

# **WAT-1200CS**

## **OSD User's Manual**

Rev. 1.00

**Watec Co., Ltd.**

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### Change History

Rev. No.	Date	Changes	Remarks
1.00	2017/4/18		Initial Release

**【Contents】**

<b>1.</b>	<b>Introduction</b>	<b>5</b>
<b>2.</b>	<b>OSD Menu Operation</b>	<b>6</b>
<b>3.</b>	<b>MAIN MENU/SETUP MENU</b>	<b>8</b>
<b>3.1</b>	<b>OSD Menu</b>	<b>8</b>
<b>3.2</b>	<b>Save Settings(SAVE ALL)</b>	<b>8</b>
<b>3.3</b>	<b>Lens Settings(LENS)</b>	<b>9</b>
<b>3.3.1</b>	<b>DC Iris Lens Setting(LENS)</b>	<b>9</b>
<b>3.3.1.1</b>	<b>DC Iris Lens Control Mode(MODE)</b>	<b>10</b>
<b>3.3.1.2</b>	<b>DC Iris Lens Control Speed(SPEED)</b>	<b>11</b>
<b>3.4</b>	<b>Shutter/Gain Settings</b>	<b>12</b>
<b>3.4.1</b>	<b>Automatic Exposure Control(AUTO)</b>	<b>12</b>
<b>3.4.1.1</b>	<b>Shutter Speed(SHUTTER)</b>	<b>12</b>
<b>3.4.1.2</b>	<b>Brightness Settings, High Luminance Side(AE LEVEL)</b>	<b>13</b>
<b>3.4.1.3</b>	<b>Auto Gain Control(AGC)</b>	<b>13</b>
<b>3.4.1.4</b>	<b>Brightness Settings, Low Luminance Side ((AE LEVEL)</b>	<b>14</b>
<b>3.4.2</b>	<b>Manual Exposure Control(MANUAL)</b>	<b>15</b>
<b>3.4.2.1</b>	<b>Shutter Speed (SHUTTER)</b>	<b>15</b>
<b>3.4.2.2</b>	<b>Gain Value Settings(AGC)</b>	<b>15</b>
<b>3.5</b>	<b>White Balance(WHITE BAL)</b>	<b>16</b>
<b>3.5.1</b>	<b>Auto Trace White Balance(ATW)</b>	<b>17</b>
<b>3.5.2</b>	<b>Push White Balance(PUSH)</b>	<b>17</b>
<b>3.5.3</b>	<b>Preset White Balance(USRE1 5100K/USER2 6300K)</b>	<b>18</b>
<b>3.5.4</b>	<b>Manual White Balance(MANUAL)</b>	<b>19</b>
<b>3.5.5</b>	<b>Push Lock White Balance(PUSH LOCK)</b>	<b>20</b>
<b>3.6</b>	<b>Back Light Compensation (BACKLIGHT)</b>	<b>21</b>
<b>3.7</b>	<b>Picture Adjust(PICT ADJUST)</b>	<b>22</b>
<b>3.7.1</b>	<b>Image Flip(FLIP)</b>	<b>22</b>
<b>3.7.2</b>	<b>Brightness(BRIGHTNESS)</b>	<b>22</b>
<b>3.7.3</b>	<b>Contrast(CONTRAST)</b>	<b>23</b>
<b>3.7.4</b>	<b>Edge Enhancement(SHARPNESS)</b>	<b>23</b>
<b>3.7.5</b>	<b>Chroma Settings(HUE,COLOR GAIN)</b>	<b>24</b>
<b>3.8</b>	<b>Defog(DEFOG)</b>	<b>25</b>
<b>3.9</b>	<b>Wide Dynamic Range / Tone Correction (WDR / ATR)</b>	<b>26</b>
<b>3.9.1</b>	<b>Adaptive Tone-Curve Reproduction (ATR)</b>	<b>27</b>
<b>3.9.2</b>	<b>Wide Dynamic Range (WDR)</b>	<b>28</b>
<b>3.10</b>	<b>Day &amp; Night function (DAY/NIGHT)</b>	<b>29</b>
<b>3.10.1</b>	<b>Automatic Switching Mode (AUTO)</b>	<b>29</b>
<b>3.10.1.1</b>	<b>Day / Night Switching Control (DELAY CNT / DAY→NIGHT / NIGHT→DAY)</b>	<b>30</b>
<b>3.10.2</b>	<b>Manual Switching Mode (MANUAL)</b>	<b>32</b>
<b>3.10.2.1</b>	<b>Day / Night Setting (DAY/ NIGHT)</b>	<b>32</b>
<b>3.10.2.2</b>	<b>Burst Signal (BURST)</b>	<b>32</b>

<u>3.11</u>	IR LED Control(IR LED)	33
<u>3.12</u>	Noise Reduction(DNR)	34
<u>3.13</u>	Privacy Mask(PRIVACY)	35
<u>3.14</u>	CAMERA ID Setting(CAMERA ID)	38
<u>3.15</u>	LANGUAGE	42
<u>3.16</u>	Factory Reset(CAMERA RESET)	42
<u>3.17</u>	EXIT MENU(EXIT)	43
<b><u>4.</u></b>	<b>OSD Menu Tree</b>	<b>44</b>

## **1. Introduction**

- The WAT-1200CS user's manual describes the functions and the adjustment methods using the On Screen Display (OSD).
- When the settings of the WAT-1200CS is changed according to the WAT-1200CS user's manual, check to see that the operation and the effects of the changes made to the camera are acceptable.
- The WAT-1200CS user's manual is subject to change by design and the specifications of the product without notice.
- The copyright of the WAT-1200CS user's manual shall belong to Watec Co., Ltd.  
Copying in whole or in part without the authorization of the holders permission is prohibited.

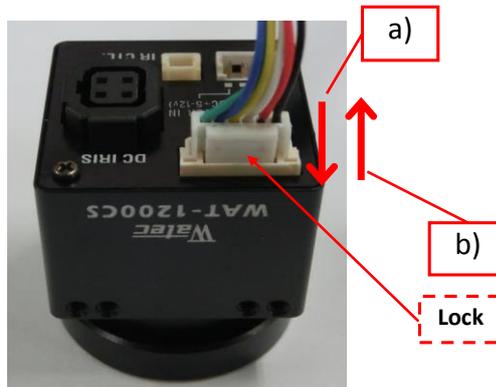
## 2.OSD MENU OPERATION

The functions and parameter settings of WAT-1200CS can be changed by OSD(On Screen Display).  
Operate OSD with the controller.



Controller Overview

- a)When using the controller,vertically insert the connector fully until it clicks.
- b)When disconnecting the controller, pull the connector while pinching the Lock.



How to Connect Controller

The controller has 5 buttons, UP/DOWN/LEFT/RIGHT/ENTER.



The operation portion of the Controller

Use 5 buttons above to operate the OSD menu.

1)UP/2)DOWN : Mainly to move the cursor up and down to select an item on the lists on the OSD menu.

3)LEFT/4)RIGHT : Mainly to adjust and change the functions on each list on the OSD menu.

5)ENTER : Mainly to execute the selected list and function on the OSD menu.

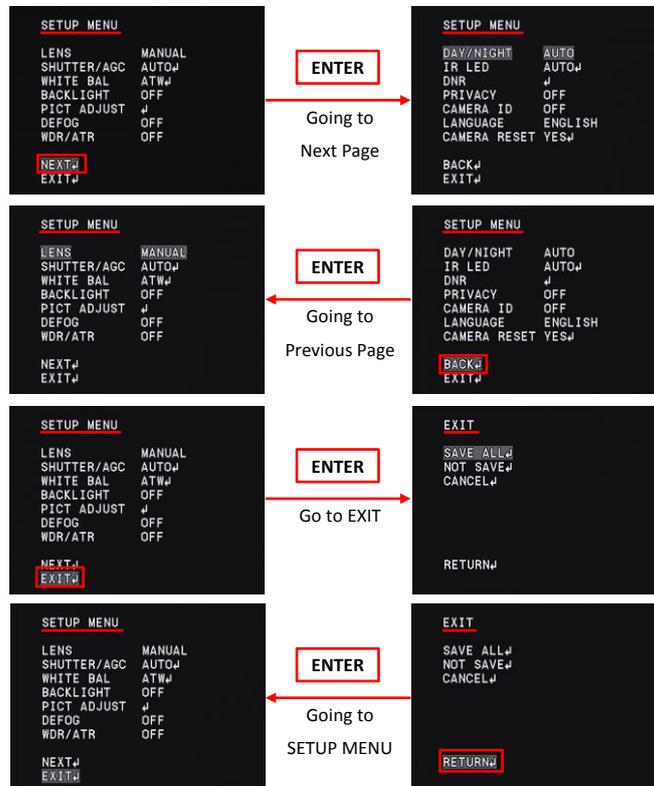
The symbol "<" will be on some lists on the OSD menu to indicate that there are sub menus or selectable options by pressing 5)Enter.

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

The below picture shows the OSD operation when WHITE BAL(ATW) is selected as the default position.



**Switching the Menu**



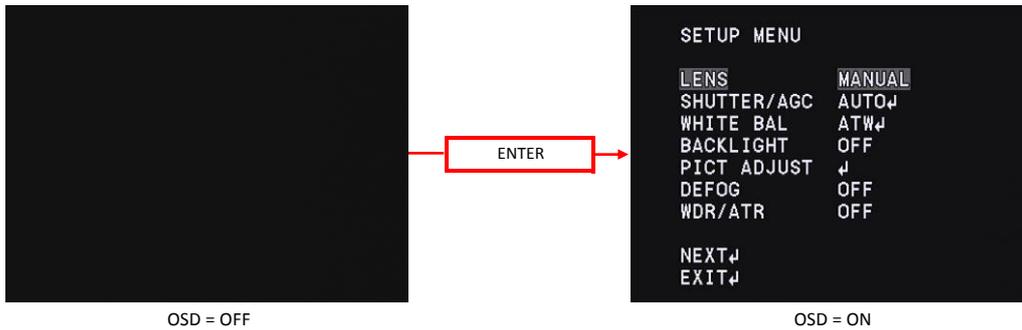
\* From the next page, each button is written as follows.

- 1)UP key is written as "UP"
- 2)DOWN key is written as "DOWN"
- 3)LEFT key is written as "LEFT"
- 4)RIGHT key is written as "RIGHT"
- 5)ENTER key is written as "ENTER"

### 3. MAIN MENU/SETUP MENU

#### 3.1 OSD Menu

SETUP menu will appear on the screen when pressing ENTER,



Move the cursor to EXIT with UP/DOWN buttons and press the ENTER to display the EXIT page.

OSD Menu is consist of 3 pages (SETUP MENU1/2-2/2 and EXIT).

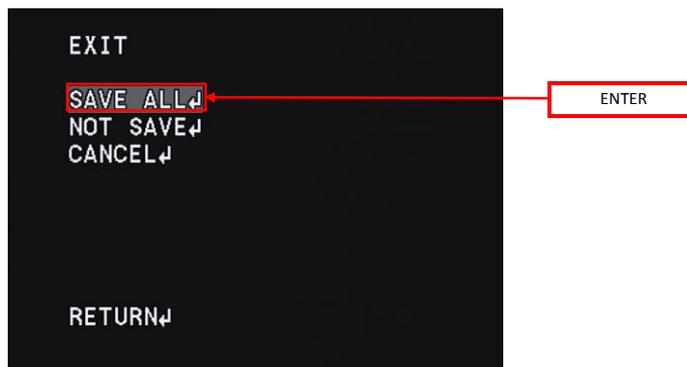


#### 3.2 Save settings (SAVE ALL)

Saving (SAVE ALL) the changes in camera settings. After changing camera settings, you can save the changed set values by executing SAVE ALL on the EXIT page. Move the cursor to SAVE ALL with UP / DOWN / LEFT / RIGHT and press ENTER to save the set value.

The saved settings are kept even after the camera is powered off.

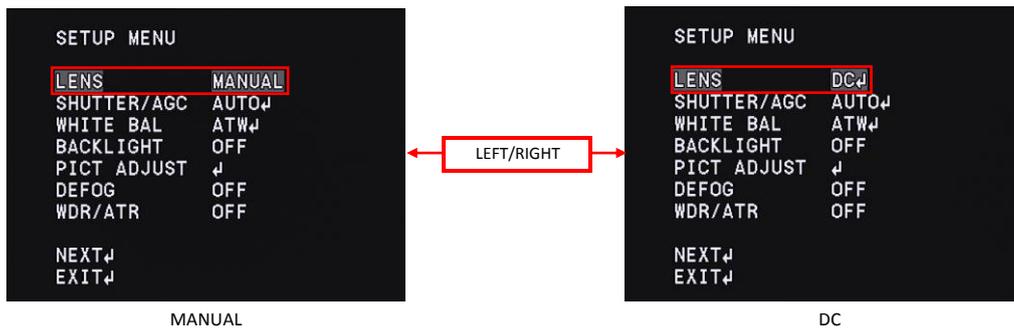
\*Please note that when you turn off the power without saving the setting values after changing the setting or execute CANCEL on the EXIT page, the changed setting will not be saved.



### 3.3 Lens Settings (LENS)

Change the lens setting according to the lens to be used. Move the cursor to LENS with UP/DOWN and use the LEFT/RIGHT to switch MANUAL and DC.

Default : MANUAL



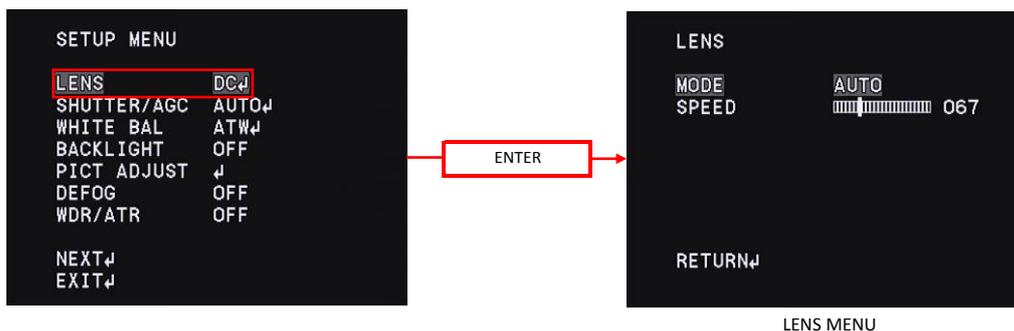
LENS	OPERATION
MANUAL	Select this mode when using a manual iris lens.
DC	Select this mode when using a DC iris lens.

\*When you select DC in the LENS setting while using a manual lens, ordinary exposure control may not be available. Please change the LENS setting according to the lens to be used.

#### 3.3.1 DC Iris Lens Setting (LENS)

Display the setting menu of the DC iris lens. Move the cursor to LENS and use the LEFT/RIGHT to select DC.

After selecting DC, press ENTER to display the LENS menu. Move the cursor up and down and adjust items with LEFT/RIGHT.



**3.3.1.1 DC Iris Lens Control Mode (MODE)**

Set the DC iris lens control mode (MODE). Use LEFT/RIGHT to select the MODE (lens aperture control)

Default : AUTO



MODE	OPERATION
AUTO	Control the lens aperture automatically. *For ordinary imaging, use AUTO mode.
OPEN	Open the lens aperture fully.
CLOSE	Close the lens aperture fully.

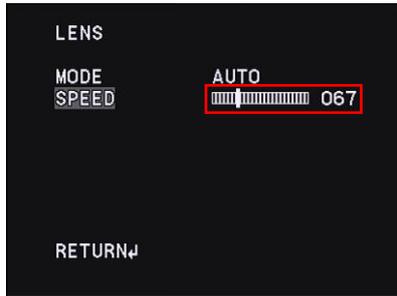
\* This function will be the following control state by combining with SHUTTER/AGC of "3.4 SHUTTER /AGC setting( SHUTTER / AGC)"

Lens in use	SHUTTER/AGC	(LENS) MODE	OPERATION
DC Iris lens	AUTO	AUTO	Control the lens aperture automatically. *AUTO is recommended for using DC iris lens.
		OPEN	Open the lens aperture fully.
		CLOSE	Close the lens aperture fully.
	MANUAL	AUTO	Controls the lens aperture automatically.
		OPEN	Open the lens aperture fully.
		CLOSE	Close the lens aperture fully.

