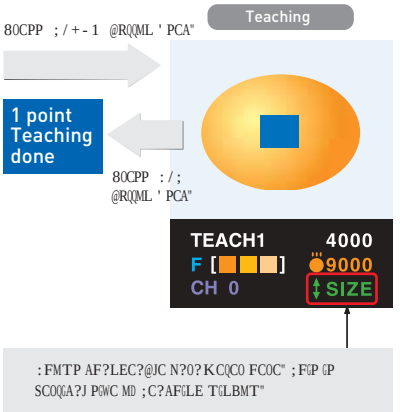

## Two threshold mode

.CQCOKGLC 73 TFCL QFC ?OC? QF?Q QFC AMJMO K?QAFCP GP GL QTM QFOCPFMJBP"



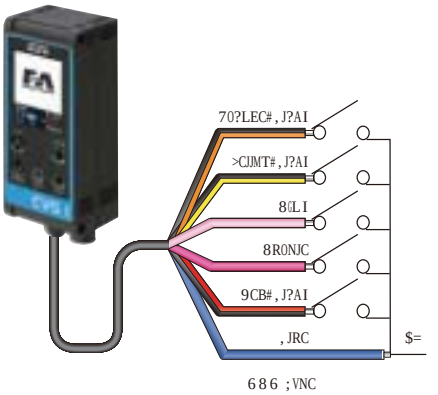

## Easy Teaching

;C?AFGLE GP C?PGJV BMLC @V KMSGLE QFC QC?AFGLE AROPMO ML QFC N?OQ QF?Q VMR T?LQ QM QC?AF QFC AMJMO ?LB HRPQ PCQ GQ"




## Up to 16 Bank

%) ,?LIP ?OC ?S?GJ?@JC GL PK?JJ ?JJ GL MLC N?AI?EC"




## High Speed

6CTJV BCSCJMNCB SGPGML NOMACPPMO CL?@JCP FGEF PNCCB GLPNCAQGML"

## Zoom function

>MR A?L WMMK GL ? N?OQ MD QFC M@HCAQ" >MR A?L GLPNCAQ %) N?OQP MD QFC M@HCAQ AF?LEGLE ,?LI CDDGAGCLQJV"

## Stable inspection

2Q A?JARJ?QCP AMJMO FRC MD C?AF NGUCJ QF?Q NOCSCLQ KGPP!GLPNCAQGML"

## Wide coverage line-up

>MR A?L AFMMPC DOMK (GLPNCAQGML O?LEC#DGCJB MD SGCT ?AAMOBGLE QM GLPNCAQGML Q?OECQ AMLBGQGML"

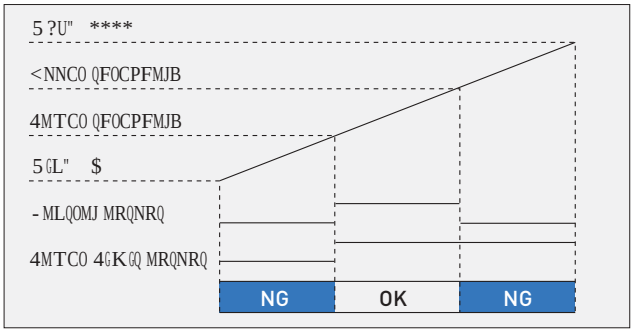
## High performance

### Setup Adjustable while line is running

-=:%!9+ NOMSGBCP MRQNRQ TGQF QFC PCQRN N?O?KCQCOP EGSCL CSCL TFGJC VMR ?OC ?BHRPQGLE PCQRN" >MR BML Q F?SC QM PQMN QFC JGLC"

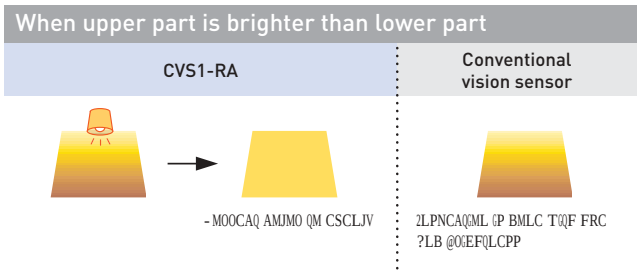
### Lower Limit output

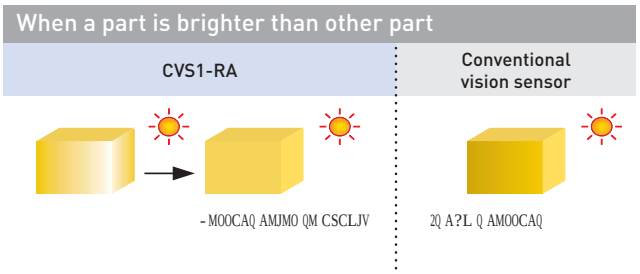
>MR A?L PCC TFGAF QFC 60 MRQNRQ GP JMTCO QF?L JMTCO QFOCPFMJB MO FGEFCO QF?L RNNCO QFOCPFMJB"

