



FHD Weatherproof POV Camera

# HD-X3L-IP67

OPERATION GUIDE

**CAUTION:**

RISK OF ELECTRIC SHOCK.  
DO NOT OPEN.

**CAUTION:**

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK)  
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**WARNING**

*This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.*

**PRECAUTION**

*This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.*

**WARNING**

**To prevent damage which may result in fire or electric shock hazard, do not modify or open the housing of the camera.**

1. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, cause excessive heat or fire
3. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
4. Do not place conductive objects (e.g. screw drivers, coins, metal items, etc.) or containers filled with water on top of the camera. Doing so may cause personal injury due to fire, electric shock, or falling objects.

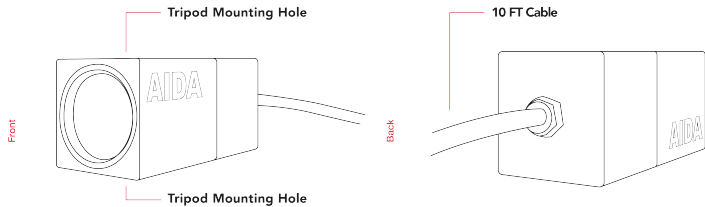
Warning continues

5. If any unusual smells or smoke come from the unit, stop using the product. Immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
6. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
7. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

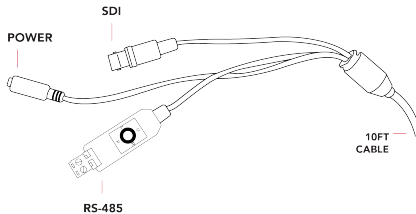
## PRECAUTION

Please read this Operation Guide before installing and using the camera & retain this copy for your reference.

1. Always follow the instructions in the operations guide when applying power. Fire and equipment damage can occur if power is applied incorrectly. For the correct power supply, refer to the specifications page.
2. Do not use camera if fumes, smoke or a strange odor is emitted from the camera, or if it seems not functional correctly. Disconnect the power source immediately and consult with your supplier.
3. Do not use the camera in extreme environments where high temperatures or high humidity exists. Use the camera under conditions where temperatures are between 32°F ~ 104°F.
4. If installed close to a TV, radio transmitter, magnet, electric motor transformer or audio speakers the magnetic field generated may interfere with or distort the image.
5. Try to avoid fluorescent light reflections, unstable light conditions, direct pointing toward the sun. Use caution when operating the camera in the vicinity of spotlights or other bright lights and light reflecting objects.
6. To prevent damage, do not drop the camera or subject it to strong shock or vibration.



CABLE DIAGRAM



## FEATURES

- Full-HD 1/3" Progressive Scan CMOS sensor captures sharp and vivid Full-HD video even under low light conditions.
- X3 optical zoom features 78° ~ 25° wide angle of view.
- Built-in zoom lens offers zoom, focus and iris control.
- Advanced digital imaging processor provides vivid and detailed images by utilizing Dynamic Range, Auto White Balance, and Noise Reduction.
- 10 ft weatherproof OSD breakout cable with power input, 3G-SDI out, and RS485 communications for remote control.
- Perfectly suited for outdoor events, outdoor research, OB vehicles and security.
- Versatile, compact, and IP67 rated protection covering dust, moisture, and water submersion up to 1m for 30 minutes.

## OSD MENU

### MAIN MENU

*FOCUS CONTROL	>
WB CONTROL	>
AE CONTROL	>
COLOR/ B/W	>
IMAGE CONTROL	>
SPECIAL	>
SETUP	>
RESET	>
EXIT	>

L- Left | R- Right | U- Up | D- Down | ■- Select



### 1. Move the Cursor Up/Down to Choose Menu

To move from item to item in the menu, move the joystick to the Up/Down.

### 2. Change the Value

To change the value of the selected item, move the joystick to the Left/Right.

### 3. Shift to the Sub Menu of the Chosen Menu

To go into sub menu, press SEL key. The menu items with > always have its sub menu.

### FOCUS CONTROL

FOCUS MODE                    AUTO  
PUSH  
ZOOM SPEED            5    ◀■■■■▶  
FOCUS LIMIT            50CM  
\*AF AREA/SIZE            ▶  
RETURN

#### AUTO

Auto mode will have the focus be done automatically.