**3.3.1.2 DC Iris Lens Iris Control Speed(SPEED)**

Set the lens aperture control speed of auto iris lens(SPEED). Use LEFT/RIGHT to adjust the control speed of the lens aperture by moving the cursor.

Default : 67

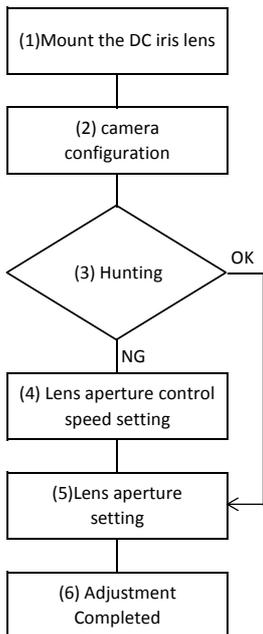


SPEED	OPERATION
000-255	<p>The smaller the set value, the slower the control speed, and the larger the set value, the faster the control speed.</p> <p>*When the set value is too large, the control speed will be faster, but it will cause hunting and overshoot. And please note that when the set value is too small, the operation will be delayed and it may stop.</p>

ODC iris lens adjustment procedures

When mounting the DC iris lens, adjust the lens aperture according to the following procedures.

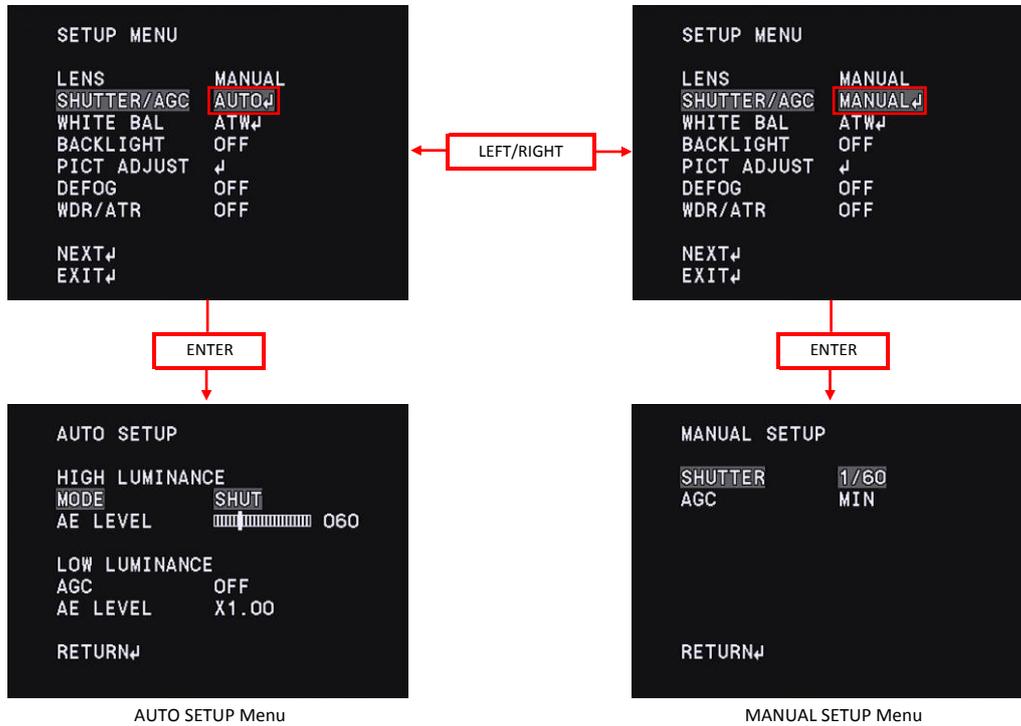
The procedures for adjusting the DC iris lens is as follows.



- (1) Mount the DC iris lens to the 1200CS
- (2) Set the OSD settings as follows;
  - Set 『3.3 Lens setting (LENS)』 settings to DC
  - Set 『3.4 Shutter / gain setting (SHUTTER / AGC)』 settings to AUTO.
  - Set 『3.4.1.1 Shutter speed (SHUT)』 settings to DC IRIS.
- (3) When hunting occurs in which the screen continually brightens or darkens in the actual imaging environment, proceed to step(4). When you get the image properly, please proceed to step(5).
- (4) When hunting occurs, the control speed of the lens aperture might be too fast, reduce the set value of 『3.3.1.2 auto iris lens aperture control speed (SPEED)』 until the hunting stops.
- (5) Adjust the lens aperture. Adjust the lens aperture with 『3.4.1.2 Brightness Setting (AE LEVEL)』 . Adjust 『3.4.1.2 Brightness Setting (AE LEVEL)』 to optimize brightness while checking the monitor.
- (6) The adjustment is completed. Save the setting.

### 3.4 Shutter/Gain Settings(SHUTTER/AGC)

Set the exposure control. There are two modes of exposure control: the automatic exposure control (AUTO) and the manual exposure control (MANUAL). When AUTO is selected, shutter speed and gain are automatically controlled according to the imaging environment. When MANUAL is selected, shutter speed and gain can be set to arbitrary fixed values. Move the cursor to SHUTTER/AGC with UP/DOWN and use the LEFT/RIGHT to select AUTO or MANUAL. After selecting the mode, press ENTER to open each advanced setting sub menu.

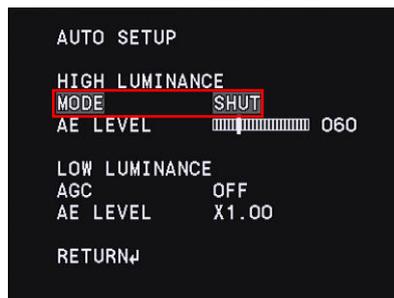


#### 3.4.1 Automatic exposure control(AUTO)

##### 3.4.1.1 Shutter Speed(SHUTTER)

Set the shutter speed (SHUTTER). Use the LEFT/RIGHT to select the shutter mode.

\*Default : SHUT



\* In this function, selectable MODE defers by combining with LENS setting of [3.3 DC iris lens control setting (LENS)]. When the LENS setting is MANUAL, the selectable MODE is only SHUT. When the LENS setting is DC, select from either SHUT + DC IRIS or DC IRIS.

LENS	SHUTTER/AGC	MODE	OPERATION
MANUAL	AUTO	SHUT	Automatic exposure control by electric iris. Depending on the brightness of the shooting object, exposure will be controlled within the range of 1/60s(1/50s) to 1/100000s for getting the appropriate brightness. *(1/50s) : Default in PAL
DC	AUTO	SHUT+DC IRIS	Automatic exposure control by combining electric iris and DC iris. This mode uses electric iris preferentially and when it is still too bright, it will controlled by DC iris lens.
		DC IRIS	Automatic exposure control by DC iris. The exposure is only controlled with aperture of DC iris lens. *Electric iris does not operate in this mode.

### 3.4.1.2 Brightness settings, high luminance side(AE LEVEL)

Set the brightness in the screen (AE LEVEL). Use the LEFT / RIGHT to adjust the brightness.

\*Default: Vary depending on the fine adjustment at factory

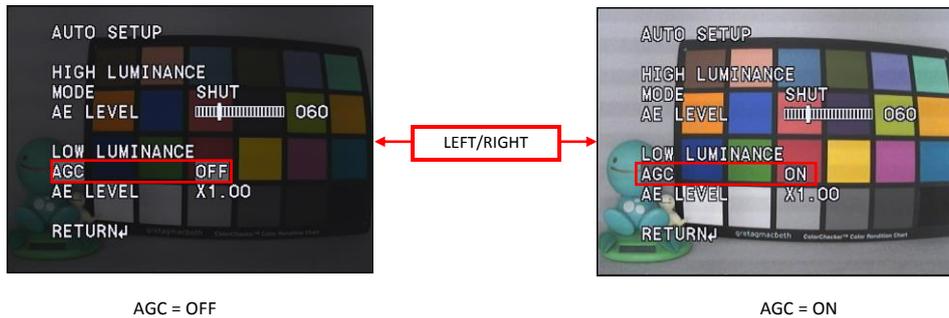


SHUTTER/AGC	AE LEVEL (HIGH LUMINANCE)	OPERATION
AUTO	0—255	Brightness can be set within the range of 0 (dark) -255 (bright). *When the auto iris lens is mounted, we will use the AE LEVEL to adjustment the lens aperture. For the details, see the auto iris lens adjustment procedures in 『3.3.2 Auto iris lens aperture control speed (SPEED)』

### 3.4.1.3 Auto Gain Control(AGC)

Set the auto gain control setting (AGC). Gain controls exposure at low luminance when electric shutter and DC Iris lens could not achieve the full exposure. Use the LEFT / RIGHT to select AGC ON or OFF.

\*Default : ON



SHUTTER/AGC	AGC	OPERATION
AUTO	OFF	Exposure control at low luminance does not operate.
	ON	Automatic exposure control with gain at low luminance. *Gain range is 0 to 54 dB.

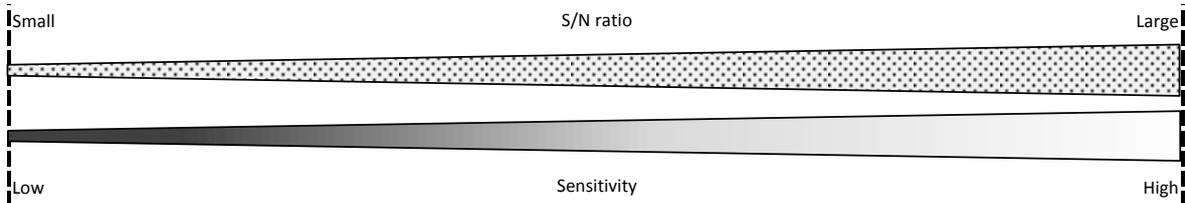
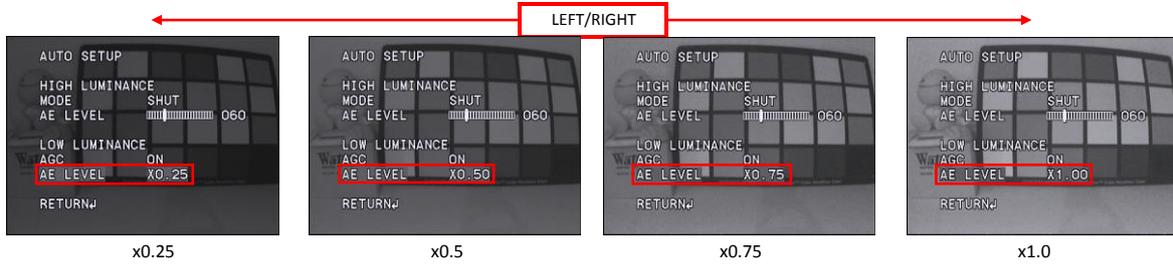
**3.4.1.4 Brightness Settings, Low Luminance Side (AE LEVEL)**

Set the brightness of exposure control at low luminance side(AE LEVEL) . Apart from 『3.4.1.2 Brightness Adjustment (AE LEVEL)』, the brightness at the time of gain operation can be set independently. For dark subjects, you could reduce the noise instead of darkening the image.

Use the LEFT / RIGHT to select from x0.25, x0.5, x0.75, x1.0.

\*Default : x1.0

OAGC Operation



SHUTTER/AGC	AE LEVEL (LOW LUMINANCE)	OPERATION
AUTO	x0.25	The lower the value, the lower the sensitivity, the S/N ratio improves instead. The higher the value, the lower the S/N ratio, the sensitivity improves instead.
	x0.5	
	x0.75	
	x1.0	

**3.4.2 Manual Exposure Control(MANUAL)**

**3.4.2.1 Shutter Speed (SHUTTER)**

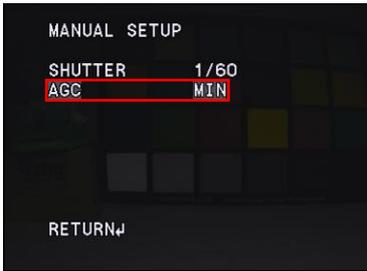
Set the shutter speed (SHUTTER) settings. Use the LEFT/RIGHT to select the shutter speed.

SHUTTER/AGC	MODE	OPERATION
MANUAL	SHUT	Selectable shutter speed : 1/60s(1/50s), 1/100s,1/120s, 1/125s, 1/250s, 1/500s, 1/1000s, 1/2000s, 1/4000s, 1/8000s, 1/10000s, 1/20000s, 1/50000s, 1/100000s *(1/50s) : PAL setting *Default : <u>1/60s(1/50s)</u>

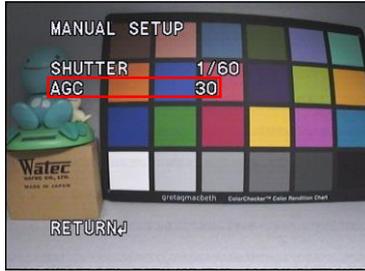
**3.4.2.2 Gain value settings (AGC)**

Set the gain value (AGC) settings. Use the LEFT/RIGHT to set the gain value.

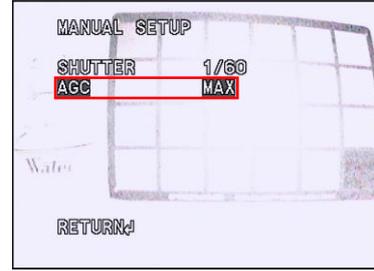
\*Default : MIN (0dB)



AGC = MIN (0dB)



AGC = 30dB



AGC = MAX (54dB)

SHUTTER/AGC	AGC	OPERATION
MANUAL	MIN—MAX	Fix the gain to an arbitrary value regardless of the brightness of the subject. The setting value can be selected from 18dB, 24dB, 30dB, 36dB, 42dB, 48dB, MAX(54dB). The higher the setting value, the brighter the image. The smaller the setting value, the darker the image.

### 3.5 White Balance(WHITE BAL)

Set the white balance (WHITE BAL) settings. This function is to correct white colored subjects to be shown as white under the illumination environment of various color temperatures . Use the LEFT / RIGHT to select the WHITE BAL from ATW, PUSH, USER1, USER2, MANUAL, PUSH LOCK.

