Broadcast A/V Division

CV226/CV228

Lipstick HD Camera

3G/HD-SDI

User Manual

[Firmware Version 0.43]

Table of Contents

1. General Information

Thank you for your purchase of a Marshall Miniature or Compact Camera.

The Marshall Camera team recommends thoroughly reading this guide for a deep understanding of on-screen-display (OSD) menus, breakout cable operation, settings adjustment explanation, troubleshooting, and other critical information.

Please carefully remove all contents of box, which should include the following components:

CV226/CV228 includes:

- Camera with breakout cable (Power/RS485/Audio)
- 12V Power Supply

The CV226/CV228 Camera utilizes an all-weather rated body with IP67 rated CAP that can be removed (rotate counter-clockwise) to reveal M12 lens which also can be rotated to adjust fine-focus position of lens on lens mount. Also, can be swapped out with other M12 lenses containing specific focal lengths to change AOV.

Each camera comes set to default at 1920x1080p @ 30fps out of the box, which can be changed in the OSD Menu to a variety of resolutions and framerates.

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.

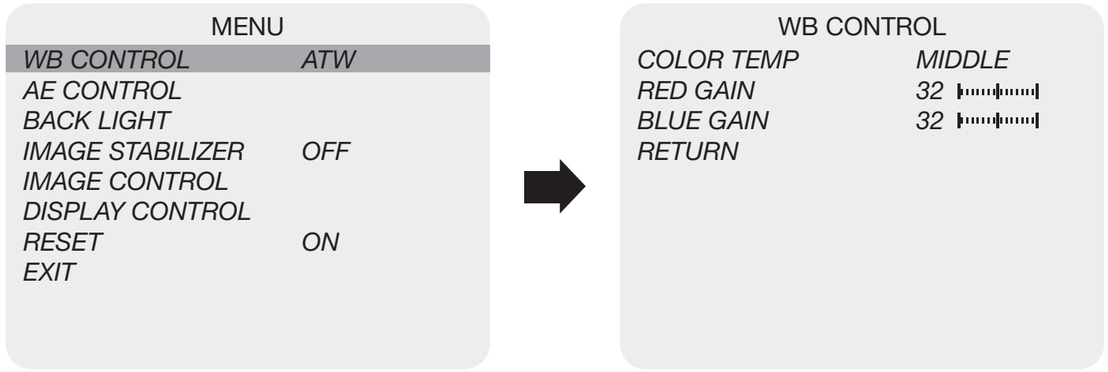
2. Menu Structure

Setup	Sub Menu	Sub Menu	
WB CONTROL	AUTO		
	ATW		
	PUSH		
	MANUAL	COLOR TEMPERATURE	
		RED GAIN	
		BLUE GAIN	
AE CONTROL (EXPOSURE)	AUTO	BRIGHTNESS	0~20
	MANUAL	AGC LIMIT	0~20
	SHUTTER	SHUTTER	NORMAL
	FLICKERLESS		DEBLUR
		DSS	OFF, X2~32
BACK LIGHT	BACK LIGHT	WDR	
		BLC	
		SPOT	
	ACE	LOW, MIDDLE, HIGH	
	ECLIPSE	LEVEL	
		COLOR	
IMAGE STABILIZER	RANGE	10%, 20%, 30%	
	FILTER	LOW, MIDDLE, HIGH	
	AUTO C	OFF, HALF, FULL	
IMAGE CONTROL	COLOR LEVEL	0~20	
	SHARPNESS	0~20	
	MIRROR	ON, OFF	
	FLIP	ON, OFF	
	D-ZOOM	1.0X ~ 16.0X	
	DEFOG	AUTO	
		MANUAL	
	DNR	OFF, LOW, MIDDLE, HIGH	
	MOTION	DET WINDOW	
		SENSITIVITY	0~20
		MOSTION OSD	ON, OFF
	SHADING	0~100%	
	BLACK LEVEL	0~32	
	GAMMA	0.3~0.8	
	FRAME RATE		

Setup	Sub Menu	Sub Menu
DISPLAY CONTROL	CAM VERSION	
	CAM TITLE	
	PRIVACY	
	CAM ID	0~255
	BAUDRATE	2400~115200
	LANGUAGE	ENG, CHN
	DEFECT DET	
RESET	ON/CHANGE	USER/FACTORY
EXIT		

3. WB CONTROL

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



- **AUTO:** Controls the automatic adjustment of the light source's color temperature to 3,000 ~ 8,000°K.
- **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 ~ 11,000°K.
- **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 fine-tune White Balance manually.