#### MANUAL

Focus control is done manually and will remain the same.

- **PUSH** : Press SEL key to focus automatically from the current view.

#### ZOOM SPEED

0 ~ 7 ( Adjust the speed at which the camera zooms.)

#### FOCUS LIMIT

10cm, 50cm, 1m, 2m, 3m, 5m, 10m ( Adjust the Autofocus algorithm by distance ).

#### AF AREA/SIZE

Allows for setting focus parameters. The camera will try to focus based off the users box settings.

User Mode : ON, OFF

**WIDTH** - 0 ~ 20 ( Auto mode will adjust the exposure level automatically ).

**HEIGHT** - 0 ~ 20 ( Auto mode will adjust the exposure level automatically ).

**MOVE HOR** - 0 ~ 20 ( Auto mode will adjust the exposure level automatically ).

**MOVE VER** - 0 ~ 20 ( Auto mode will adjust the exposure level automatically ).

## WHITE BALANCE

\*MODE ATW  
 PUSH  
 BLUE  
 RED  
 BLUE OFFSET   
 RED OFFSET   
 RETURN

## EXPOSURE

\*AE MODE AUTO  
 SHUTTER  
 AGC  
 AGC MAX 13   
 SENS UP OFF  
 AE BRIGHT 6   
 FLK CONTROL OFF  
 RETURN

**AWB** - Auto white balance mode will adjust white balance within 3,000°K ~ 8,000°K temperature.

**ATW** - Auto trace white mode will adjust white balance within 1,900°K ~ 11,000°K temperature.

**ONE PUSH** - One push mode is used if AWB or ATW cannot produce the proper white balance. Place a white paper in front of the camera when using the one push mode to self adapt.

**INDOOR** - Indoor mode will adjust white balance to indoor lighting conditions.

**OUTDOOR** - Outdoor mode will adjust white balance to outdoor lighting conditions.

**MANUAL** - Manual mode will adjust white balance manually.

**BLUE** - 0 ~ 100 ( Select Manual blue gain within the range of 0 to 100 )

**RED** - 0 ~ 100 ( Select Manual red gain within the range of 0 to 100 )

**BLUE OFFSET** - 0 ~ 100 ( Select AWB blue offset within the range of 0 to 100 )

**RED OFFSET** - 0 ~ 100 ( Select AWB red offset within the range of 0 to 100 )



**AUTO**

Auto mode will adjust the exposure level automatically.

*Detailed fine tuning options are available under this menu*

- **AGC MAX** : Set the maximum gain value to control video noise caused by AGC
- **SENS UP** : OFF, x2 ~ x15  
 "SENS UP" mode controls the digital slow shutter to allow extra light into the camera and adjust the picture quality.
- **AE BRIGHT** : 0~20

Auto Exposure brightness level can be adjusted.

EXPOSURE	
*AE MODE	AUTO
SHUTTER	
AGC	
AGC MAX	13 
SENS UP	OFF
AE BRIGHT	6 
FLK CONTROL	OFF
RETURN	



## SHUT FIX

SHUT FIX mode provides more detailed shutter speed option.

*All other controls are tuned for the selected shutter speed.*

- **SHUTTER** : AUTO, 1/30 ~ 1/10,000 ( Shutter speed can be set )
- **AGC MAX** : sets the maximum gain value to control the video noise caused by Auto Gain Control.
- **SENS UP** : 0~15  
"SENS UP" mode controls the digital slow shutter to allow extra light into the camera and adjust the picture quality.
- **AE BRIGHT** : 0~24  
Auto Exposure brightness level can be adjusted.

### EXPOSURE

*AE MODE	AUTO
SHUTTER	
AGC	
AGC MAX	13 
SENS UP	OFF
AE BRIGHT	6 
FLK CONTROL	OFF

RETURN

### AGC FIX

AGC FIX mode provides more detailed gain options.

*All other controls are tuned for the selected gain value.*

- **AGC** : 0dB ~ 27dB,  
Gain level can be set. ( lower values=less adjusted lighting in image)
- **AE BRIGHT** : 0~10  
Auto Exposure brightness level can be adjusted.
- **FLK CONTROL** : AUTO, ON, OFF  
"FLK CONTROL" mode provides a proper image sensor frequency to match the power frequency in order to minimize video flicker.