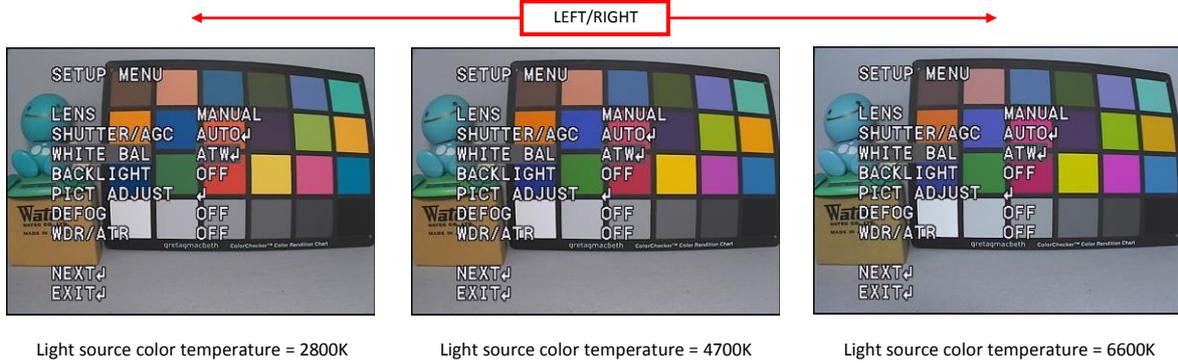
\*Default : ATW



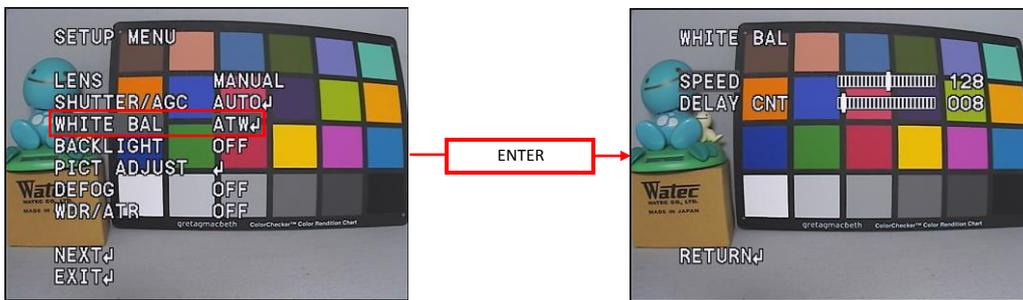
WB	OPERATION
ATW	ATW automatically controls the white balance and maintains color reproducibility by following the change in surrounding color temperature. Pull-in range is set in advance, it controls only when the surrounding color temperatures judged to be within the pull-in frame. By setting the pull-in frame, deterioration of color reproduction can be reduced without taking in pull-in operation in imaging scenes where monochrome occupies a large proportion in the screen.
PUSH	PUSH controls the white balance irrespective of subject conditions. Since the pull-in control always operates regardless of the preset pull-in range, the pull-in operates in a wider color temperature range than ATW, but the pull-in control operates even in the imaging scene where monochrome occupies a large proportion on the screen and color reproduction may be impaired.
PRESET	For the preset white balance, you can select the white balance correction value from the predetermined color temperature of USER 1 (5100 K) or USER 2 (6300). It is effective if the color temperature of illumination to be used is known beforehand. USER1 (5100K) : (Fluorescent mode 2) Correct and fix the white balance based on the white under the lighting environment close to the bluish fluorescent light and fix it. USER2 (6300K) : (Sunlight mode) Correct and fix the white balance based on white under the lighting environment close to sunlight and fix it. The correction value of each preset white balance can be changed arbitrarily and respectively. When it is necessary to change, adjust the set value according to the usage environment.
MANUAL	MANUAL corrects the white balance with arbitrary setting values. Adjust the setting according to the usage environment.
PUSH LOCK	While pressing the ENTER, PUSH LOCK corrects the white balance according to the color temperature under the use environment and fixes the operation with the white balance correction amount at that moment of the Enter is released. Since it matches the actual lighting, it can correct accurately even if the color temperature is unknown.

### 3.5.1 Auto Trace White Balance(ATW)

ATW maintains color reproducibility even when the color temperature of the light source changes.



When ATW is selected, press the ENTER to display the WHITE BAL menu. Move the cursor up or down with the UP / DOWN and use the LEFT / RIGHT to adjust items.



WB	(ATW SETUP Menu)	OPERATION
ATW	SPEED	<p>Set the pull-in speed. The lead-in speed can be set in the range 1-255.</p> <p>The lower the set value, the faster the pull-in speed, and the larger the set value, the slower the pull-in speed.</p> <p>*Note : Color oscillation is likely to occur if the pull-in speed is set too fast.</p> <p>*Default : 128</p>
	DELAY CTL	<p>Set the time from the changes in color temperature to the start of white balance control.</p> <p>Selectable in the range 1-255. The lower the set value, the faster to start WB control, the higher the set value, the slower to start WB control.</p> <p>*Default : 008</p>

### 3.5.2 Push White Balance(PUSH)

PUSH controls the white balance over a wider color temperature range than ATW and maintains color reproducibility regardless of subject conditions.

\*Speed control setting is not available.

### 3.5.3 Preset White Balance(USRE1 5100K/USER2 6300K)

For the preset white balance, you can select the white balance correction value from the predetermined color temperature of USER 1 (5100 K) or USER 2 (6300 K). When selecting either USER 1 (5100 K) or USER 2 (6300 K), pressing the ENTER will display the SETUP menu for each WB. Move the cursor up or down with the UP / DOWN and use the LEFT / RIGHT to adjust items.

#### OB-GAIN



#### OR-GAIN



PRESET WB	(SUB MENU)	OPERATION
5100K/6300K	B-GAIN	Set B-GAIN of the white balance correction value. B-GAIN can be set in the range of 000-255. When the set value is decreased, the screen will be corrected to the yellow side, and when it is increased the screen will be corrected to the blue side. <u>*The factory default value may vary.</u>
	R-GAIN	Set the R-GAIN of the white balance correction value. R-GAIN can be set in the range of 000 - 255. When the set value is decreased, the screen will be corrected to the cyan side, and when it is increased the screen will be corrected to the red side. <u>*The factory default value may vary.</u>

### 3.5.4 Manual White Balance(MANUAL)

MANUAL WB enables to set the white balance correction value arbitrarily.

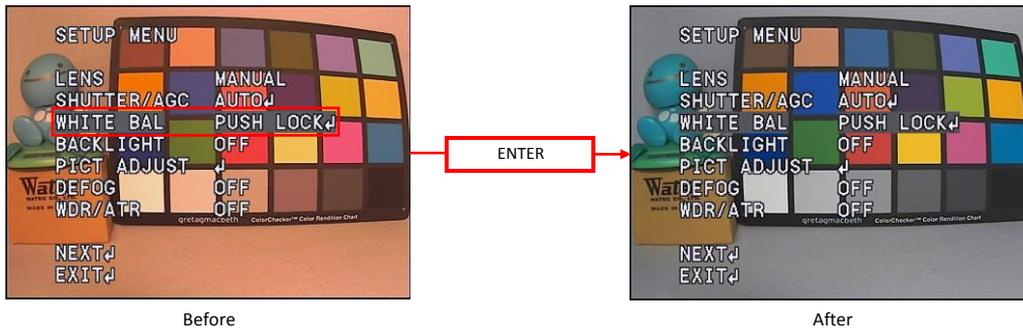
When MANUAL is selected, press the ENTER to display the manual white balance setting menu. Please use the LEFT / RIGHT to adjust items.



WHITE BAL	(SUB MENU)	OPERATION
MANUAL	POSITION	<p>Set the manual white balance correction value POSITION. POSITION can be set in the range of 000-063.</p> <p>When the set value is decreased, the screen will be corrected to the blue side, and when it is increased the screen will be corrected to the red side.</p> <p><u>*Default : 41</u></p>

### 3.5.5 Push Lock White Balance(PUSH LOCK)

PUSH LOCK adjusts the white balance under actual illumination and it can be corrected accurately even if the color temperature is unknown.



#### OPUSH LOCK adjustment method

Image a achromatic object such as white paper under the actual lighting in the entire screen and press the ENTER.

Confirm the correction and release the ENTER. It will be completed when the paper is corrected to white.



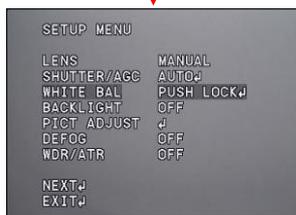
Step (1) Before



Step (2) Place the white paper in the entire screen



Step (3) Press the ENTER to start the correction



Step (4) Confirm the correction and release the ENTER  
(\*When it is succeeded, the white paper becomes white in the screen.)

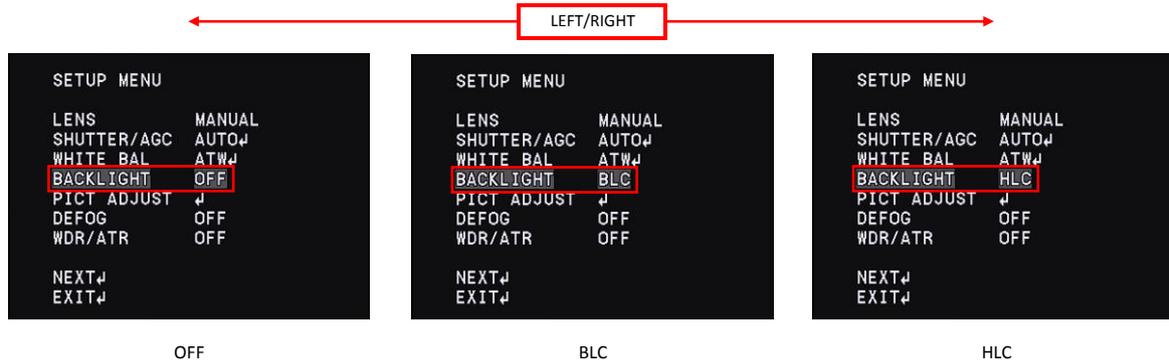


Step (5) After

### 3.6 Back Light Compensation (BACKLIGHT)

Set the backlight compensation mode (BACKLIGHT). Backlight compensation mode can be selected from Backlight Compensation (BLC) and Highlight Correction (HLC). Move the cursor on BACKLIGHT and use LEFT / RIGHT to select OFF, BLC or HLC.

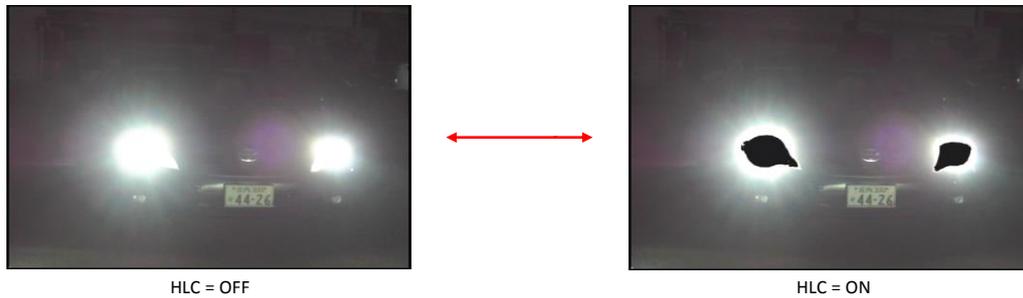
\*Default : OFF



○Back light compensation(BLC)



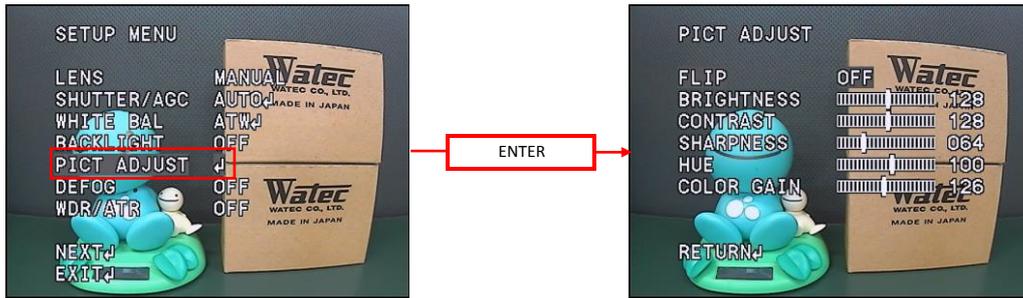
○Highlight compensation (HLC)



BACKLIGHT	OPERATION
OFF	No operation
BLC	Backlight compensation(BLC) operates. BLC is performed by increasing the brightness of the entire screen such that the subject that is blackened by backlight will have the proper brightness. When there is a dark subject, the BLC operates such that the correct brightness will be obtained. *When the 『3.9.2 Wide Dynamic Range』 function is ON, BLC can not be selectable.
HLC	Highlight compensation(HLC) operates. HLC reduces the burden on the observer's eyes by masking a strong light source in the dark and improves the deteriorated visibility with a strong light source.

### 3.7 Picture Adjust(PICT ADJUST)

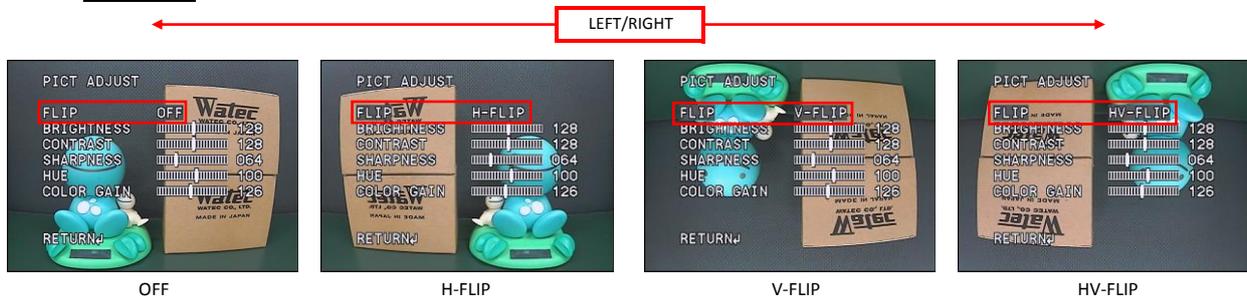
Adjust image quality. Move the cursor to PICT ADJUST and press the ENTER to display the PICT ADJUST menu. Move the cursor up or down with UP / DOWN and select the item you want to adjust.



#### 3.7.1 Image Flip(FLIP)

Set the image Flip(FLIP) processing. Use the LEFT/RIGHT to select from normal (OFF), horizontal flip (H - FLIP), vertical flip (V - FLIP) and horizontal - vertical image flip. (HV - FLIP).

\*Default : OFF



MIRROR	OPERATION
OFF	Normal image
H-FLIP	Horizontal image flip
V-FLIP	Vertical image flip
HV-FLIP	Horizontal and vertical image flip. Rotating the image by 180 degrees.

#### 3.7.2 Brightness(BRIGHTNESS)

Set the brightness(BRIGHTNESS)settings, Use the LEFT/RIGHT to adjust the brightness.

\*Default : 128



CONTRAST	OPERATION
000-255	The smaller the setting value, the darker the image, and the larger the setting value the brighter the image.

### 3.7.3 Contrast(CONTRAST)

Set the contrast (CONTRAST) settings. Use the LEFT/RIGHT to adjust the contrast.

\*Default : 128



CONTRAST	OPERATION
000-255	The smaller the setting value, the lower the contrast. The larger the setting value, the higher the contrast.

### 3.7.4 Edge Enhancement(SHARPNESS)

Sets the intensity of edge enhancement (SHARPNESS). It enhances the visual effects of resolution by emphasizing the outline portion of the image. Use the LEFT / RIGHT to set SHARPNESS.

\*Default : 64



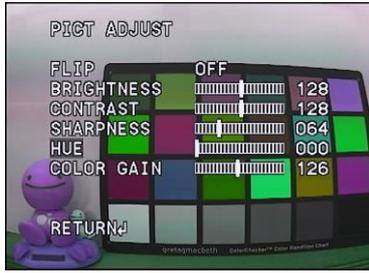
SHARPNESS	OPERATION
000-255	The larger the setting value, the higher the edge enhancement level of the entire screen, the sharper the image, but the noise become marked.

### 3.7.5 Chroma Settings(HUE,COLOR GAIN)

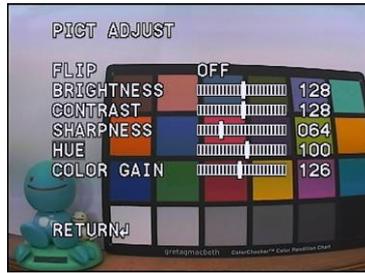
Set the chroma level (HUE, COLOR GAIN). You can set your arbitrary color by adjusting color gain (COLOR - GAIN) and color hue (HUE).

Use the LEFT / RIGHT to adjust the chroma.

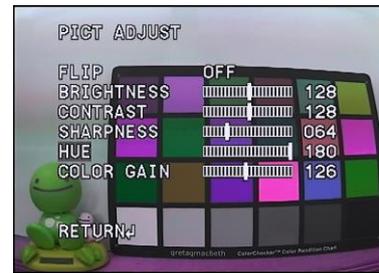
OHUE



HUE = 0

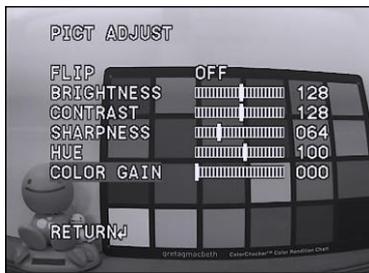


Default



HUE = 180

O COLOR GAIN



COLOR GAIN = 0



Default



COLOR GAIN = 255

(ADJUST Menu)	OPERATION
HUE	HUE can be set in the range of 000-180. Adjust the hue. <u>*The factory default value may vary.</u>
COLOR GAIN	COLOR GAIN can be set in the range of 000 - 255. Adjust the color gain. <u>*The factory default value may vary.</u>

\* The above explanation is a guide only, make adequate evaluation in the use environment.