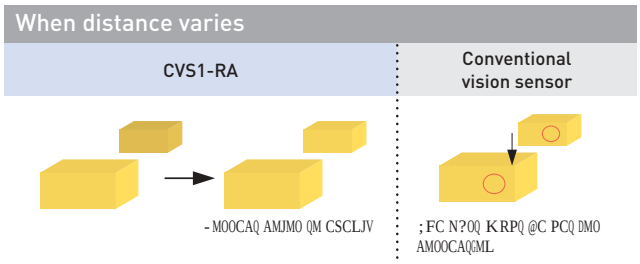


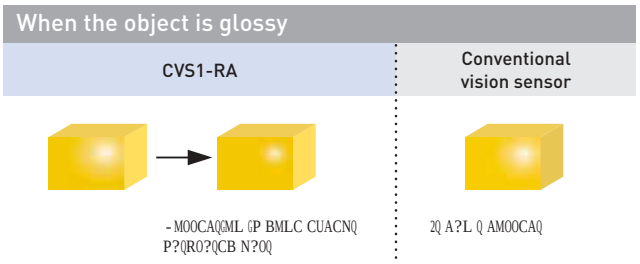

### Stable inspection

2Q A?JARJ?QCP AMJMO FRC MD C?AF NGUCJ QF?Q NOCSCLQ KGPP!GLPNCAQGML ?DDCAQCB @V CUQCOL?J JGEFQ ?LB @OGEFQLCPP AF?LECP MD JGEFQGLE" :Q?@JC GLPNCAQGML GP ?S?GJ?@JC ?LB VMR A?L PCQRN -=:%!9+ HRPQ JGIC VMR BM DMO NFMQMCJCAQOGA PCLPMO"



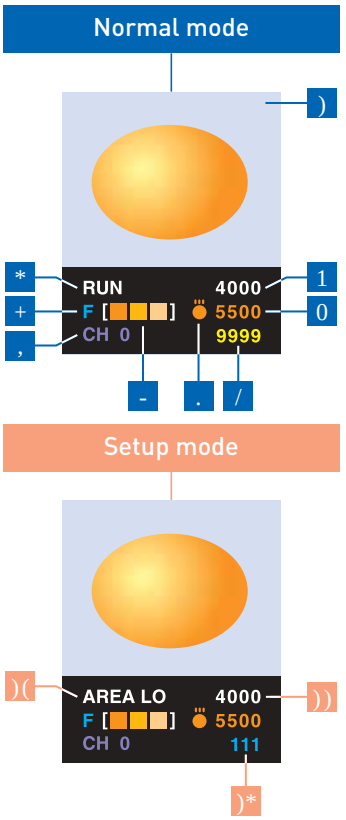



## Display

### There are two modes : Normal / Setup




) 5HVYZWLK P S HNL
; S HNL JHVYZWLK I^ YOL JH S LWH

* =UKL
AD> 2 >UW S HR S UKL
C735 : 2 CLHJOPTN S UKL
53@CDA7 2 ; S HNL XYUWPTN S UKL
C5 : <? F 2 *TK VUPTY YLHJOPTN
?YOLW 2 BLYZV VHWH S LYLWX

+ 6PXVRH^ S UKL
82 6HWQ 5U S VLTXHYLK P S HNL
*2 BOU \ X UTR^ JOUXLT JURUW HWLH
62 BOU \ X UWPNPTHR P S HNL

, 4HTQ >U&
5ZWWLTY 4HTQ >U&

- ALNPXYLWLK JURUW
=PT& 5LTYLW HTK =H]& JURUW

. ?ZYVZY
: ?> : ?88

/ DVVLW YOWLXOURK "( % 1111#
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0 5URUW S HYJO HWLH
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)( BLYZV VHWH S LYLW
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BOU \ X XLYZV VHWH S LYLW [HRZL

)* @WUJLXX YP S L
BOU \ X VWUJLXX YP S L

## Switches


**UP**
=U[L JZWXUW ZV HTK
PTJWLHXL VHWH S LYLW [HRZL

**DOWN**
=U[L JZWXUW KU \ T HTK
KLJWLHXL VHWH S LYLW [HRZL

**VIEW**
5OHTNL YOL KPXVRH^ S UKL
82 6HWQ 5U S VLTXHYLK P S HNL
*2 BOU \ X UTR^ JOUXLT JURUW HWLH
62 BOU \ X UWPNPTHR P S HNL

