

**IP  
67** WEATHER  
PROOF



**3GSDI**

**LENS**  
OPTIONS

**RS-485**  
CONTROL

**IP  
67** WEATHER  
PROOF

## CV504-WP

### All-Weather HD Miniature Camera

## User Manual

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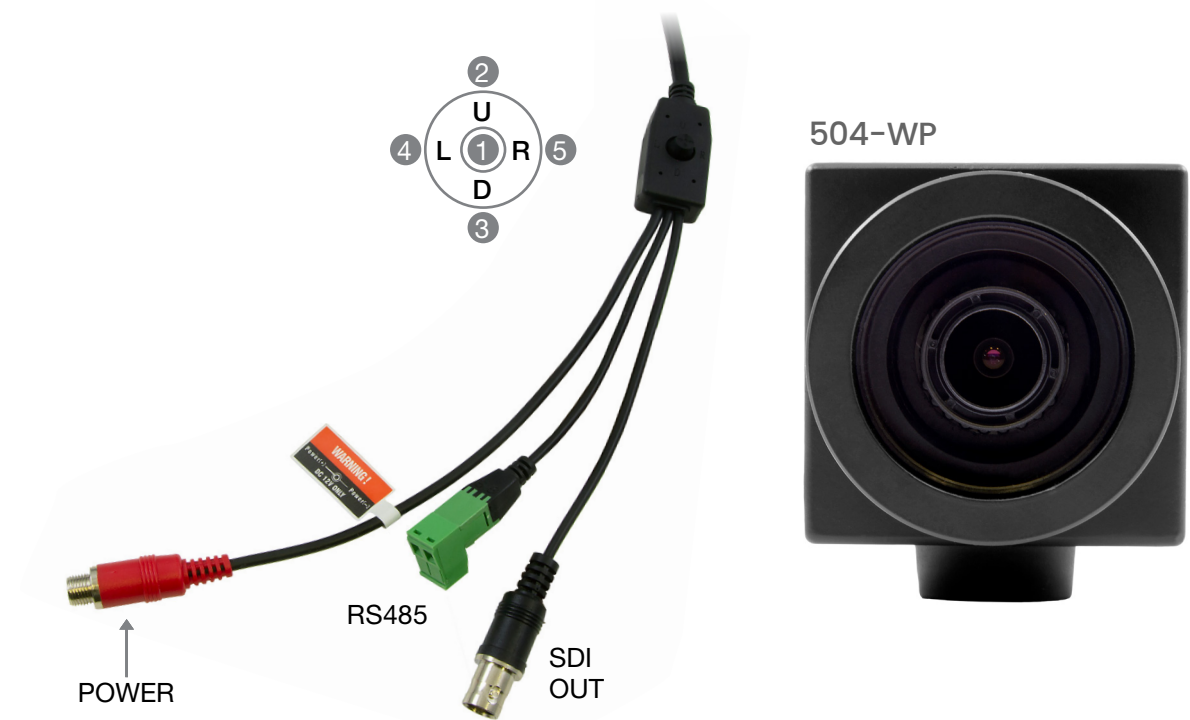
END

1. Menu Structure

SETUP	SUB MENU	SUB MENU
WB CONTROL	ATW	
	AWB	
	ONE PUSH	
	INDOOR	
	OUTDOOR	
	MANUAL	BLUE
		RED
AE CONTROL	BLACK BALANCE	AUTO
		MANUAL
	AUTO	AGC MAX
		SENS UP
		AE BRIGHT
		FLK CONTROL
	SHUT FIX	SHUTTER
		AGC MAX
		SENS UP
		AE BRIGHT
	AGC FIX	AGC
		AE BRIGHT
		FLK CONTROL
	MANUAL	SHUTTER
		AGC
		SENS UP
DAY / NIGHT	DAY	
	NIGHT	NIGHT COLOR
	AUTO	
IMAGE CONTROL	LENS SHADING	
	CONTRAST	
	BRIGHTNESS	

SETUP	SUB MENU	SUB MENU
IMAGE CONTROL	SATURATION	
	HUE	
	EDGE ENHANCE	
	AUTO SATURATE	
	AUTO EDGE	
	BLACK WHITE LEVEL	
	GAMMA CORRECT	
	DNR	DNR MODE DNR LEVEL
SPECIAL	DZOOM	
	DEFOG	
	DIS	
	BACKLIGHT	
	BINNING	
	DEFECT PIXEL	
	DISP FUNCTION	
	WDR	
	FLICKER DETECT	
	PRIVACY	
PICTURE STYLE	MATRIX	
	WHITE BALANCE	
	GAMMA	
	DETAIL	
SETUP	CAM TITLE	
	COMMUNICATION	RS-485/ID
	MODEL	
	s/W Ver	
	OUTPUT FORMAT	
RESET	USER/FACTORY	
EXIT		

