

AIDA
IMAGING



UHD6G-X12L

Micro UHD HDMI Optical Zoom POV Camera

Operation Guide

Ver. 1.0 / SEPT 2018

**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 expose this appliance to rain or moisture.

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, fire, electric shock, or damage to the product.
3. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause excessive heat or fire.
4. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.

6. 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.
7. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
8. 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.
9. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
10. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

Precaution

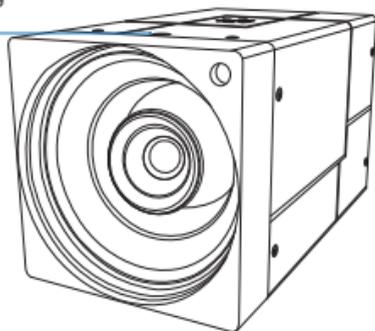
Please read this Operation Guide before installing and using the camera & retain this copy for your reference.

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, and humidity is below 90%.
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.

UHD6G-X12L

FRONT

Tripod
Mounting
Hole



BACK

HDMI OUT

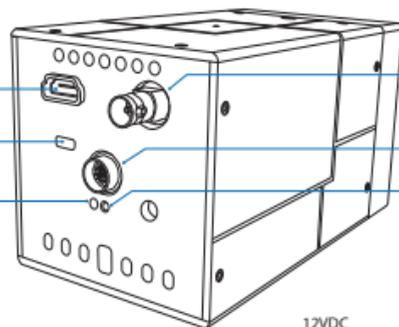
SVC

HDMI LED

SDI OUT

I/O: Power, OSD
RS-485, Audio

POWER LED



I/O Connector Cable

Power In

OSD Controller

12VDC

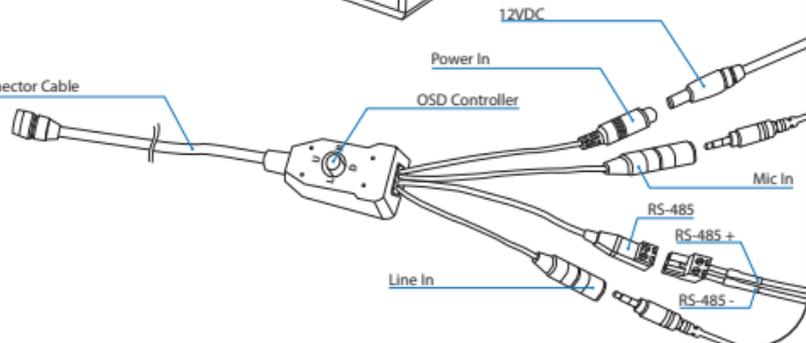
Mic In

RS-485

RS-485 +

RS-485 -

Line In

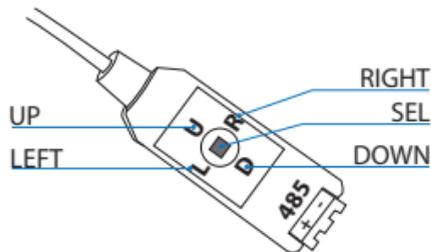


- 4K UHD 1/1.7 Progressive Scan CMOS sensor capable of 4K (4092 x 2160) captures sharp and vivid images even under very low light conditions.
- Powered by a back-illuminated pixel technology.
- Superior 4K 12X optical zoom.
- Advanced digital imaging processor provides vivid and detailed images by utilizing Dynamic Range, Auto White Balance, and Noise Reduction.
- Superb motion-compensated temporal noise reduction filter for motion video without blurring.
- OSD control breakout cable with two audio inputs and RS-485 for remote communication.
- Dual video simultaneous out interfaces 6G-SDI & HDMI.
- Flawlessly relays multi-channel embedded audio via 6G-SDI & HDMI.
- Perfectly suited for broadcast, pro audio/video, and security.
- Conforming with SMPTE 292M, 424M, and 2081-10.
- Versatile, compact, and rugged design.

OSD MENU

MAIN MENU

* FOCUS CONTROL	>
WB CONTROL	>
AE CONTROL	>
DAY / NIGHT	>
AUDIO	>
IMAGE CONTROL	>
SPECIAL	>
SETUP	>
RESET	>
EXIT	>



❶ Move the Cursor Up/Down to Choose Menu

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

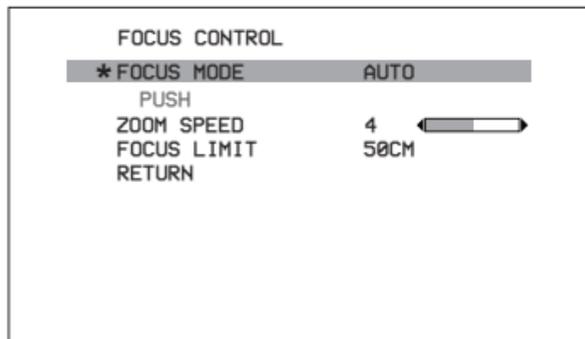
❷ Change the Value

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

❸ 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.