**SET**
5OHTNL YU XLYZV S UKL&
5OUUXL YOL VHWH S LYLW I^
VWLXXPTN + XLJ& UW S UWL&

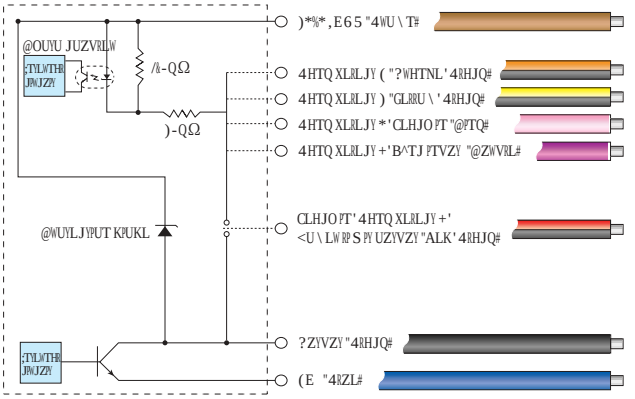
**TEACH**
5OHTNL YU CLHJOPTN S UKL
I^ VWLXXPTN + XLJ& UW S UWL&

## Specifications

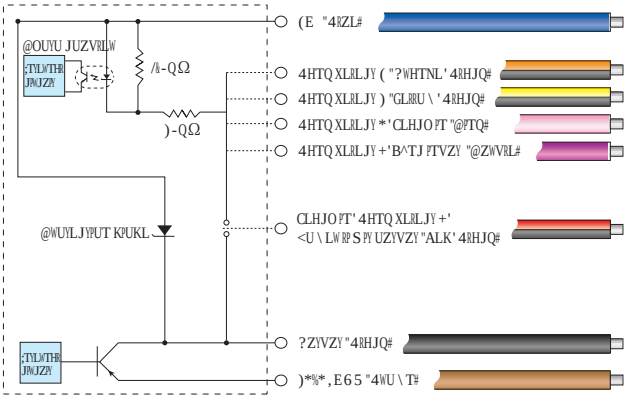
| Model | CVS1-N10-RA<br>CVS1-P10-RA | CVS1-N20-RA<br>CVS1-P20-RA | CVS1-N21-RA<br>CVS1-P21-RA | CVS1-N40-RA<br>CVS1-P40-RA |
|---|---|---|---|---|
| Detection angle | )(` | *(` | | ,(` |
| Working distance | *)( YU */( S S | 1( YU )-( S S | +) YU +1 S S | -( YU )(( S S |
| Field of view | ,( ] -( S S YU -- ] .- S S | ,( ] -( S S YU .- ] /- S S | )/ ] *( S S "a)( ! # | -( ] .- S S YU )(( ] ))- S S |
| Light source | FOPYL <76 )* VJX IZPRY%PT | | | |
| Image sensor | ++($(( @P]LR 5=?B JURUW P S HNL XLTXUW | | | |
| Supply Voltage | )* YU *,E 65a)( ! | | | |
| Power consumption | =H]& )*( S 3 ' *,E 65 | | | |
| Resolution | 0 ]) . YU *(0 ] *+. | | | |
| LED light duration | 3VVWU]&-($(( OUZWX ";T TUW S HR YL S VLWHYZWL HTK OZ S PKPY^& 4WPNOYTLXX RL[LR KU \ T I^ )'* UM YOL PTPYPHR RL[LR# | | | |
| Response time | ) - S X YU +.&+ S X "8HJYUW^ XLYYPTN 2 )O&0 S X# | | | |
| Output | >@> UW @>@ UVLT JURRLJYUW UZYVZY ] * "UTL UM YOL S PX b<U \ LW RP S PY UZYVZYcXLRLJYHIRL I^ IHTQ PTVZY )# S H]&)(( S 3 ALXPKZHR [URYHNL )&(E UW RLXX | | | |
| Input | CUYHRR^ ,2 4HTQ XLRLJY (%*$ 4HTQ XLRLJY + "X \ PYJOH IRL YU B^TJ PTVZY#$ CLHJO PT "X \ PYJOH IRL YU 4HTQ XLRLJY + UW <U \ LW RP S PY UZYVZY# | | | |
| Operating temperature | ( YU ,(°C ">U JUTKLTXHYPUT# | | | |
| Operating humidity | +- YU 0- ! A : | | | |
| Storage temperature/humidity | %*( YU /(°C$+- YU 1- ! A : ">U JUTKLTXHYPUT# | | | |
| Vibration/shock resistance | )( YU -- : _ 3 S VRPYZKL )&- S S ' -(9 "-(( S 'X* # | | | |
| Material | 5HXL234B ' 6PXVRH^ HTK <LTX 2 3JW^R UW @UR^JHW I UTHYL | | | |
| Protection structure | ;@. / | | | |
| Weight | 3VVWU]&*((N "PTJRZKPTN JHIRL# | | | |