### IMAGE CONTROL

*LENS SHADING	OFF	
CONTRAST	11	
BRIGHTNESS	11	
SATURATION	10	
HUE	0	
EDGE ENHANCE	5	
AUTO SATURATE	MIDDLE	
AUTO EDGE	ON	
BLACK WHITE LV		>
GAMMA CORRECT	DEFAULT	
DNR		>
RETURN		

Camera image control can be adjusted from EFFECT menu.

- **LENS SHADING**: ON, OFF  
Optical vignetting issue can be correct from this menu.
- **CONTRAST**: 0 - 20 ( Contrast level can be adjusted )
- **BRIGHTNESS**: 0 - 20 ( Brightness level can be adjusted )
- **SATURATION**: 0 - 20 ( Saturation level can be adjusted )
- **HUE**: 0 - 20 ( Hue level can be adjusted )
- **EDGE ENHANCE**: 0 - 20 ( Image sharpness level can be adjusted )
- **AUTO SATURATE**: OFF, LOW, MIDDLE, HIGH  
Decrease saturation automatically when noisy scene is detected.

### IMAGE CONTROL

LENS SHADING	OFF	
*CONTRAST	11	
BRIGHTNESS	11	
SATURATION	10	
HUE	0	
EDGE ENHANCE	5	
AUTO SATURATE	MIDDLE	
AUTO EDGE	ON	
BLACK WHITE LV		>
GAMMA CORRECT	DEFAULT	
DNR		>
RETURN		

- **AUTO EDGE**: ON, OFF  
Allows automatic sharpening of image depending on focus.
- **BLACK LEVEL**: -64 - 64 ( Gamma level can be adjusted )
- **GAMMA CORRECT**: DEFAULT, 0.4 - 1.0 ( Gamma level can be adjusted )
- **DNR**: Camera noise level can be adjusted from this menu.
  - **DNR MODE**: OFF, 2D, 3D, 2D+3D  
Digital noise reduction can be applied from this menu.
  - **DNR LEVEL**: AUTO, LOW, MIDDLE, HIGH  
Noise reduction level can be adjusted from this menu.

## SPECIAL

*DZOOM	OFF	
ZOOM MAG	OFF	
DEFOG	OFF	
BACKLIGHT	OFF	
BINNING	OFF	
DEFECT PIXEL	ON	>
DISP. FUNCTION		>
WDR		>
PRIVACY		>
RETURN		

## D-ZOOM

\*ZOOM CONTROL X 1.0  
RETURN

Camera special functions can be adjusted from SPECIAL menu.

**D ZOOM** : ON, OFF ( Digital Zoom can be enabled from this menu )

- **DZOOM LIMIT**: 1x ~ 12x ( Allows ability to digitally zoom this far)

*To use this function, keep zooming in after standard 3x optical zoom, you will then slowly enter the digitally zoomed imaging.*

**ZOOM MAG** : ON, OFF ( Displays the zoom level at the top right of image ) .

## DEFOG SETUP

\*STRENGTH 4 

THRESHOLD


AUTO LEVEL

RETURN


**DEFOG** : ON, OFF, AUTO ( "DEFOG" menu improves foggy image)

- **STRENGTH** : 0 ~ 16  
Change defog strength.
- **THRESHOLD** : 0 ~ 3  
Threshold value sets minimum sensitivity value for automatic defog control.  
Higher value makes defog-on control reluctant.
- **AUTO LEVEL** : LOW, MID, HIGH  
Auto level value sets maximum strength value for automatic defog control.  
Higher value makes defog effect to be stronger.

## BACKLIGHT - BLC

\*BLC ON 

SIZE/POSITION

LEVEL 128 

DISPLAY ON

DEFAULT

RETURN

**BACK-LIGHT** : OFF, BLC, HLM

Camera back-light compensation can be adjusted.

**BLC** : OFF, ON

BLC enables back light compensation.

