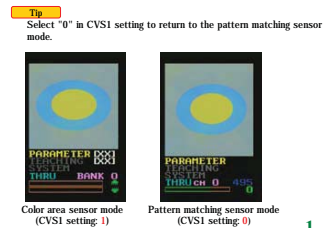
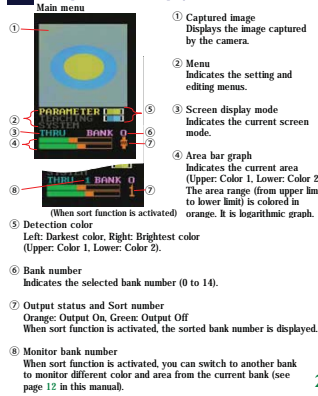


## 1 Switching to the Color Area Sensor Mode

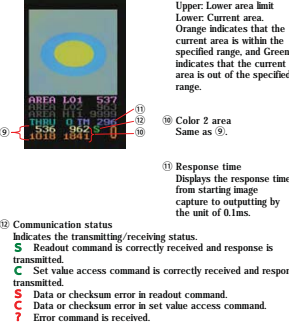
Select "1" in CVS1 setting.  
(Procedure→CVS2 manual page 48)  
Turn the power off and on.



## 2 Descriptions of LCD display



## Set value reference screen



## 3 Setting Options

Function	Setting range (initial value)	Description
Color 1 area lower limit	0 to 9999 (1)	Selects the lower limit of Color 1 detection area.
Color 2 area lower limit	0 to 9999 (0)	Selects the lower limit of Color 2 detection area.
Color 1 area upper limit	0 to 9999 (0)	Selects the upper limit of Color 1 detection area. The set value "0" corresponds to "9999".
Color 2 area upper limit	0 to 9999 (0)	Selects the upper limit of Color 2 detection area. The set value "0" corresponds to "9999".
Bank selection	0 to 16 (16)	Selects the bank selecting option. 0~14: Selects the set bank. (Bank selection 2 input is the external teaching input) 15: Selects a bank by external input. (Bank selection 2 input is the external teaching input) 16: Selects a bank by external input. (Bank selection 2 input is available).
Copy of bank settings	0 to 14 (0)	Copies the set values and masking display of the current bank to the destination bank. During copying, capture and judgment is interrupted. When the power is turned off, the setting returns to "0".

Function	Setting range (initial value)	Description
Color 1 margin percentage	0 to 25 (1)	Adjusts Color 1 margin percentage. Larger value means wider detection area.
Color 2 margin percentage	0 to 25 (1)	Adjusts Color 2 margin percentage. Larger value means wider detection area.
Communication setting	0 to 5 (0)	Select Communication setting. 0: Off 1 to 5: On. Baud rates are 4800, 9600, 19200, 38400, 57600bps in order. Data length: 8bit, no parity, stop bit: 1bit. When the communication function is activated, external lighting and remote monitoring are deactivated.
Mode selection	0, 1 (0)	Selects CVS2 sensor mode. 0: Pattern matching sensor 1: Color area sensor After selecting, turn off and on to activate the setting.
Darkness correction rate	0 to 31 (27)	Selects the correction rate of color darkness. 0: Off 1: Max. (Amplifies black color and converts to other colors.) Select a larger value to detect slight difference in dark colors, and a smaller value to detect the difference between white, gray, and black.
Image sensor gain	0 to 63 (0)	Controls the gain of image sensor. Selecting a larger value increases the screen brightness but also noise level. Select a larger value to shorten the shutter speed.

Function	Setting range (initial value)	Description
Set value initialization	0 to 15 (0)	You can initialize the set values, masking and brightness irregularity correction data. Select 15, and turn the power on pressing and holding <b>VIEW</b> . 0: Locks all of the values. 11: Unlocks all of the values.
LCD up/down reverse	0, 1 (0)	0: Normal display 1: Reverses the LCD display vertically. Select 1 when installing the unit upside-down.
Lighting ON/OFF	0, 1 (1)	0: External lighting OFF. (External lighting remains on) 1: External lighting ON.
OFF delay time	0 to 5000 (0)	Stops output when the area judgment result is over the set time (unit: ms) and also out of the specified range.
ON delay time	0 to 5000 (0)	Starts output when the area judgment result is over the set time (unit: ms) and also within the specified range.
One-shot output	0, 1 (0)	When set to 1, output starts by one-shot and remains on during OFF delay time. When OFF delay time is set to "0", output remains on continuously. Change the bank to stop output.
Area range	0 to 3 (0)	Select the condition to start output. 0: Color 1 and 2 are within the area range. 1: Color 1 and 2 are out of the area range. 2: Color 1 or 2 is within the area range. 3: Color 1 or 2 is out of the area range.