2. OSD Joystick and Button



- 1. SET Used to access the menu and confrim selection.
- 2. UP Used to move the cursor up.
- 3. DOWN Used to move the cursor down.
- 4. LEFT Used to move the cursor left and change the value
- 5. RIGHT Used to move the cursor to the right and change the value.

Press SET button to access the **Main Menu**

Use the UP & DOWN buttons to select the desired item.

MENU	
WB CONTROL	>
AE CONTROL	>
DAY/NIGHT	>
IMAGE CONTROL	>
SPECIAL	>
SETUP	>
RESET	>
EXIT	>

Use the LEFT & RIGHT buttons to change the sub-item.

> Icon indicates “Press OSD button” or “Enter Sub Menu”

3. WB CONTROL

Select WB CONTROL using the UP or DOWN button. You can change between AWB, ATW, PUSH, INDOOR, OUTDOOR and MANUAL using the LEFT or RIGHT buttons.

- AWB:** Controls the automatic adjustment of the light source's color temperature from 3000°K ~8,000°
- ATW:** Continuously adjusts camera color balance in accordance with any change in color temperature. Compensates for color temperature changes within the range of 1,900°K to 11,000°K.

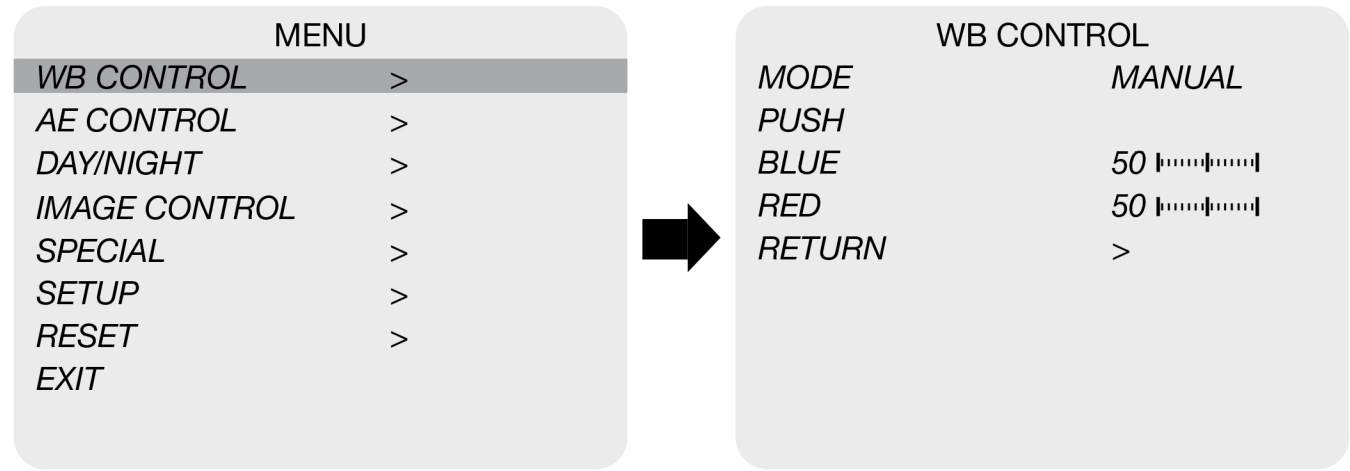
**BLUE OFFSET:** Adjust the Blue tone within AWB and ATW modes. (0~100)  
**RED OFFSET:** Adjust the Red tone within AWB and ATW modes. (0~100)
- PUSH:** Color temperature will be manually adjusted by pushing the OSD button. Place the white paper in front of the camera when OSD button is pressed to obtain the optimum result.
- MANUAL:** Select this to fine-tune White Balance manually.

You can adjust the blue and red tone level manually.

**BLUE:** Adjust the Blue tone of the image. (0~255)  
**RED:** Adjust the Red tone of the image. (0~255)
- INDOOR:** Select this to adjust white balance to indoor lighting condition.
- OUTDOOR:** Select this to adjust white balance to outdoor lighting condition.