## Connection diagram

(NPN)



(PNP)



## Bank table

| 4HTQ >Uk | 4HTQ XLRLJY PTVZY | | | |
|---|---|---|---|---|
| | +"@ZWVRL# | *"@PTQ# | )"GLRRU \ ' 4RHJQ# | ("?WHTNL' 4RHJQ# |
| ( | ?88 | ?88 | ?88 | ?88 |
| ) | ?88 | ?88 | ?88 | ?> |
| * | ?88 | ?88 | ?> | ?88 |
| + | ?88 | ?88 | ?> | ?> |
| , | ?88 | ?> | ?88 | ?88 |
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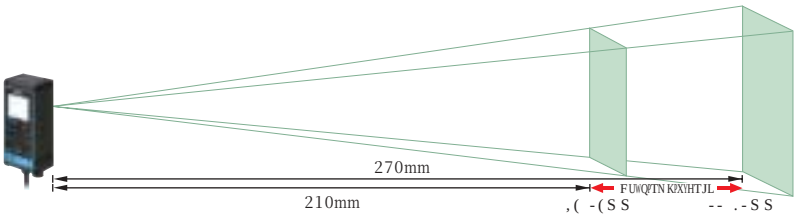
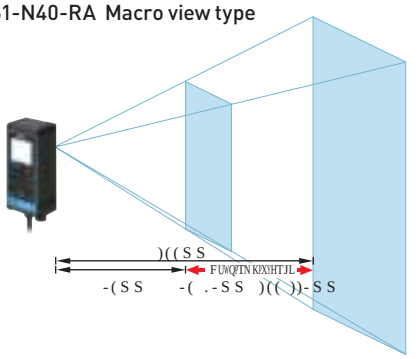
| / | ?88 | ?> | ?> | ?> |
| 0 | ?> | ?88 | ?88 | ?88 |
| 1 | ?> | ?88 | ?88 | ?> |
| )( | ?> | ?88 | ?> | ?88 |
| )) | ?> | ?88 | ?> | ?> |
| )* | ?> | ?> | ?88 | ?88 |
| )+ | ?> | ?> | ?88 | ?> |
| ), | ?> | ?> | ?> | ?88 |
| )- | ?> | ?> | ?> | ?> |