  You can adjust the blue and red tone level manually.

  » **COLOR TEMP:** Select color temperature from LOW, MIDDLE, or HIGH.

  » **BLUE GAIN:** Adjust the Blue tone of the image.

  » **RED GAIN:** Adjust the Red tone of the image.

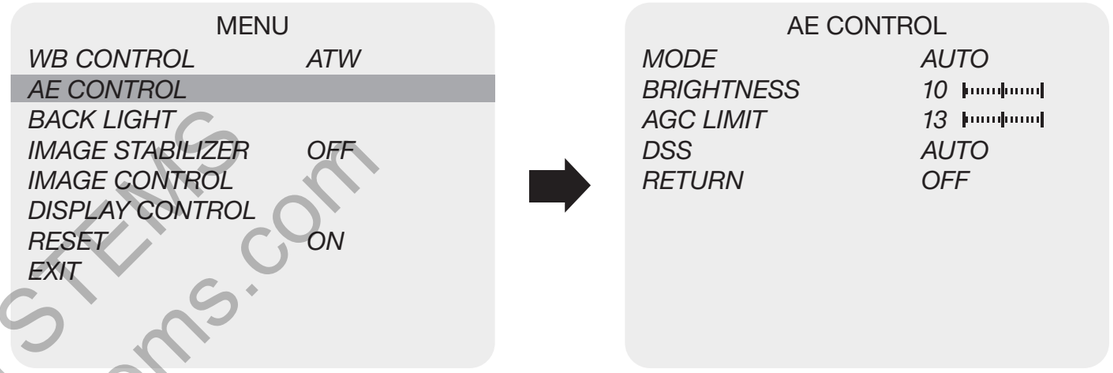
Adjust White Balance first by using the AUTO or ATW mode before switching to MANUAL mode.

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, White Balance operation may become unstable.*

4. AE CONTROL

Select AE CONTROL using the UP or DOWN button. You can select the AUTO, MANUAL, SHUTTER, or FLICKERLESS mode from the sub menu.



- **MODE:** Select the desired exposure mode.

  » **AUTO:** Exposure level is automatically controlled.

  » **MANUAL:** Adjust BRIGHTNESS, GAIN, SHUTTER, and DSS manually.

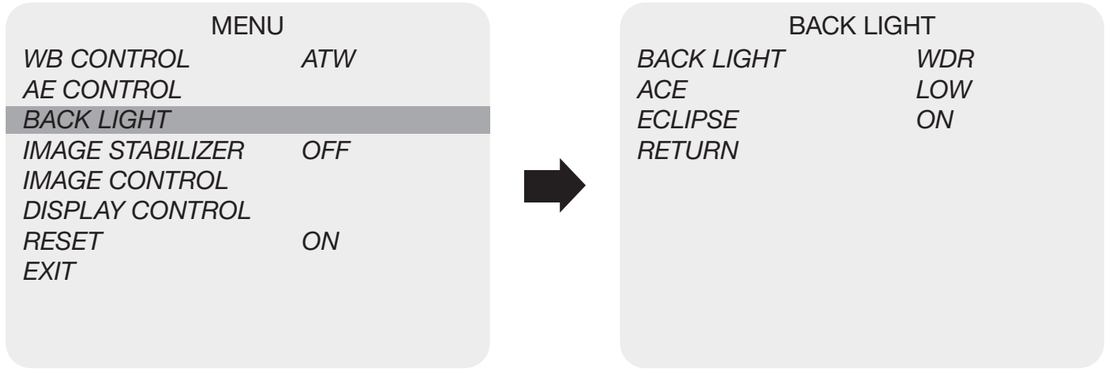
  » **SHUTTER:** Shutter can be set manually and DSS is controlled automatically.