**BLACK BALANCE** (AUTO and MANUAL)

**- MANUAL** - Adjust the Blue, Red and Green components of black.

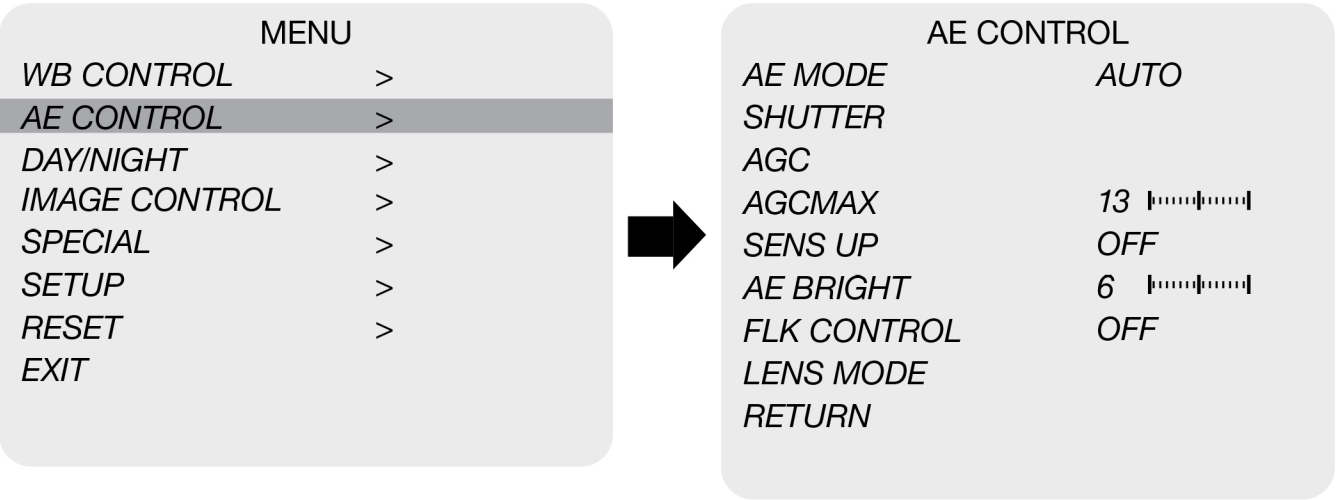


1. Adjust White Balance first by using the AWB or ATW mode before switching to MANUAL mode.

2. White Balance may not work properly under the following conditions. In this case, select the ATW mode.
  - When the ambient illumination of the subject is dim.
  - If the camera is directed towards a fluorescent light or is installed in place where illumination changes dramatically, the White Balance operation may become unstable.

4. AE CONTROL

Select AE CONTROL using the UP or DOWN button.  
You can select one sub-mode using the UP or DOWN buttons.



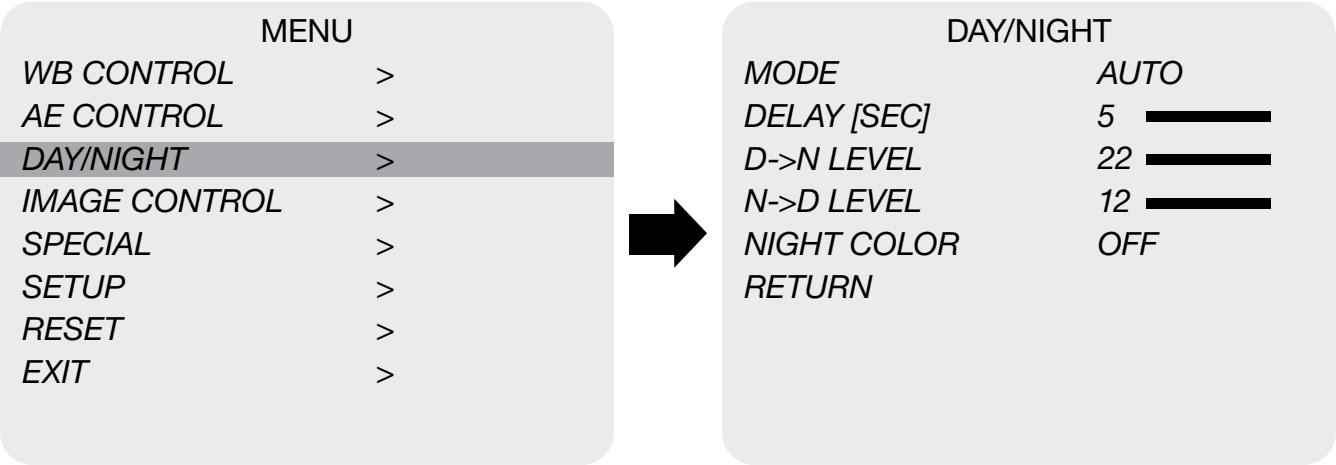
- AUTO:** Adjusts the exposure level automatically. Detailed fine tuning options are available under this menu.
- SHUT FIX:** Provides more detailed shutter speed options. All other controls are tuned for the selected shutter speed.
- AGC FIX:** Provides more detailed gain option. All other controls are tuned for the selected gain value
- MANUAL:** Adjusts the exposure level manually
  - SHUTTER:** Speed can be set at auto or manual. (1/30~1/10,000)
  - AGC:** Electronic gain level can be controlled. (0db ~ 66db)
  - AGC MAX:** Used to set maximum gain value to control the video noise caused by Auto Gain Control. (0 ~ 15)
  - SENS UP:** Controls the digital slow shutter to allow extra light into the camera and adjust the picture quality. (Off, x2~x15)
  - AE BRIGHT:** Select this to adjust auto exposure brightness levels. (0~24)
  - LENS MODE:** Lens setting will be optimized for selected environment, for DC Iris lens only.
  - FLK CONTROL:** Provides a proper image sensor frequency to match the power frequency in order to minimize video flicker.