## Field of View

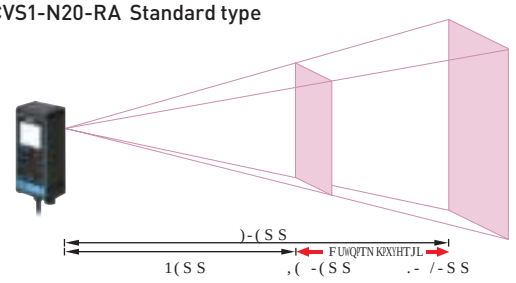
CVS1-N10-RA Long range type



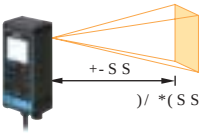

CVS1-N40-RA Macro view type



CVS1-N20-RA Standard type



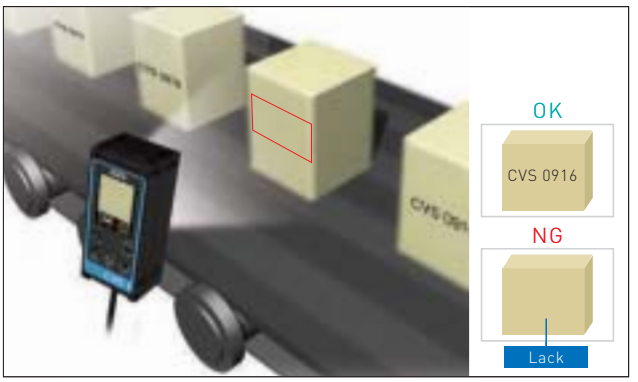
CVS1-N21-RA Narrow view type



# CVS SERIES APPLICATION



### 1. Checking existence of printing on the box

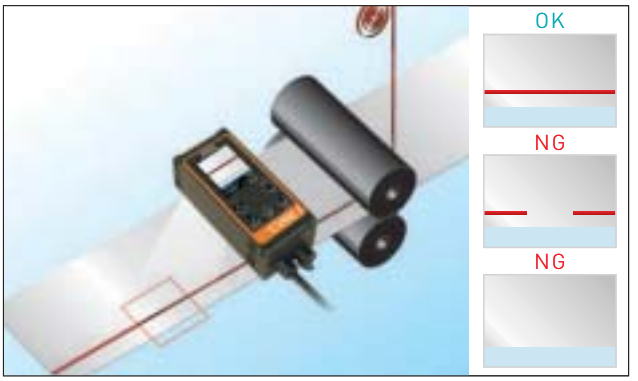



**CVS1-RA**
Set the extracted color from the printing and check its area in the field of view

### 2. Checking the lid of instant foods

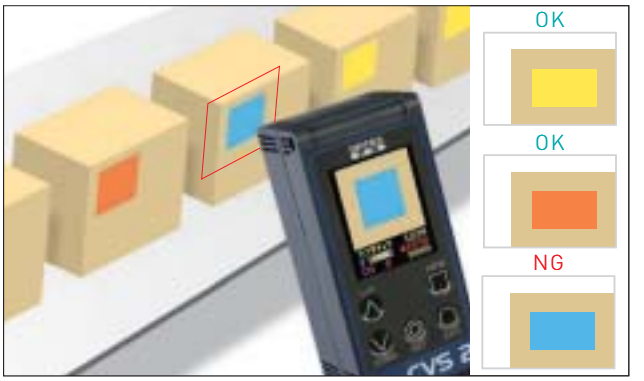

**CVS2-RA**
Check the color and shape by its pattern matching function

### 3. Checking existence of cutting tape on the film




**CVSE1-RA**
Set the extracted color from the cutting tape and check its area in the field of view

### 4. Checking multiple colors on the box




**CVS2-RA**
Check existence of multiple color on the box registering multiple colors as reference

### 5. Checking existence of seasoning bag


**CVSE1-RA**
Set the extracted color from the seasoning bag and check its area in the field of view

### 6. Checking shelf life on the packaging film


**CVS4-R**
Check the date of shelf life on packaging film. It has calendar function so checking overnight is available

### 7. Checking existence of label on package


**CVSE1-RA**
Set the major color on the label and check its area in the field of view

### 8. Checking existence of needle cap


**CVS1-RA**
Existence of needle cap can be detected easily by color area inspection even in a big FOV

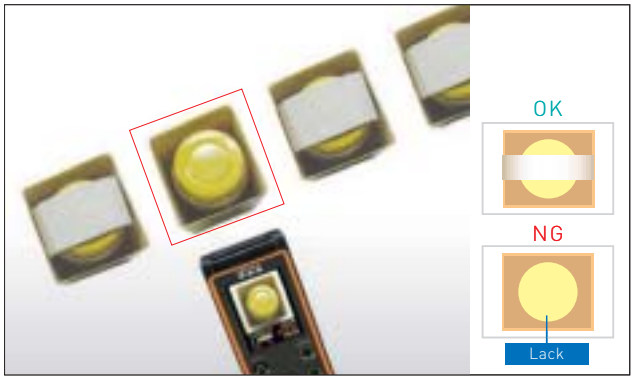
### 9. Checking shelf life on the milk package


**CVS4-R**
Check the date of shelf life on milk package. It has calendar function so checking overnight is available

### 10. Checking expiration date on the package


**CVS4-R**
Check the expiration date on the package. It can just check number of character as well

### 11. Checking existence of description of pills




**CVSE1-RA**
Set the color area of description of pills in the field of view

### 12. Checking overlapping of the label


**CVS3-RA**
Check the overlapping label by its edge detection function

### 13. Checking marking on electric components


**CVSE1-RA**
Set the color of the marking and check its area in the field of view. Narrow angle view version can zoom up small area.

### 14. Checking ON/OFF of LED on PWB


**CVS2-RA**
Check the color and position of LED by its color pattern matching function

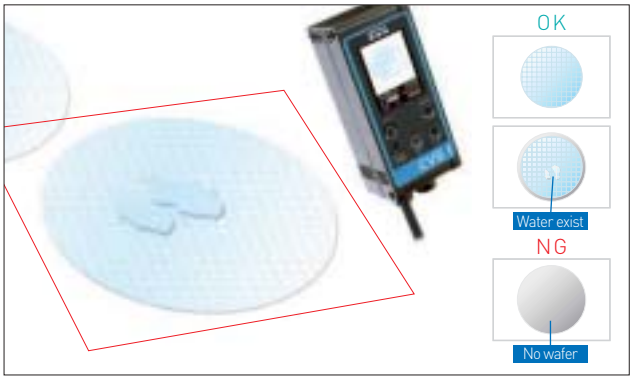
### 15. Checking order of the color of wires


