

WAT-910HX/J

OSD USER MANUAL

Rev. 0. 90

Watec Co., Ltd

June 20, 2012

Change History

Rev. No.	Date	Changes	Remarks
0.90	2012.06.20	QS edition	Provisional edition

【Contents】

<u>1.</u>	Introduction	4
<u>2.</u>	OSD MENU OPERATION	5
<u>3</u>	SETUP MENU (TOP MENU)	8
<u>3.1</u>	EXPOSURE MENU	8
<u>3.1.1</u>	SHUTTER	9
<u>3.1.2</u>	SENS UP	10
<u>3.1.3</u>	AGC	11
<u>3.1.4</u>	BLC	12
<u>3.2</u>	3DNR MENU	14
<u>3.3</u>	WDR MENU	15
<u>3.4</u>	ADJUST MENU	16
<u>3.4.1</u>	SHARPNESS	16
<u>3.4.2</u>	GAMMA	17
<u>3.4.3</u>	SETUP-LEVEL	17
<u>3.5</u>	FUNCTIONS MENU	18
<u>3.5.1</u>	EFFECT	18
<u>3.5.1.1</u>	FREEZE	18
<u>3.5.1.2</u>	FLIP	18
<u>3.5.1.3</u>	ZOOM	19
<u>3.5.1.4</u>	NEG. IMAGE	20
<u>3.5.2</u>	MOTION	20
<u>3.5.3</u>	BPC	22
<u>3.6</u>	RESET MENU	23
<u>3.7</u>	EXIT MENU	23
<u>4.</u>	OSD Menu Tree	24

1. Introduction

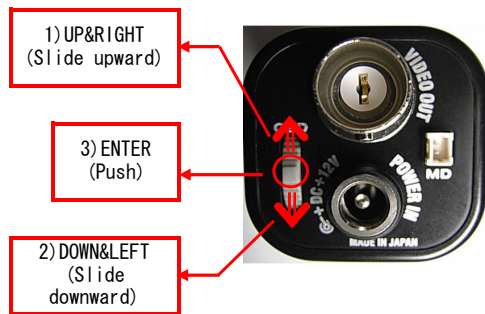
- The WAT-910HX/J user manual describes the functions and the adjustment method using the On Screen Display (OSD).
- When the settings of the WAT-910HX/J is changed according to the WAT-910HX/J user manual, check to see that the operation and the effects of the changes made to the camera are acceptable.
- The WAT-910HX/J user manual is subject to change by design and the specifications of the product without notice.
- The copyright of the WAT-910HX/J user manual shall belong to Watec Co, Ltd. Copying in whole or in part without the authorization of the holders permission is prohibited.

2. OSD MENU OPERATION

The functions and parameter settings of WAT-910HX/J can be changed by OSD (On Screen Display).

When controlling OSD, use Jog Switch (3 keys).

See the picture below for the detailed function of 3 keys.



Jog Switch (3 keys)

When using 1)UP&RIGHT/2)DOWN&LEFT, slide 1)UP&RIGHT/2)DOWN&LEFT button upward/downward.

1)UP&RIGHT : There are mainly two functions. The one is to move the cursor upward on OSD Menu, and the other is to change and select the functions on each list (defining as the rightward direction).

2)DOWN&LEFT : There are mainly two functions. The one is to move the cursor downward on OSD Menu, and the other is to change and select the functions on each list (defining as the leftward direction).

3)ENTER : Mainly to execute the selected list and function on OSD Menu.

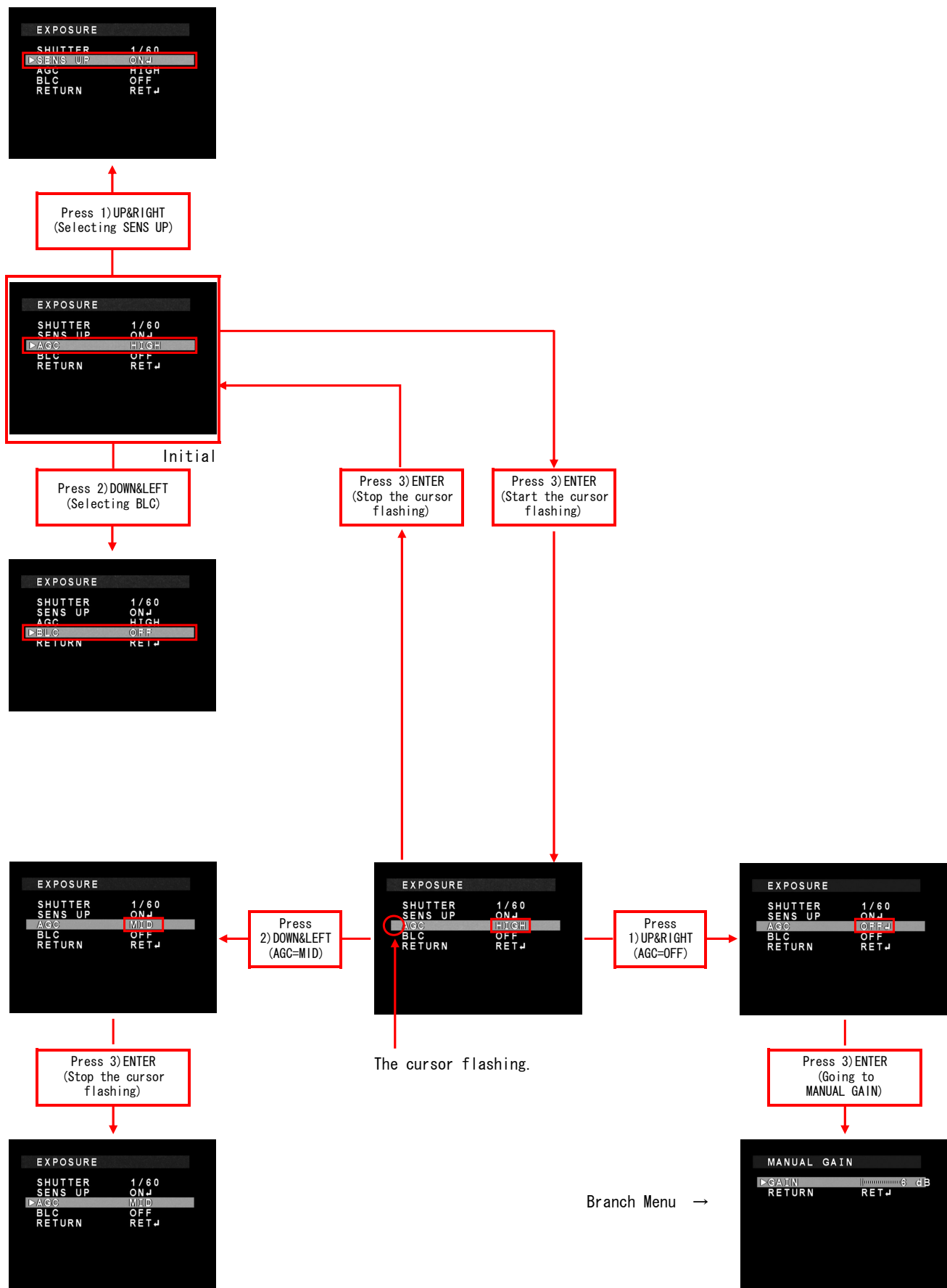
Typically, 1)UP&RIGHT/2)DOWN&LEFT function work as up-and-down movement. Other than that, when pressing 3)ENTER on one of the lists, the cursor starts blinking, and then, the buttons' function changes into right-and-left movement.

When pressing 3)ENTER again under the above condition, the cursor stops blinking. Then, the buttons' function returns to work as up-and-down movement.

The symbol "↔" will be on some lists on OSD Menu if possibly changing and selecting the details by pressing 3)ENTER.

Please refer to the following model operation pictures on the basic Jog Switch usage.

AGC is highlighted in the second picture from the top, and they explain what happens when 3 keys are controlled.



From the next page, each button is written as follows.

1)UP&RIGHT is written as "UP key", and 2)DOWN&LEFT is written as "DOWN key".

(When the keys are used for up-and-down movement.)

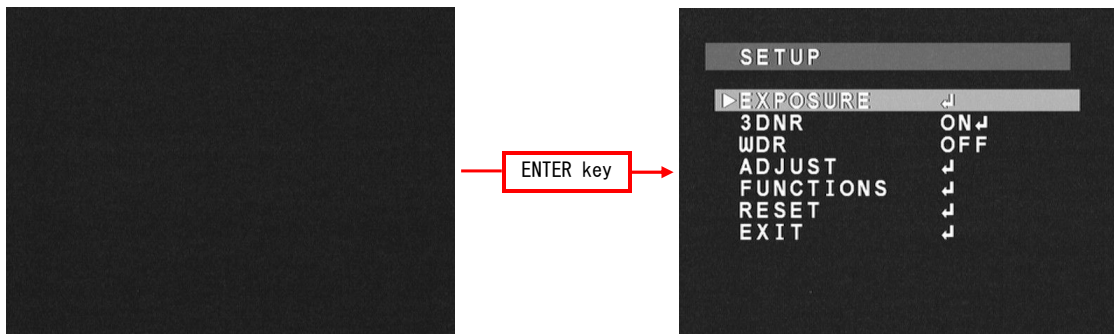
In addition, 2)DOWN&LEFT is written as "LEFT key", and 1)UP&RIGHT is written as "RIGHT key".