**NOTE: DC Iris is automatically set by camera ISP. It's not manually adjustable.**

5. DAY / NIGHT

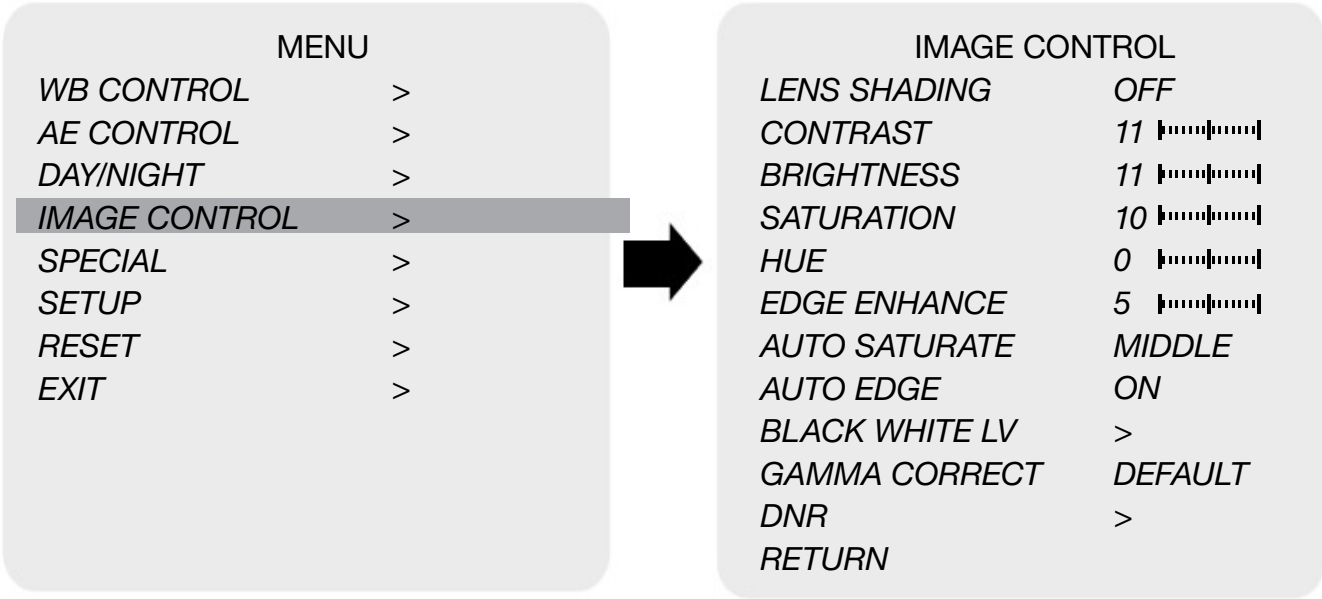
Select DAY, NIGHT or AUTO using the RIGHT or LEFT button.