**CVS2-RA**
Check the color and position of wires by its color pattern matching function

### 16. Checking existence of bad marking on parts


**CVS2-RA**
Check color of the parts and color of bad marking on the parts to detect existence of bad parts

### 17. Checking existence of wafer




**CVS1-RA**
Set the color of the wafer as its reference and detect existence of the wafer even there are some water on it

### 18. Checking direction of the parts


**CVS3-RA**
Check the edge of the marking on the IC package and detect direction of it

### 19. Checking position of welded part


**CVS2-RA**
Set the color of the pipe and welded part and detect welded part stably by its pattern matching function

### 20. Checking shape of assembled parts


**CVS3-RA**
Check the shape of the assembled parts by edge detecting function utilizing back lighting

### 21. Checking direction of the parts on conveyor


**CVS2-RA**
Check the color and position of the surface pattern by its color pattern matching function

### 22. Checking size of the nut


**CVS3-RA**
Check size of the nut by edge detecting function

### 23. Checking characters on metal parts


**CVS4-R**
Check the characters engraved on the metal parts by its OCR function

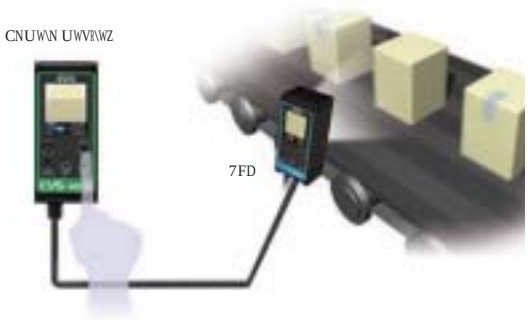
### 24. Checking existence of lot number on the spark plugs


**CVS1-RA**
Check the color area of the printed characters on the spark plugs

## Accessories for CVS series

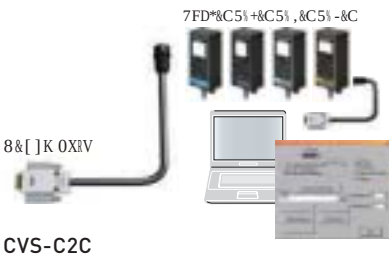
### Remote monitor (with 3m cable)

CVS-M1-R
:WZ 7FD [NZRN[




HW] LJV LWV\ZWT 0ZWU CNUW\N UWVR\WZ \QJ\ QJ[ >78 JVM K]\\WV[ \W LWV\ZWT ZNUW\NTa' EQN K]\\WV[ _WZS [JUN J[ 7FD [NZRN[ R\[NT0'

### PC I/F cable (2m)




CVS-C2C
:WZ 7FD*&C5%+&C5%,&C5%-&C

HW] LJV MW_VTWJM \QN =(: [W0_JZN 0ZWU W]Z QWUNXJPN' HW] LJV [N\]X 7FD*&C5% 7FD+&C5% 7FD,&C5 JVM 7FD-&C \QZW]PQ NJLQ [W0_JZN JVM LJV PN\ ZNPR[\NZNM RUJPN' HW] LJV JT[W UWMR0a UJ[S JZNJ NJ[RTa WV \QN B7 MR[XTJa'

**Required PC spec.**
**- Microsoft Windows 7**
**- RS232 I/F**
**Software is downloadable from**
**http://www.optex-fa.com**

### Video cable (3m)


CVS-CN
:WZ 7FD [NZRN[

HW] LJV [NN \QN MR[XTJa RUJPN LWVVNL\RVP [\JVMJZM EF UWVR\WZ !@ED7"'

### PC I/F cable + I/F cable for Video Out (2m)

CVS-C2Y
:WZ 7FD*&C5%+&C5%,&C5%-&C

HW] LJV LWVVNL\ B7 JVM 7FD&?*&C' HW] LJV [NN \QN [LZNNV RUJPN WV \QN 7FD&?*&C' # HW] LJV \ LWV\ZWT \QZW]PQ 7FD&?*&C'

### Extension cable for Remote monitor (3m)

CVS-C3S
:WZ 7FD&?*&C

HW] LJV LWVVNL\ CNUW\N UWVR\WZ \QZW]PQ \QR[ LJKTN ]X \W *. U !- 7FD&7,D 2 *+U $ ,U LJKTN W0 CNUW\N UWVR\WZ"