(When the keys are used for right-and-left movement.)

3)ENTER is written as "ENTER key".

3. SETUP MENU (TOP MENU)

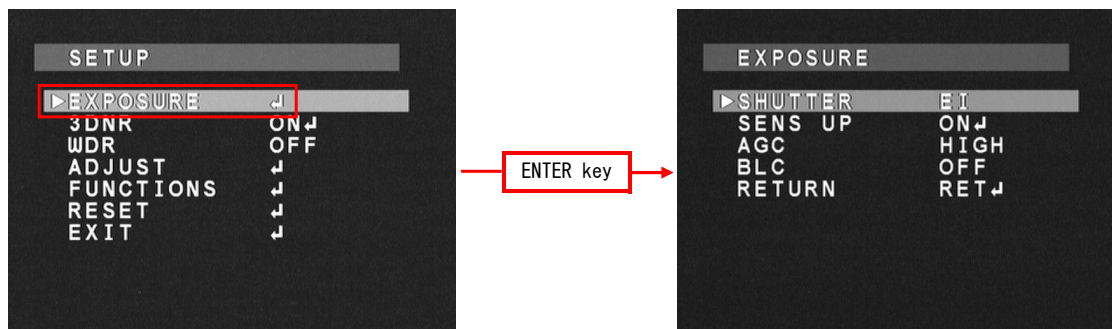
When pressing ENTER key, SETUP menu shows up on the screen.



3.1 EXPOSURE MENU

When adjusting EXPOSURE settings, move the cursor to EXPOSURE and press ENTER key.

Press UP/DOWN button to choose one of the items in EXPOSURE, and change it with LEFT/RIGHT key.



3.1.1 SHUTTER

Select Shutter Speed(or Shutter Mode) with LEFT/RIGHT key.

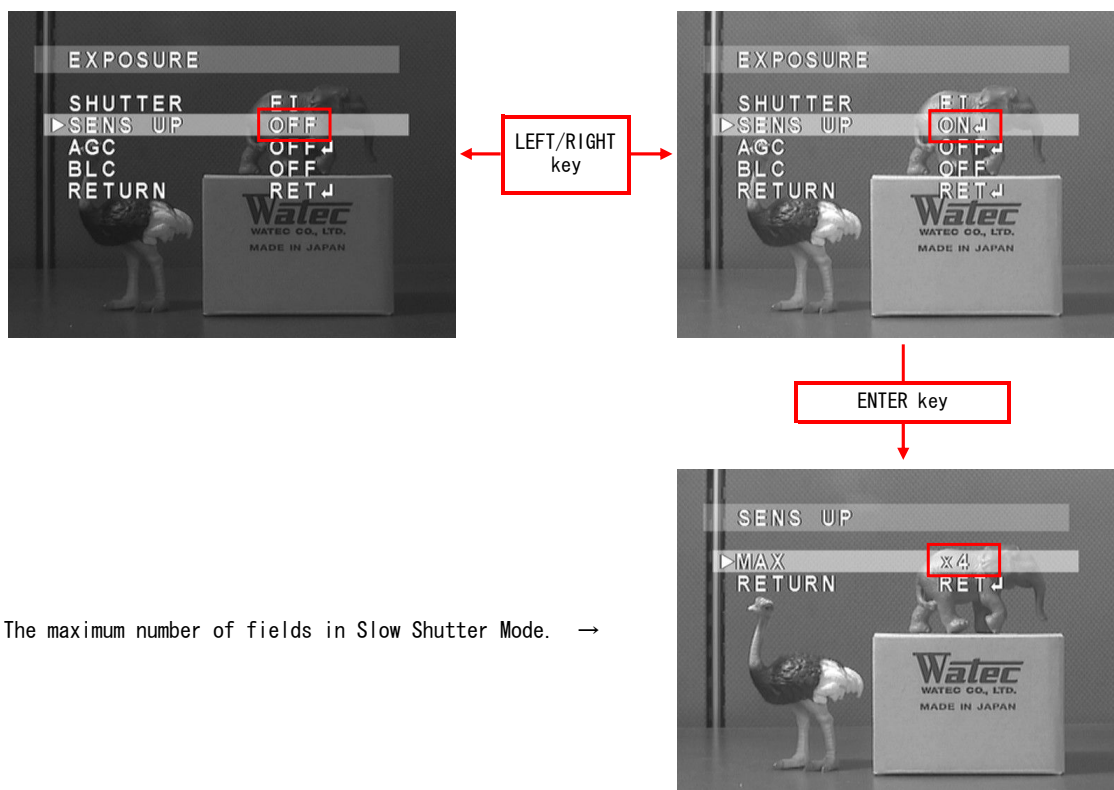
The default setting is EI.

Shutter Speed	Shutter Mode	Details
x256	Slow speed shutter (fixed shutter speed)	The Slow speed shutter is defined as the selected Shutter Speed, which is the same figure as the number of fields. The exposure time of the Slow speed shutter is calculated with (the selected number of fields) * (1/60(sec):EIA or 1/50(sec):CCIR)
x128		
x64		
x32		
x16		
x8		
x4		
x2		
EI	Electronic iris	It is the function which adjusts the shutter speed from the slow shutter speed (selected with the SENS UP menu) to 1/100000(sec), which depends on brightness of a camera object, and maintains a proper exposure state.
1/60(1/50)	High speed shutter (fixed shutter speed)	The High speed shutter is defined as the selected Shutter Speed. FL is the abbreviation of FLICKER-LESS(1/100(sec):EIA or 1/120(sec):CCIR). Note. Only when selecting 1/60(1/50) of Shutter speed, the EI range is from the selected slow shutter speed to 1/60(1/50), and the EI can maintain a proper exposure of a camera object.
FL		
1/250		
1/500		
1/1000		
1/2000		
1/5000		
1/10000		
1/100000		

3.1.2 SENS UP

When selecting EI(electronic iris) or 1/60(1/50) in SHUTTER, Slow speed shutter can be used to adjust exposure. Use LEFT/RIGHT key to select ON/OFF. When pressing ENTER key after selecting ON, the maximum number of fields under the SENS UP operation can be selected.

The default setting is x4.



The maximum number of fields in Slow Shutter Mode. →

Shutter Mode	SENS UP	Details
EI	OFF	Electronic Iris mode. (from 1/60(1/50) (sec) to 1/100000 (sec))
	ON	Electronic Iris with slow shutter speed mode. (from SENS UP(number of fields) to 1/100000(sec)) The slow shutter speed can be selected from: x2/x4/x8/x16/x32/ x64/x128/x256. Use LEFT/RIGHT key to set the value.
EIA:1/60 CCIR:1/50	OFF	Fixed shutter speed mode(1/60 (1/50) (sec))
	ON	Electronic Iris using only slow shutter speed mode. (from SENS UP(number of fields) to 1/60(1/50) (sec)) The slow shutter speed can be selected from: x2/x4/x8/x16/x32/ x64/x128/x256. Use LEFT/RIGHT key to set the value.
(other)	OFF	Fixed shutter speed mode. (selected in SHUTTER)

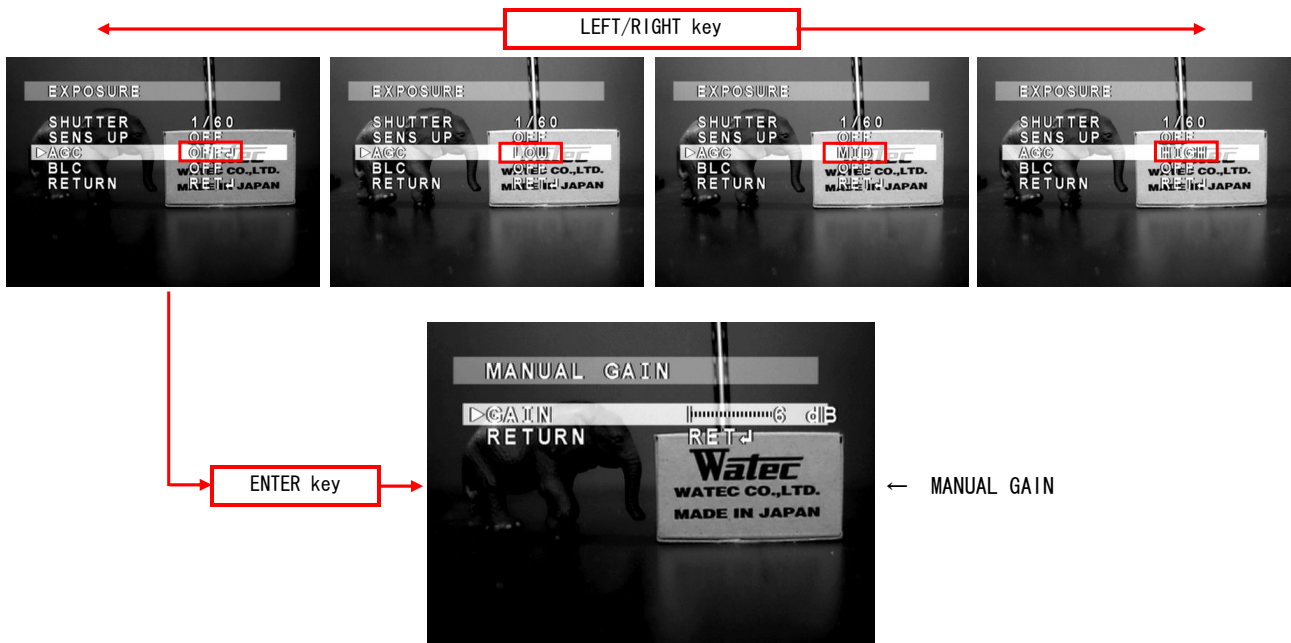
3.1.3 AGC

AGC Value can be changed.