  » **FLICKERLESS:** Shutter and DSS is controlled automatically.
- **BRIGHTNESS:** Adjust the brightness level.
- **AGC LIMIT:** Controls the amplification/gain process automatically if the illumination falls under the usable level.

  Camera will raise up the gain to the selected gain limit under dark conditions.
- **SHUTTER:** Controls the shutter speed.
- **DSS:** When luminance condition is low, DSS can adjust the picture quality by maintaining the light level. Slow shutter speed limited to x32.

5. BACK LIGHT

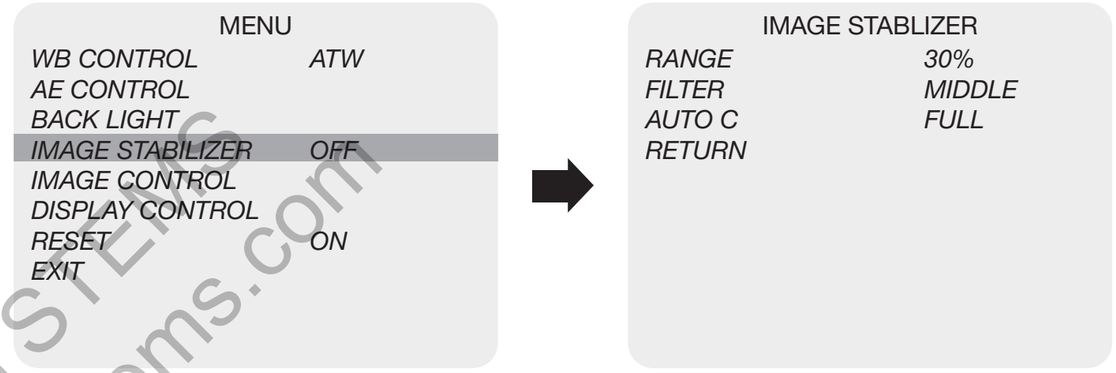
Select BACK LIGHT using the UP or DOWN button. You can select the BACK LIGHT, ACE, or ECLIPSE mode from the sub menu.



- **BACK LIGHT:** Allows the camera to adjust the exposure of the entire image to properly expose the subject in the foreground.
  - » **WDR:** Enables user to view both object and background more clearly when background is too bright.
  - » **BLC:** Enables a back light compensation feature.
  - » **SPOT:** Enables a user to select a desired area on a picture and view the area more clearly when background is too bright.
- **ACE:** Brightness correction of the dark image area.
- **ECLIPSE:** Highlight the bright area with a masking box with a selected color.

6. IMAGE STABLIZER

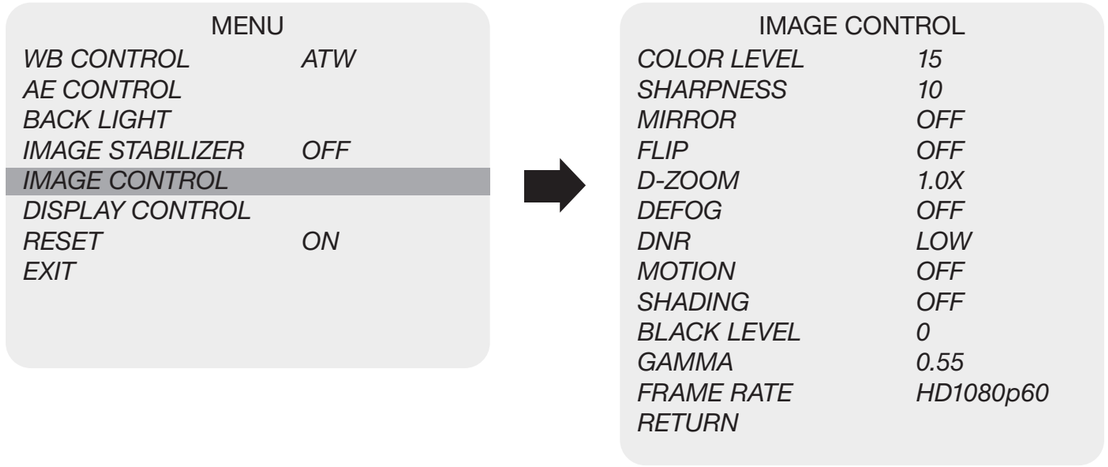
Select IMAGE STABILIZER using the UP or DOWN button. You can select the RANGE, FILTER, and AUTO C from the sub menu.



