

WAT-910BD

OSD USER MANUAL

Rev. 1.00

Watec Co., Ltd.

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Change History

Rev. No.	Date	Changes	Remarks
1.00	2013.10.23		Initial Release

【Contents】

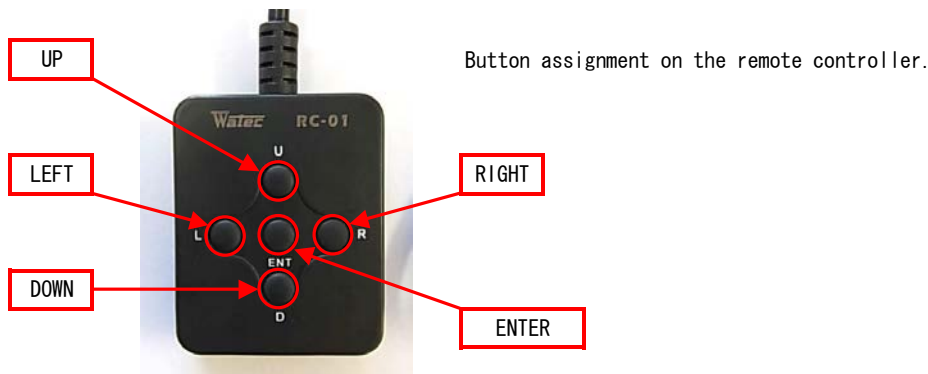
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1. OSD MENU OPERATION

OSD MENU can be operated with "5 buttons" on the RC-01.

The functions of "5 buttons" are explained by the following picture.

1-1. RC-01(5key remort controller)



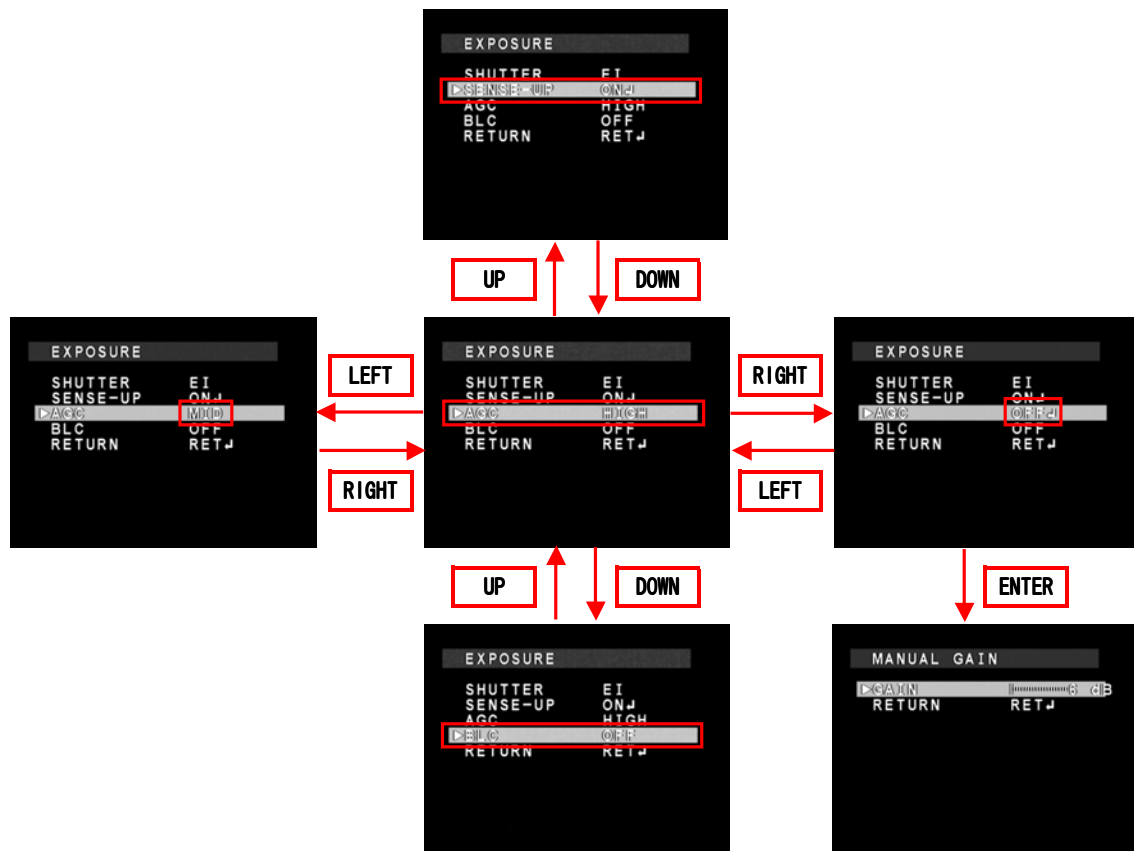
When operating OSD menu, use 5 buttons of **UP/DOWN/RIGHT/LEFT/ENTER**.

UP/DOWN keys are primarily used to move the cursor when selecting the vertical directional item in the OSD menu. **RIGHT/LEFT** keys are primarily used to move the cursor when selecting the horizontal directional item. **ENTER** key is used to execute the selected item or function.

When there is a sub-menu to set the detailed functions, "↵" is displayed after the item name.

1-2. Example of operation

Example of a menu operation by five key are as follows.

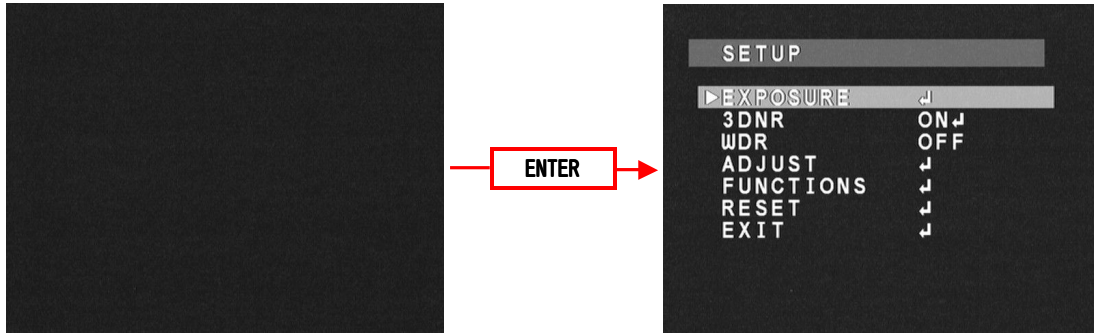


MANUAL GAIN MENU (sub-menu)

2. OSD MENU and FUNCTIONS

2-1. SETUP MENU(TOP MENU)

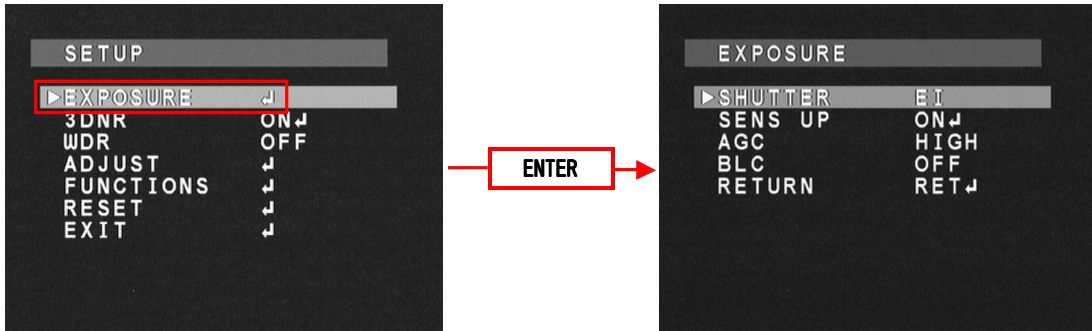
When pressing **ENTER** key, SETUP menu will appear on the screen.



2-2. 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, press the **ENTER** key to select, and change it with **LEFT/RIGHT** key. Press the **ENTER** key to set.



2-2-1. SHUTTER

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

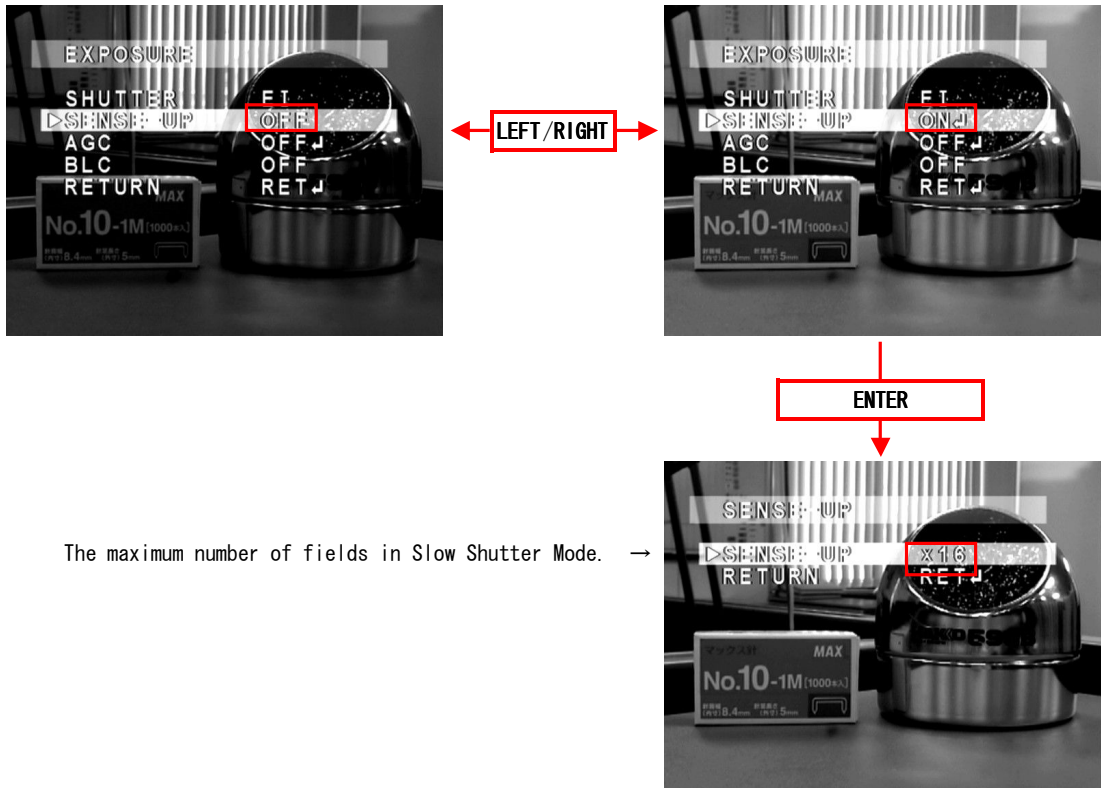
The default setting is EI.