Use LEFT/RIGHT key to setup AGC Value. During selecting OFF, when pressing ENTER key, SUB MENU for MANUAL GAIN Settings shows up.

The default setting is HIGH. When selecting OFF, AGC is fixed to 6dB as default.

AGC Mode	(Sub Menu)	Details
OFF	GAIN	The fixed AGC level can be set. It ranges from approx. 6 to 41(dB) Use LEFT/RIGHT key to change the AGC level.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.
LOW	—	Gain range : approx. (min.)6 to (max.)30(dB)
MID	—	Gain range : approx. (min.)6 to (max.)34.5(dB)
HIGH	—	Gain range : approx. (min.)6 to (max.)41(dB)



3.1.4 BLC

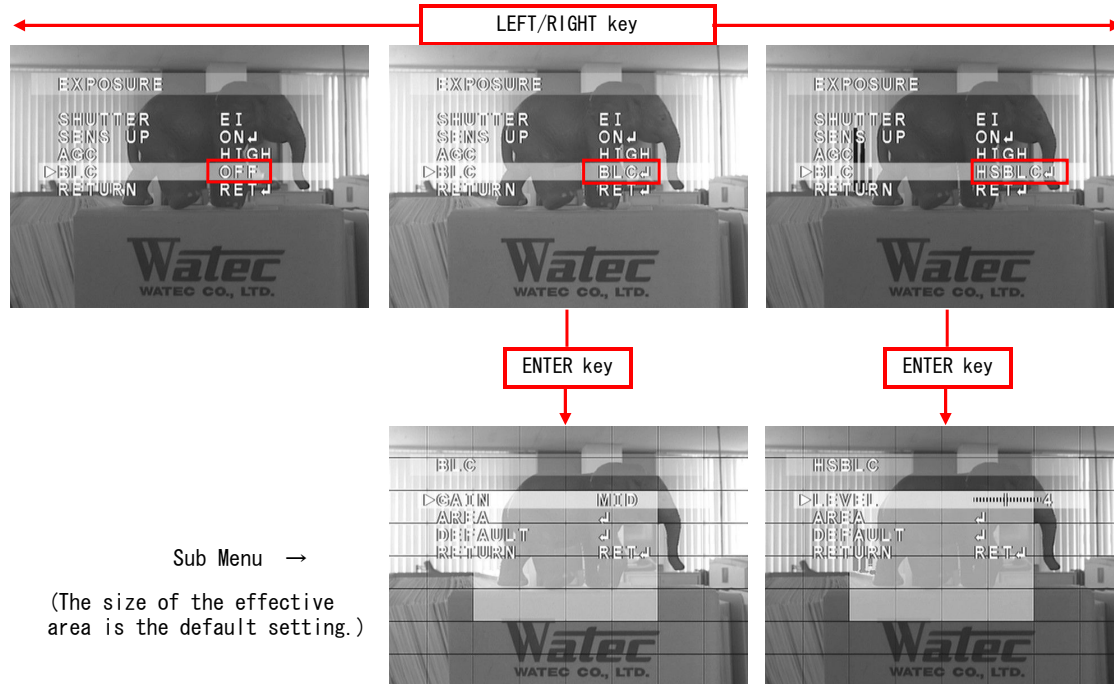
Select Backlight operation on the menu. Traditional Backlight Compensation(BLC) mode and High Light Suppress Backlight(HSBLC) mode can be selected.

Use LEFT/RIGHT key to select OFF/BLC/HSBLC. When BLC/HSBLC is selected, press ENTER to show Sub Menu.

The default setting of BLC is OFF. When selecting BLC, the default GAIN is MID. When selecting HSBLC, the default level of HSBLC is 4. The area default of BLC HSBLC is as follows.

Note. BLC/HSBLC does not work under one of the conditions below.

SHUTTER is fixed shutter speed mode / SENS UP is OFF / AGC is OFF

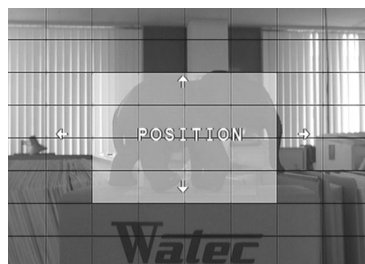


BLC Mode	(Sub Menu)	Details
OFF	—	The BLC function is OFF.
BLC	GAIN	Changing the level of BLC effect with LEFT/RIGHT button. LOW / MID / HIGH Use LEFT/RIGHT key to select GAIN.
	AREA	Calling the area window for selecting the BLC area when pressing ENTER key ² .
	DEFAULT	Configurating the setting by default when pressing Enter. If selecting DEFAULT, changed GAIN/AREA will return to the initial setting.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.
HSBLC	LEVEL	Defining the brightness level of the highlighting area ¹ to be covered by a mask. 0(only high brightness area) – 8(high and low brightness area) Use LEFT/RIGHT key to change the level.
	AREA	Calling the area window for selecting the BLC area when pressing ENTER key ² .
	DEFAULT	Configurating the setting by default when pressing ENTER key. If selecting DEFAULT, changed LEVEL/AREA will return to the initial setting.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.

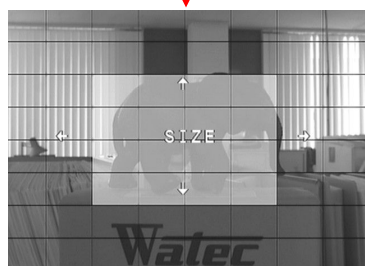
1 How HSBLC effects on image when changing LEVEL



2 How to set up the BLC/HSBLC area



ENTER key



ENTER key



When pressing ENTER key on RET,
returning to BLC/HSBLC Menu.

(1) POSITION Setting

The origin of the effective BLC/HSBLC area can be set on this Setting.

The origin of the effective BLC/HSBLC area can be moved by pressing UP&RIGHT/DOWN&LEFT key in horizontal way.

After pressing ENTER key, adjusting the origin position in vertical way with the same way as horizontal way adjustment. When pressing ENTER key after deciding the position, calling SIZE Setting.

When pressing ENTER key on
AGAIN, returning to POSITION
Setting.

(2) SIZE Setting

The size of the effective BLC/HSBLC area can be adjusted on this setting.

Use UP&RIGHT/DOWN&LEFT key to adjust the horizontal size. After the adjustment, press ENTER key. Use the same key to adjust the vertical size.

When finishing the size adjustment, press ENTER key.

(3) RET/AGAIN Setting

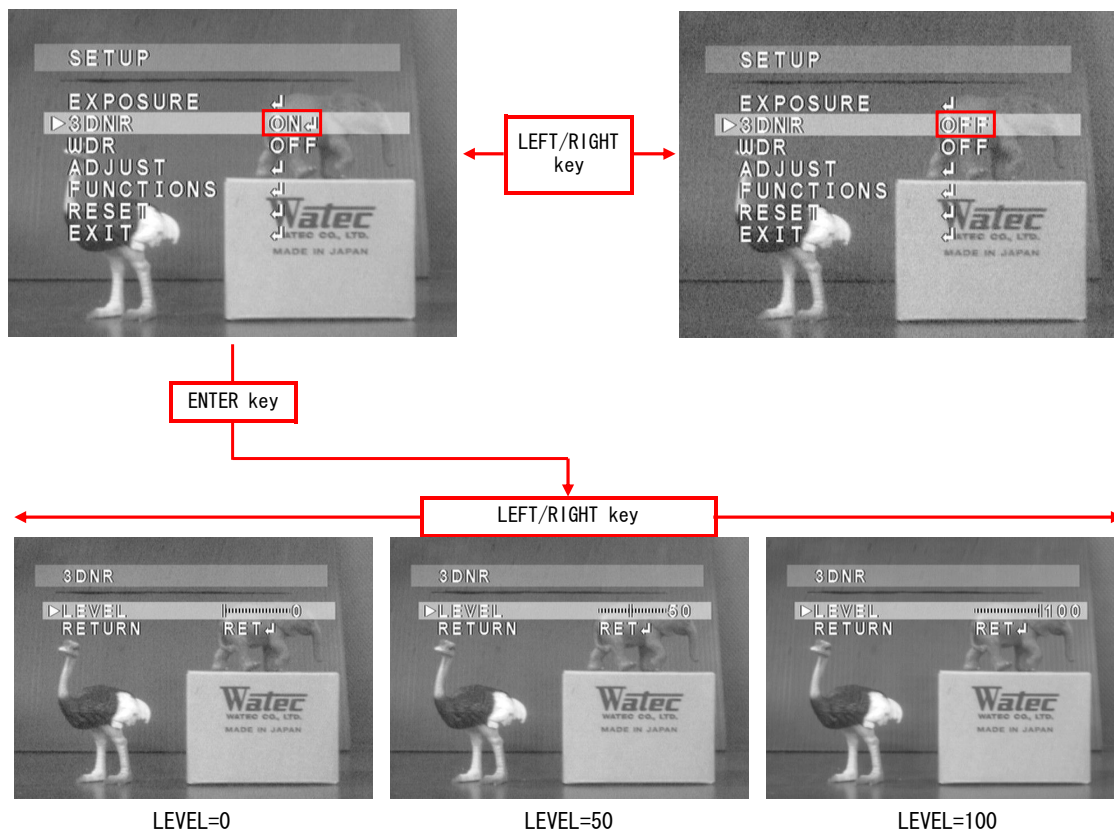
Use UP&RIGHT/DOWN&LEFT key to select RET/AGAIN.