### 3.8 Defog(DEFOG)

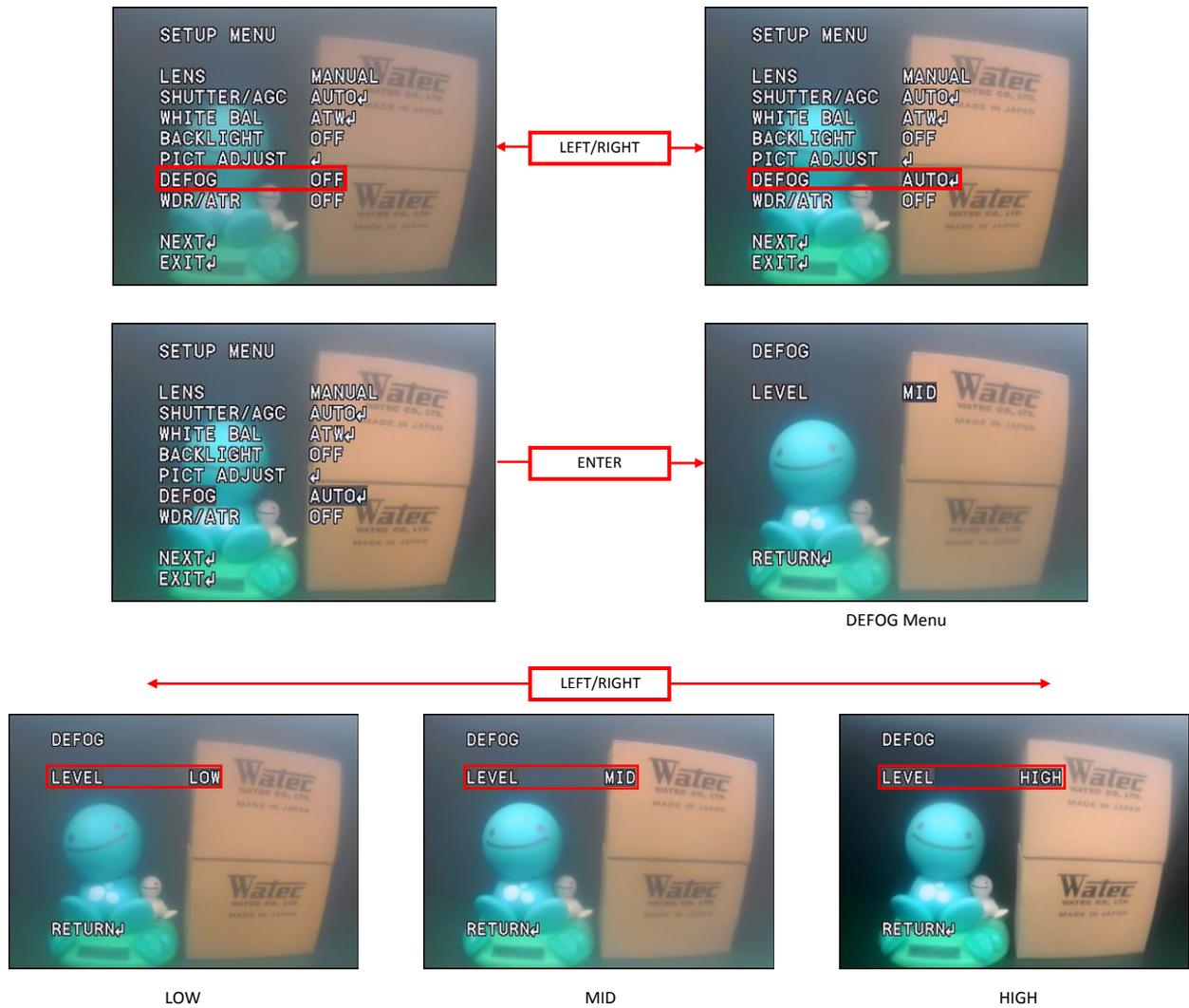
Set the defog (DEFOG) settings. When fog or smoke occurs, the contrast of the screen decreases and the visibility deteriorates.

The defog function can improve the contrast of visually impaired images with fog and or smoke and improve visibility.

Selectable from OFF or AUTO. Pressing the ENTER when AUTO is selected displays the DEFOG Menu.

Use the LEFT / RIGHT to select the DEFOG setting.

\*Default : OFF

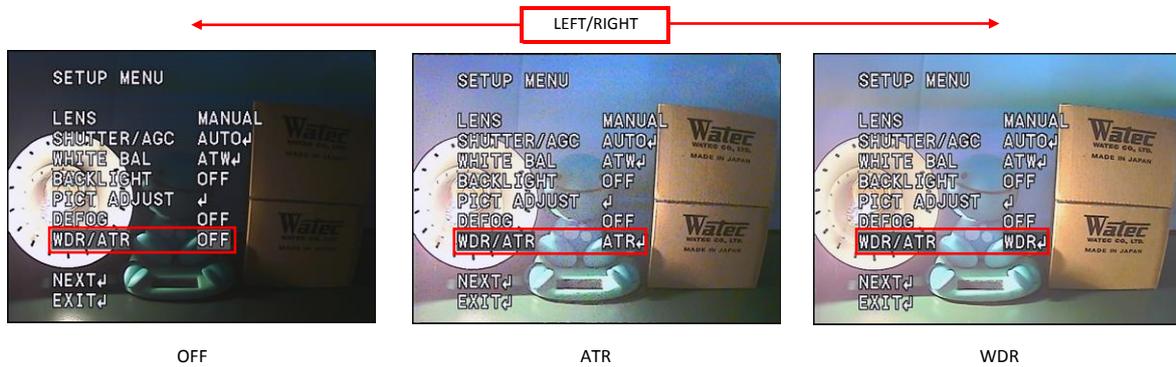


DEFOG	SUB MENU	OPERATION
OFF	-	No operation
AUTO	LOW	DEFOG automatically operates when foggy condition is detected. LOW : Fog detection sensitivity low, contrast correction low
	MID	MID : Fog detection sensitivity mid, contrast correction low
	HIGH	HIGH : Fog detection sensitivity high, contrast correction high The larger that set value, the higher the constact. It improves the visibility. *Default : MID

### 3.9 Wide Dynamic Range / Tone Correction (WDR / ATR)

Set the wide dynamic range / tone correction function. When you take a subject with a large contrast difference such as a backlight condition, some of the subjects will be overexposure or underexposure. The wide dynamic range / tone correction (WDR / ATR) suppresses overexposure or underexposure of the subject under the conditions and corrects it to a natural image. Use the LEFT / RIGHT to select from OFF, ATR or WDR.

\*Default : OFF

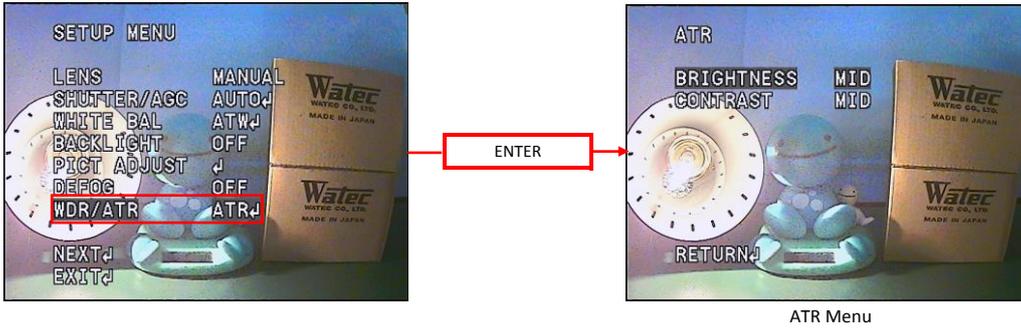


### 3.9.1 Adaptive Tone-Curve Reproduction (ATR)

Press the ENTER when ATR is selected to display the ATR menu.

You can select the correction amount of brightness and contrast of tone correction from LOW, MID, HIGH.

\*Default : MID



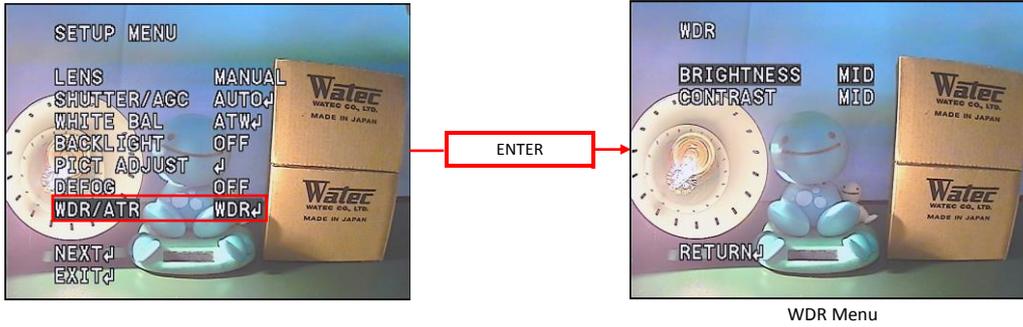
WDR/ATR	SUB MENU	OPERATION
ATR	BRIGHTNESS	Set the brightness correction amount of the tone correction function. The larger the setting value, the brighter the image, the smaller the setting value, the darker the image.
	CONTRAST	Set the contrast correction amount of the tone correction. Increasing the setting value improves the visibility and can capture the bright and dark areas at the same time. Decreasing the set value will result in a natural image with overall contrast.

### 3.9.2 Wide Dynamic Range (WDR)

Press the ENTER when WDR is selected to display the WDR menu.

You can select the correction amount of wide dynamic range brightness and contrast from LOW, MID, HIGH.

\*Default : MID



← BRIGHTNESS ← LEFT/RIGHT →



BRIGHTNESS = LOW



BRIGHTNESS = MID



BRIGHTNESS = HIGH

← CONTRAST ← LEFT/RIGHT →



CONTRAST = LOW



CONTRAST = MID



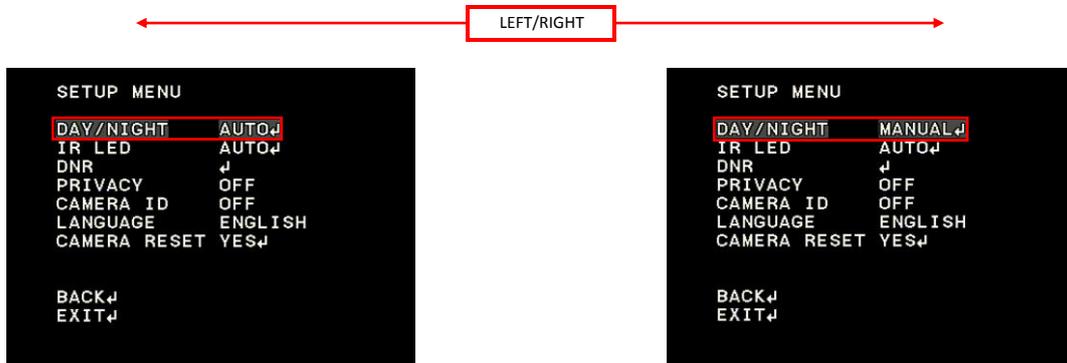
CONTRAST = HIGH

WDR/ATR	SUB MENU	OPERATION
WDR	BRIGHTNESS	Set the brightness correction amount of the wide dynamic range function. The larger the setting value, the brighter the image, the smaller the setting value, the darker the image.
	CONTRAST	Set the contrast correction amount of the wide dynamic range. Increasing the setting value improves the visibility and can capture the bright and dark areas at the same time. Decreasing the set value will result in a natural image with overall contrast.

### 3.10 Day & Night Function (DAY/NIGHT)

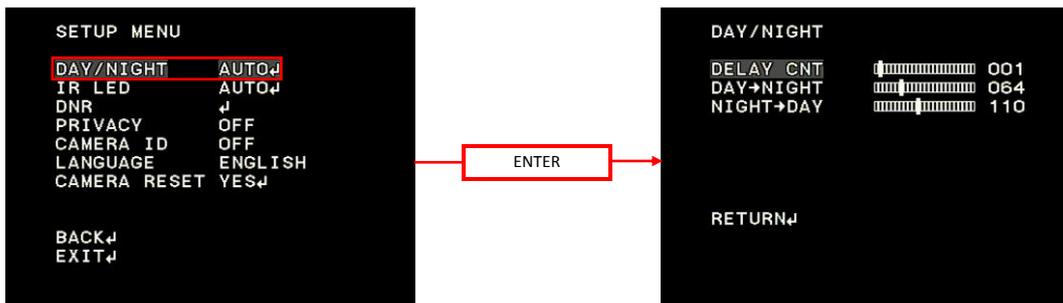
Set the Day / Night (DAY / NIGHT) function. It is a new type of mechaless Day & Night function that does not use the ICR (Infrared Cut filter Removal) mechanism. When the ambient illuminance decreases like a nighttime, imaging with near-infrared wavelengths enables to improve the sensitivity of the camera and improve visibility at night. Moreover, combining with an external infrared emitter enables further improvement of the sensitivity of the camera. Use the LEFT / RIGHT to select between AUTO and MANUAL.

\*Default : AUTO



#### 3.10.1 Automatic Switching Mode(AUTO)

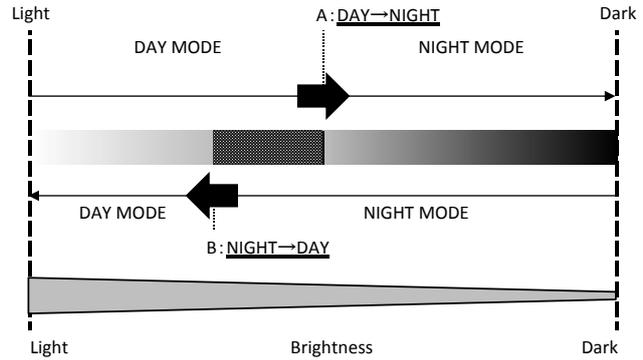
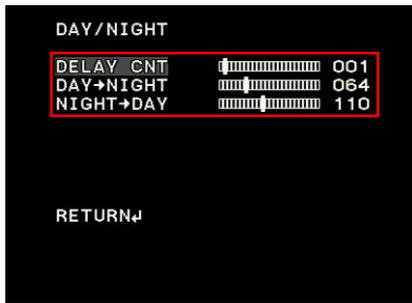
Set the automatic switching mode (AUTO). This mode enables to switch between Day mode and Night mode automatically according to the ambient brightness. When AUTO is selected, press the ENTER to display the DAY / NIGHT menu. Move the cursor up or down and use LEFT / RIGHT to adjust the items.



### 3.10.1.1 Day↔Night Switching Control(DELAY CNT / DAY→NIGHT / NIGHT→DAY)

Set the threshold and transition determination time of the Day / Night switching control. Illuminance is used for judgment of brightness.