- **SIZE/POSITION** : SIZE, POSITION, RETURN  
Adjust BLC area window size.
- **LEVEL** : Back-light level compensation level can be adjusted from this menu.  
Higher level will compensate more from the selected area
- **DISPLAY** : OFF, ON ( BLC area display can be turned ON or OFF )
- **DEFAULT** : Set BLC menu to default value.

## BACKLIGHT - HLM

```

*AREA DISPLAY  ON
SIZE/POSITION  >
LEVEL          3  ◀▶
BLACK MASK     ON
DEFAULT
RETURN
  
```

**HLM** : OFF, ON

HLM can be adjusted.

- **AREA DISPLAY** : ON, OFF  
HLM AREA DISPLAY can be turned ON or OFF.
- **SIZE/POSITION** : SIZE, POSITION, RETURN  
Adjust BLC area window size.
- **LEVEL** : 0 ~ 20  
Amount of masking area can be adjusted.
- **BLACK MASK** : OFF, ON  
Masking area highlight can be turned ON or OFF.
- **DEFAULT** : Set HLM menu to default value.

## DEFECT PIXEL

```

*STATIC PROGRESS  PRESS OK
RETURN
  
```

**BINNING** : OFF, ON

Binning can be turned ON or OFF. (Sacrifice pixel quality to raise image contrast)

**DEFECT PIXEL** : OFF, ON,

To fix dead or stuck pixels accumulated on the sensor, please enter this following menu.

- **STATIC PROCESS** : PRESS OK.  
To use this progress, please cover the lens of the camera until the image is completely black. Press OK, and then it will adjust. Once complete, your dead or stuck pixels will now be mirrored by a neighboring pixel.

## DISPLAY FUNCTION

*FREEZE	OFF
MIRROR	OFF
FLIP	OFF
IMAGE EFFECT	NEGATIVE
ROTATION	ROT
PICTURE STYLE	VIVID
PIC CONTRAST	3
PIC SATURATION	3
PIC EDGE	3
RETURN	

**DISPLAY FUNCTION** : OFF, ON

Adjust image display features from this menu.





- **FREEZE** : OFF, ON  
Image freeze can be turned ON or OFF.
- **MIRROR** : OFF, MIRROR, Image mirror can be operated.
- **FLIP** : OFF, V-FLIP, Image flip can be operated.
- **IMAGE EFFECT** : OFF, NEGATIVE, GREY MODE, REDDISH-1 ~ 4, BLUISH-1 ~ 4, GREENISH-1 ~ 4. **ROTATION** : OFF, ROT\_L 1:1  
Several color effects can be applied.
- **ROTATION** : OFF, ROT\_L FULL, ROT\_L 1:1, ROT\_R Full, ROT\_R 1:1  
Image can be rotated either left or right side. (\*Will not work on 60 frames resolution)
- **PICTURE STYLE** : OFF, STANDARD, VIVID, CLEAR, VIVID CLEAR, NEUTRAL  
Different types of picture style can be applied. Overrides Image control for fine tuning
- **PIC CONTRAST** : 0 ~ 6 (Applies contrast to image)
- **PIC SATURATION** : 0 ~ 6 (Applies saturation to image)
- **PIC EDGE** : 0 ~ 6 (Applies sharpness to image)

**FLICKER DETECT** : OFF, ON

"FLICKER DETECT" mode provides a proper image sensor frequency to match the power frequency in order to minimize video flicker.

**WDR** : Wide Dynamic range can be turned on or off.

## PRIVACY MASK

*MODE	ON	
MASK NO.	MASK 1	
DISPLAY	ON	
COLOR	BLACK	
POSITION-X	2	
POSITION-Y	5	
SIZE-X	20	
SIZE-Y	11	
DEFAULT		
RETURN		

Privacy zone can be setup from this menu.

**MODE** : ON, OFF

Enable "PRIVACY ZONE" ON or OFF.

**MASK NO** : MASK1 ~ MASK8

Select privacy zone mask number.

**DISPLAY** : ON, OFF

Turn ON or OFF the selected privacy mask zone.

**COLOR** : WHITE, GREEN, BLUE, RED, CYAN, MAGENTA, YELLOW, GRAY-1 ~ 6, MOSAIC, BLACK. ( Select privacy zone mask color )

## POSITION-X & POSITION-Y

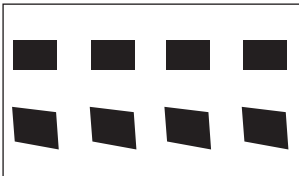
Change the size of the selected corner from "POLY SELECT" menu.