3.2 3DNR MENU

Three-dimensional noise reduction(3DNR) can be set on this menu.

Use LEFT/RIGHT key to select ON/OFF. When ON is selected, press ENTER key to show Sub Menu.

The default setting is ON, and the default level is 50.



3DNR Mode	(Sub Menu)	Details
OFF	—	3DNR is OFF.
ON	LEVEL	Level of the 3DNR. From 0(weak) to 100(strong) Use LEFT/RIGHT key to change the level.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.

Note. Setting the larger value of the 3DNR LEVEL means that random noise is reduced more effectively, but it becomes easy to cause losing moving resolution and/or emphasizing fixed pattern noise.

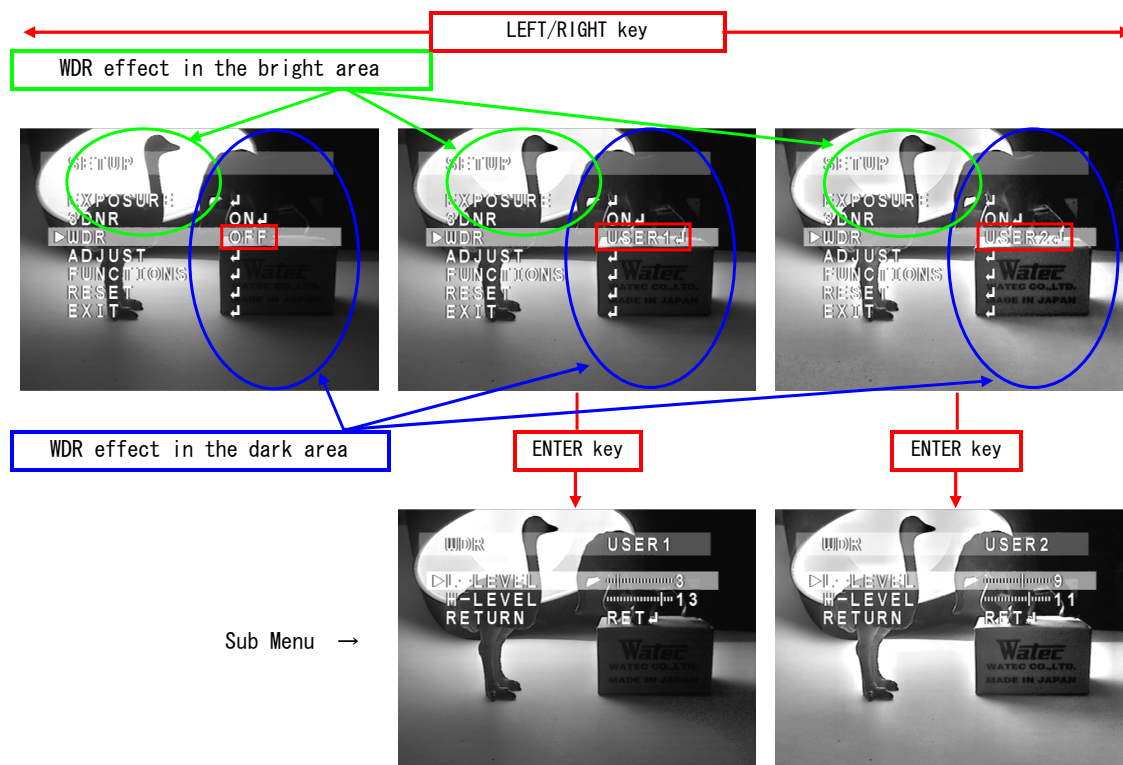
3.3 WDR MENU

The dynamic range of dark and/or bright part is expanded by digital processing.

Select WDR function OFF/USER1/USER2 with LEFT/RIGHT key.

When USER1/USER2 is selected, press ENTER key to show Sub Menu.

The default setting is OFF. The default setting of USER1/USER2 for dark part is 3(USRE1)/9(USRE2). The default setting for bright part is 13(USER1)/11(USRE2).



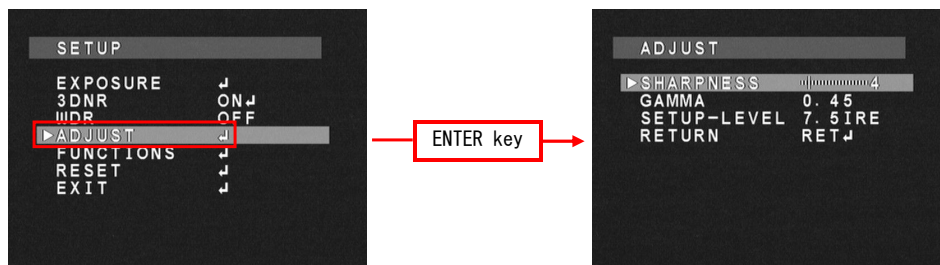
WDR Mode	(Sub Menu)	Details
OFF	—	Dynamic range expanding function is OFF.
USER1 / USER2	L-LEVEL	(L-LEVEL) Expanding level of the dark part. From 0(weak) to 15(strong) (more large value means that more effective) Use LEFT/RIGHT key to change the level.
	H-LEVEL	(H-LEVEL) Expanding level of the bright part. From 0(weak) to 15(strong) (more small value means that more effective) Use LEFT/RIGHT key to change the level.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.

Note. There is no difference with WDR function between USER1 and USER2.

3.4 ADJUST MENU

This setting can adjust the image quality.

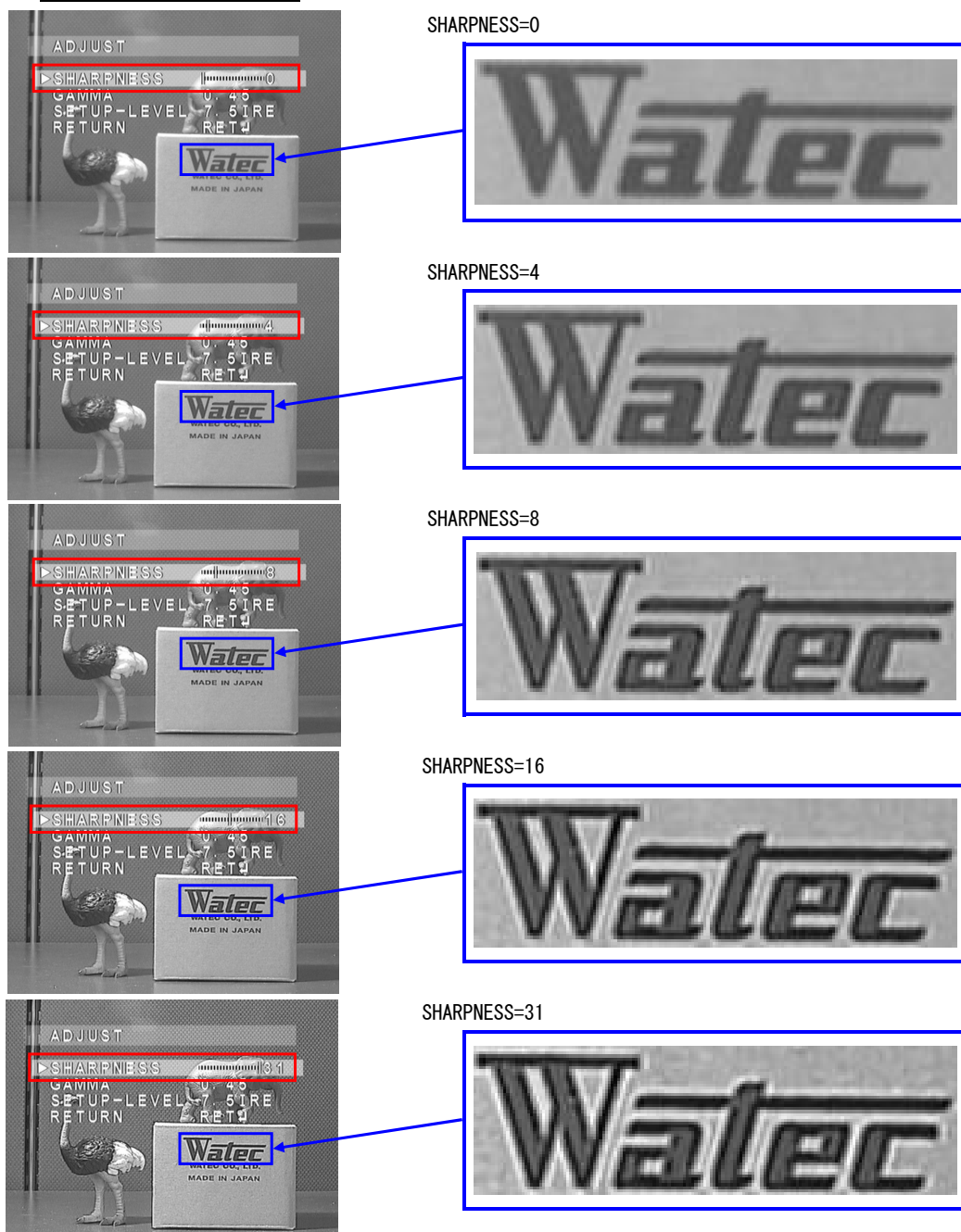
Select ADJUST and press ENTER key to show Adjust menu. Use UP/DOWN key to select one of the lists on the menu, and use LEFT/RIGHT key to adjust.