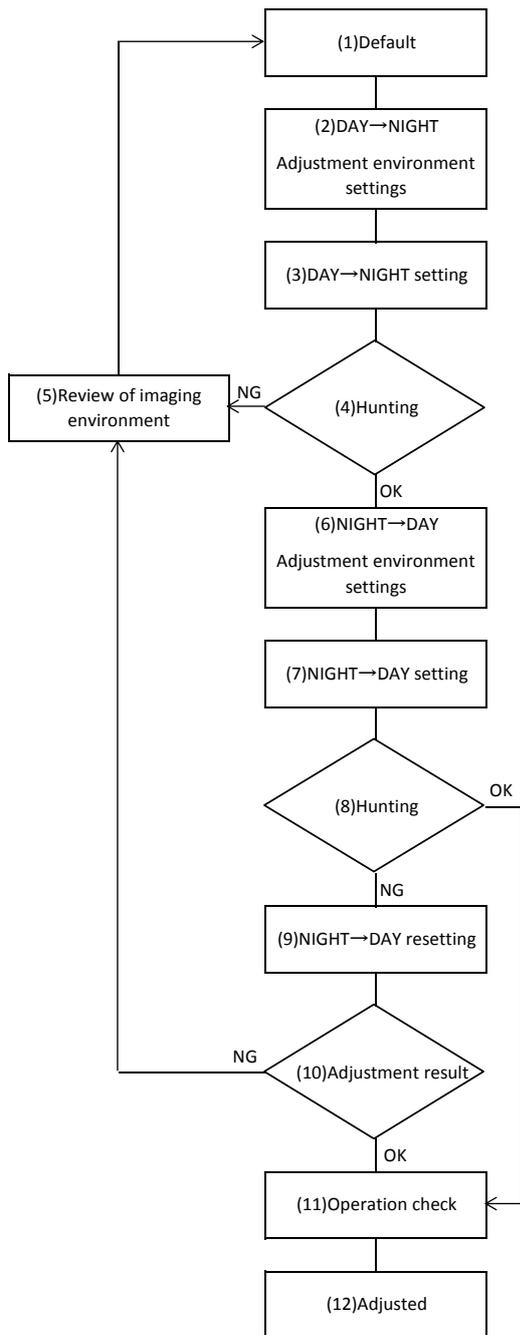
Use the LEFT / RIGHT to move the cursor to adjust the threshold and transition judgment time of Day ↔ Night.



DAY/NIGHT	(DAY/NIGHT MENU)	OPERATION
AUTO	DELAY CTL	Set the transition judgment time between Day mode and Night mode. When you keep the Day mode or Night mode continuously during the period set by DELAY CTL, you will make Day ↔ Night transitions. DELAY CTL can be set in the range of 000 - 255. The unit is "seconds". <u>*Default : 001</u>
	DAY→NIGHT	Set the brightness to transition from Day mode to Night mode. When ambient illuminance decreases and falls below the set value, it switches to Night mode. DAY → NIGHT can be set in the range 0-255. Please set as DAY → NIGHT < NIGHT → DAY. <u>*Default : 064</u>
	NIGHT→DAY	Set the brightness to transition from Night mode to Day mode. When the ambient illuminance rises and exceeds the set value, it switches to Day mode. NIGHT → DAY can be set in the range 0-255. Please set as DAY → NIGHT < NIGHT → DAY. <u>*Default : 110</u>

○Day ⇄ Night switching threshold adjustment procedure

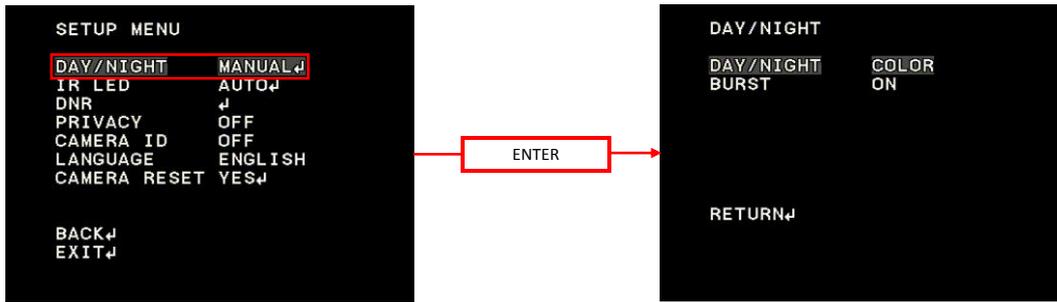
The procedures for adjusting DAY → NIGHT and NIGHT → DAY is as follows.



- (1) Set DAY → NIGHT = 255 (Max. value)  
NIGHT → DAY = 0 (Min. value), DELAY CTL = 001.
  - (2) Adjust the lighting and reproduce the brightness you want to switch to the Night mode while checking the monitor.
  - (3) Lower the set value of DAY → NIGHT one by one until it switches from the Day mode to the Night mode.
  - (4) Jump to (6) if the hunting that the Day mode and the Night mode switch continuously does not occur.  
If the hunting occurs, go to (5).
  - (5) It may be impossible to respond by switching using the threshold of Day/Night mode. Please change the object and lighting.
  - (6) Adjust the lighting and reproduce the brightness you want to switch to Day mode while checking the monitor.
  - (7) Higher the set value of NIGHT → DAY one by one until it switches from the Night mode to the Day mode.
  - (8) If the hunting does not occur, go to (11).  
If the hunting occurs, go to (9).
  - (9) Lower the set value of NIGHT → DAY until the hunting stops.
  - (10) If you are not satisfied with the adjustment result of NIGHT → DAY, back to (5).
  - (11) Make change of lighting and confirm the switching of Day / Night is done without problems
  - (12) If there is no problem with the above setting, the adjustment is completed. Please save the setting.
- \*Illuminance is used for judgment of brightness.  
Therefore, we recommend to readjust the Day / Night switching threshold when changing the aperture of the lens.

**3.10.2 Manual Switching Mode(MANUAL)**

Set the manual switching mode (MANUAL). The manual switching mode can be fixed to Day mode or Night mode regardless of ambient brightness. When MANUAL is selected, press the ENTER to display the DAY / NIGHT menu. Move the cursor up or down and use LEFT / RIGHT to adjust items.



**3.10.2.1 Day / Night setting(DAY/NIGHT)**

Select the Day / Night setting from the Day mode or the Night mode.

\*Default : DAY

DAY/NIGHT	OPERATION
B/W	Night mode is to be set. Imaging will always be monochrome even in a bright environment.
COLOR	Day mode is to be set. In a bright environment it works as an ordinary color camera. As the light intensity lower, it will smoothly switch to the monochrome image. * Even under the environment of low illumination, the night mode interlocking function of IR LED control can not be used.

**3.10.2.2 Burst signal(BURST)**

Select ON / OFF of the burst signal in the Night mode.

\*Default : ON

BURST	OPERATION
ON	Add a burst signal. Please turn it ON if some monitors and image capture boards may not accept video signals without color burst. * We recommend that you turn off BURST when using a displayable device even without a color burst.
OFF	No burst signal is added. * When COLOR is selected with the DAY / NIGHT, the burst signal is always added, regardless of BURST setting.

### 3.11 IR LED Control(IR LED)

Set the IR LED control (IR LED) function. It is a function that modulates the infrared emitter by combining the PWM signal from the IR LED control connector and the infrared emitter equips the digital input. Use the LEFT/RIGHT to select AUTO, FIX, OFF.

When AUTO or FIX is selected, press the ENTER to display the setting menu.

\*Default : AUTO

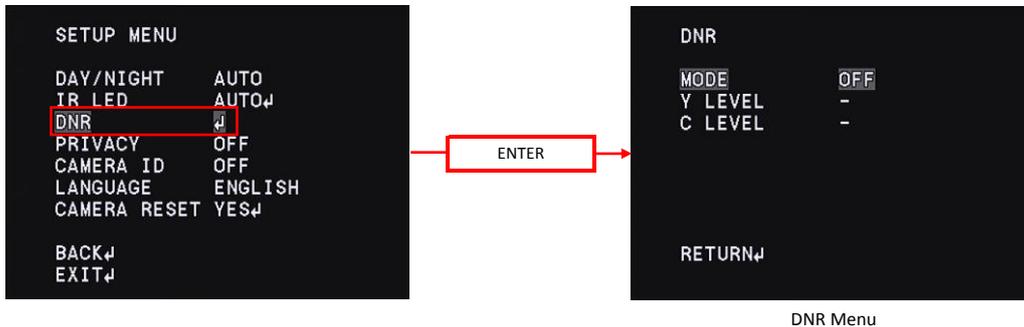


IR LED	(SUB MENU)	OPERATION
AUTO	LEVEL MAX	<p>Set the limit level of the IR LED control PWM signal. Limit level of IR LED control PWM signal can be set within the range of 006 - 255. The higher the LEVEL, the greater the duty ratio of the PWM signal. When LEVEL 255 is selected, the DUTY ratio will be 100%.</p> <p>In AUTO mode, PWM signal outputs only when DAY / NIGHT switches to NIGHT mode. The DUTY ratio of the PWM signal changes according to the illuminance. The DUTY ratio increases when the illuminance is high and decreases when it is low.</p>
FIX	LEVEL	<p>Set the level of the IR LED control PWM signal. The level of the IR LED control PWM signal can be set within the range 0-255. When LEVEL 0 is selected, the DUTY ratio of the PWM signal will be 0%. The higher the LEVEL, the greater the DUTY ratio of the PWM signal and when LEVEL 255 is selected the DUTY ratio will be 100%.</p> <p>In FIX mode, DUTY ratio always outputs fixed PWM signal regardless of DAY / NIGHT judgement.</p>
OFF	-	<p>The IR LED control function is turned OFF.</p> <p>The PWM signal does not output from the IR LED control connector.</p>

### 3.12 Noise Reduction(DNR)

Set the noise reduction (DNR) function. Noise reduction is a function to reduce image noise to improve the image quality of the camera. Especially, it reduces the noise that occurs when the gain becomes high in low illumination environment.

Move the cursor to DNR and press the ENTER to display the DNR menu. Move the cursor up or down with UP / DOWN to adjust items.

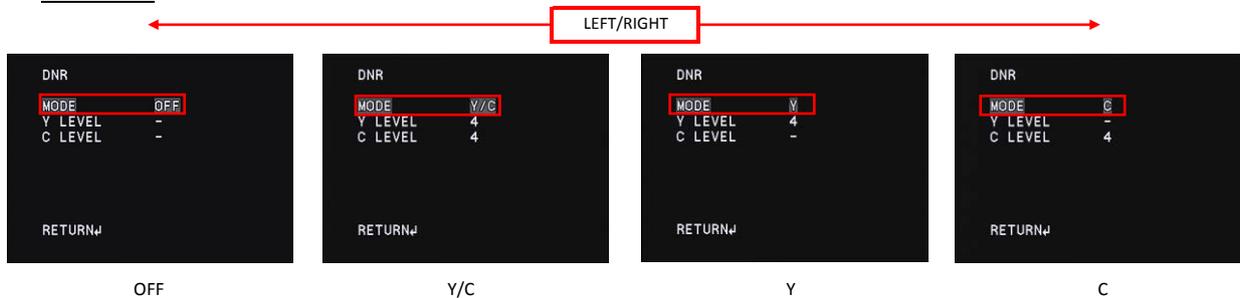


DNR Menu

#### ODNR MODE setting

Set the operation mode of noise reduction.

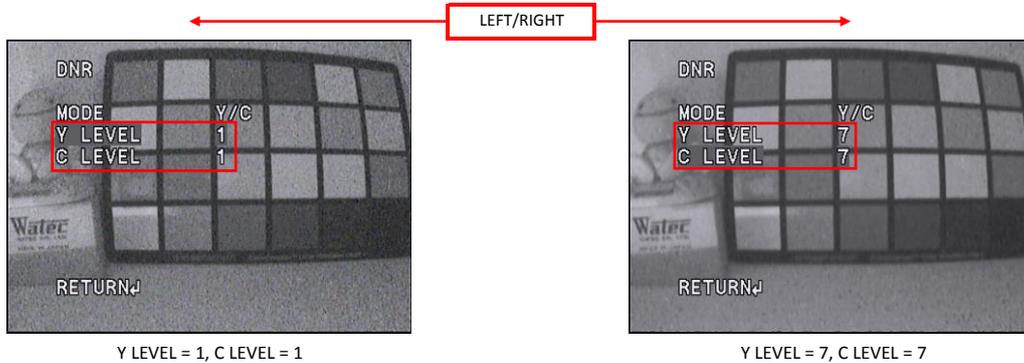
\*Default : OFF



#### OLEVEL setting

Set the correction level of noise reduction.

Use the LEFT / RIGHT to move the cursor and adjust the noise reduction correction level



Y LEVEL = 1, C LEVEL = 1

Y LEVEL = 7, C LEVEL = 7

DNR MENU	(SUB MENU)	OPERATION
MODE	OFF	No operation
	Y	Noise reduction operates on Y component independently.
	C	Noise reduction operates on C component independently.
	Y/C	Noise reduction operates on Y component and C component while using the 2 filters.
Y LEVEL	001 - 007	Set Y component correction level of noise reduction. The greater the set value, the stronger the effect of noise reduction. *Default : 004
C LEVEL	001 - 007	Set C component correction level of noise reduction. The greater the set value, the stronger the effect of noise reduction. *Default : 004

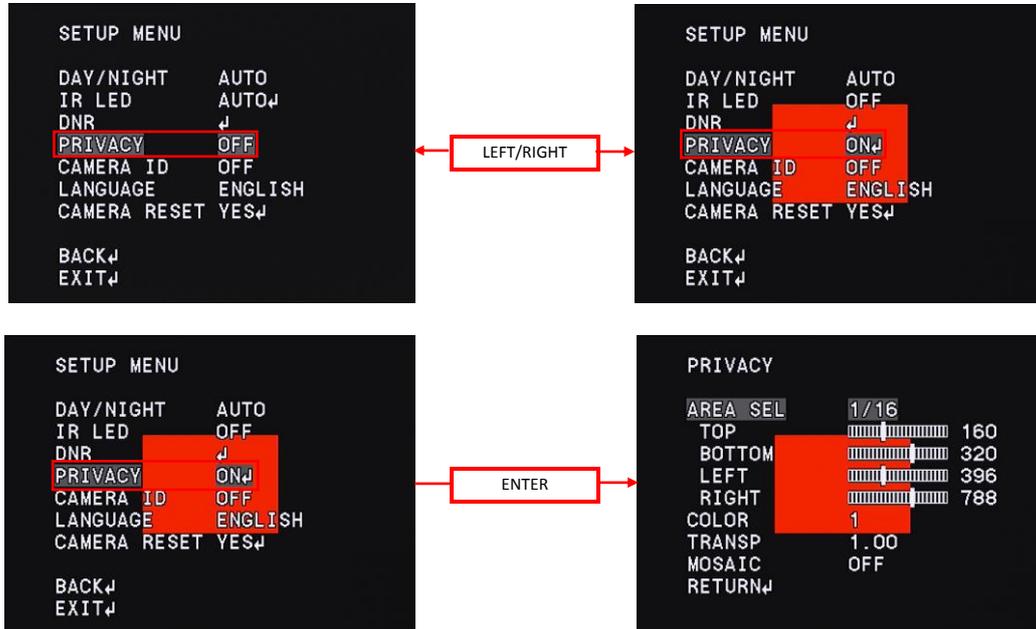
### 3.13 Privacy Mask(PRIVACY)

Set the privacy mask (PRIVACY). The privacy mask can hide areas that you do not want to display on the screen. Up to 16 masks can be displayed on the screen. You can set the display area, color, darkness and mosaic processing for each mask independently.

Move the cursor to PRIVACY and select ON or OFF with LEFT / RIGHT. Press the ENTER when ON is selected displays the PRIVACY menu.

Move the cursor up and down with UP/DOWN and adjustment the item you want to adjust while using the LEFT / RIGHT.