### PC I/F cable + Video cable (2m)

CVS-C2P(2m)
:WZ 7FD*&C5%+&C5%,&C5%-&C

HW] LJV LWVVNL\ B7 JVM PN\ ^RMNW [RPVJT J\ J \RUN'

### External LED lighting

GQNV aW] VNNM KZRPQ\NZ TRPQ\RVP JVM(WZ TRPQ\RVP 0ZWU W\QNZ MRZNL\RWV \W PN\ KN\\NZ RUJPN% aW] LJV ]\RTRbN N`\NZVJT >98 TRPQ\RVP' BTNJ[N ZN0NZ BJPN . - 0WZ W\QNZ TRPQ\RVP JVM XW_NZ []XXTa'

#### High brightness Bar LED lighting with bracket

OPB-5015W2-B
.)`*.UU

OPB-10015W2-B
*))`*.UU

AB86&.)`*.GD

#### Power supply LED controller

OPPD-15

#### Bracket for Lighting

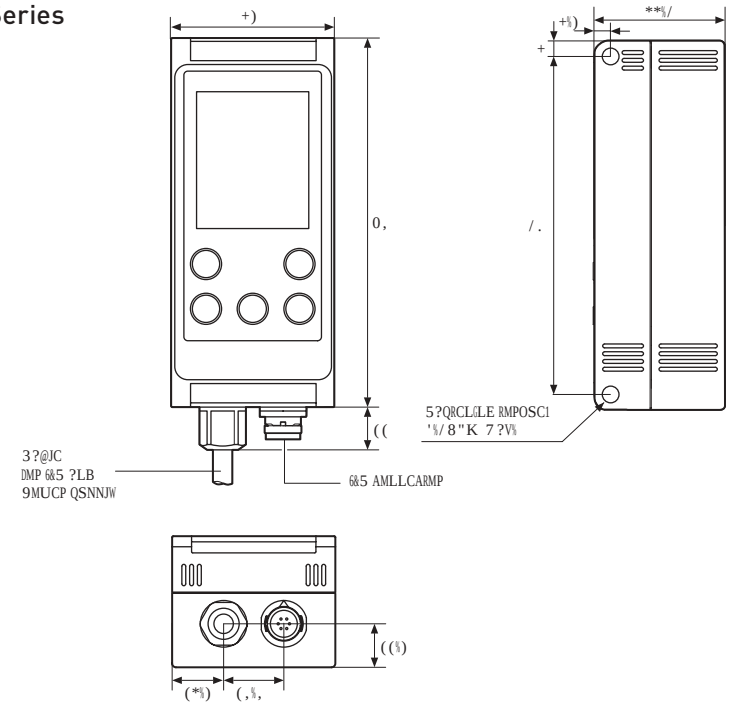
CVS-OPDB-2000
CVS-OPDB-3040
CVS-OPDB-6080

+AB86&.)`*.GD JVM 7FD&AB86&+)))

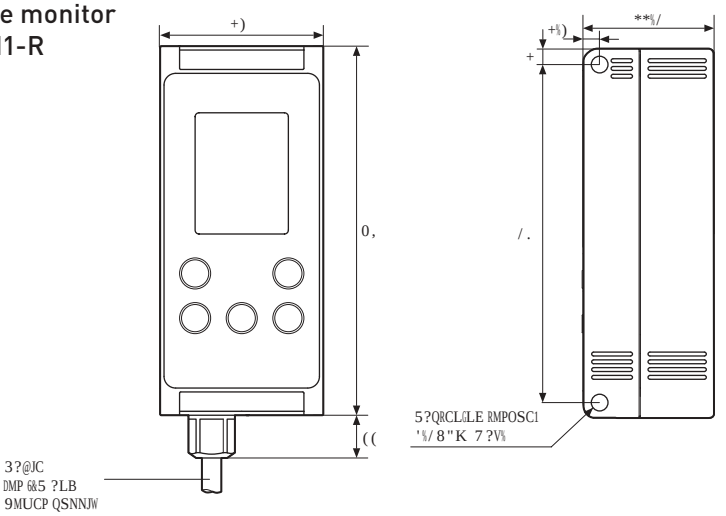
CVS-OP1000L
EQR[R[0WZ UW]V\RVP 7FD[NZRN[JVM N`\NZVJT >98 TRPQ\RVP'

## Dimensions

### CVS Series



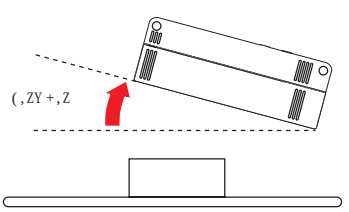

### Remote monitor CVS-M1-R



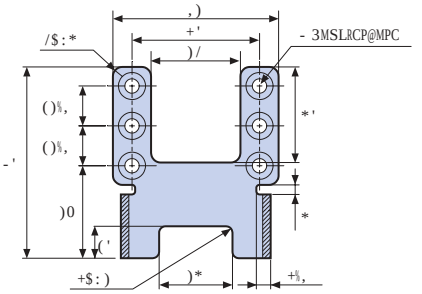

SLGR1 KK!