Function	Setting range (initial value)	Description
Resolution & Capture area	0 to 2 (0)	Select the number of pixels and capture area taken out from the image sensor. 0: High resolution (208×236) 1: High speed (104×236) 2: Narrow area (208×236, x2 zoom)
Screen size	0 to 3 (0)	Select the screen size taken out from the image sensor. 0: 208×236 1: 188×236 2: 112×236 3: 84×236
Shutter time	0 to 742 (100)	Select the shutter time (unit: ms). You cannot select the value larger than the image transfer time of the image sensor.
Sort bank number	0 to 14 (0)	Select the sort bank number. 0: Sorting Off 1 to 14: Sorts the bank numbers of set value. 1. (0) Current bank=5, Set value=2. Checks the colors and areas of the bank number 5, 6, and 7, and outputs the bank number that satisfies the output condition. DARK CMP, BKG. CAN, OUTSIDE, SHUTTER, TEMP.COMP are processed using the current bank values. Set the same values in all the sort banks before teaching. Output reference chart→Page 9 in this manual

Function	Setting range (initial value)	Description
Synchronization input	0 to 4 (4)	Selects the synchronization input setting. When set to 0~3, the bank selection 3 input is assigned to the synchronization input. The capturing conditions are as follows. 0: While the synchronization input is Off 1: When the synchronization input is switched from On to Off 2: While the synchronization input is On 3: When the synchronization input is switched from Off to On 4: Captures images continuously
Teaching enable	0 to 2 (0)	Enables/disables teaching, masking, brightness irregularity correction, and PC communication. 0: Enables all of the functions. 1: Enables teaching (TEACH, TEACH2) only. 2: Disables all of the functions.
Temperature compensation level	0 to 50 (15)	Selects the temperature compensation level of the image sensor. Since the color set by teaching at low temperature may change at high temperature, this function compensates the color difference. This function is "off" when set at "0".
Color detection window	0, 1 (0)	Specifies the position to display the color to teach when the external teaching is used. 0: Displays the color detection window in THRU screen (excluding the system menu).

## 4 Reading Sort Number

**Judgment Output and AUX output**  
Three(3) sort numbers are read out using two(2) types of output. The outputs appear as follows starting the current number.

Bank No.	Control output	AUX output
1	ON	OFF
2	OFF	ON

The above combinations are repeated in order (for the subsequent bank numbers).

## Communication function

RS232C communication is available by connecting the optional cable (CVS-2C) to the external connector (→CVS manual page 7). This communication function allows reading up to fifteen(15) sort numbers. ("Z55" is returned when sorting is not activated).

**Bank number readout protocol**

Command	Data	Checksum	Received by CVS2
53H	49H	63H	

Transmitted by CVS2: Response 06H, Sort number (Lower, Upper), Checksum 06H, 0 to 14, 255, 0, 255, SUM

SUM = one's complement of (06H + Sort number Lower + Upper)

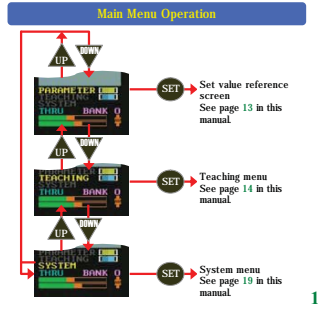
**Received data error or checksum error**

Command	Data (Lower)	Data (Upper)	Checksum
15H	00H	00H	E4H

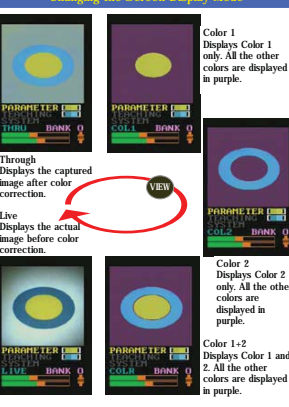
Note: The response may delay by 3 seconds or more during external teaching.