3.4.1 SHARPNESS

By using LEFT/RIGHT buttons, SHARPNESS(edge enhancement) adjustment is available.

The default setting is 4.

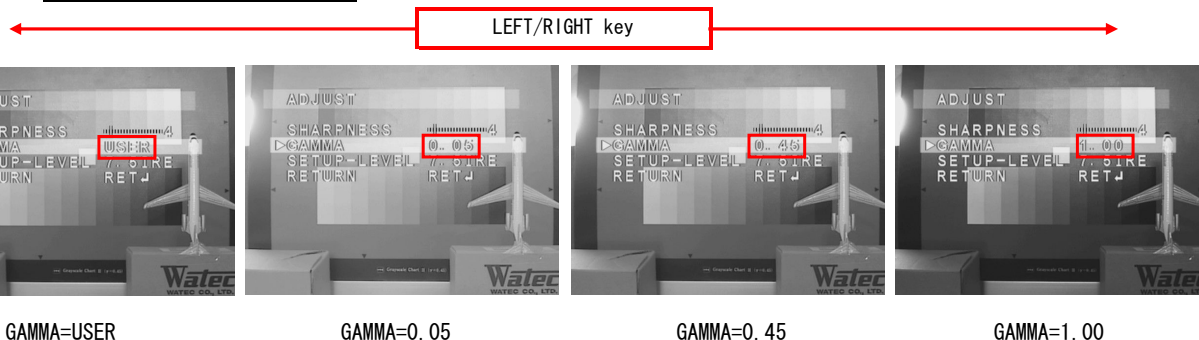


3.4.2 GAMMA

GAMMA characteristic is adjustable from USER³, 0.05 to 1.0 (0.05 step).

Use LEFT/RIGHT key to adjust GAMMA.

The default setting is 0.45.



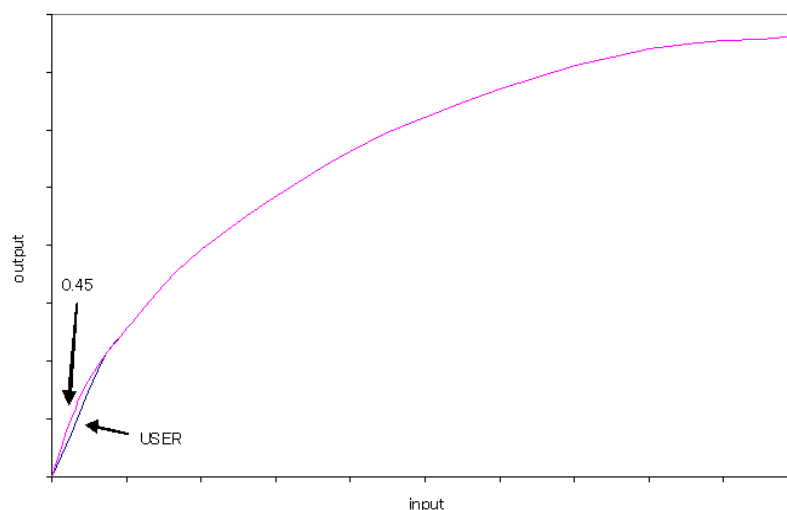
Please select a proper gamma value to match a monitor's characteristics. Generally, a dark part in a video frame becomes bright when gamma value is small. But it tends to occur "white out" easily and noise will be increase.

3 The characteristic of USER mode

USER mode is a gamma curve of 0.45 which has improved S/N in a dark part.

(However, a VIDEO output of USER mode in a dark part becomes lower than in 0.45.)

The figure of gamma characteristics is as follows.

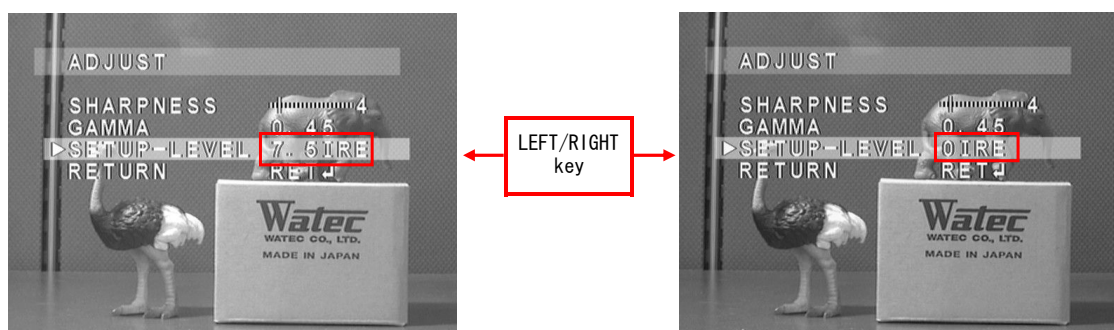


3.4.3 SETUP-LEVEL

Only 0IRE/7.5IRE can be set.

Use LEFT/RIGHT key to set the level.

The default setting is 7.5IRE.



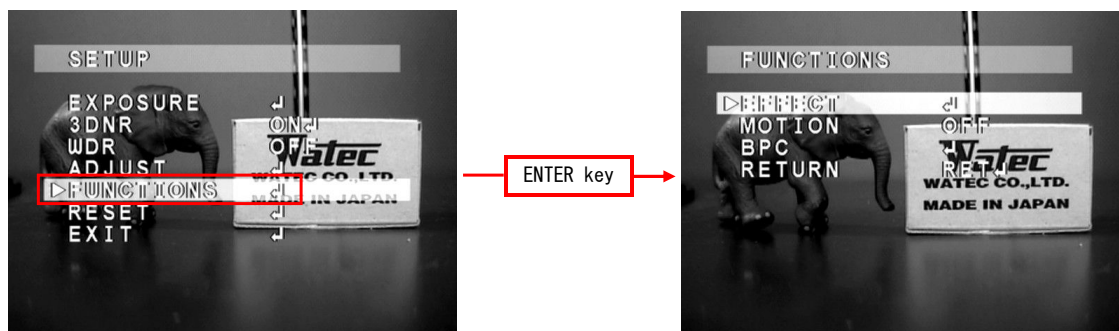
Note. SETUP-LEVEL is available to EIA only. There is no menu available to CCIR.

3.5 FUNCTIONS MENU

The digital image adjustment can be set.

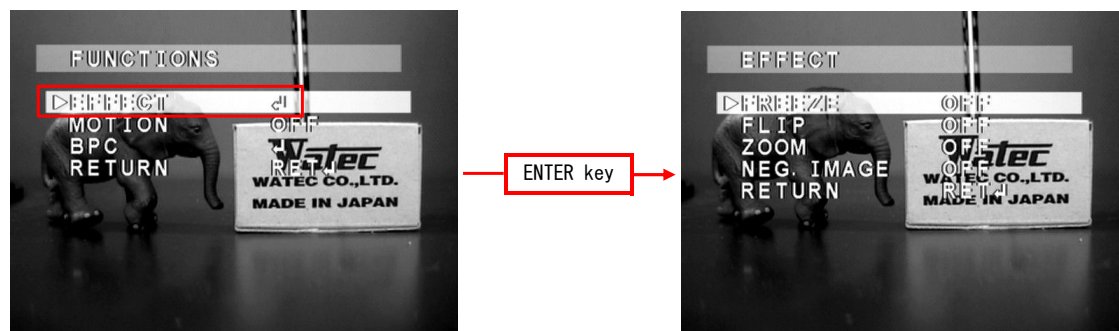
When pressing ENTER key on FUNCTIONS, FUNCTIONS menu shows up. Use UP/DOWN key to select one of the lists on the menu and press ENTER key. After that, Sub menu related to digital image adjustment shows up.

In selecting MOTION, use LEFT/RIGHT key to select ON/OFF.



3.5.1 EFFECT

When pressing ENTER key on EFFECT, the list of digital image adjustment shows up.



3.5.1.1 FREEZE

Select ON/OFF state by using LEFT/RIGHT buttons.

When turn ON the FREEZE function, video output signal is repeat the same frame picture.

The default setting is OFF.

3.5.1.2 FLIP

OFF(normal image), H-FLIP(horizontal flip), V-FLIP(vertical flip)

and HV-FLIP(horizontal and vertical Flip) are available.

Use LEFT/RIGHT key to select one of the effects. The default setting is OFF.