- **MODE:** Auto, Day, Night
  - **AUTO:** Camera will change between day and night mode when the light condition changes.
  - **DAY:** Camera will stay on day mode.
  - **NIGHT:** Camera will stay on night mode.
- **DELAY [SEC]:** Delay time of changing mode can be adjusted from this menu.
- **D->N LEVEL:** Change the camera threshold value of Day to Night mode.
- **N->D LEVEL:** Change the camera threshold value of Night to Day mode.
- **NIGHT COLOR:** When on, camera stays on Color mode.



6. IMAGE CONTROL

Select IMAGE CONTROL using the UP or DOWN button.  
You can select LENS SHADING, CONTRAST, HUE, And EDGE ENHANCE using the UP or DOWN buttons.



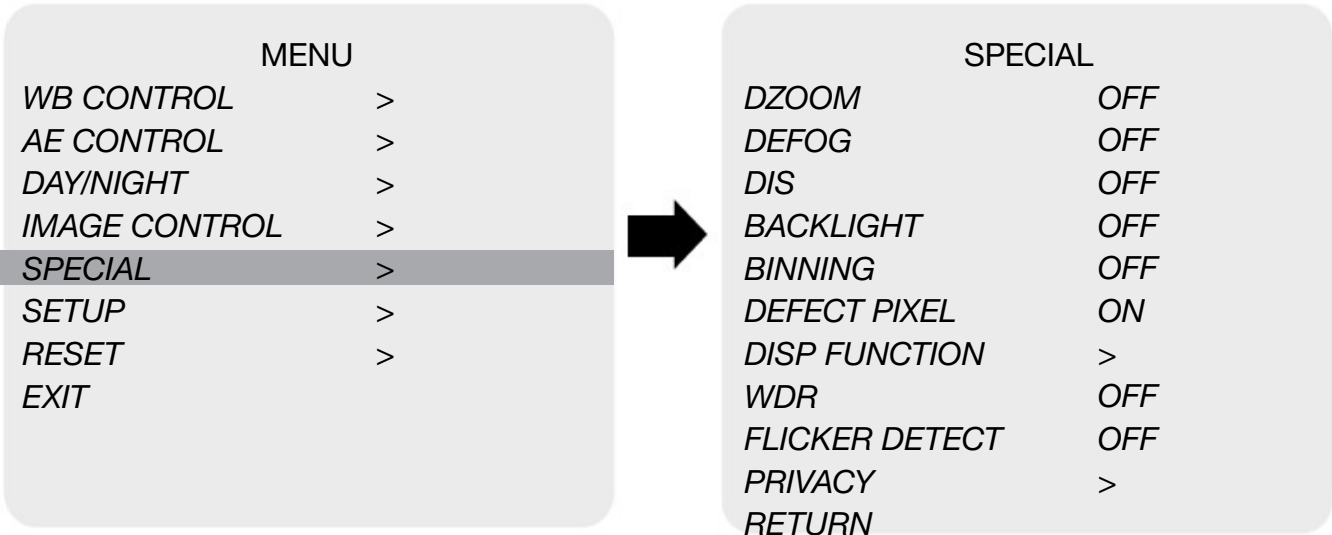
- **LENS SHADING:** Corrects inconsistent brightness level in the image.
- **CONTRAST:** Adjust the image contrast level value.
- **BRIGHTNESS:** Adjust the image brightness level value.
- **SATURATION:** Adjust the image saturation level value.
- **HUE:** Adjust the image hue level value.
- **EDGE ENHANCED:** Adjust the image sharpness level.
- **AUTO SATURATE:** Decrease saturation automatically when noise scene is detected.
- **AUTO EDGE:** Adjust line sharpness level automatically.
- **BLACK WHITE LEVEL:** Adjust the image black level value.
- **GAMMA CORRECT:** Adjust the image output gamma level.
- **DNR:** Reduces the video noise at low ambient light.

Select the DNR level from AUTO, LOW, MIDDLE, and HIGH using the LEFT or RIGHT button.