## 5 Operation and Display

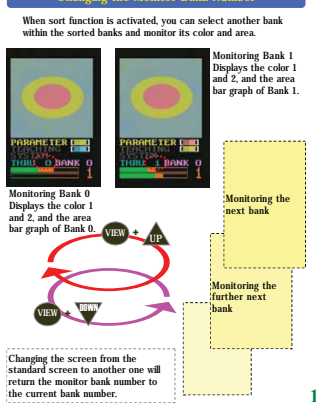
The settings and procedures are basically common with CVS2 pattern matching sensor functions. Refer to CVS2 manual for operation examples.  
Changing set value → CVS2 manual page 48  
Color detection by teaching → CVS2 manual page 23  
Masking → CVS2 manual page 29  
Brightness irregularity correction → CVS2 manual page 46



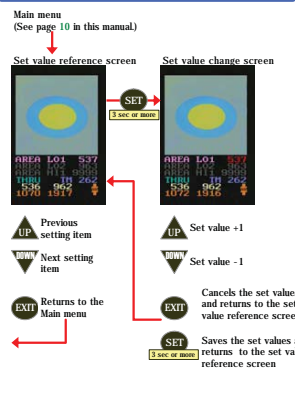
## Changing the Screen Display Mode



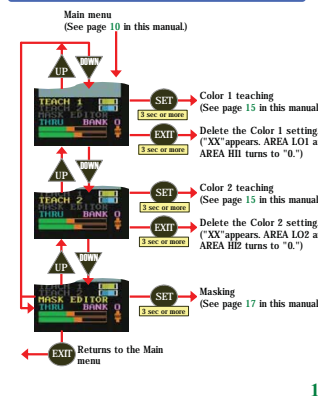
## Changing the Monitor Bank Number



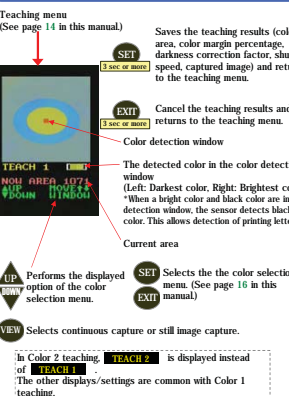
## Set Value Reference/Change Screen



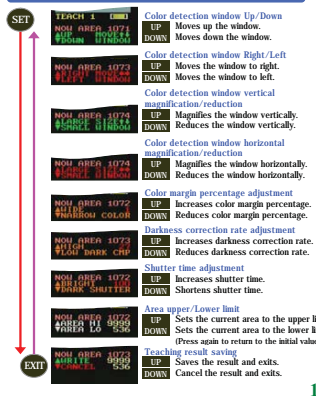
## Teaching Menu



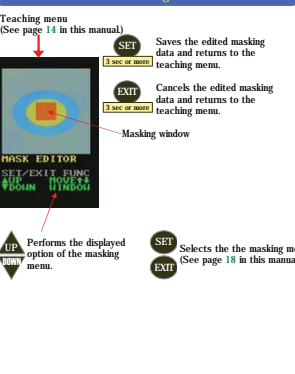
## Color 1/Color2 Teaching



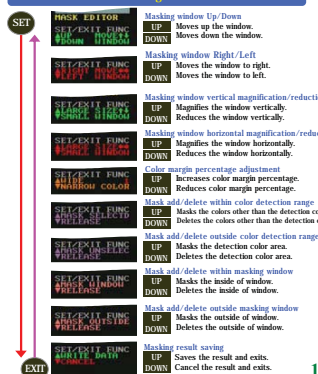
## Color Selection Menu



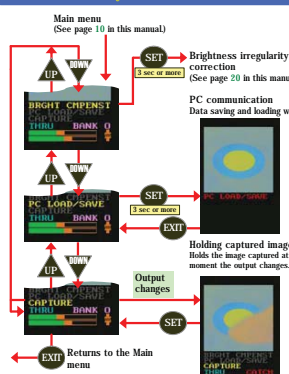
## Masking



## Masking Menu



## System Menu



## Brightness Irregularity Correction