AUTO

Auto mode automatically controls focus.

MANUAL

Focus control is done manually

PUSH

Press SEL key to focus automatically from the current view.

ZOOM SPEED : 0 ~ 7

Zoom speed can be adjusted from this menu

FOCUS LIMIT : 10cm, 50cm, 1m, 2m, 3m, 5m, 10m

Focus speed can be adjusted from this menu

WB CONTROL

WB CONTROL

* MODE ATW

PUSH

BLUE

RED

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 blue gain within the range of 0 to 100

RED : 0 ~ 100

Select red gain within the range of 0 to 100

AE CONTROL	
* AE MODE	AUTO
SHUTTER	
IRIS	
AGC	
AGC MAX	13 
SENS UP	OFF
AE BRIGHT	7 
FLK CONTROL	OFF
RETURN	

AUTO

Auto mode will adjust the exposure level automatically.

Detailed fine tuning options are available under this menu.

> **AGC MAX** : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX
"AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.

> **SENS UP** : OFF, x2 ~ x10
"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.

AE CONTROL	
* AE MODE	AUTO
SHUTTER	
IRIS	
AGC	
AGC MAX	13 
SENS UP	OFF
AE BRIGHT	8 
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** : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX

"AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.

➤ **SENS UP** : OFF, x2 ~ x10

"SENS UP" mode controls the digital slow shutter to allow extra light into the camera and adjust the picture quality.

➤ **AE BRIGHT** : 0~10

Auto Exposure brightness level can be adjusted.

AE CONTROL	
* AE MODE	AUTO
SHUTTER	
IRIS	
AGC	
AGC MAX	13 
SENS UP	OFF
AE BRIGHT	8 
FLK CONTROL	OFF
RETURN	

AGC FIX

*AGC FIX mode provides more detailed gain option.
All other controls are tuned for the selected gain value.*

- >AGC : AUTO, 0dB ~ 27dB, d2X ~ d9X
Gain level can be set.
- >AGC MAX : OFF, LOW, MIDDLE, HIGH, DMIN, DMID, DMAX
"AGC MAX" sets the maximum gain value to control the video noise caused by Auto Gain Control.
- >AE BRIGHT : 0~10
Auto Exposure brightness level can be adjusted.

AE CONTROL

AE CONTROL	
* AE MODE	AUTO
SHUTTER	
IRIS	
AGC	◀────────▶
AGC MAX	13 ─────────
SENS UP	OFF ◀────────▶
AE BRIGHT	8 ─────────
FLK CONTROL	OFF
RETURN	

>IRIS SPEED : 0 ~ 5

Electronic Iris speed can be controlled. (DC Iris lens only)

>LENS MODE : INDOOR, OUTDOOR, MANUAL

Lens setting will be optimized for the selected environment.

(DC Iris lens only)

>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.

DAY & NIGHT

* MODE DAY (COLOR)

NIGHT COLOR

COLOR BURST

RETURN

Adjust color or B&W setting from this menu.

➤ **MODE** : DAY(COLOR), NIGHT(B&W)

Set camera to either color mode or B&W mode.

➤ **NIGHT COLOR** : ON, OFF

When "NIGHT COLOR" is turned ON, camera stays on color mode even "NIGHT(B&W)" is selected from the MODE.

➤ **COLOR BURST** : ON, OFF

*Color burst signal ON or OFF can be set for CVBS signal.
(Not applicable)*

AUDIO

AUDIO

* MODE	OFF
AUDIO LEVEL	0 dB
MIC ATTENUATOR	OFF
AGC LIMIT	
SAMPLE BITS	24BITS
RETURN	

MODE : OFF, LINE, MIC

Select the proper audio mode from this menu.

AUDIO LEVEL : -12dB ~ 48dB

Audio level can be manually adjusted from this menu.

MIC ATTENUATOR : ON, OFF

Audio input attenuation can be controlled from this menu to minimize the audio noise level.

AGC LIMIT : 0dB ~ 58dB

Audio gain level can be adjusted from this menu when MIC attenuation is enabled.

SAMPLE BITS : 16, 20, 24, 32

Audio sample bit rate can be adjusted from this menu.