## SIZE-X & SIZE-Y

Change the size of the privacy square.

## DEFAULT

Set privacy zone to default value.



## SETUP

*CAM TITLE	OFF	
COMMUNICATION		>
SYSTEM INFO		>
OUTPUT FORMAT	1080P60	>
RETURN		

Camera setup can be adjusted from this menu.

**CAM TITLE** : OFF, ON

Camera title can be turned ON or OFF.

**COMMUNICATION** : ON, OFF,  
 VISCA communication control can be adjusted.

- **CAM ID** : 0 ~ 7

Camera ID can be setup.

- **ID DISPLAY** : OFF, ON

Camera ID can be setup.

- **BAUDRATE** : 2400, 4800, 9600, 19200, 38400

Camera baudrate can be set.

### SYSTEM INFO :

Camera S/W version can be found under this menu.

**OUTPUT FORMAT** : ON, OFF

Camera resolution and frame rate can be set. Select to set.

Supported formats are: **1080P** - 60 / 59.94      **1080I** - 60 / 59.94 / 50

\* 1080p by default      50 / 30 / 29.97 / 25 / 24      **720P** - 60 / 59.94 / 50

### RESET

\*MODE      FACTORY  
RESET      >  
SAVE AS USER  
RETURN

#### **MODE :** FACTORY, USER

Camera will reset to factory default or user saved value.

#### **RESET :** NO, YES

Reset the camera to the selected mode.

#### **SAVE AS USER :**

Save the user desired setting from the menu. Mode must be set to User.

All settings will be saved, from focus and zoom to image settings.

## SPECIFICATION

### VIDEO

<b>Image Sensor</b>	1/3" inch Progressive CMOS
<b>Sensor Size</b>	Diagonal 7.20mm
<b>Effective Pixels</b>	Horizontal: 1920, Vertical: 1080
<b>Pixel Size</b>	2.75 $\mu$ m x 2.75 $\mu$ m
<b>Resolution</b>	1080p: 1920 x 1080 1080i: 1920 x 1080
<b>Resolution Rate</b>	720p : 1280 x 720 1080p : 60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 1080i : 60 / 59.94 / 50
<b>Output</b>	720p : 60 / 59.94 / 50
<b>Color Space</b>	3G-SDI 4:2:2 (YCbCr) 10bit

### FUNCTION

<b>White Balance</b>	AWB / AE / AF
<b>Exposure</b>	Full Auto, Bright, Shutter Priority, Iris Priority, Manual
<b>Other</b>	WDR, DIS (Digital Image Stabilization), 2D/3D Noise Reduction, Digital Slow Shutter, Black Level Compensation, Flicker Detection.

### LENS

<b>Lens</b>	3X Optical Zoom Lens, 3.85mm/78° (Wide) ~ 13.4mm/25° (Tele)
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### STANDARD

<b>SMPTE</b>	SMPTE 292M, SMPTE 424M
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### PHYSICAL

<b>Weatherproof Rating</b>	IP67
<b>Cable Length</b>	10FT
<b>Camera Control</b>	RS-485, OSD Button
<b>Operation Temp</b>	32° F - 104° F
<b>Dimension</b>	83.09mm x 48mm x 48mm (excl. 3M attached cable) 3.25" x 1.95" x 1.95" (excl.10ft attached cable) (LxWxH)
<b>Weight</b>	140g / 0.30lbs
<b>Power</b>	12VDC (+9 - +15VDC)

*\*Specification are subject to change without notice.*

**Visit us:**

[www.aidaimaging.com/support](http://www.aidaimaging.com/support)

**E-mail us:**

[support@aidaimaging.com](mailto:support@aidaimaging.com)

**Give us a Call:**

Toll Free: 844.631.8367 | Tel: 909.333.7421

Operating Hours: Mon-Fri | 8:00am – 5:00pm PST

# AIDA

IMAGING



#### Disposal of Old Appliances

1. When this crossed-out wheel bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream in accordance to laws designated by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.