Shutter Speed	Shutter Mode	Details
X256	Slow speed shutter (fixed shutter speed)	Selected number of fields x 1/60s(EIA) or 1/50s(CGIR) will be the calculated fixed shutter speed in seconds.
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.
EIA: 1/60 CGIR: 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):CGIR). Note. Only when selecting 1/60(1/50) Shutter Speed, the EI range is from the selected slow shutter speed in the SENS UP setting, up to 1/60(1/50), and the EI can maintain a proper exposure of a camera object within this range.
FL		
1/250		
1/500		
1/1000		
1/2000		
1/5000		
1/10000		
1/100000		

2-2-2. SENSE 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 x8.



Shutter Mode	SENS UP	Details
EI	OFF	ELECTRONIC IRIS MODE from (EIA:1/60(S), CCIR:1/50(S)) to 1/100,000(S) shutter speed.
	ON	ELECTRONIC IRIS with slow speed shutter MODE from SENCE-UP(number of FLD) to 1/100,000(S)
EIA :1/60 CCIR:1/50	OFF	FIXED SHUTTER SPEED MODE Shutter speed is fixed EIA:1/60(S) or CCIR:1/50(S).
	ON	ELECTRONIC IRIS MODE with slow speed shutter from SENCE-UP(number of FLD) to (EIA:1/60(S), CCIR:1/50(S))
(other)	OFF	FIXED SHUTTER SPEED MODE Shutter speed is fixed in SHUTTER menu.

2-2-3. 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 appears.

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

AGC Mode	(Sub Menu)	Details
OFF	GAIN	FIXED GAIN MODE By using LEFT/RIGHT , fixed gain from 6 to 41(dB) is selectable.
	RETURN	Use LEFT/RIGHT key to show RET/END. Pressing ENTER key on RET, returns to EXPOSURE Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.
LOW	—	AGC (LOW) MODE Amp gain is automatically changed in range of 6 to 30(dB).
MID	—	AGC (MID) MODE Amp gain is automatically changed in range of 6 to 34.5(dB).
HIGH	—	AGC (HIGH) MODE Amp gain is automatically changed in range of 6 to 41(dB).



2-2-4. BLC(BackLight Compensation)

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

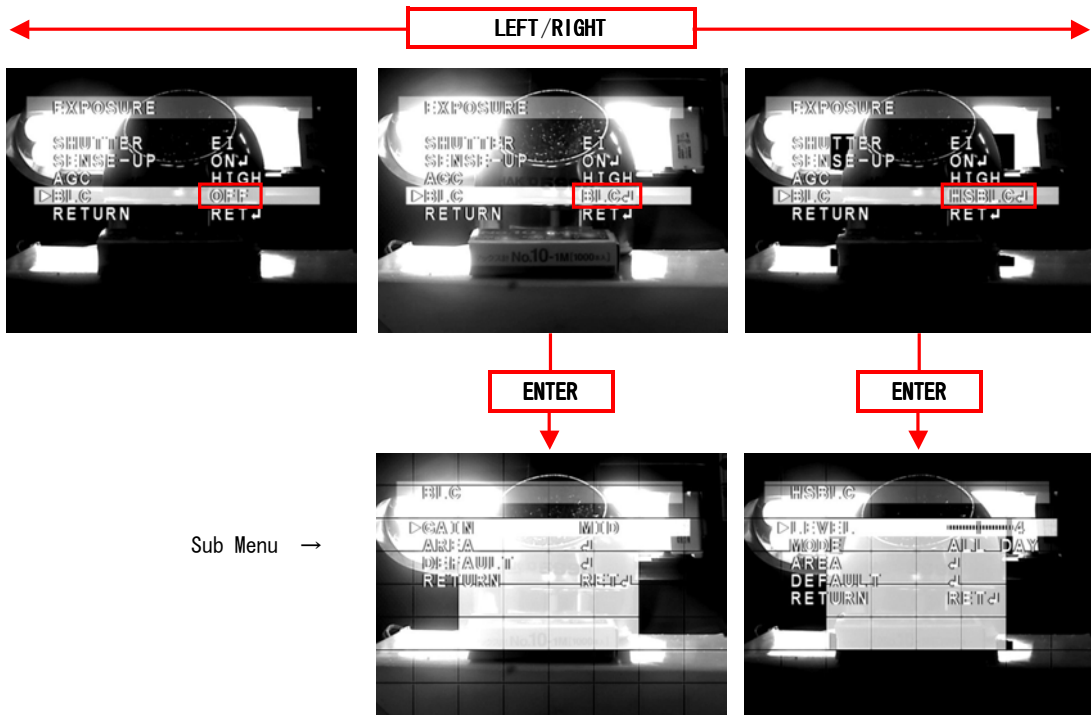
Use **LEFT/RIGHT** key to select OFF/BLC/HSBLG. When BLC/HSBLG is selected, press **ENTER** to show Sub Menu.

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

Note. BLC/HSBLG does not work under the condition below.

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

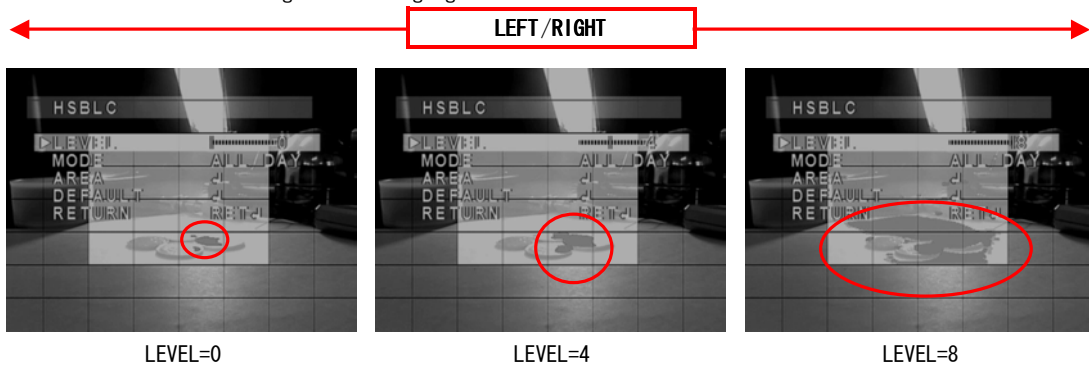
However, when selecting HSBLG, the high lighting area is masked.



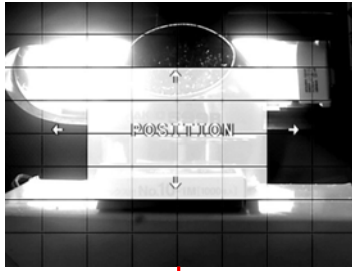
(The size of the effective area is the default setting.)

BLC Mode	(Sub Menu)	Details
OFF	—	The BLC function is OFF.
BLC	GAIN	Change the level of BLC effect with LEFT/RIGHT key. LOW / MID / HIGH Use LEFT/RIGHT key to select GAIN.
	AREA	Press the ENTER key to position and set the size of the BLC area window ² .
	DEFAULT	Return the setting to default when pressing the ENTER key. If selecting DEFAULT, changed GAIN/AREA will return to the initial setting.
	RETURN	Use LEFT/RIGHT key to show RET/END. Pressing ENTER key on RET, returns to EXPOSURE Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.
HSBLC	LEVEL	Defining the brightness level of the high lighting 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	Press the ENTER key to position and set the size of the BLC area window ² .
	DEFAULT	Return the setting to 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. Pressing ENTER key on RET, returns to EXPOSURE Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

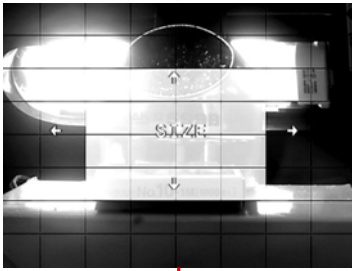
¹ How HSBLC effects on image when changing LEVEL



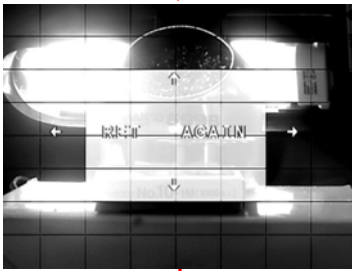
2 How to set up the BLC/HSBLC area



ENTER



ENTER



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

1) POSITION Setting

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

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

After pressing **ENTER** key, adjusting the vertical position can be conducted in same way as the horizontal position adjustment. The size can be set after the position is set by pressing the **ENTER** key.

*HINT: When positioning the window, align the top left corner to the desired window position's top left corner, as the SIZE Setting references this corner.