Camera image control can be adjusted from EFFECT menu.

>LENS SHADING : ON, OFF

Optical vignetting issue can be corrected from this menu.

>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.

DNR APERTURE : 0 ~ 4

Motion artifacts tightness can be adjusted.

0=Most ghost artifact 4= Least ghost artifact.

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

IMAGE CONTROL

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

>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.

>AUTO EDGE : ON, OFF

Decrease edge enhancement (sharpness) automatically when noisy scene is detected.

>DEFAULT

Set EFFECT menu to default value.

Camera special functions can be adjusted from SPECIAL menu.

SPECIAL		
* DZOOM	ON	>
DEFOG	OFF	
DWDR	OFF	
MOTION DETECT	OFF	
BACKLIGHT	OFF	
BINNING	OFF	
DEFECT PIXEL	ON	>
DISP. FUNCTION		>
FLICKER DETECT	ON	
PRIVACY		>
RETURN		

D-ZOOM		
* ZOOM CONTROL		>
PIP	OFF	
PIP SIZE	1/16	
PIP POSITION		>
DZOOM SAVE		
DEFAULT		
RETURN		

DZOOM : ON, OFF

Digital Zoom and PIP function can be enabled from this menu.

> ZOOM CONTROL: RATIO, POSITION, RETURN

Adjust the digital zoom ratio and position.

Use LEFT / RIGHT button to adjust the ratio, then press select.

USE LEFT / RIGHT / UP / DOWN button to adjust the image position, then press select.

Press select to exit.

> PIP : ON, OFF

Turn ON or OFF the PIP window.

> PIP SIZE: : 1/16, 1/25

Change the size of PIP window.

> PIP POSITION : POSITION, RETURN

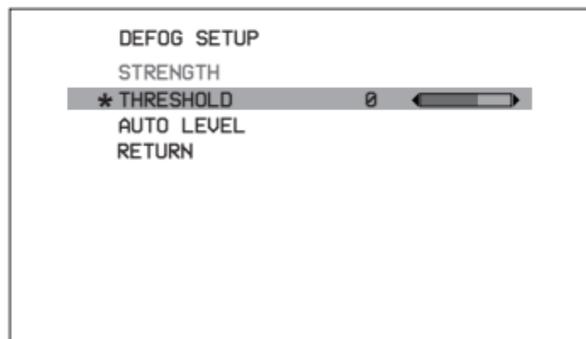
Adjust the PIP window location.

USE LEFT / RIGHT / UP / DOWN button to adjust the image position, then press select.

Press select to exit.

> DEFAULT

Set privacy zone to default value.



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.

DWDR

Wide Dynamic range can be adjusted from the sub menu.

MOTION DETECT

Camera can detect a motion within the selected areas.

BACKLIGHT - BLC

* BLC	ON	
SIZE/POSITION		
LEVEL	128	
DISPLAY	ON	
DEFAULT		
RETURN		

BACKLIGHT - HLM

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

BACKLIGHT : OFF, BLC, HLM

Camera backlight compensation can be adjusted.

BLC : OFF, ON

BLC enables back light compensation.

> **SIZE/POSITION** : SIZE, POSITION, RETURN

Adjust BLC area window size.

> **LEVEL**

Backlight 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.

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
SDPC UPDATE	PRESS OK
SDPC CLEAR	PRESS OK
RETURN	

BINNING : OFF, ON

Binning can be turned ON of OFF.

DEFECT PIXEL : OFF, ON, ON(FIXED), STATIC

Defective Pixel Correction feature can be operated.

It is turned ON by default and will run both dynamic and static DPC function.

DISPLAY FUNCTION

* FREEZE	OFF
MIRROR	OFF
IMAGE EFFECT	OFF
ROTATION	OFF
PICTURE STYLE	OFF
PIC CONTRAST	
PIC SATURATION	
PIC EDGE	
RETURN	

DISPLAY FUNCTION

Adjust image display features from this menu.