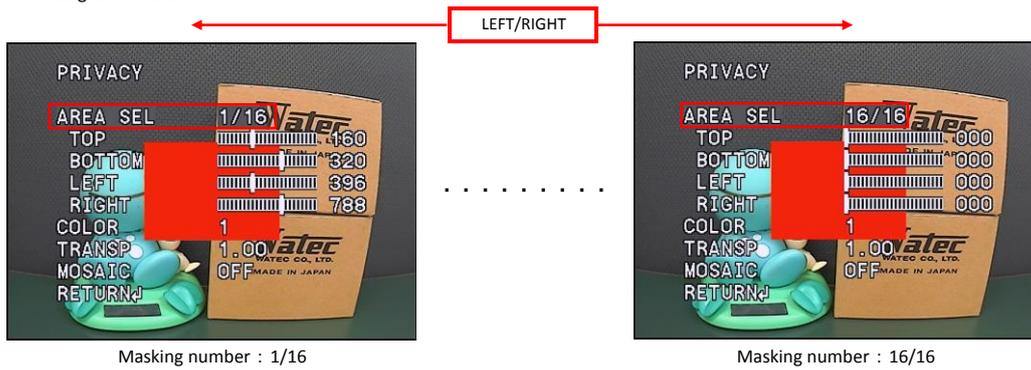
\*Default : OFF



(PRIVACY Menu)	OPERATION
AREA SEL	Select the mask number to be set. The masking number is selected from 1/16 to 16/16. *Default : 1/16
TOP	Set the top side of the masked area. It can be set within the range of 000 - 480 (576) *(576) : Set value in PAL
BOTTOM	Set the bottom side of the masked area. It can be set within the range of 000 - 480 (576). It can not be set to a smaller value than TOP. *(576) : Set value in PAL
LEFT	Set the left side of the masked area. It can be set within the range of 000 - 1184 (1174). *(1174) : Set value in PAL
RIGHT	Set the right side of the masked area. It can be set within the range of 000 - 1184 (1174). It can not be set to a smaller value than LEFT *(1174) : Set value in PAL
COLOR	Set the masking color. You can select the color from the following 8 colors. 1 (RED), 2 (GREEN), 3 (BLUE), 4 (YELLOW), 5 (CYAN), 6 (MAGENTA), 7 (WHITE), 8 (BLACK) *Default : 1 (RED)
TRANSP	Set the transparency of the masking. The masking transparency can be selected from 0.00, 0.50, 0.75 and 1.00. The higher the set value, the lower the transparency of the masking, 1.00 will completely mask the masking area. *Default : 1.00
MOSAIC	Set ON/OFF of mosaic processing. Mosaic processing on the masking area available when ON is selected. *When TRANSP is set to 1.00, mosaic processing not available. *Default : OFF

○ AREA SEL settings

Select the masking area number to be set.



Masking number : 1/16

Masking number : 16/16

○ Masking area settings

Use the UP/DOWN/LEFT/RIGHT to select the masking area.



- (1) Move the cursor to TOP with UP/DOWN and use LEFT/RIGHT to adjust the position of the top side of the masking area.

\*When you set the TOP value close to 000, the masking area will move to the top of the screen and set the value close to the limit, it will move to the bottom of the screen.



- (2) Move the cursor to BOTTOM with UP/DOWN and use LEFT/RIGHT to adjust the position of the bottom side of the masking area.

\*When you set the BOTTOM value close to 000, the masking area will move to the top of the screen and set the value close to the limit, it will move to the bottom of the screen.



- (3) Move the cursor to LEFT with UP/DOWN and use LEFT/RIGHT to adjust the position of the left side of the masking area.

\*When you set the LEFT value close to 000, the masking area will move to the left side of the screen and set value to the limit, it will move to the right side of the screen.



- (4) Move the cursor to RIGHT with UP/DOWN and use LEFT/RIGHT to adjust the position of the right side of the masking area.

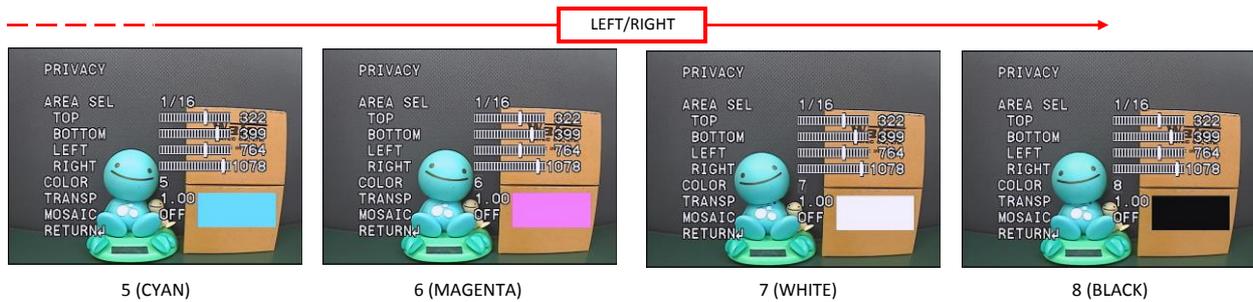
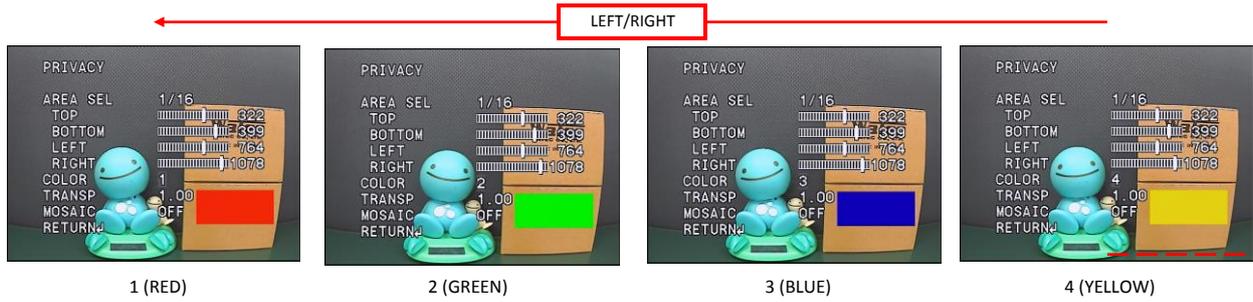
\*When you set the RIGHT value close to 000, the masking area will move to the left side of the screen and set value to the limit, it will move to the right side of the screen.

\*Default setting of the MASKING area is masking number 1 in the center of the screen. For the masking number 2 to 16, TOP, BOTTOM, LEFT and RIGHT are set to 000 in the default setting and NO masking area is specified. Set the masking area according to above procedures.

\*NOTE : When the same value is set for TOP and BOTTOM or LEFT and RIGHT, the masking area is not displayed.

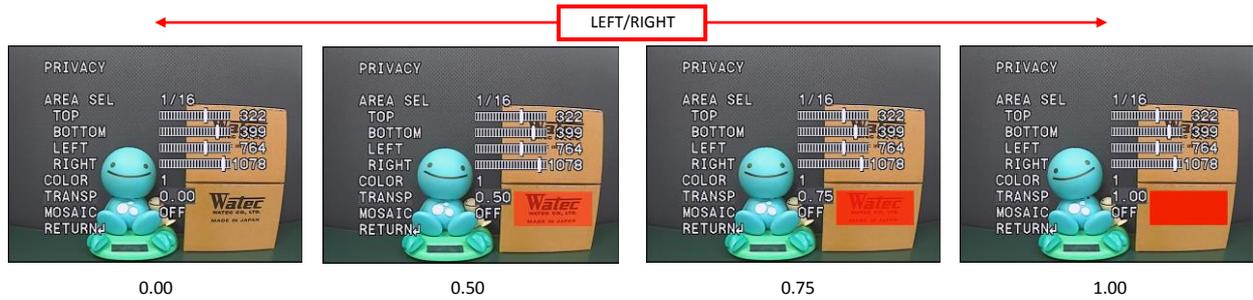
### OMasking COLOR setting

Set the masking color.



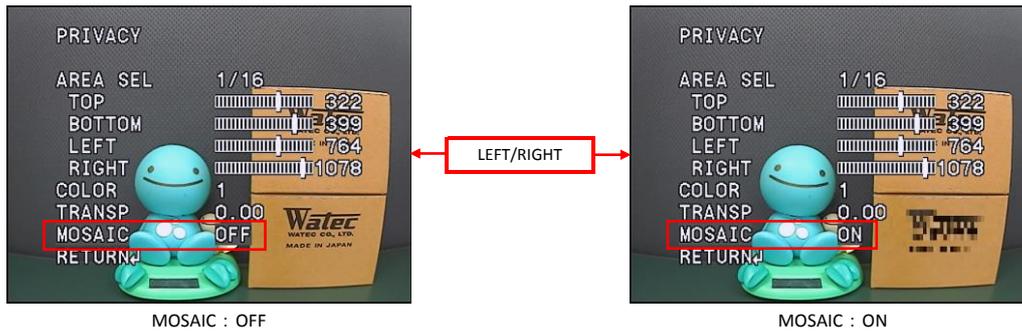
### OTRANSparency setting.

Set the transparency setting.



### OMOSAIC setting

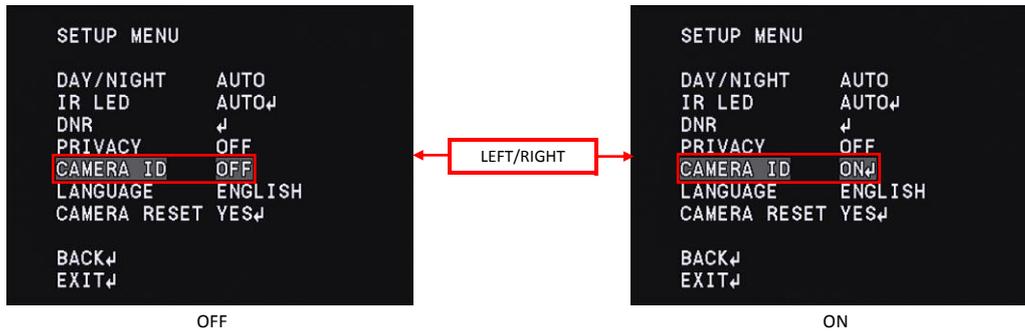
Set the mosaic processing ON / OFF



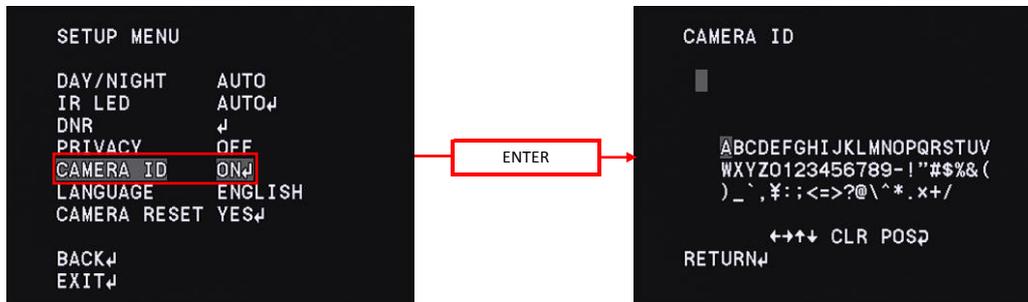
### 3.14 Camera ID(CAMERA ID)

Set the camera ID (CAMERA ID). This function displays arbitrary characters on the screen. It is effective for identifying the camera on the screen when using multiple cameras. Move the cursor to CAMERA ID with UP/DOWN and use the LEFT/RIGHT to select ON / OFF.

\*Default : OFF



When ON is selected, press ENTER to display CAMERA ID menu. Use the UP/DOWN/LEFT/RIGHT to select the character to be displayed and use the ENTER to enter the characters.



CAMERA ID	(CAMERA ID SETUP Menu)	OPERATION
OFF	—	CAMERA ID is hidden.
ON	(input)	The characters that can be entered are displayed in the CAMERA ID SETUP menu. Up to 52 characters such as alphabet (capital), numbers, and symbols can be entered. *Default : blank
	←→ ↑ ↓	Set the position of the cursor when entering characters. After entering a character, you can change the character by moving the cursor to the character you want to change and entering another character.
	CLR	Delete the entered characters.
	POS	Set the display position of the input character. Move the cursor to POS and press the ENTER to display a window for setting the display position of the character. *Default position : Upper left of the screen.

Character entering setting

Use the UP/DOWN/LEFT/RIGHT/ENTER to set the CAMERA ID.

(4) Move the cursor to CAMERA ID and press the ENTER so that the CAMERA ID menu will be displayed again.

```
SETUP MENU
DAY/NIGHT    AUTO
IR LED      AUTO↓
DNR          ↓
PRIVACY     OFF
CAMERA ID   ON↓
LANGUAGE    ENGLISH
CAMERA RESET YES↓
BACK↓
EXIT↓
```

(1) Move the cursor to CAMERA ID and press the ENTER.

ENTER

```
CAMERA ID
█
ABCDEF GHI JKLMNOPQRSTU
VWXYZ0123456789-!"#$%&('
) _ , ; : <=>?@^* .x+/
      ←→←→ CLR POS↓
RETURN↓
```

(2) Use the UP/DOWN/LEFT/RIGHT to select the character you want to display and use the ENTER to enter the characters.

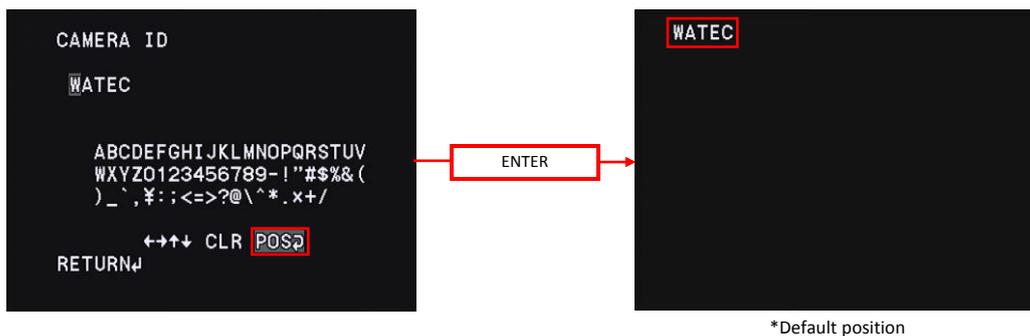
ENTER

```
CAMERA ID
WATEC
ABCDEF GHI JKLMNOPQRSTU
VWXYZ0123456789-!"#$%&('
) _ , ; : <=>?@^* .x+/
      ←→←→ CLR POS↓
RETURN↓
```

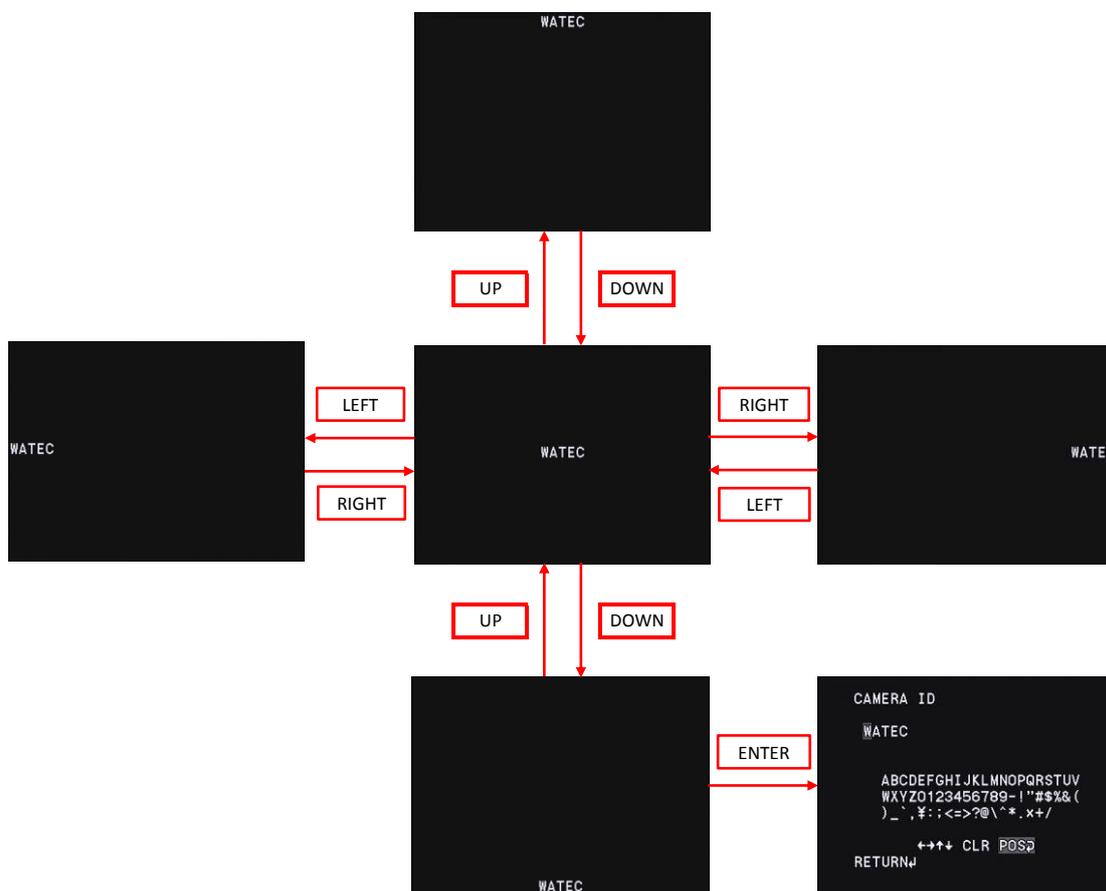
(3) After entering characters, move the cursor to "RETURN" and press the ENTER to return to SETUP MENU.