- | | | | |
|--------------|---|---------------|------------------------------------|
| (1) OFF | (2) H-FLIP | (3) V-FLIP | (4) HV-FLIP |
| Normal Image | Horizontal Flip | Vertical Flip | Horizontal and Vertical Flip |
| | For example, a back monitor on automobiles is a possible application. | | Rotating the image by 180 degrees. |

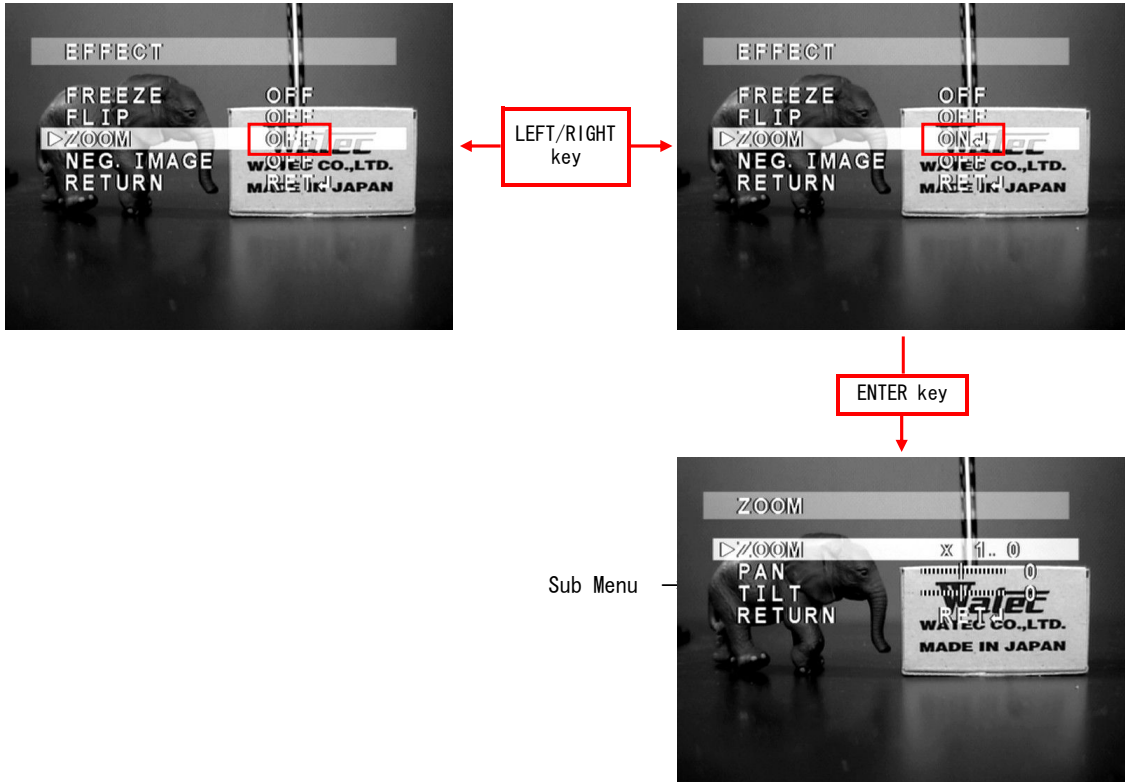
3.5.1.3 ZOOM

Digital zoom function is available.

Use LEFT/RIGHT key to select ON/OFF. When pressing ENTER key on ON, Sub Menu shows up.

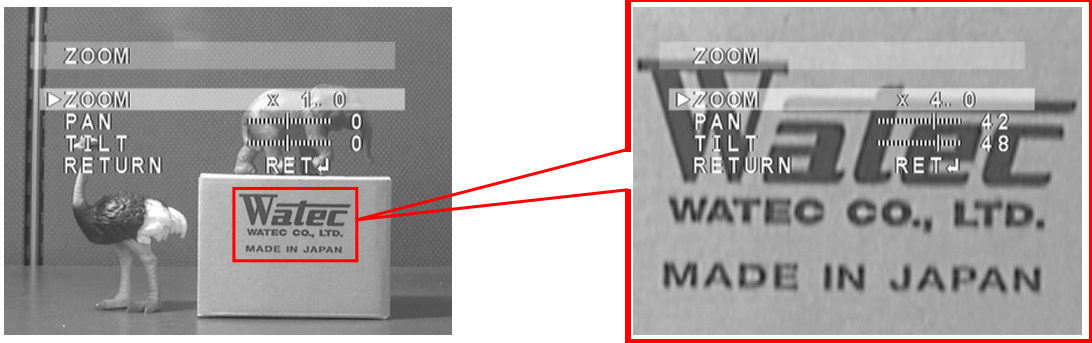
The default setting is OFF.

When selecting ON, x1.0 is the default value of the magnification, and 0 is the default value of PAN and TILT.



ZOOM	(SUB MENU)	Details
OFF	—	Normal image(digital zoom OFF)
ON	ZOOM	Set up the magnification of digital zoom. The magnification ranges from x1.0 to x32.0. By using LEFT/RIGHT buttons, it can be set to 32 times magnification at most.
	PAN	Horizontal PAN position is specified (invalid at the time of magnification 1.0 specification). From -100(LEFT) to 100(RIGHT) (0 is center position) Use LEFT/RIGHT key to set the imaging position.
	TILT	Vertical TILT position is specified(invalid at the time of magnification 1.0 specification). From -100(LEFT) to 100(RIGHT) (0 is center position) Use LEFT/RIGHT key to set the imaging position.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.

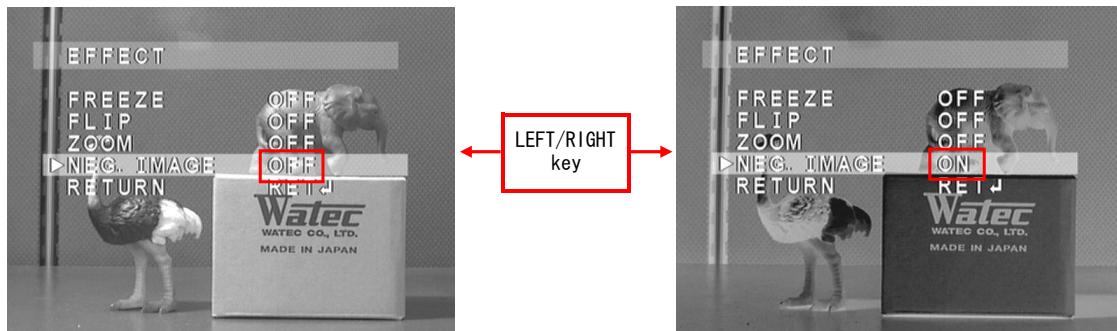
Example



3.5.1.4 NEG. IMAGE

Select Negative image (NEG. IMAGE) function ON/OFF with LEFT/RIGHT key.

The default setting is OFF.

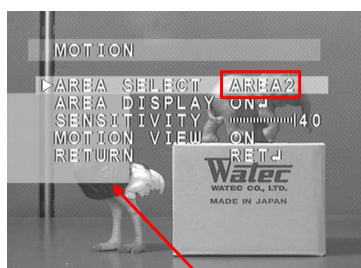
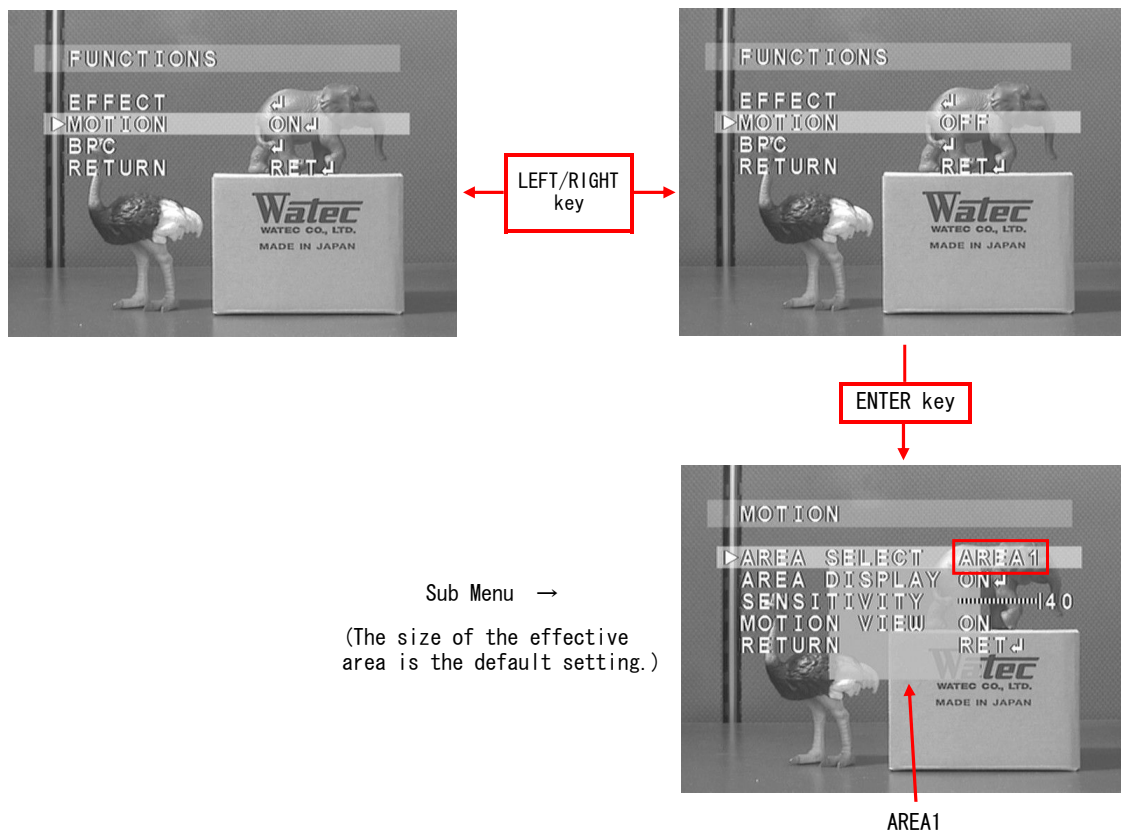


3.5.2 MOTION

Motion detection can be set.