7. SPECIAL

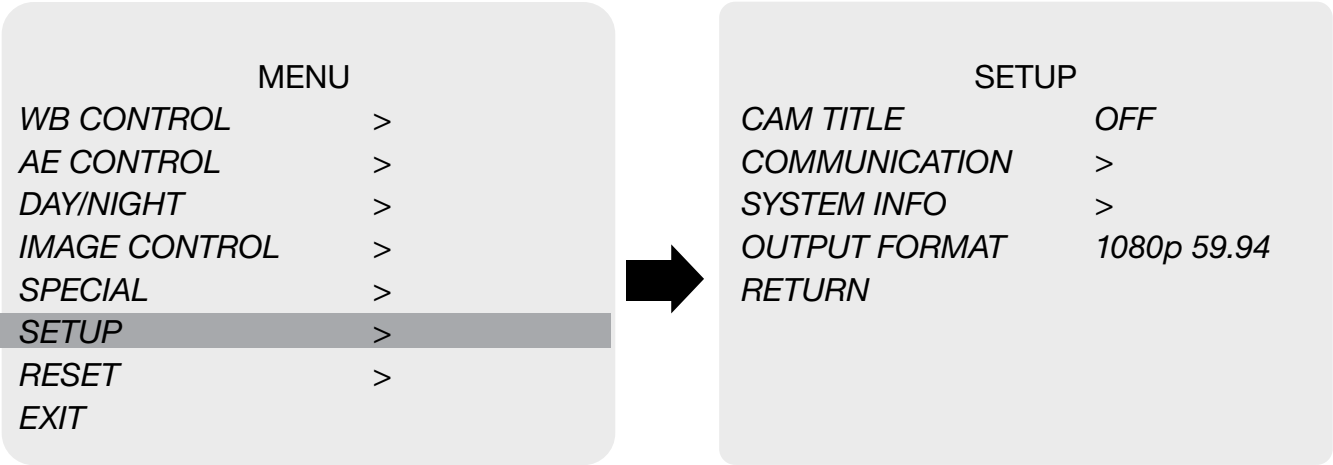
Select SPECIAL using the UP or DOWN button.  
You can select DEFOG, MOTION DETECT, BACKLIGHT, DEFECT PIXEL, and FLICKER DETECT using the UP or DOWN buttons.



- **DZOOM:** Digitally zoom the video by the desired ratio.
- **DEFOG:** This feature will help increase visibility in extreme weather conditions, such as fog, rain or in a very strong luminous intensity.
- **DIS:** This feature enables digital image stabilization.
- **BACKLIGHT:** Adjust backlight compensation by choosing either BLC HLM from this menu.
- **BINNING:** Enable or disable pixel binning.
- **DEFECT PIXEL:** Advanced defective pixel correction menu.
- **DISP FUNCTION:** Display effect such as freeze mirror, rotation, and style can be applied from this menu.
- **WDR:** This feature enables user to view both object and background more clearly when background is too bright.
- **FLICKER DETECT:** Adjust the image sensor frequency to match the power frequency.
- **PRIVACY:** Mask an area you want to hide on the screen by applying the privacy zones.

8. SETUP

CAMERA setup can be adjusted from this menu.  
You can select CAMERA ID, Communication, System Info, and Output Format using the UP or DOWN buttons.