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

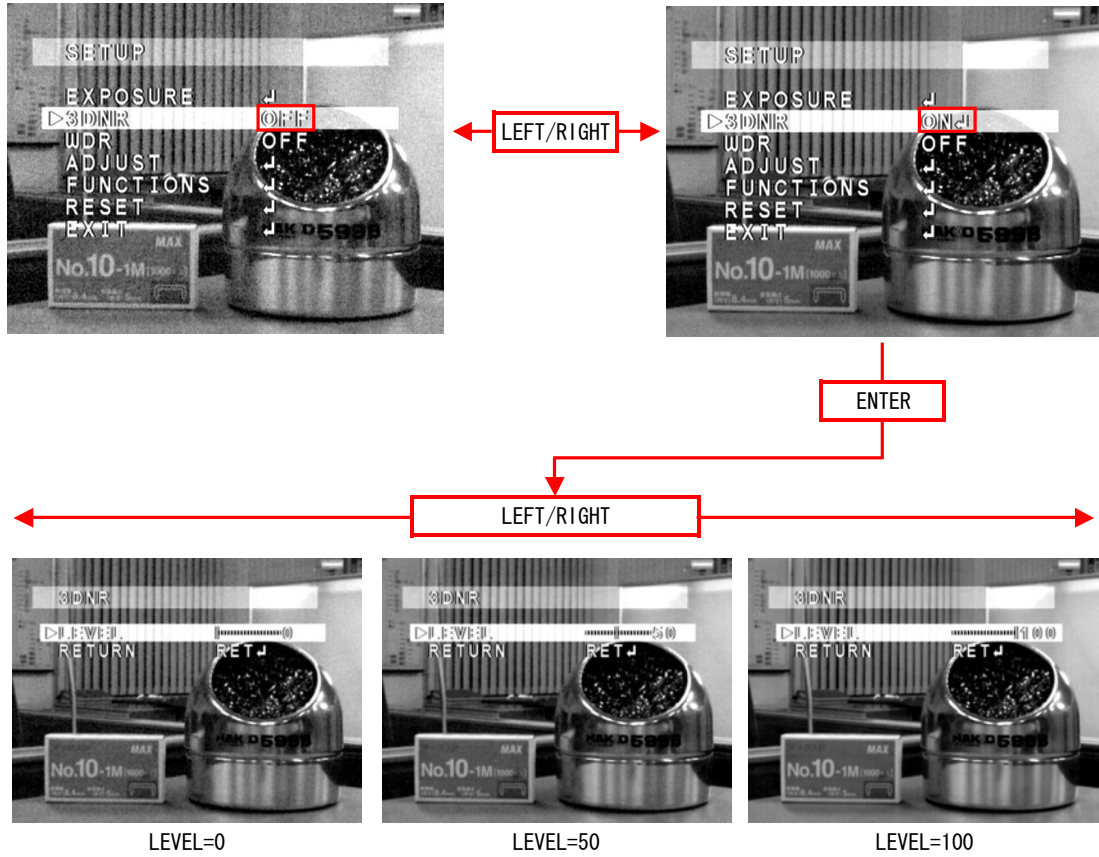
Use **UP&RIGHT/DOWN&LEFT** key to select RET/AGAIN.

2-3. 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. Pressing ENTER key on RET, returns to SETUP screen. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

Note. Setting the larger value of the 3DNR LEVEL means that random noise is reduced more effectively, however, moving object resolution may be reduced, and/or fixed pattern noises may increase.

2-4. WDR MENU

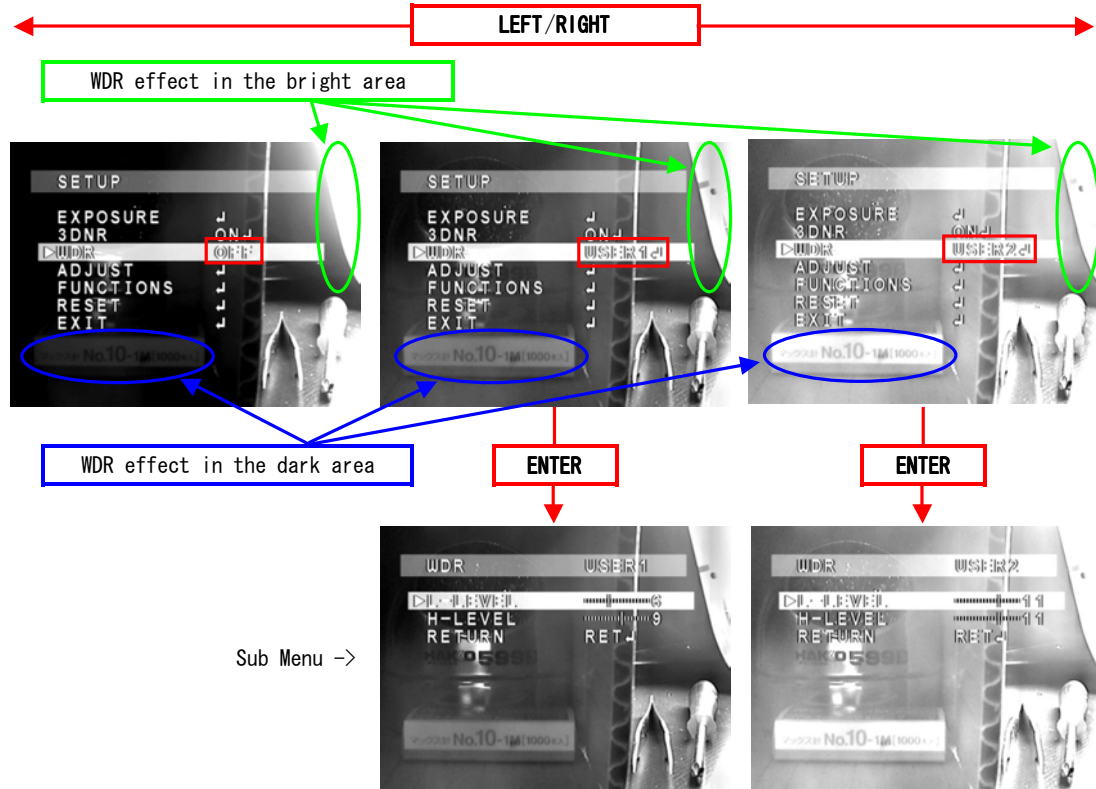
The dynamic range of dark and/or bright part is expanded by digital processing.

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(USER2).

The default setting for bright part is 13(USER1)/11(USER2).



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) (larger value means more effective) Use LEFT/RIGHT key to change the level.
	H-LEVEL	(H-LEVEL) Expanding level of the bright part. From 0(strong) to 15(weak) (smaller value means more effective) Use LEFT/RIGHT key to change the level.
	RETURN	Use LEFT/RIGHT key to show RET/END. Pressing ENTER key on RET, returns to SETUP screen. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

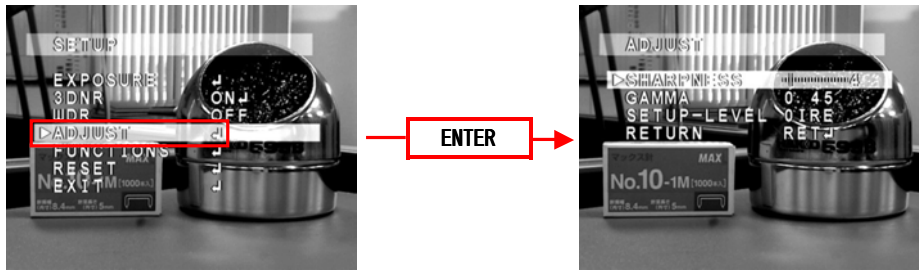
Note. There is no difference with WDR function between USER1 and USER2.

2-5. ADJUST MENU

Use this setting to adjust the image quality.

Select ADJUST and press ENTER key to show Adjust menu.

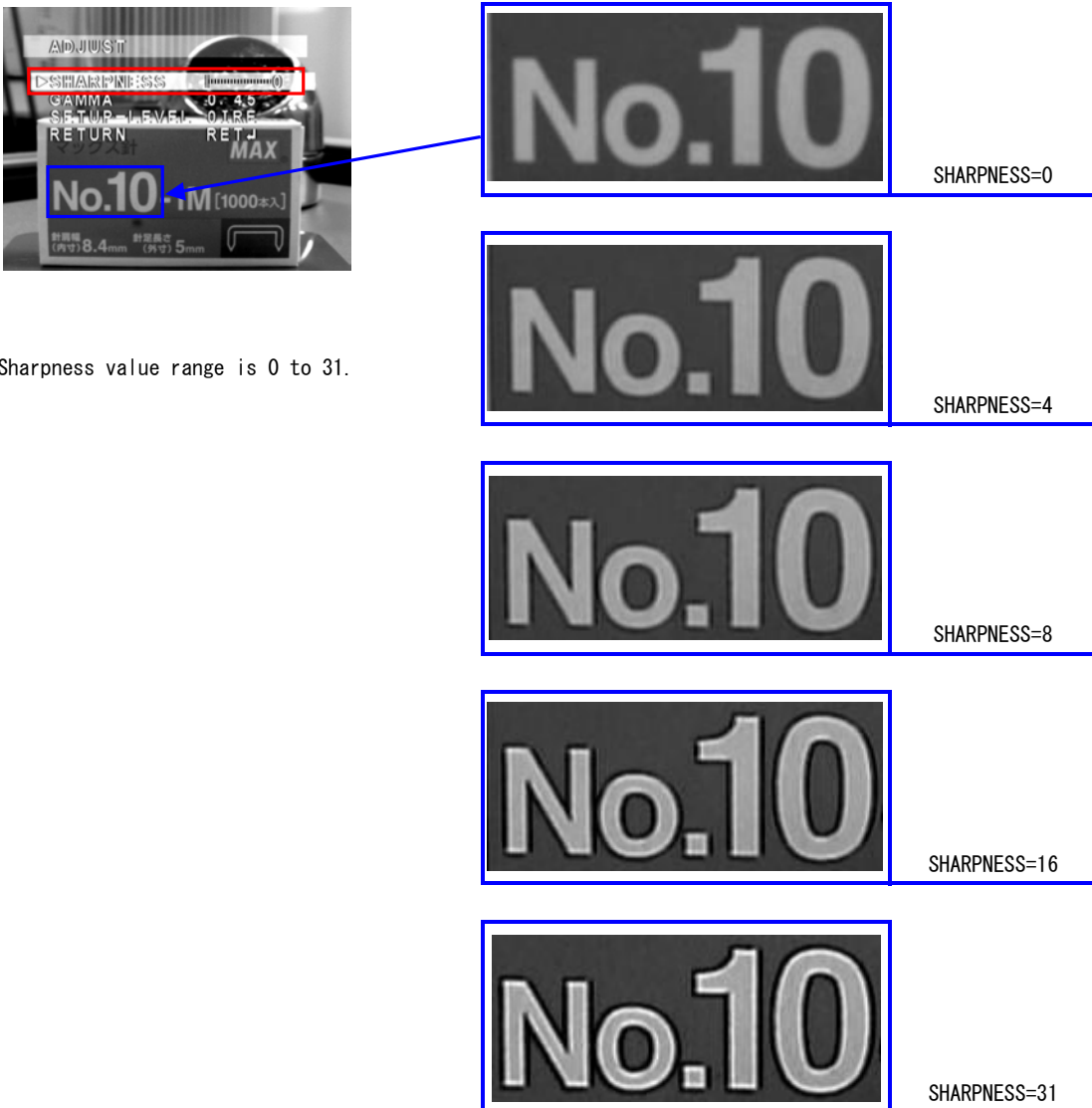
Use UP/DOWN key to select one of the lists on the menu, and use LEFT/RIGHT key to adjust.