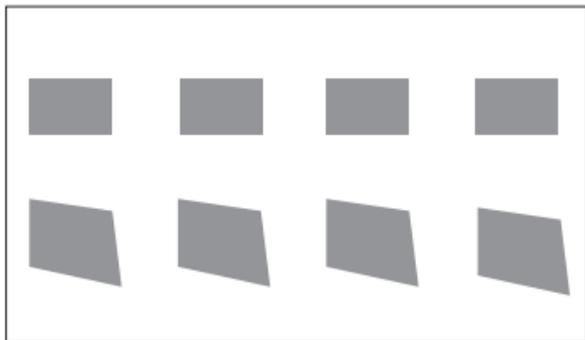
- **FREEZE** : OFF, ON
Image freeze can be turned ON or OFF.
- **MIRROR** : OFF, MIRROR, V-FLIP, BOTH(H/V)
Image mirror or flip can be operated.
- **IMAGE EFFECT** : OFF, NEGATIVE, GREY MODE, REDDISH-1 ~ 4, BLUISH-1 ~ 4, GREENISH-1 ~ 4.
Several color effects can be applied.
- **ROTATION** : OFF, ROT_L FULL, ROT_L 1:1, ROT_R Full, ROT_R 1:1
Image can be rotated either left or right side.
- **PICTURE STYLE** : OFF, STANDARD, VIVID, CLEAR, VIVID CLEAR, NEUTRAL,
Different types of picture style can be applied.

FLICKER DETECT : OFF, ON

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

PRIVACY

PRIVACY MASK	
* MODE	ON
TYPE	SQUARE
MASK NO.	MASK 1
DISPLAY	ON
COLOR	BLACK
POLY SELECT	
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.

> **TYPE**: SQUARE, POLYGON

Select privacy zone shape.

> **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.

> **POLY SELECT** : L-TOP, L-BOTTOM, R-TOP,
R-BOTTOM

Change the shape of the polygon by selecting the corner of the polygon.

> **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	1080P30
RETURN	>

Camera setup can be adjusted from this menu.

>CAM TITLE : OFF, ON

Camera title can be turned ON or OFF.

>COMMUNICATION

VISCA communication control can be adjusted.

>CAM ID: 0 ~ 7

Camera ID can be setup.

>ID DISPLAY: OFF, ON

Camera ID can be displayed.

>BAUDRATE: 2400, 4800, 9600, 19200, 38400

Camera baudrate can be set.

>SYSTEM INFO

Camera information can be found under this menu.

>OUTPUT FORMAT

Camera resolution and frame rate can be set.

1080p by default.

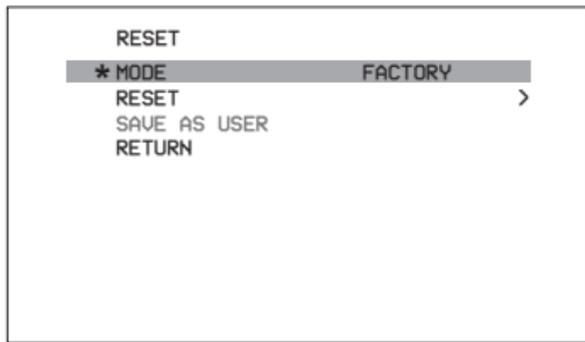
Supported formats are:

4K2160P 30 / 29.97 / 25 / 24

720P 60 / 59.94 / 50

1080i 60 / 59.94 / 50

1080P 60 / 59.94 / 50 / 30 / 29.97 / 25 / 24



MODE : FACTORY, USER

Camera will reset to factory default or user saved value.

RESET

Reset the camera to the selected mode.

SAVE AS USER

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

SPECIFICATION: UHD6G-X12L

Image Sensor	1/1.7 inch Progressive CMOS
Sensor Size	Diagonal 9.93mm(17:9)
Effective Pixels	Horizontal: 4096, Vertical: 2160
Pixel Size	1.85 μm (H) x 1.85 μm (V)
Resolution	4K: 4096 x 2160 2160p : 3840 x 2160 1080p / 1080i : 1920 x 1080 720p : 1280 x 720
Frame Rate	4K (4096 x 2160) 20/24p 4K2160p : 30 / 29.97 / 25 / 24 1080p : 60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 1080i : 60 / 59.94 / 50 720p : 60 / 59.94 / 50
Video Signal Output	HDMI 1.4 / HD/ 3G / 6G (BNC)
White Balance	AWB/AE/AF
Lens	12X UHD Optical Zoom Lens, 4.2-50.04, F1.8 (Wide)-F2.8 (Tele)
Audio Input	3.5mm Stereo Mic-in & Line in over I/O Cable
Audio Sample Rate	16/24/32 Bits
Color Space	4:2:2(YCbCr) 10bit
Other Features	Digital Zoom, DNR, GAMMA CORRECT
Camera Control	OSD Control Button / via RS-485
Operation Temperature	15°F - 102°F
Dimension & Weight	102.20mm x 102.20mm x 160mm/ 4.02" x 4.02" x 6.29" 600 g / 1.2 lbs
Power Requirements	12VDC (+9 - +15VDC)

Specifications are subject to change without notice



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.