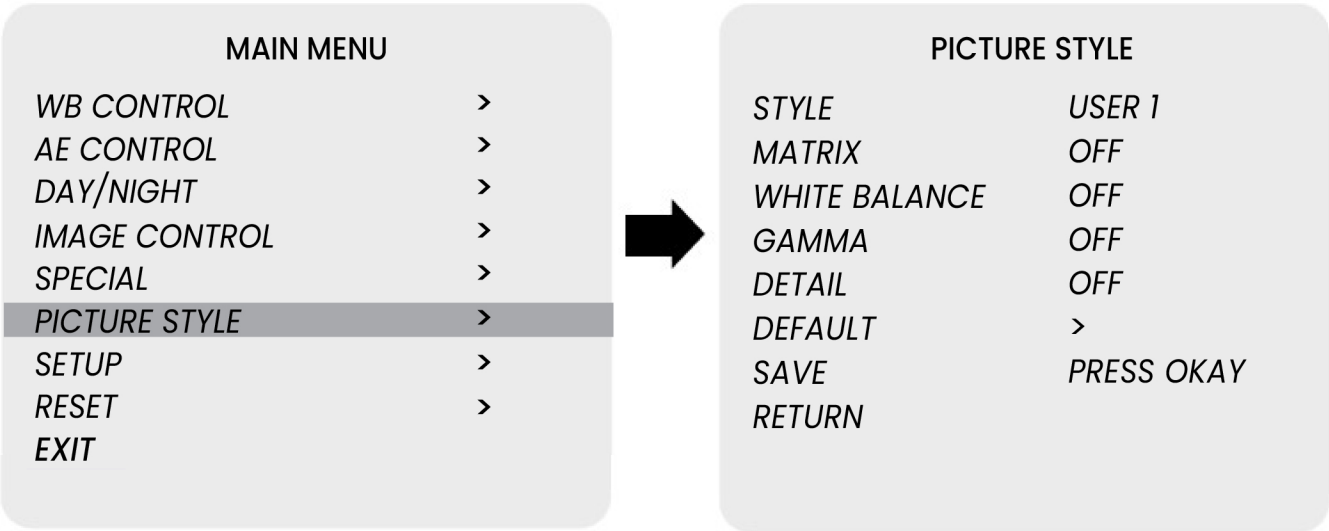


- **CAM TITLE:** Camera title can be turned ON or OFF.
- **COMMUNICATION:** VISCA communication can be adjusted.
  - 1. **CAM ID:** Camera ID can be setup. (0~254)
  - 2. **ID DISPLAY:** Camera ID display can be displayed.
  - 3. **BAUDRATE:** Camera baudrate can be set.  
(2400, 4800, 9600, 19200, 38400, 115200)
- **MODEL:** Displays product model number.
- **S/W VER:** Displays software version number.
- **OUTPUT FORMAT:** Camera resolution and frame rate can be set.(1080 by default)

Select the FRAME RATE using the LEFT or RIGHT buttons.  
Available Frame Rates are:  
1920 x 1080p 60, 59.94, 50, 30, 29.97, 25, 24, 23  
1920 x 1080i 60, 59.94, 50  
1280 x 720p 60, 59.94, 50

9. PICTURE STYLE

Select PICTURE STYLE menu for color matrix tuning.  
You can adjust settings using the UP or DOWN buttons.



- **STYLE:** 6 different settings can be assigned.
- **MATRIX:** Matrix feature can be configured.
  1. **STYLE:** 4 predefined color matrix styles are available to choose from.
  2. **MASTER LEVEL:** Fine adjustment of master color gain (saturation).
  3. **MASTER PHASE:** Fine adjustment of master color hue.
  4. **COLOR SEL:** Select color to be adjusted. 6 colors to choose from.
  5. **COLOR LEVEL:** Fine level adjustment of selected color.
  6. **COLOR PHASE:** Fine phase adjustment of selected color.
- **WB:** Adjust camera white balance within the selected picture style.

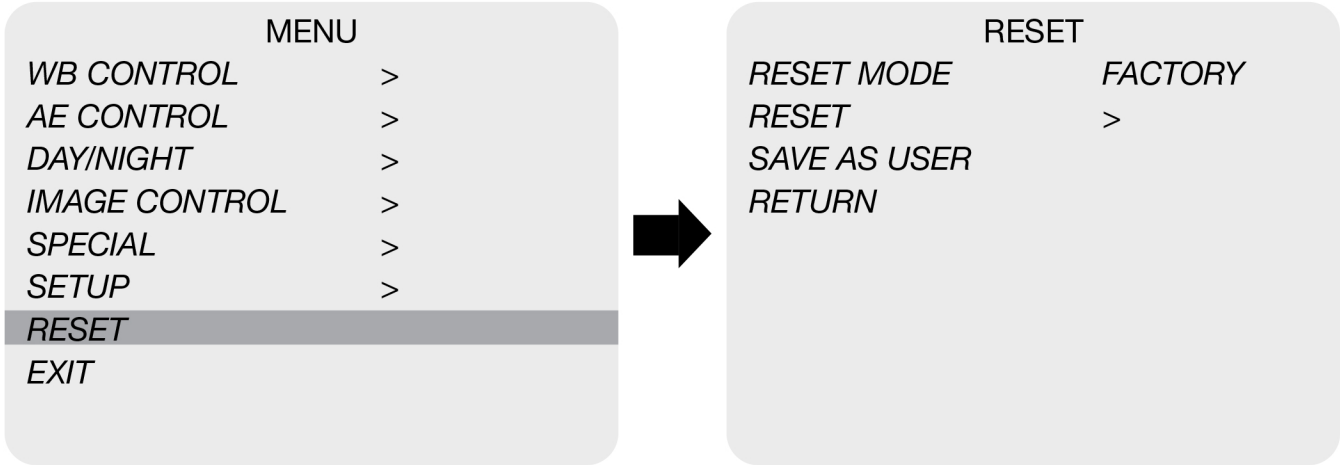
WB feature is identical as the one from the main menu. When Picture Style WB is enabled, main menu WB will be disabled.
- **GAMMA:** Adjust camera gamma value within the selected picture style.