2-5-1. SHARPNESS

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

The default setting is 4.



Sharpness value range is 0 to 31.

2-5-2. GAMMA

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

Use **LEFT/RIGHT** key to adjust GAMMA.

The default setting is 0.45.



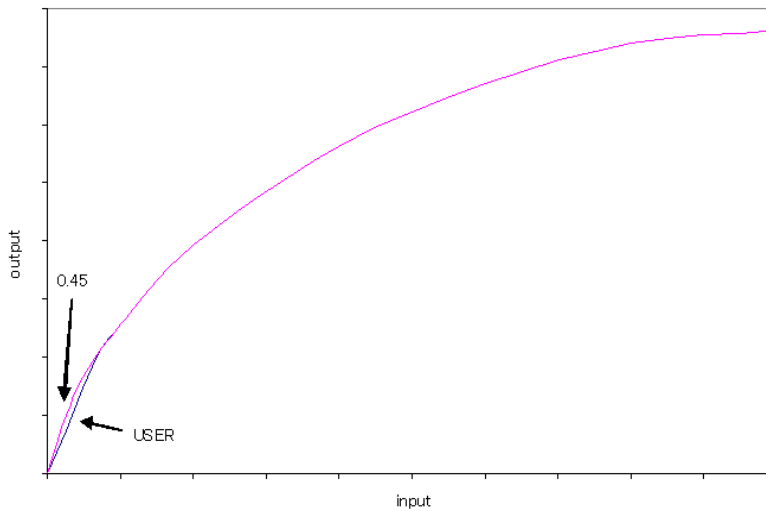
Please select a proper gamma value to match a monitor's characteristics. Generally, a dark part in a video frame becomes bright when gamma value is small. However, increases in appearances of "white outs" and noises may occur.

³ The characteristic of USER mode

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

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

The
fig

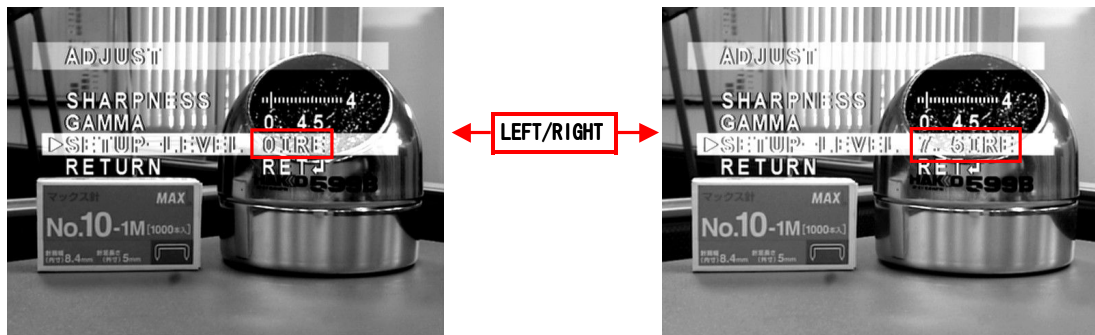


2-5-3. SETUP-LEVEL

Only 0IRE/7.5IRE can be set.

Use **LEFT/RIGHT** key to set the level.

The default setting is 7.5IRE.



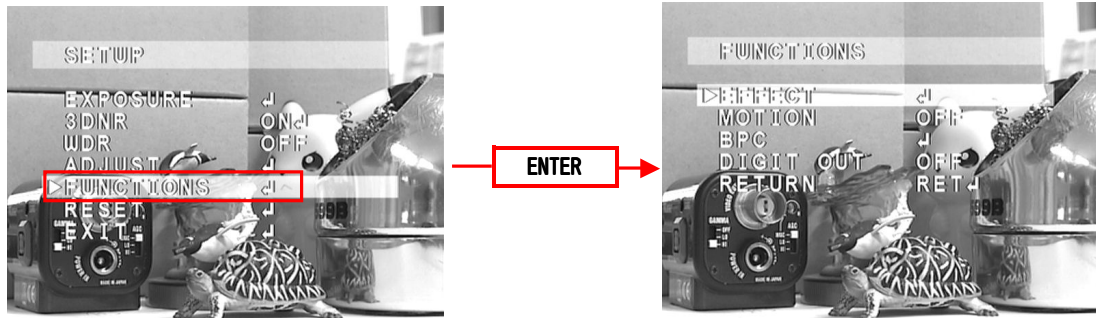
Note. SETUP-LEVEL is available to EIA only. There is no menu available to CCIR.

2-6. FUNCTIONS MENU

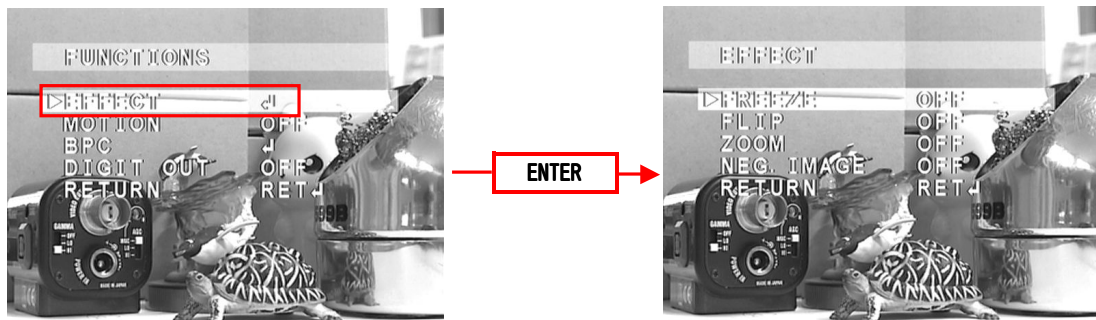
The digital image adjustment can be set.

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

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



When pressing **ENTER** key on EFFECT, the list of digital image adjustment will appear.



2-6-1. FREEZE (EFFECT MENU)

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

When the FREEZE function is turned ON, the video output signal will be a repeat of the same frame picture.

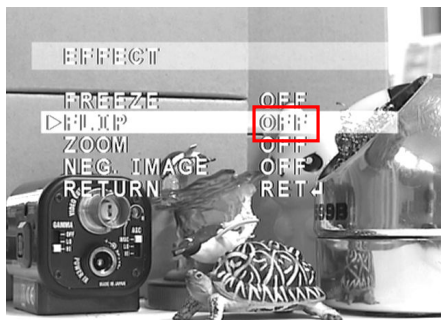
The default setting is OFF.

2-6-2. FLIP(EFFECT MENU)

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

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

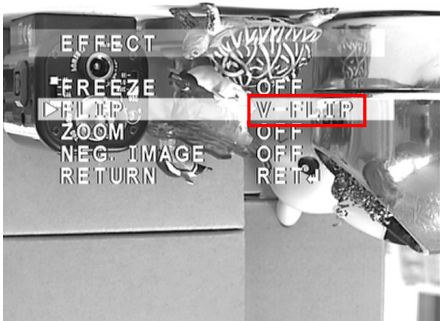
Use **LEFT/RIGHT** key to select one of the effects. The default setting is OFF.



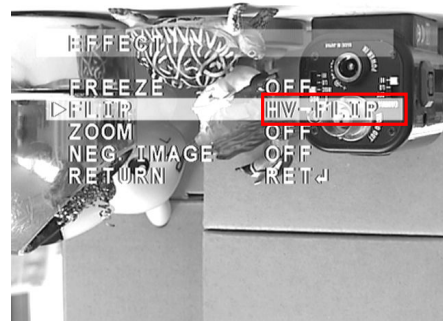
1) OFF (Normal Image)



2) H-FLIP¹ (Horizontal Flip)



3) V-FLIP (Vertical Flip)



4) HV-FLIP² (Vertical and Horizontal Flip)

¹ H-FLIP : For example, a back monitor on automobiles is a possible application.