- **IMAGE STABILIZER:** Reduces image blurriness due to vibration caused by hand shake or camera movement. The image will be digitally zoomed in to compensate the shifted pixels.
  - » **RANGE:** Set the digital zoom level for image stabilizing. Max 30% = x1.4 Digital Zoom.
  - » **FILTER:** Select the level of correction hold filter for the worst case of image. High = Less Correction.
  - » **AUTO C:** Select the image auto centering level according to a vibration type. Full = Severe Vibration, Half = Minor Vibration.

7. IMAGE CONTROL

Select IMAGE CONTROL using the UP or DOWN button. You can adjust all image related features from the sub menu.



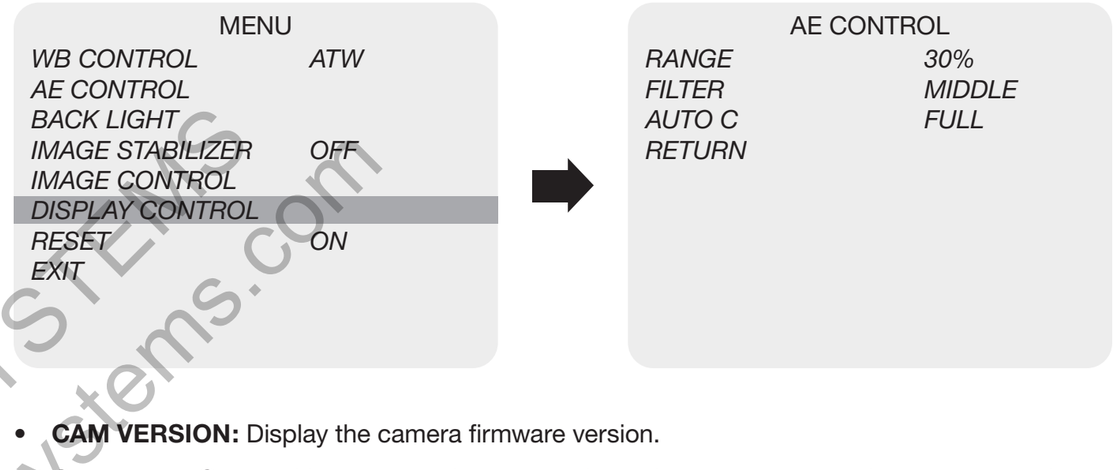
- COLOR LEVEL: Adjust the color level value for a fine color tune.
- SHARPNESS: Adjust the image sharpness for a smooth or a sharp edge expression.
- MIRROR: Video output is rotated horizontally.
- FLIP: Video output is rotated vertically.
- D-ZOOM: Digitally zoom the video output up to 16x.
- DEFOG: Increases the visibility in extreme weather conditions, such as fog, rain or in a very strong luminous intensity.
- DNR: Reduces the video noise at low ambient light.
- MOTION: Observes the object movement by motion zone and sensitivity that are pre-set with sub menu. The motion detection icon can be displayed.
- SHADING: Correct the inconsistent brightness level in the image.
- BLACK LEVEL: Adjusts video output black level in 33 steps.
- GAMMA: Adjusts video output gamma level in 33 steps.
- FRAME RATE: Change video output specification.

Select the FRAME RATE using the LEFT or RIGHT button. Available frame rates are:

720p25, 720p29 (720p29.97), 720p30, 720p50, 720p60, 1080p25, 1080p30, 1080i50, 1080i60, 1080p50, 1080p60. 720p59 (720p59.94), 1080p29 (1080p29.97), 1080i59 (1080i59.94), and 1080p59 (1080p59.94)

8. DISPLAY CONTROL

Select IMAGE STABILIZER using the UP or DOWN button. You can select the RANGE, FILTER, and AUTO C from the sub menu.