Use LEFT/RIGHT key to select ON/OFF. When pressing ENTER key on ON, Sub Menu shows up.

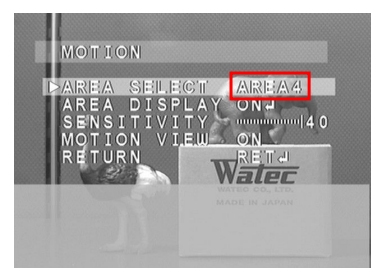
The default setting is OFF. When selecting ON, AREA SELECT is AREA1. AREA DISPLAY is OFF – only AREA1 is ON. SENSITIVITY is 40, as default. The other areas can be selected as below.



AREA2



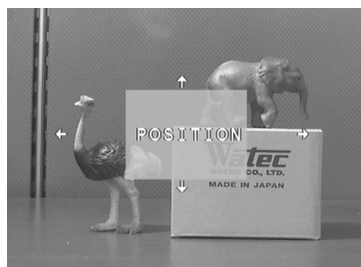
AREA3



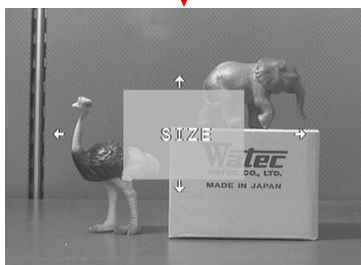
AREA4

MOTION	(Sub Menu)	Details
OFF	—	Motion detection is OFF.
ON	AREA SELECT	The present detection area can be selected. Select the area from Area1 to Area4. Use LEFT/RIGHT key to select the area.
	AREA DISPLAY	The area presently selected can be shown with ON, or no shown with OFF. Use LEFT/RIGHT key to select ON/OFF. When press ENTER key on ON, calling the area window for selecting the area ³ .
	SENSITIVITY	Detection sensitivity can be adjusted. It ranges from 0 to 40. Use LEFT/RIGHT key to set the sensitivity.
	MOTION VIEW	MOTION VIEW can be set. Use LEFT/RIGHT key to set ON/OFF.
	RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing ENTER key on END, OSD menu gets off and SETUP is finished.

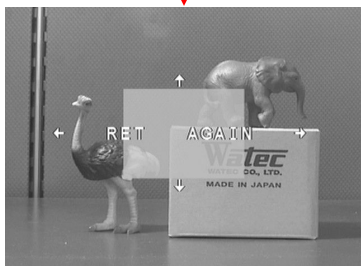
3: How to set the Motion Areas



ENTER key



ENTER key



When pressing ENTER key on RET, returning to BLC/HSBLC Menu.

(1) POSITION Setting

The position of the effective motion area can be set. Use UP&RIGHT/DOWN&LEFT key to set the horizontal position of one of the 4 detection areas. After that, press ENTER key to set the vertical position, which can be set as the same way when setting the horizontal position. After the setting, press ENTER key to call SIZE Setting.

When pressing ENTER key on AGAIN, returning to POSITION Setting.

(2) SIZE Setting

The size of the effective detection area can be adjusted. Use UP&RIGHT/DOWN&LEFT key to adjust the horizontal size. After the adjustment, press ENTER key. Use the same key to adjust the vertical size. When finishing the size adjustment, press ENTER key.

(3) RET/AGAIN Setting

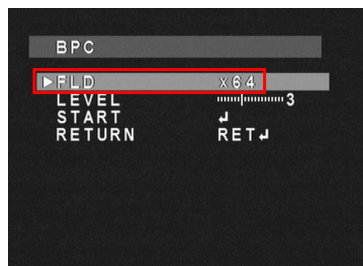
Use UP&RIGHT/DOWN&LEFT key to select RET/AGAIN.

3.5.3 BPC (Blemish Pixel Compensation)

It is defect pixel compensation function.

The default setting of the slow shutter speed is x64, and the default level is 3.

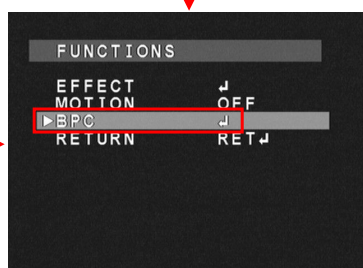
The procedure of compensation is as follows.



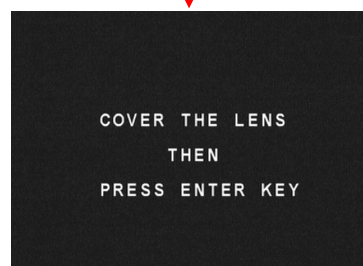
(1) Select BPC on FUNCTIONS menu and push ENTER key.

BPC menu will be displayed.

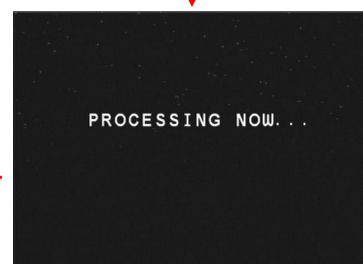
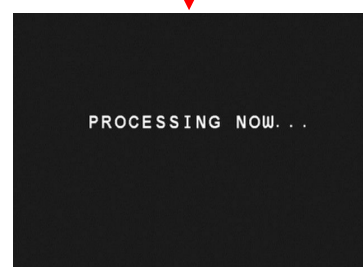
ENTER key



ENTER key



ENTER key



(2) Set conditions for detecting defect pixels.

BPC Mode	Details
FLD	Set slow shutter speed at the time of the defect pixel detecting(field unit). More small defect pixel is detectable with more many frames, but it may cause over the maximum number (64 points) of defect pixel compensation. The slow shutter speed can be selected from; x2/x4/x8/x16/x32/x64/x128/x256. *Recommending value: 64 fields Use LEFT/RIGHT key to select slow shutter speed.
LEVEL	Defect pixel detection is done with the level difference to circumference pixels at dark condition. The number of detected pixels are increases when LEVEL is small, but it may cause over the maximum number (64 points) of defect pixel compensation. It ranges from 1 to 6. *Recommending value: 3(when FLD is 64 fields) Use LEFT/RIGHT key to select slow shutter speed.
START	Press ENTER key to start detection and compensation.
RETURN	Use LEFT/RIGHT key to show RET/END. When pressing ENTER key on RET, returning to EXPOSURE Settings. When pressing Enter key on END, OSD menu gets off and SETUP is finished.

* Please be sure to cover a lens (or close Lens iris) before doing detection and compensation.

(3) Defect pixel detection and compensation start, and detection results are displayed.

← During detection display(PROCESSING NOW...)

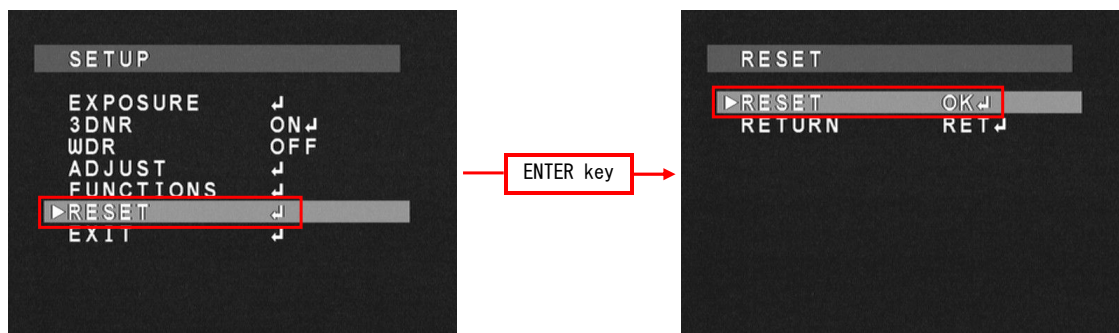
← Detection results

* Return to the BPC menu automatically after the end of detection and compensation.

3.6 RESET MENU

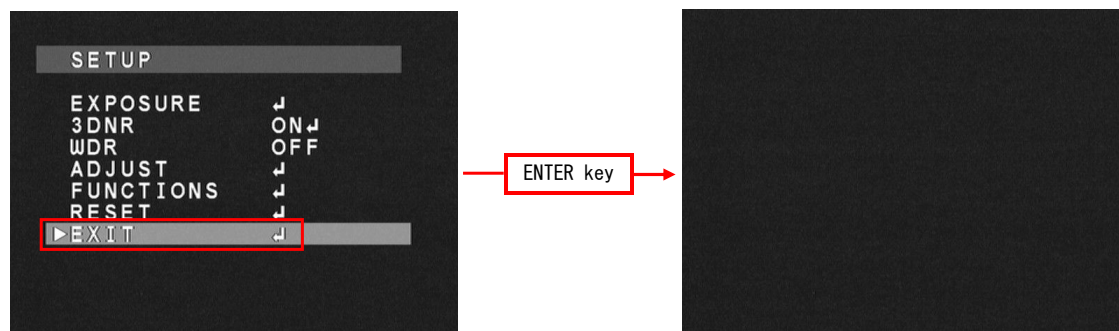
Select RESET and press ENTER key, and RESET menu is displayed.