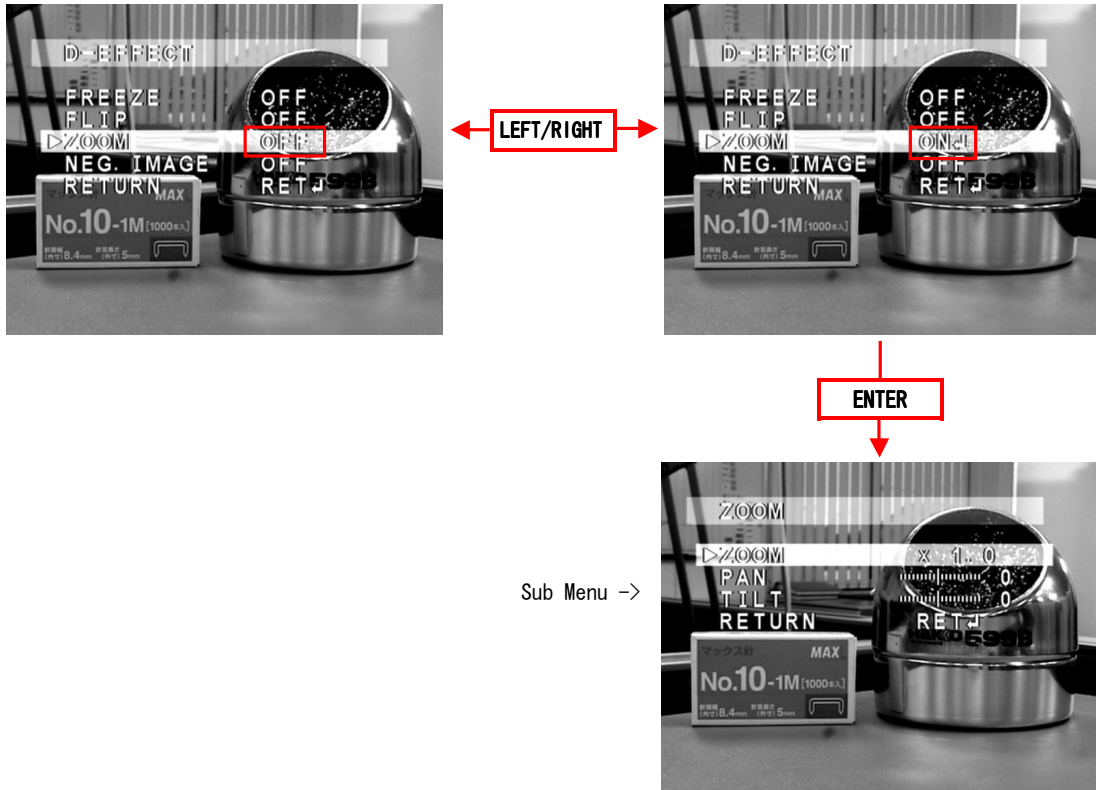
² HV-FLIP : Rotating the image by 180 degrees.

2-6-3. ZOOM(EFFECT MENU)

Digital zoom function is available.

Use **LEFT/RIGHT** key to select ON/OFF. When pressing **ENTER** key on ON, Sub Menu will appear.

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.



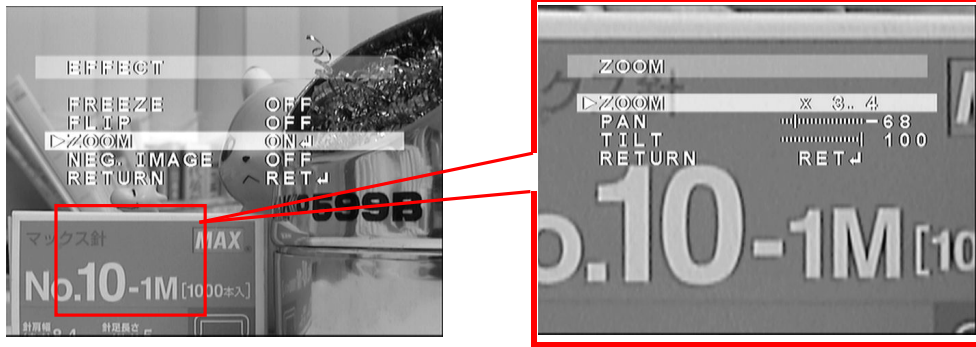
ZOOM	(SUB MENU)	Details
OFF	—	Normal image(digital zoom OFF)
ON	ZOOM	Set up the magnification of digital zoom. The magnification ranges from x1.0 to x32.0. ⁴ By using LEFT/RIGHT keys, it can be set to a maximum magnification of 32 times.
	PAN	Horizontal PAN position is specified (invalid when ZOOM is set to x1.0 magnification). 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 when ZOOM is set to x1.0 magnification). 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. Pressing ENTER key on RET, returns to FUNCTIONS Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

⁴ Magnification Steps

x1.0 to x4.0 : x0.1steps
x4.0 to x8.0 : x0.5steps

x8.0 to x16.0 : x1.0steps
x16.0 to x32.0 : x2.0steps

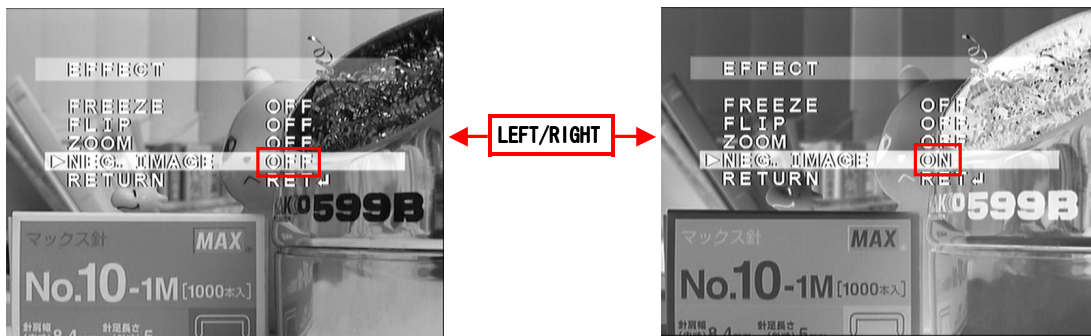
Example (Digital zoom setting)



2-6-4. NEG. IMAGE (EFFECT MENU)

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

The default setting is OFF.



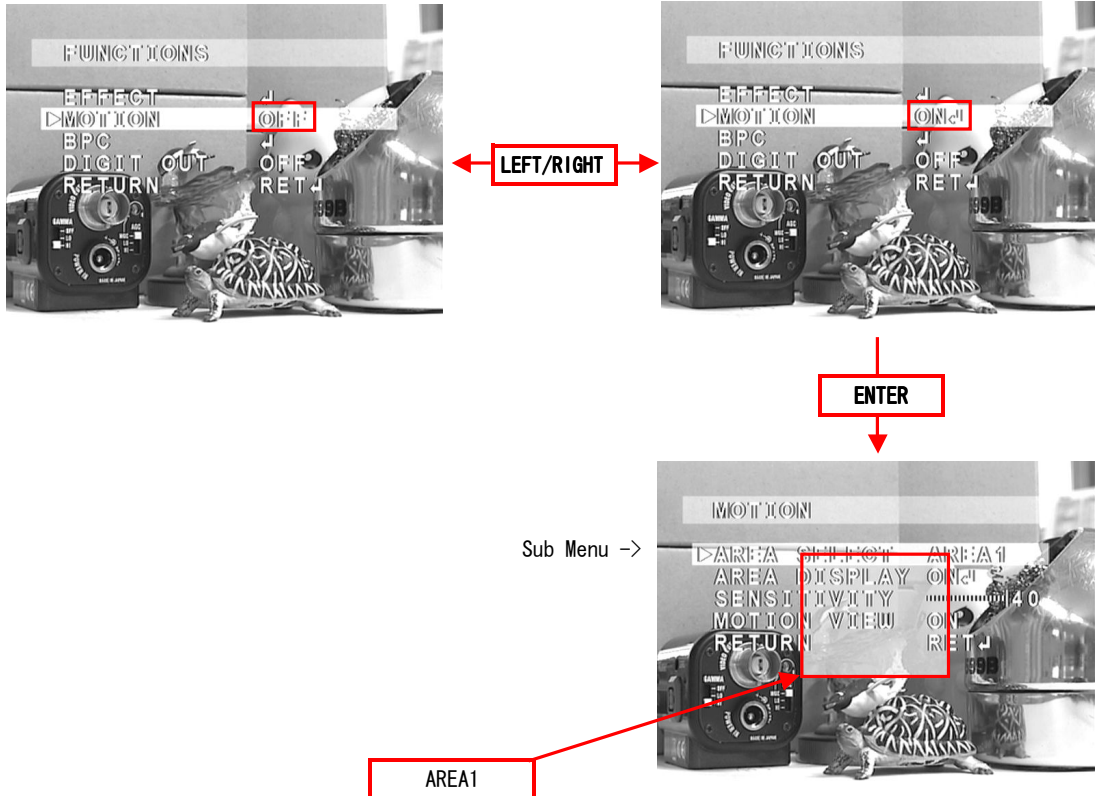
2-6-5. MOTION(FUNCTIONS MENU)

Motion detection can be set.