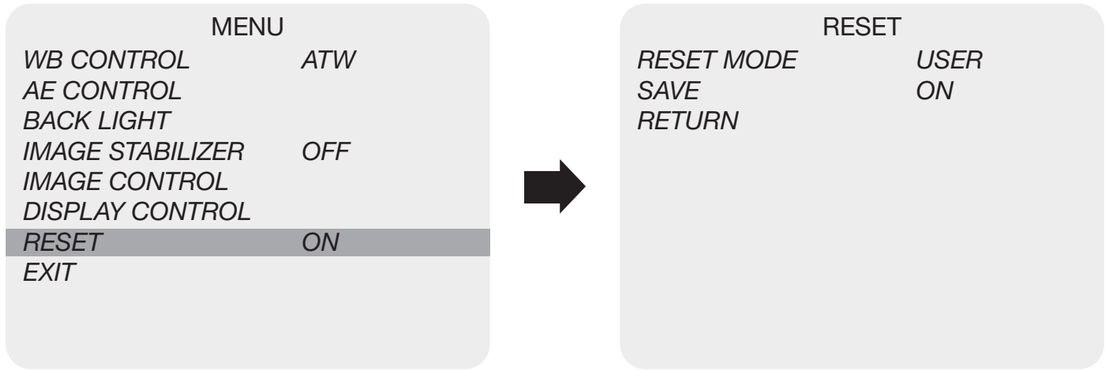


- **CAM VERSION:** Display the camera firmware version.
- **CAN TITLE:** Camera title can be entered using the virtual keyboard and it will overlay on the video.
- **PRIVACY:** Mask areas where you want to hide on the screen.
- **CAM ID:** Select camera ID number from 0~255.
- **BAUDRATE:** Set the camera baudrate of RS-485 communication.
- **LANGUAGE:** Select English or Chinese OSD menu.
- **DEFECT DET:** Adjust the active pixels by adjusting the threshold value.

  Camera lens must be completely covered before activating this menu.

9. RESET

Select RESET using the UP or DOWN button. You can reset the setting to FACTORY or USER saved settings. Choose ON or CHANGE by using the LEFT or RIGHT button.



- **ON:** Set the camera reset setting to either FACTORY or USER saved settings which is defined from CHANGE menu.

  Please make sure to select the right mode before resetting the camera.

- **CHANGE:** Change reset mode or save the current setting as a USER.
  - » **FACTORY:** Select FACTORY if factory default setting is needed. FRAME RATE, CAM ID, and BAUDRATE will not change.
  - » **USER:** Select USER if the USER saved setting needs to be loaded.
  - » **SAVE:** Save the current settings as the USER saved setting.

10. TROUBLESHOOTING

Problem	Solutions
Nothing appears on the screen.	a. Check that all connected devices are powered on. b. Confirm that the voltage is correct. c. Confirm that the power supply provides enough current to power the camera. d. Check that all video cables are correctly connected.
The picture is not clear.	a. Check that your monitor is correctly adjusted. b. 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. c. Correctly adjust the focus.
The picture has interference.	a. The camera may be close to a high voltage source, such as a power generator. b. The BNC cable is not terminated properly. c. The video cables are not connected properly.
The picture is flickering continually.	a. Check the termination and set the impedance at 75Ω properly. b. Ensure that the camera is not pointing towards the Sun or any light source. c. Check if there is any intermediate device. d. Check if the distance of the video cable exceeds the maximum transferable limitation.
The camera is not synchronizing with the reference signal.	a. Make sure Tri-Level reference signal is used. b. Locking takes up to 1 minute depending on the signal strength. Make sure the sync LED is solidly lit. c. Check if the cable and connectors used in reference sync are in good condition. d. Make sure the cable length used in reference sync does not exceed 100 ft. e. Make sure OUTPUT EN is on when using the genlock output.
Focus	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.