When press ENTER key on OK in RESET menu, configuring the camera by the factory setting.



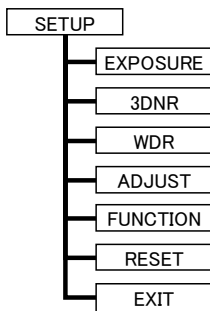
3.7 EXIT MENU

Select EXIT and press ENTER key, and OSD menu will be closed.

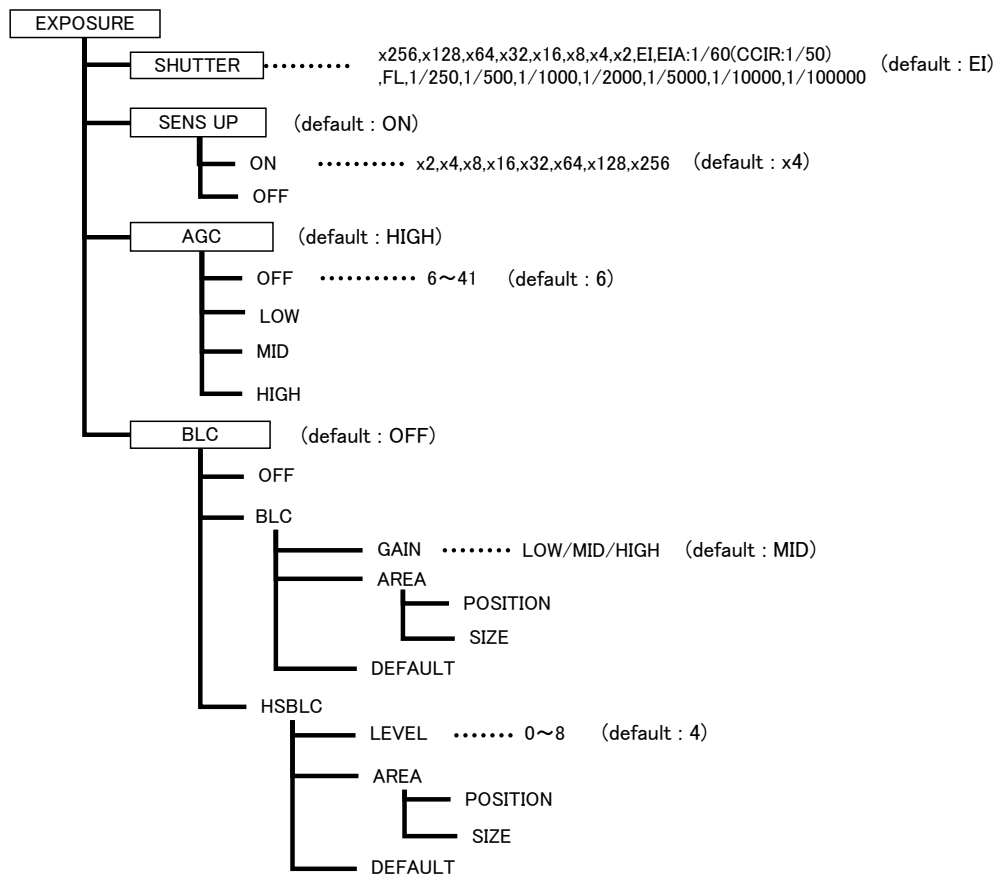


4. OSD Menu Tree

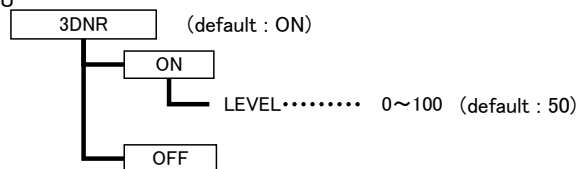
• SETUP MENU



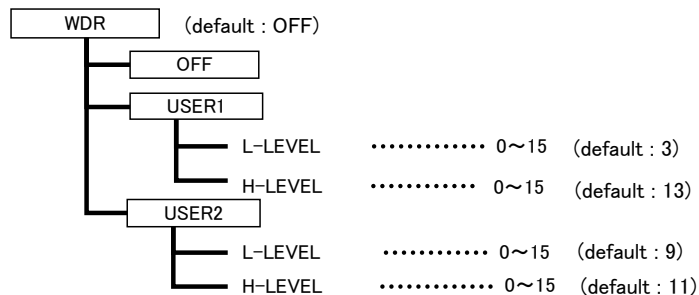
• EXPOSURE MENU



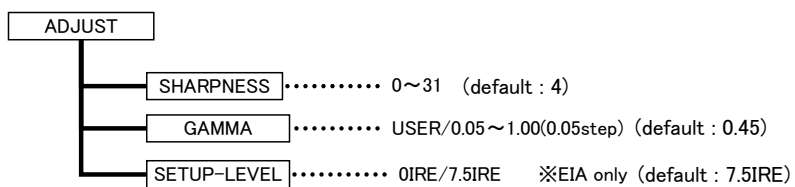
•3DNR MENU



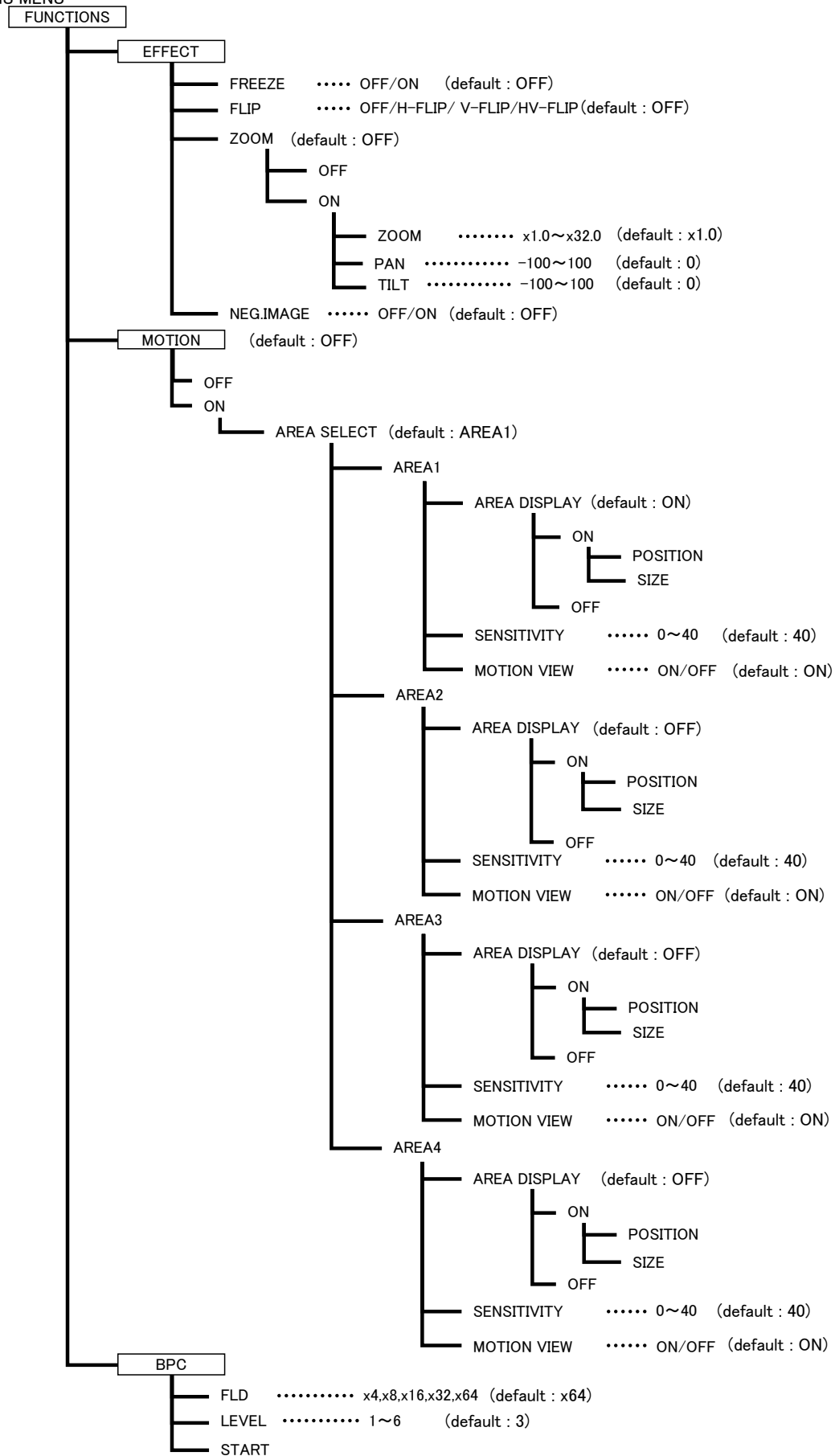
•WDR MENU



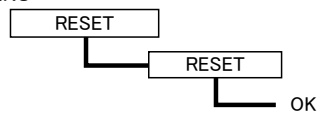
•ADJUST MENU



•FUNCTIONS MENU



•RESET MENU



•EXIT