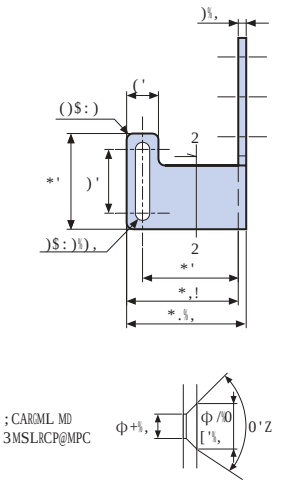
### Tips for mounting CVS series

$ 9JC?QC BCRCPKGLC >MPIGLE BGQR?LAC ?LB 5GCJB MD =GCU QM RF?R WMS AFMMQC AMPPCAR KMBCJ LSK@CP MD 3=; QCPGCQ%
$ 9JC?QC SQC 7+", 'KK QAPCUQ RM KMSLR 3=; QCPGCQ
$ 9JC?QC R?IC A?PC ?@MSR BGQR?LAC @CRUCCL 3=; ?LB R?PECR M@HCAR RM ECR QR?@JC QGXC MD 5GCJB MD =GCU%
$ 9JC?QC KMSLR 3=; ?R (, RM+, BCEPCC RM NPCTCLR QNCASJ?P PCDJCARGML DPMK RFC M@HCAR CQNCAG?JJW DPMK EJMQQW M@HCAR%
$ >FCL RFC M@HCAR KMTCQ D?QR# WMS F?TC RM QCR QFSRRCP QNCCB QFMPRCP% <FCL# WMS UGJJ LCCB @PGEFRCP JGEFRGLE RM ECR @CRRCP GK?EC% 9JC?QC RPW CVRCPL?J JGEFRGLE GL RFGQ A?QC%

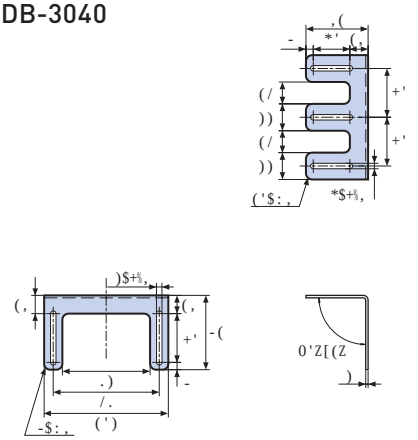


## Bracket for Lighting
## CVS-OPDB-2000

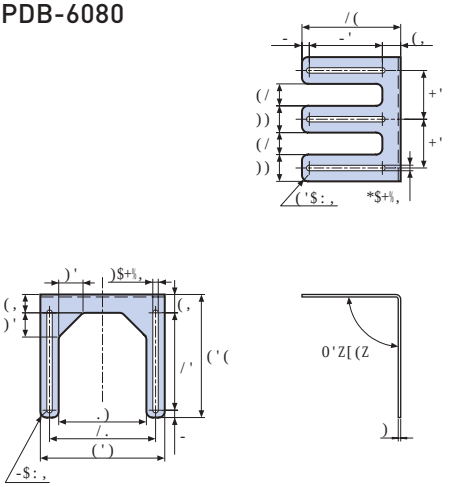


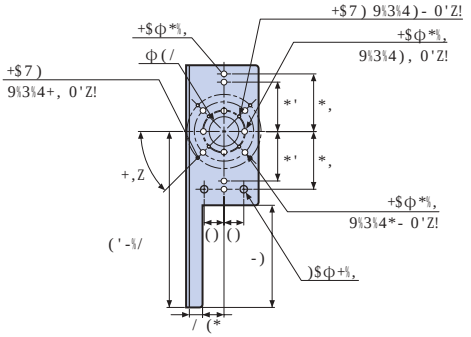

## CVS-OPDB-3040

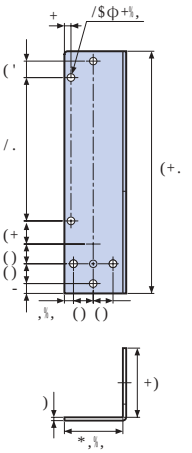


## CVS-OPDB-6080



## CVS-OP-1000L





SL@R1 KK!