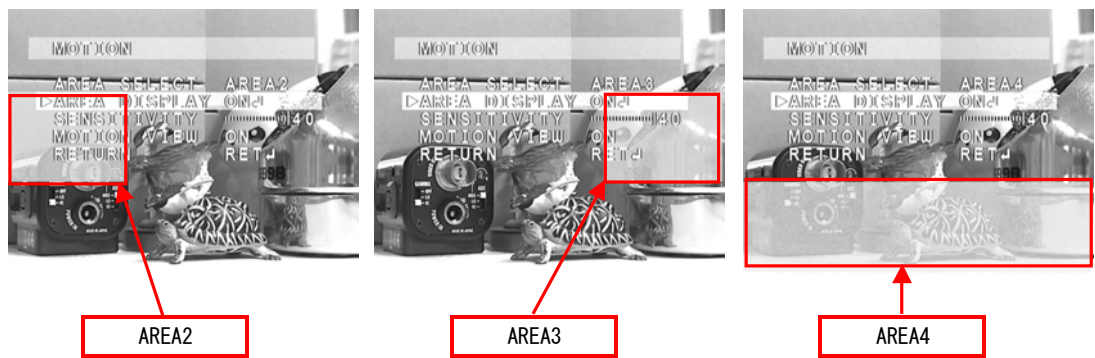
Use **LEFT/RIGHT** key to select ON/OFF. When pressing **ENTER** key on ON, Sub Menu will appear.

The default setting is OFF.

When MOTION is turned ON, AREA SELECT is AREA1. AREA DISPLAY is ON (AREA DISPLAY for AREA2-4 is OFF by default). default SENSITIVITY is 40. The other areas can be selected as below.

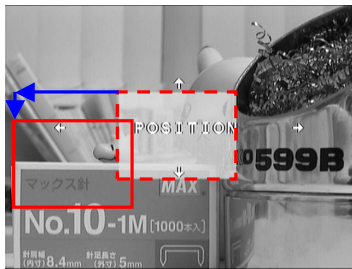


(The size of the effective area is the default setting.)



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 not shown with OFF. Use LEFT/RIGHT key to select ON/OFF. Pressing ENTER key on ON, will proceed to Motion Detection area window position and size setting ⁵ .
	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. Pressing ENTER key on RET, return to FUNCTIONS Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

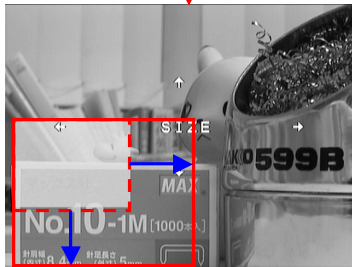
⁵ How to set the Motion Areas



1) POSITION Setting

The position of the effective motion area can be set. Use **UP/DOWN/LEFT/RIGHT** key to set the position of one of the 4 detection areas. After the setting, press **ENTER** key to proceed to the SIZE setting.

*HINT: When positioning the window, align the top left corner of to the desired window position's top left corner, as the SIZE Setting references this corner.



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/DOWN/LEFT/RIGHT** key to adjust the size. After the adjustment, press **ENTER** key. When finishing the size adjustment, press **ENTER** key.



3) RET/AGAIN Setting

Use **LEFT/RIGHT** key to select RET/AGAIN.

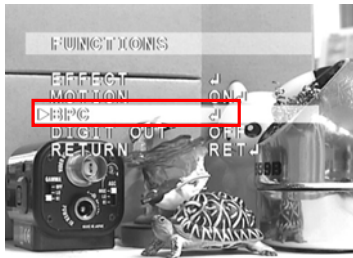
When pressing **ENTER** key on **RET**, returning to FUNCTIONS Menu.

2-6-6. BPC(FUNCTIONS MENU)

This section explains blemished pixel compensation function.

The default setting of the slow shutter speed is x32, and the default level is 3.

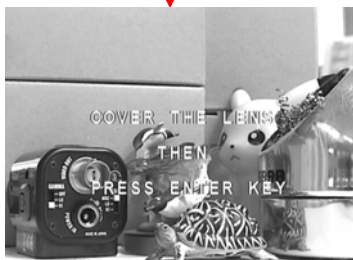
The procedure of compensation is as follows.



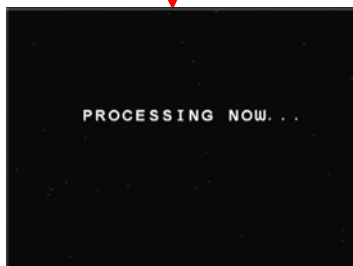
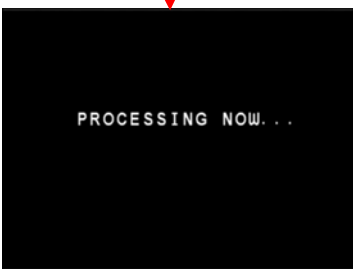
ENTER



ENTER



ENTER



- 1) Select BPC on FUNCTIONS menu and push **ENTER** key.
BPC menu will be displayed.
- 2) Set conditions for detecting blemished pixels.

BPC settings	Details
FLD	Set slow shutter speed at the time of blemished pixel detection (unit in fields). Smaller white pixels can be detected with higher field counts, however, care must be taken not to exceed the maximum compensations points of 64 points. The slow shutter speed can be selected from: x4/x8/x16/x32/x64. *Recommending value: 32 fields Use LEFT/RIGHT key to select slow shutter speed.
LEVEL	White pixel detection is done with the level difference with neighboring pixels at dark condition. The number of detected white pixels are increases when LEVEL is small, but it may cause the number of detected white pixels to exceed the maximum compensations points of 64 points. It ranges from 1 to 6. *Recommending value: 3 (when FLD is 32 fields) Use LEFT/RIGHT key to select level.
START	Press ENTER key to start detection and compensation.
RETURN	Use LEFT/RIGHT key to show RET/END. Pressing ENTER key on RET, returns to FUNCTIONS Settings. Pressing ENTER key on END, OSD menu turns off and SETUP is finished.

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

- 3) White pixel detection and compensation start, and detection results are displayed.

← During detection display(PROCESSING NOW...)

* Process time is different by SHUTTER or SENS UP and FLD settings.
It takes the most time to detect and compensate white pixels under the condition below.

SHUTTER is x256 or SENS UP is ON and MAX is x256, and FLD is x64.

← Detection results

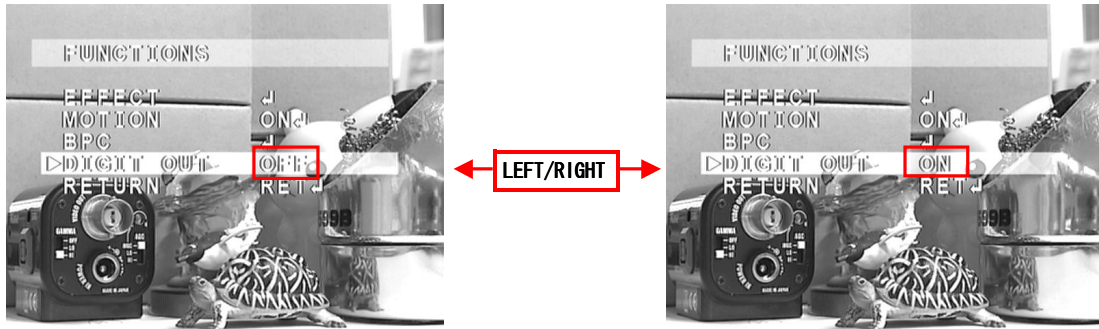
* Return to the BPC menu automatically after the end of detection and compensation.

2-6-7. DIGIT OUT (FUNCTIONS MENU)

WAT-910BD is equipped with digital video output connector.

Use **LEFT/RIGHT** key to select ON/OFF. When pressing **ENTER** key on ON, digital video data is output the connector. Please refer to the hardware manual for information about digital data.

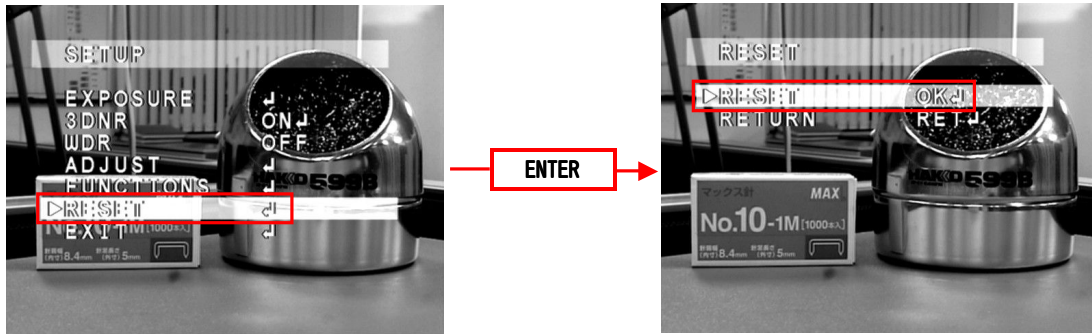
The default setting is OFF.



2-7. RESET MENU

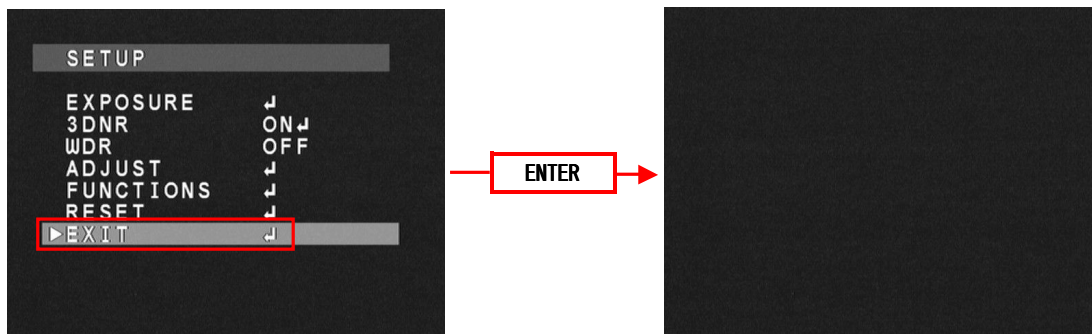
Select **RESET** and press **ENTER** key, and **RESET** menu is displayed.