Gamma feature is identical as the one from the main menu. When Picture Style Gamma is enabled, main menu Gamma will be disabled.
- **DETAIL:** Adjust camera peak levels (sharpness) balance within the selected picture style.
  1. **H-PEAK LEVEL:** Adjust horizontal peak level.
  2. **V-PEAK LEVEL:** Adjust vertical peak level.
  3. **VIDEO DEPENDANT:** Adjust image crispening.
  4. **CLIP & CLIP LEVEL:** Adjust sharpness peak clip.

10. RESET

Select RESET using the UP or DOWN buttons.

- **RESET:** Reset the camera settings the factory defaults or user setting value.



- **ON:** Set the camera setting to either “FACTORY” or “USER” of “CHANGE” menu. Make sure to select the right mode from “CHANGE” before defaulting the camera.
- **RESET MODE:** Select the desired setting mode.

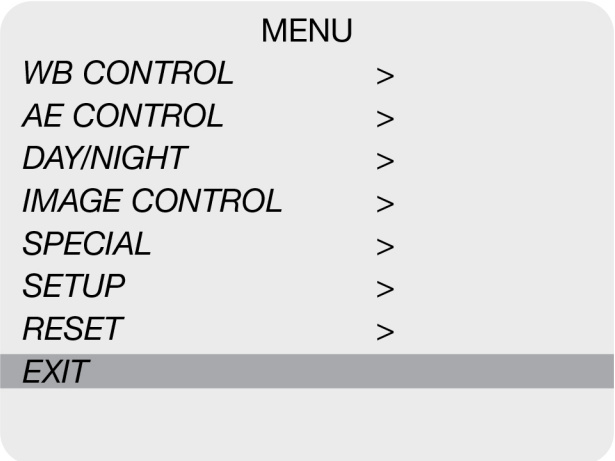
Select from USER or FACTORY using the LEFT or RIGHT button.

  1. **USER:** Select “USER” if setting value user saved last is needed.
  2. **FACTORY:** Select “FACTORY” if factory default setting is needed.

“FRAME RATE”, “CAM ID”, and “BAUDRATE” will note change.

10. EXIT

Select EXIT using the UP or DOWN button.



To RESET Camera to default settings (1920x1080p30fps) power-cycle the camera then use the following combo on OSD Joystick: UP, DOWN, UP, DOWN, then push and HOLD joystick in for 5 seconds then release.

- **SAVE:** Exit the setup after saving the value changes.

- **DEFAULT:** Reset the selected user number to the default value.
- **SAVE:** Save the selected user settings.

12. TROUBLESHOOTING

Before sending the camera for repair, please check below to make sure that the camera is installed correctly. If it still does not perform adequately, please consult with your supplier.

Problem	Solution
Nothing appears on the screen.	<div><div>1.</div><div>2.</div><div>3.</div><div>4.</div></div> <div>Check that all connected devices are powered on. Confirm that the voltage is correct. Confirm that the power supply provides enough current to power the camera. Check that all video cables are properly connected.</div>
The picture is not clear.	<div><div>1.</div><div>2.</div><div>3.</div><div>4.</div></div> <div>Check that your monitor is correctly adjusted. Confirm that the glass in front of the lens is clean. If there is dust, dirt or fingerprints on the glass, the image quality will be affected. To clean the glass, use a soft, dry and non-abrasive cloth or a commercially available lens cleaning set. Adjust the focus by carefully rotating the threaded M12 lens.</div>
The picture has interference.	<div><div>1.</div><div>2.</div><div>3.</div></div> <div>Ensure that the camera is not positioned near a high voltage source, such as a power generator. Check that the connected BNC cable is terminated properly. Check that all video cables are properly connected.</div>
The picture is flickering continually.	<div><div>1.</div><div>2.</div><div>3.</div><div>4.</div></div> <div>Check the termination and set the impedance at 75Ω properly. Ensure that the camera is not pointing towards the Sun or any light source. Check the performance of any intermediate devices. Check if the distance of the video cable exceeds the maximum transferable limitation.</div>
Focus	<div>The miniature (M12) lens that comes installed on camera is set to optimal focus position, however if lens is slightly out of focus rotate lens clockwise or counter-clockwise slightly to fine tune. Once the desired focus point is achieved, rotate the locking nut back towards the camera which will hold the lens position at optimal focus point.</div>

Warranty

For Warranty information please refer to Marshall website page:

<https://marshall-usa.com/company/warranty.php>

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