○ Display position setting

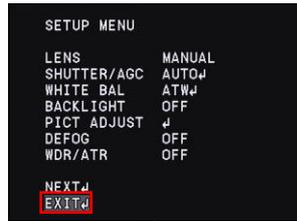
Move the cursor to POS and press the ENTER to display the display position setting menu.



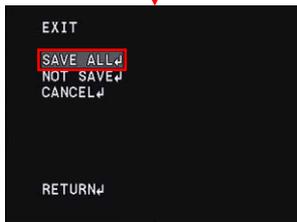
Use the UP/DOWN/LEFT/RIGHT to set the display position. After setting, press the ENTER to return to the CAMERA ID menu.



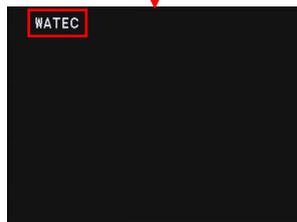
\*CAMERA ID will be displayed when the OSD menu screen is turned off. While the OSD menu is displayed, CAMERA ID does not show up.  
To turn off the OSD menu, move the cursor to EXIT with UP/ DOWN and press the ENTER to display the EXIT menu.  
Move the cursor to SAVE ALL or NOT SAVE with the UP / DOWN, hide the OSD menu by pressing the ENTER.



(1) Select EXIT and press the ENTER.



(2) Select SAVE ALL or NOT SAVE and press the ENTER.



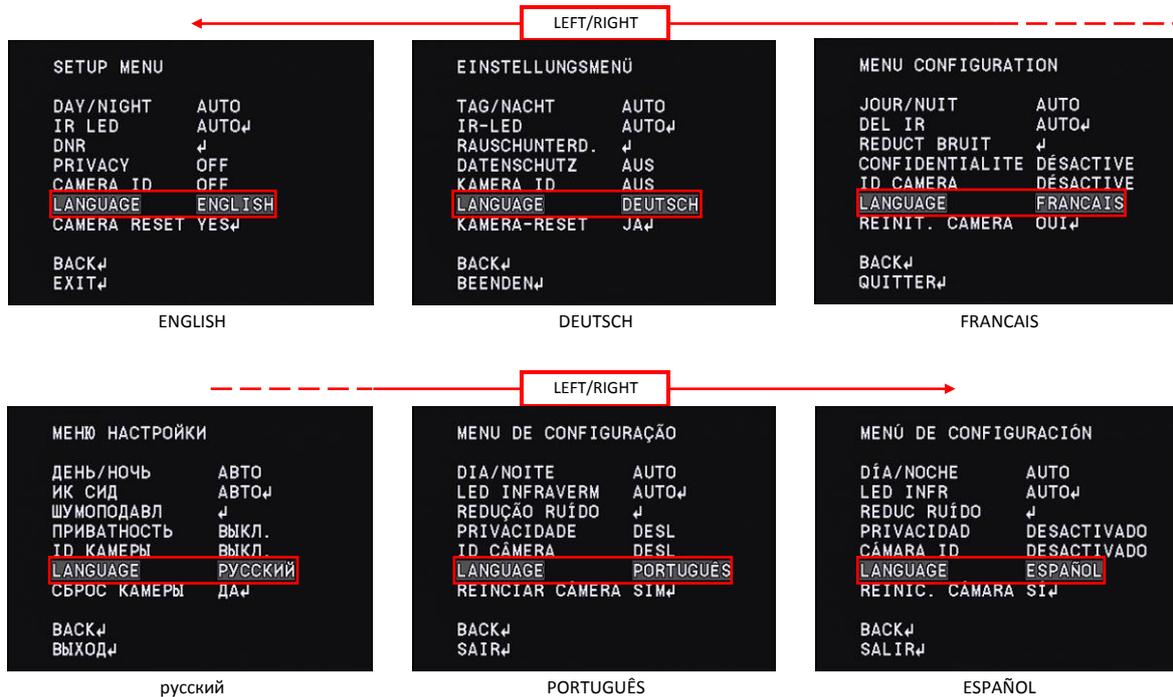
(3) The OSD menu is turned off and the camera ID is displayed.

### 3.15 Language(LANGUAGE)

Set the language of the OSD menu. You can choose from English, German, French, Russian, Portuguese, and Spanish.

Move the cursor to LANGUAGE with UP/DOWN and use the LEFT / RIGHT to select from ENGLISH, DEUTSCH, FRANCAIS, русский, PORTUGUÊS and ESPAÑOL.

\*Default : ENGLISH



### 3.16 Factory Reset(CAMERA RESET)

This function returns the camera setting to factory default (CAMERA RESET) function. Even after changing camera settings, you can return the camera to the factory default by executing camera reset. Move the cursor to CAMERA RESET with UP/DOWN and press the ENTER to execute the camera reset.



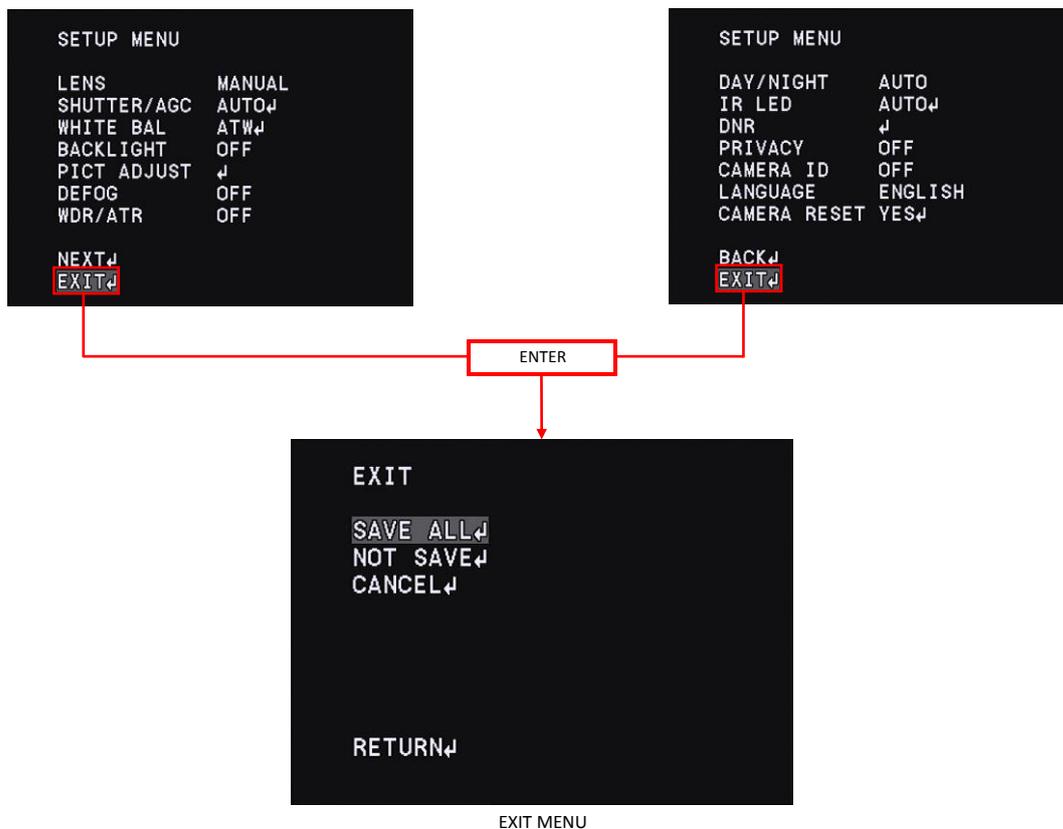
\*When you want to save the default setting value after executing the camera reset, save the setting value according to 『3.2 Save setting (SAVE ALL)』

NOTE : When you do not save the setting value prior to turning off the power, the settings will return to the setting value before executing the camera reset.

### 3.17 EXIT Menu (EXIT)

Exit the OSD menu. Move the cursor to EXIT with UP / DOWN and press the ENTER so that the EXIT menu will be displayed.

In EXIT MENU, you can select SAVE ALL, NOT SAVE, CANCEL, RETURN. Move the cursor with the UP / DOWN and press the ENTER to execute.



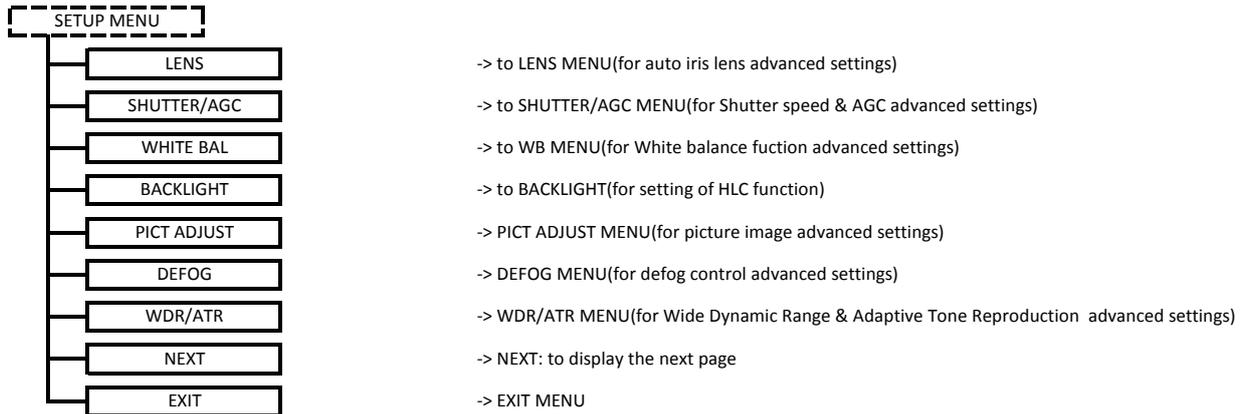
EXIT	OPERATION
SAVE ALL	Save the OSD setting in ROM and close the OSD menu. After turning on the power again, the camera starts with the saved settings.
NOT SAVE	Close the OSD menu without saving the OSD setting in ROM. After turning on the power again, the camera starts with the setting before the new modification was made.
CANCEL	Set the camera setting back to the state before displaying the OSD menu and close the OSD menu.
RETURN	Return to SETUP MENU

#### 4.OSD Menu Tree

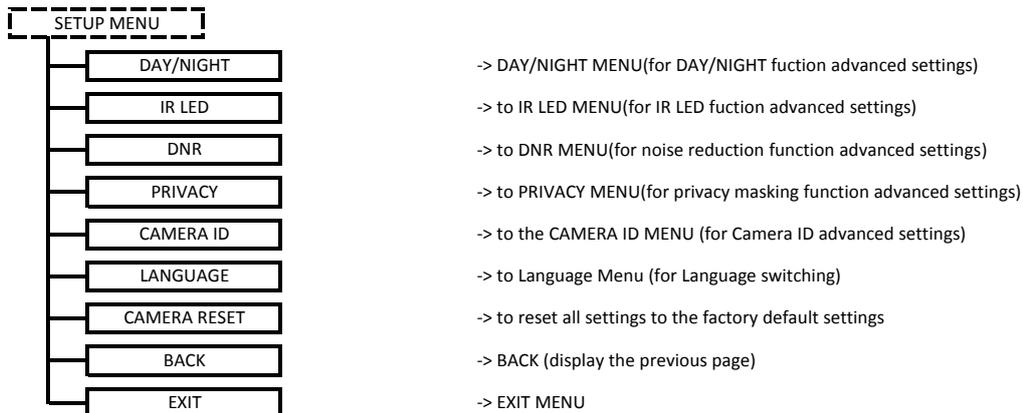
- Legend:
- Represents OSD menu item
  - Represents the operation by UP, DOWN and ENTER key of the remote control
  - Represents the operation by RIGHT, LEFT and ENTER key of the remote control
  - Represents a selectable mode and setting value of each menu item
  - Represents the title on the OSD and not a setting item