Pressing **ENTER** key on **OK** in **RESET** menu will return the camera settings to the original factory settings.



2-8. EXIT MENU

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

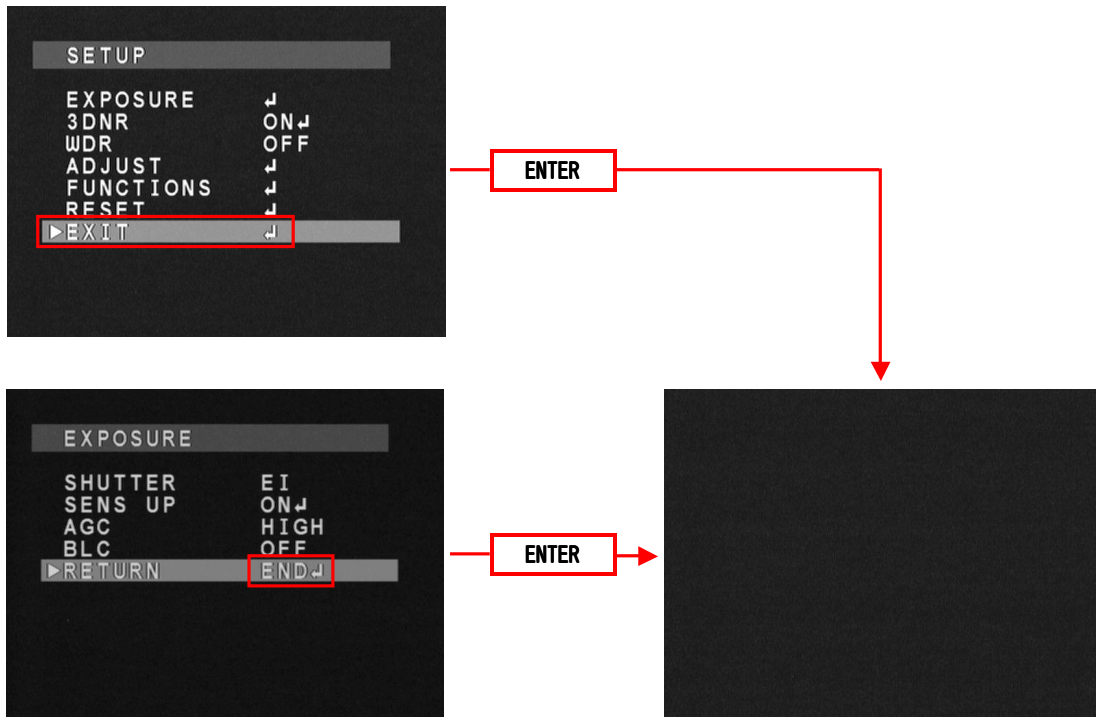


3. Save settings

All settings are saved when executing below.


When pressing **ENTER** key on EXIT in the SET UP Menu, or on END in all Sub Menus.


Saved settings are kept even after the camera is powered off.

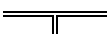



* OSD menu will be closed.

4. OSD menu tree

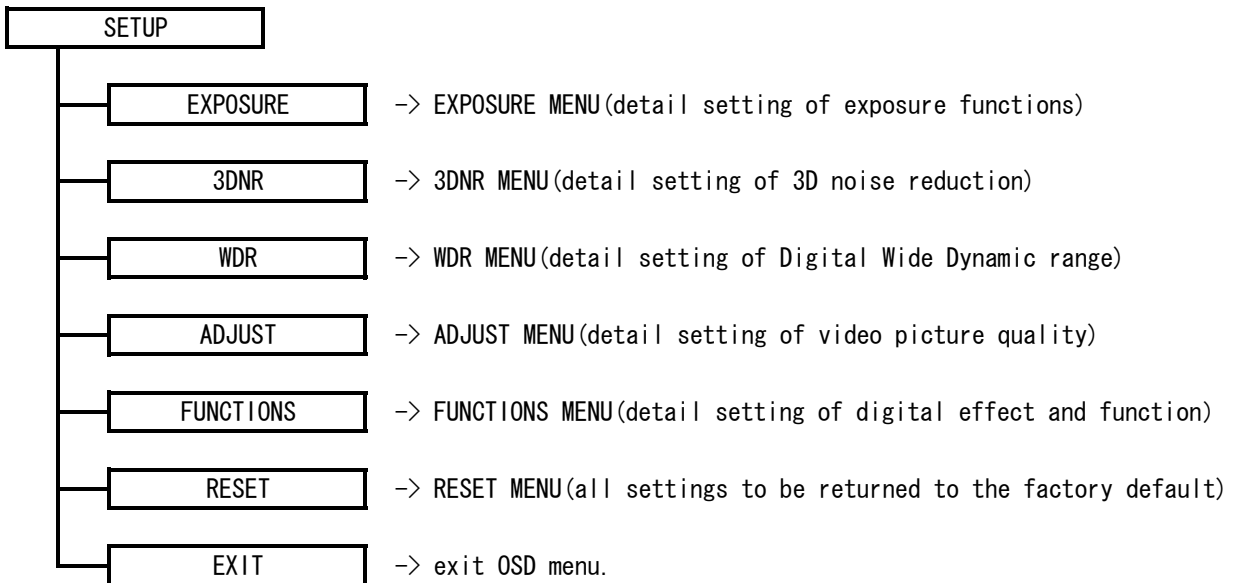
Usage:  Menu item is surrounded by a thick frame.

 Thick line indicates the menu transition using **UP**, **DOWN** or **ENTER** keys.

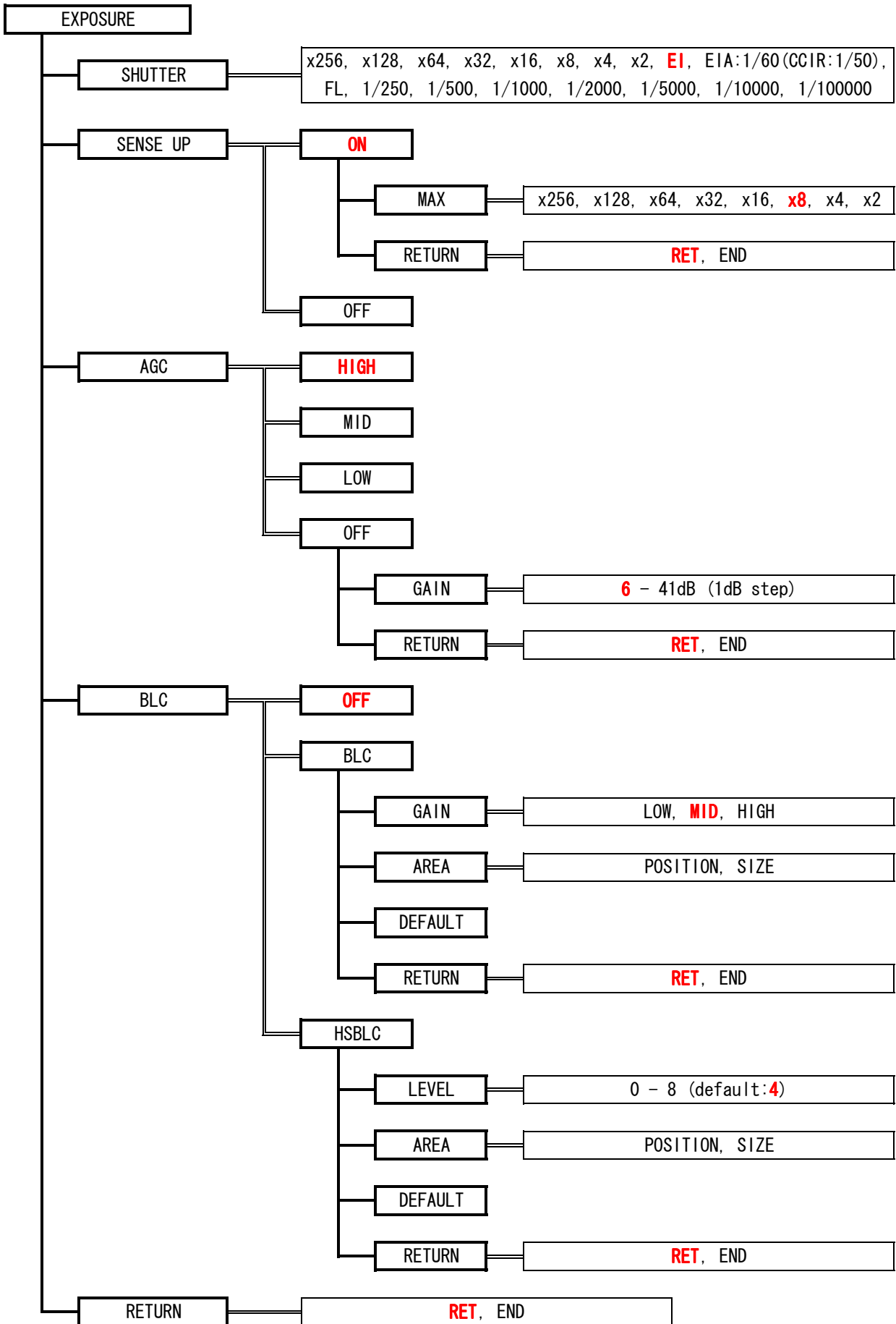
 Double line indicates the item selection using **RIGHT**, **LEFT** or **ENTER** keys.

 Selectable values of each menu item are surrounded by a thin line.
The factory default setting values are written in **RED** letters.

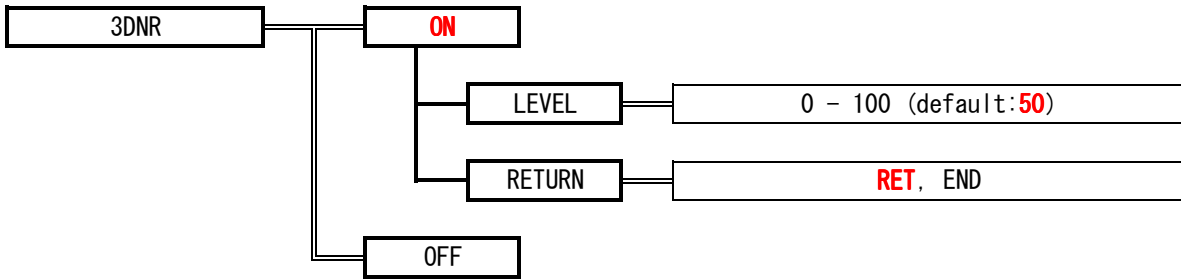
SETUP MENU



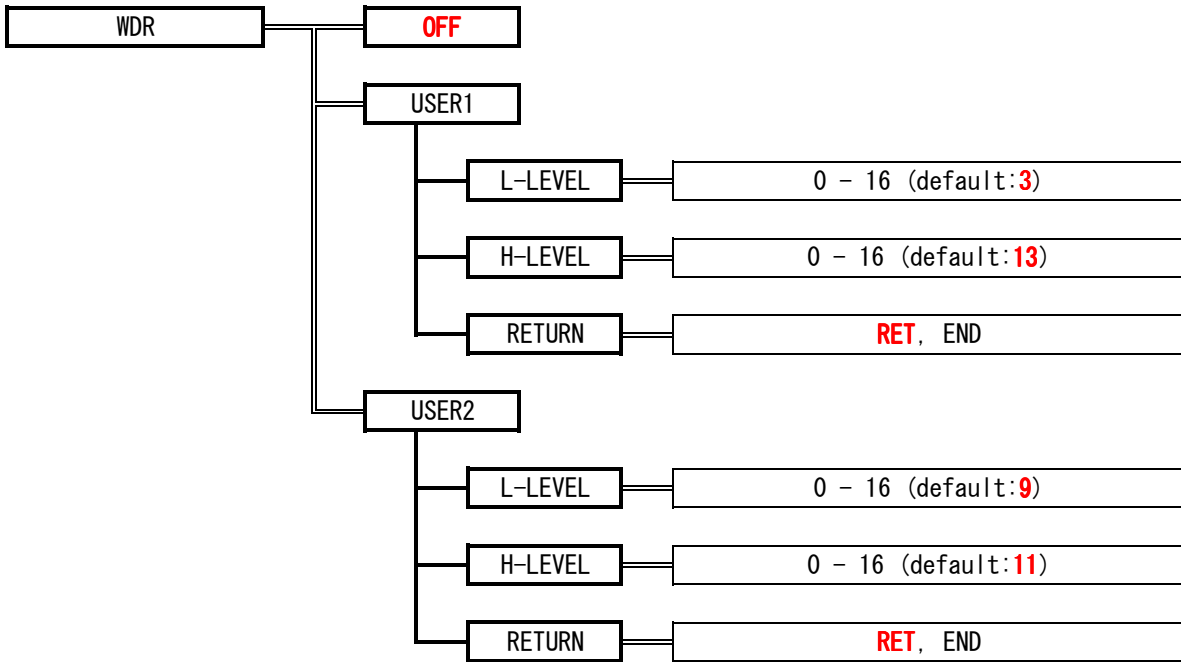
EXPOSURE MENU



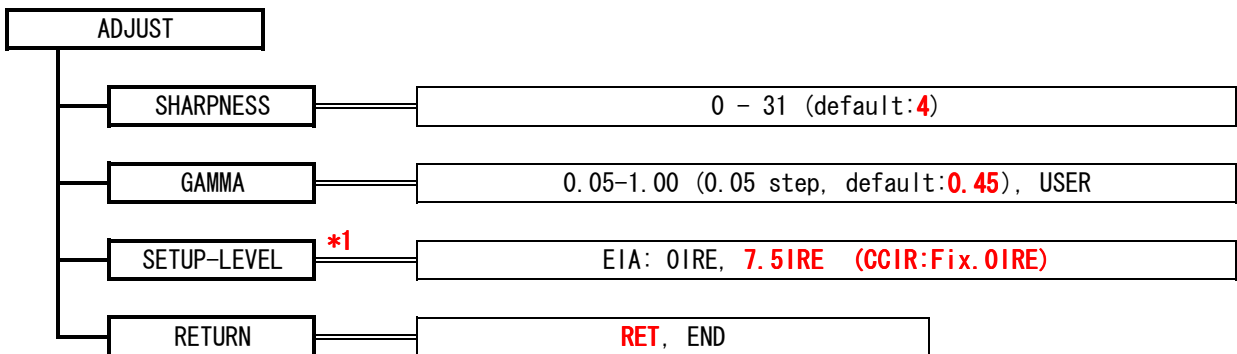
3DNR MENU



WDR MENU

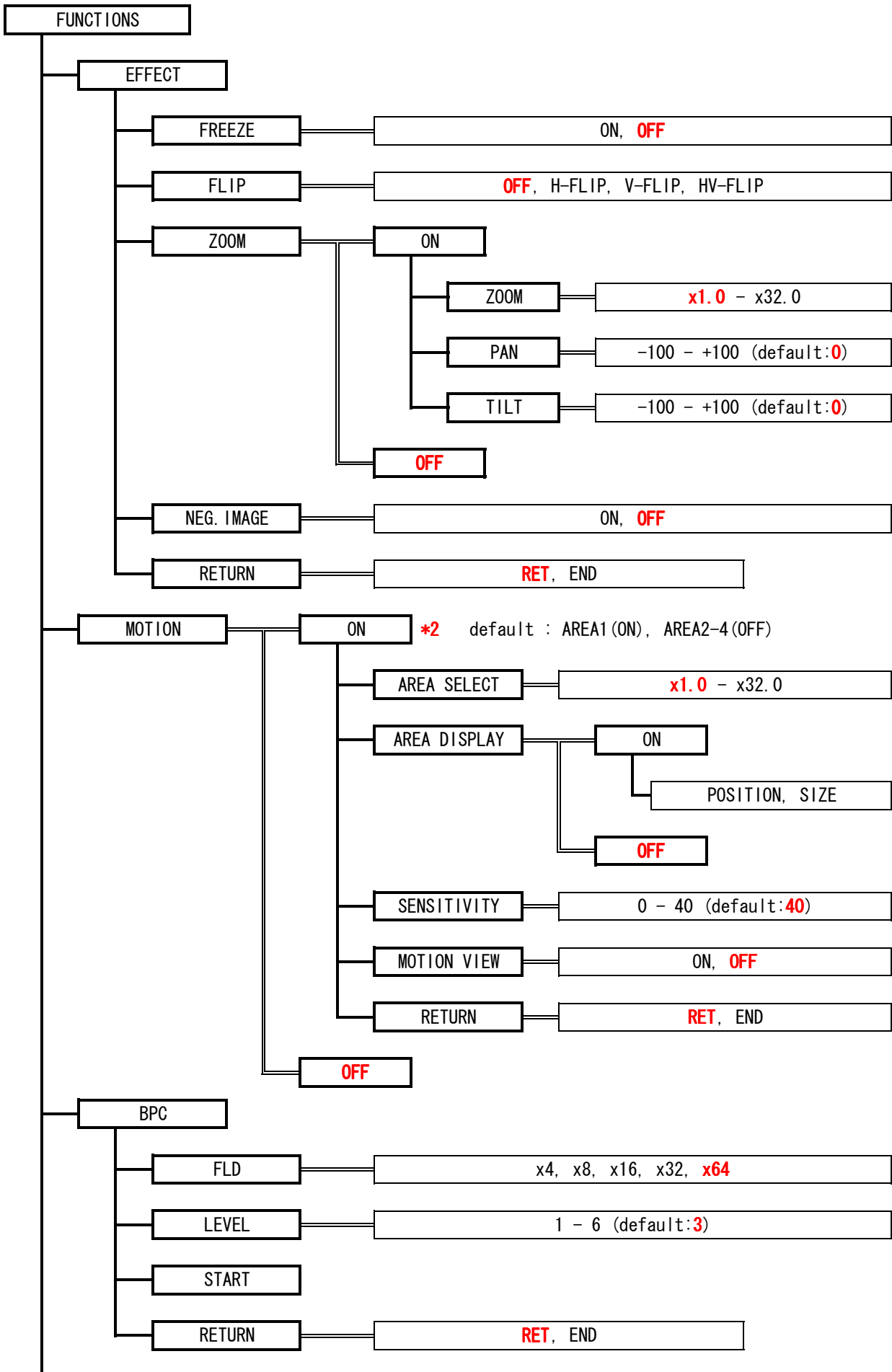


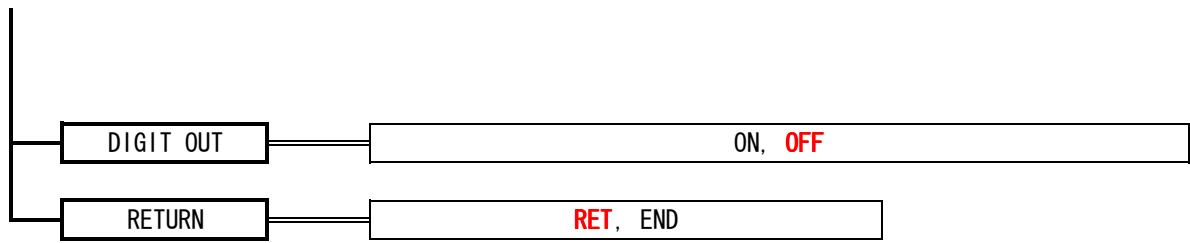
ADJUST MENU



*1) SETUP-LEVEL MENU is EIA version only.

FUNCTIONS MENU





RESET MENU