#### ⌘LANGUAGE:ENGLISH

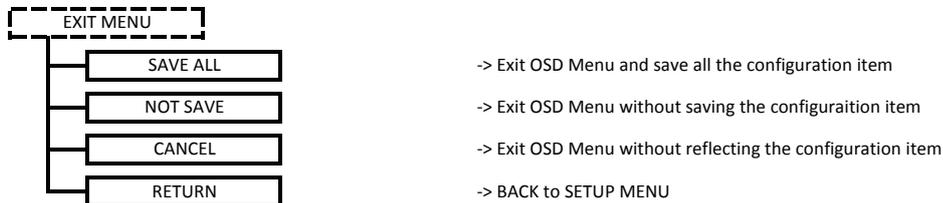
##### QSETUP MENU



##### QSETUP MENU

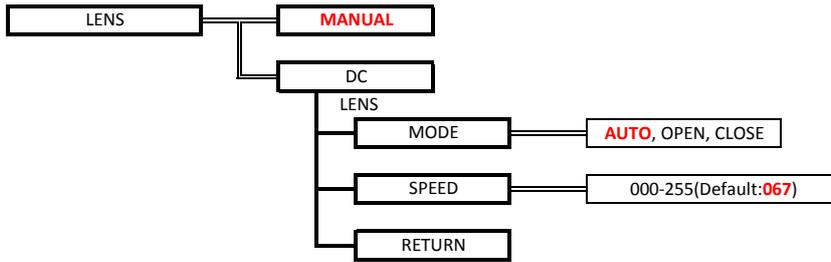


##### QEXIT MENU

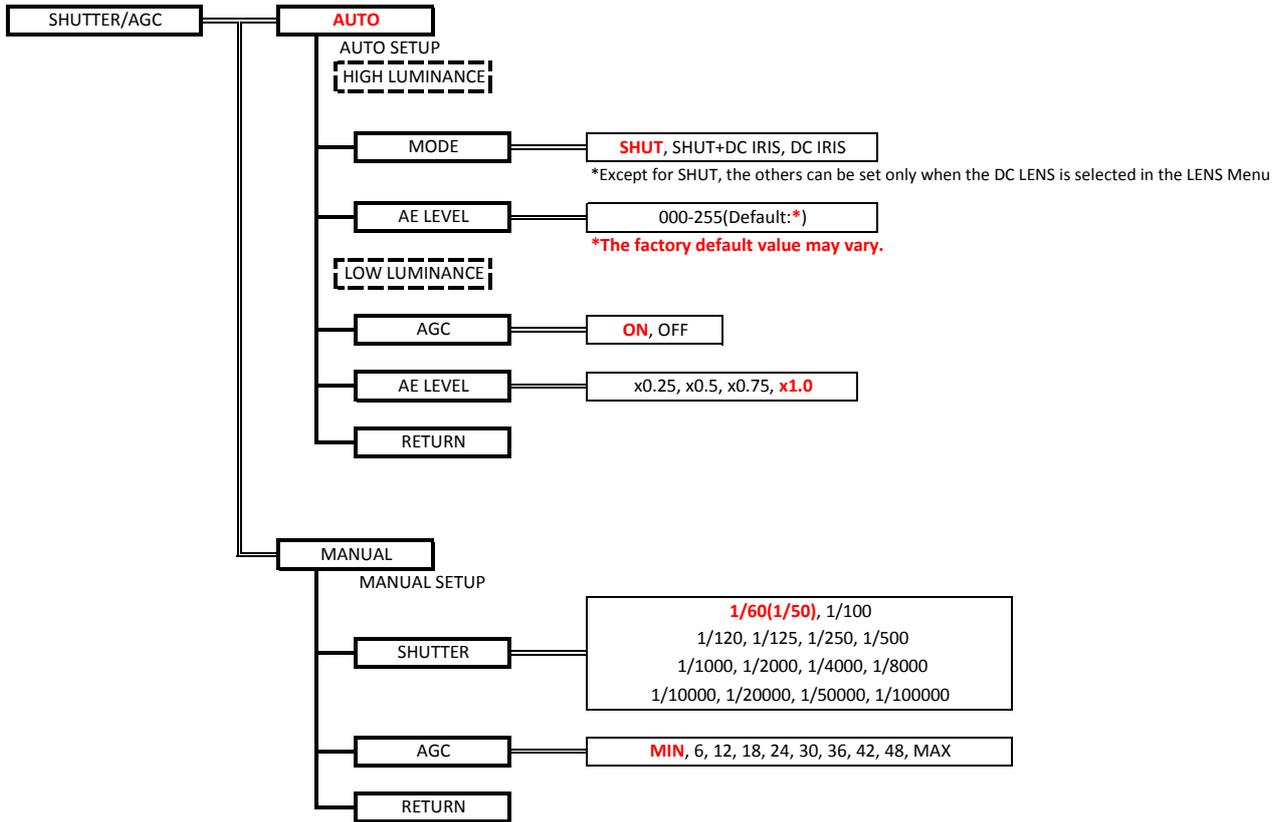


Default : in Red

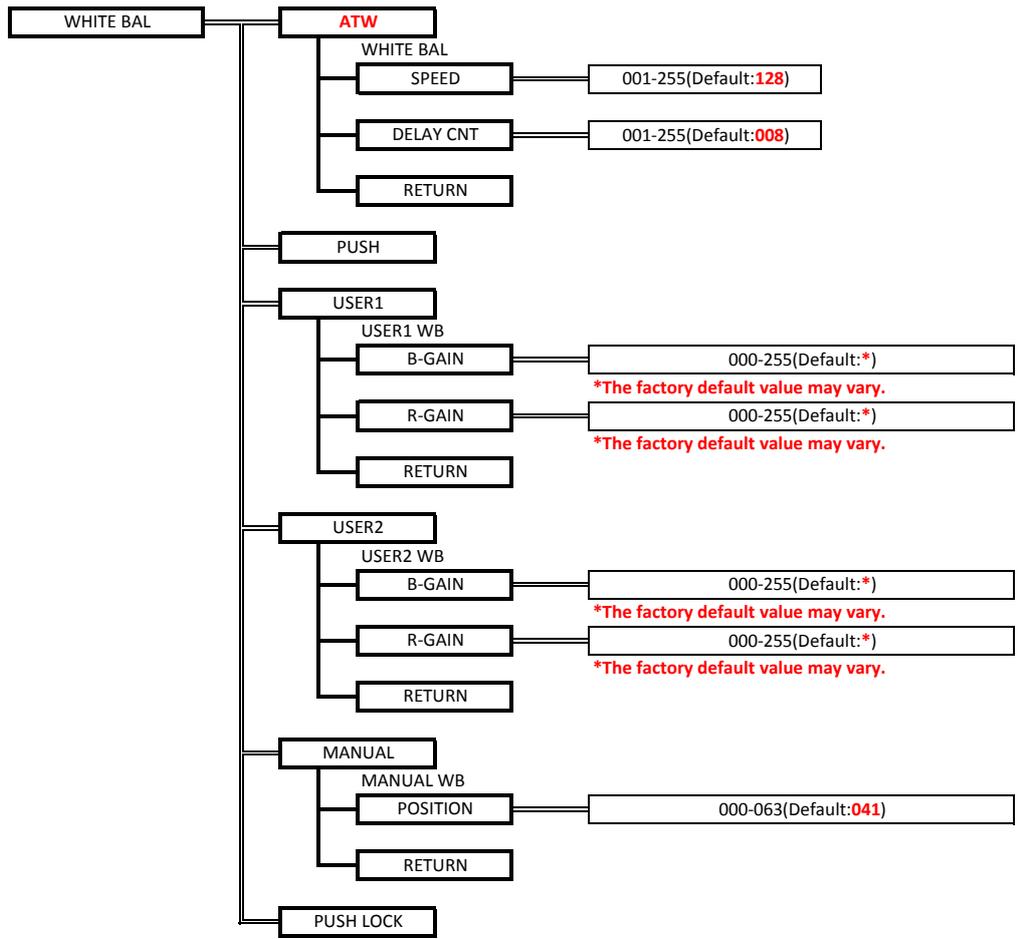
### OLENS(SETUP MENU)



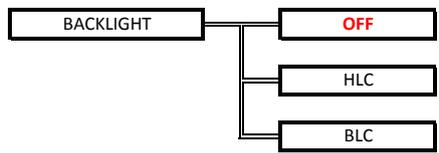
### OSHUTTER/AGC(SETUP MENU)



WHITE BAL (SETUP MENU)

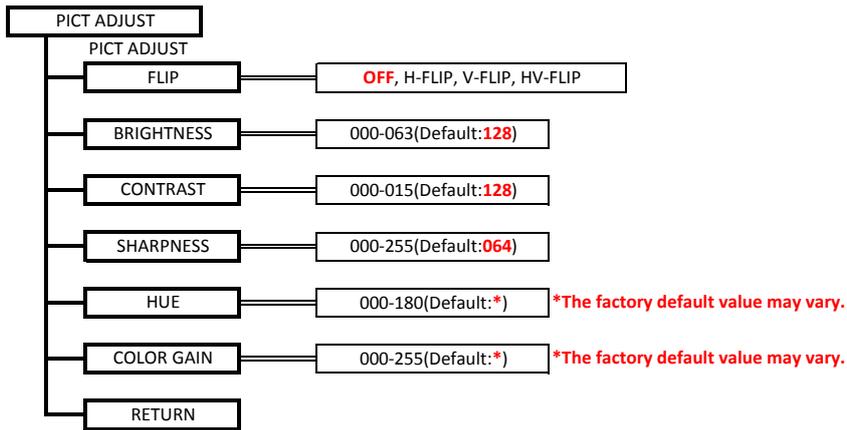


BACKLIGHT (SETUP MENU)

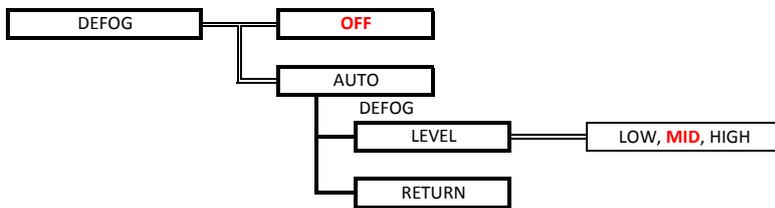


\*BLC only selectable when the WDR is OFF

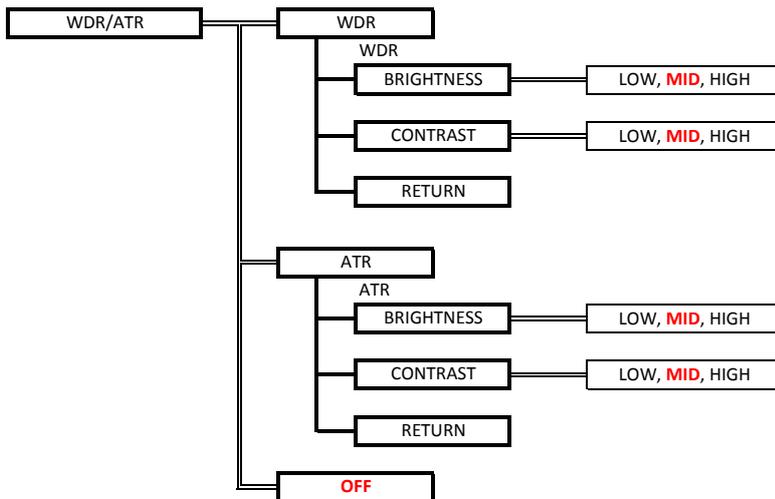
OPICT ADJUST(SETUP MENU)



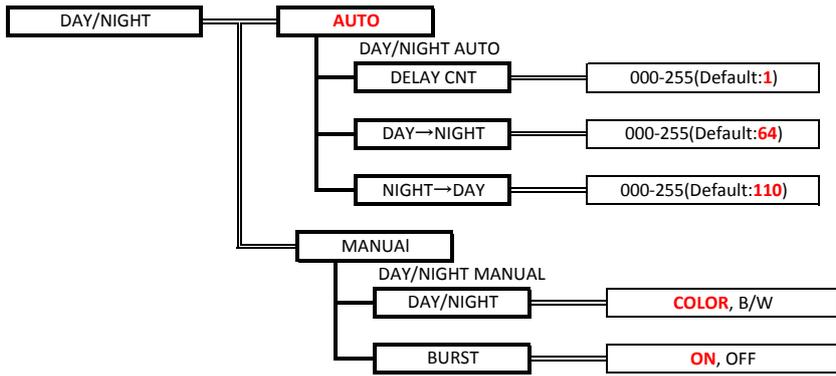
ODEFOG(SETUP MENU)



OWDR/BLC(SETUP MENU)

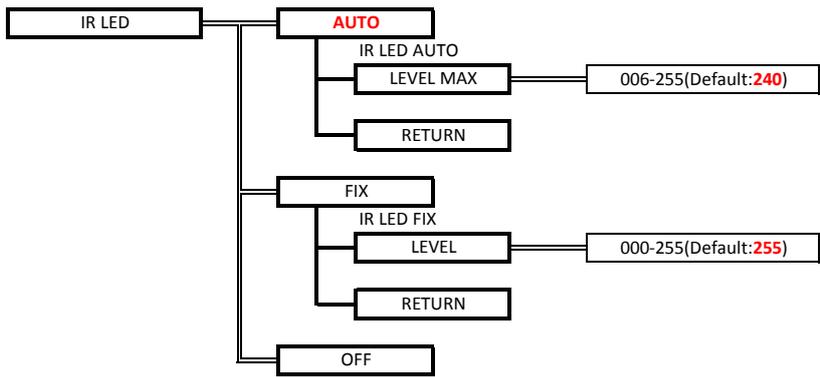


**ODAY/NIGHT(SETUP MENU)**

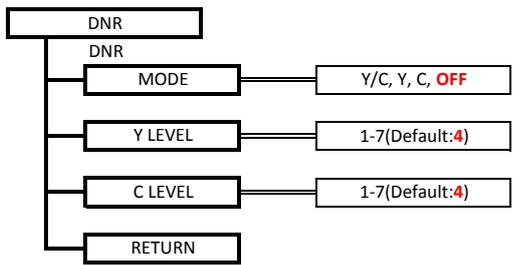


\* OFF is valid only when day / night is in night mode.

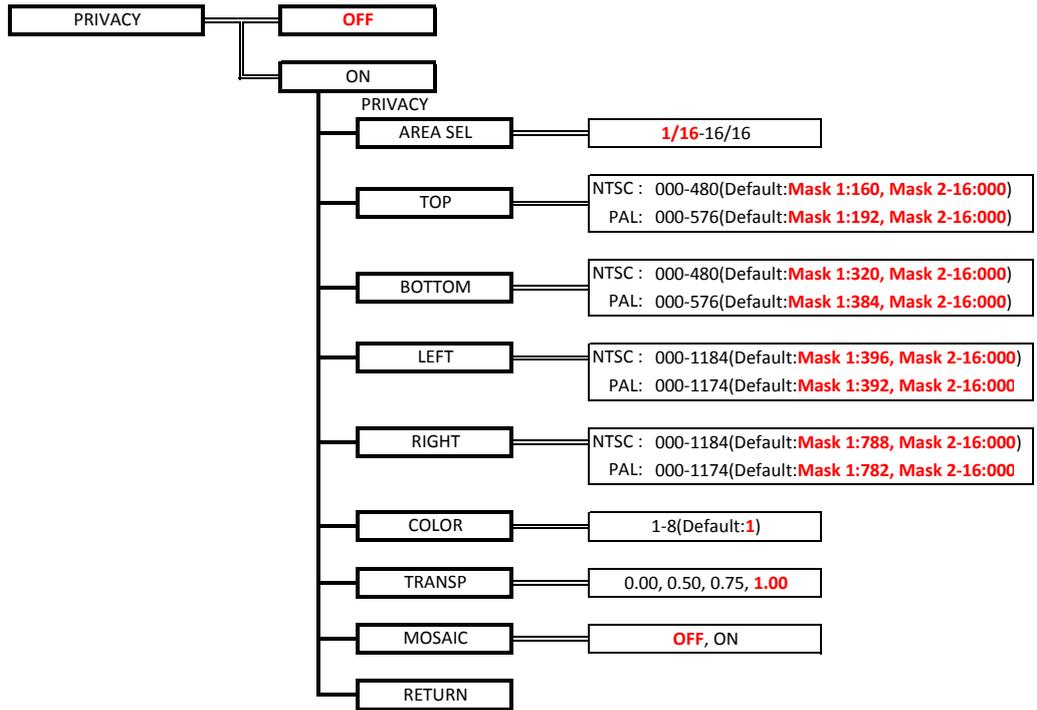
**OIR LED(SETUP MENU)**



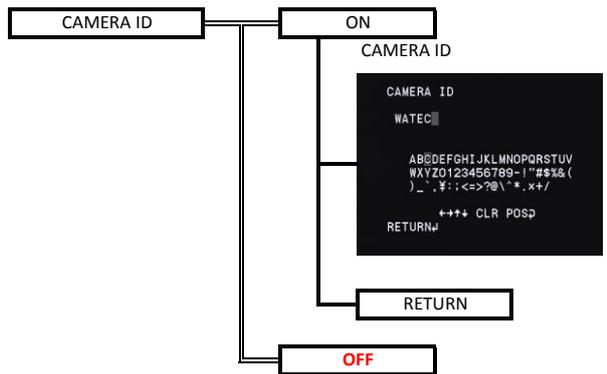
**ODNR(SETUP MENU)**



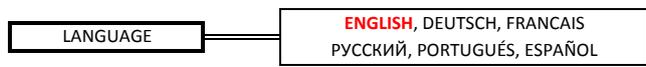
○PRIVACY(SETUP MENU)



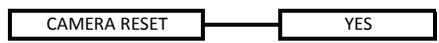
○CAMERA ID(SETUP MENU)



○LANGUAGE(SETUP MENU)



○CAMERA RESET(SETUP MENU)



OOSD factory settings

■ LENS

Name	Default setting
LENS	MANUAL

■ SHUTTER/AGC

Name	Default setting
SHUTTER/AGC	AUTO
MODE	SHUT
AE LEVEL (HIGH LUMINANCE)	*Vary depending on the fine adjustment at factory
AGC	ON
AE LEVEL (LOW LUMINANCE)	x1.00

■ WHITE BAL

Name	Default setting
WHITE BAL	ATW
SPEED	128
DELAY CNT	008

■ BACKLIGHT

Name	Default setting
BACKLIGHT	OFF

■ PICT ADJUST

Name	Default setting
FLIP	OFF
BRIGHTNESS	128
CONTRAST	128
SHARPNESS	64
HUE	*Vary depending on the fine adjustment at factory
COLOR GAIN	*Vary depending on the fine adjustment at factory

■ DEFOG

Name	Default setting
DEFOG	OFF

■ WDR/ATR

Name	Default setting
WDR/ATR	OFF
BRIGHTNESS	MID
CONTRAST	MID

■ DAY/NIGHT

Name	Default setting
DAY/NIGHT	AUTO
DELAY CNT	1
DAY→NIGHT	64
NGIHT→DAY	110

■ IR LED

Name	Default setting
IR LED	AUTO
LEVEL MAX	240

■ DNR

Name	Default setting
MODE	OFF
Y LEVEL	0
C LEVEL	0

■ PRIVACY

Name	Default setting
PRIVACY	OFF

■ CAMERA ID

Name	Default setting
CAMERA ID	OFF

■ LANGUAGE

Name	Default setting
LANGUAGE	ENGLISH