



# CCTV Camera Pros

Video Surveillance Systems for Home, Business & Government

## Operational Manual **BIPRO-420VF9**

500 TVL, 42 IR Day & Night Effio-E  
Weatherproof Bullet Color Camera



### FEATURES

- 1/3" Sony Ex-View HAD II CCD
- Sony Effio-E DSP
- **500 TV Lines**
- 42 IR LEDs
- **IR Distance up to 95ft / 30m**
- **2.8~12.0mm Varifocal Lens**
- On-Screen Display (OSD)
- **Weatherproof IP65 Rating**
- 3-AXIS Cable Management Bracket
- 420mA @ IR "on" / 120mA @ IR "off"
- Power 12V DC

This IR camera uses a high sensitive 1/3" Interline transfer Charge Coupled Device (CCD) image sensor and an all-state circuitry, which provides extremely long life and high reliability. This camera offers excellent image quality and is not subject to distortions from magnetic fields. This camera is an excellent choice for your CCTV system. It captures high-speed moving objects; the sensor changes the day/night mode automatically to show qualified color picture during daytime and clear picture at night time.





**Please read the Manual before attempting to use this product.**



## **CAUTION**

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN!**



**TO REDUCE THE RISK OF ELECTRICAL SHOCK,  
DO NOT OPEN COVERS (OR BACK).  
NO USER SERVICEABLE PARTS INSIDE.  
REFER SERVICING TO QUALIFIED  
SERVICE PERSONNEL.**



**Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems).**

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

## **CAUTION**

### **1. Never point the camera toward the sun**

Do not expose the lens directly to the sun or to strong light as this may damage the pick-up device.

### **2. Handle this camera with care**

Avoid any shock or bumping of the camera. Improper handling could damage the camera.

### **3. Requires a proper operating environment**

This camera is designed for indoor use. The allowable temperature range for operation of this camera is between -4°F ~ 122°F / -20°C ~ 50°C.

#### **4. Clean the front face or lens**

It is recommended that the surface be cleaned every 3~6 months. Cleaning should be done by using a chamois, a very fine soft cloth, lens tissue, or cotton tipped applicator and ethanol to carefully remove any fingerprint or dust.

#### **5. Check the power source voltage**

The power source voltage should be within the specified range. (Camera must meet the specifications). Camera must be connected to a surge protector at all times.

#### **6. Objects and liquid entry**

Never push objects of any kind into this camera as this may touch dangerous voltage points of short out parts that could result in a fire or electric shock. Never spill any kind of liquid on the video product.

#### **7. Servicing**

Do not attempt to service this video product by yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all service to qualified servicing personnel.

#### **8. Damage requiring service**

Unplug this video product from the wall outlet and refer service to qualified servicing personnel under the following conditions:

- a. When the power supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the video product.
- c. If the video product has been exposed to rain or water.
- d. If the video product has been dropped or the cabinet has been damaged.
- e. When the video product exhibits a distinct change in performance.

## **LIMITED WARRANTY**

This product is covered under warranty for one (1) year from the date of purchase. The warranty will automatically be voided if any of the following occurs:

#### **1. Camera sticker is removed**

If the camera sticker is removed, we will not be able to confirm any information regarding when and where the product was purchased. We have no other way to verify the purchase record without the serial number on the camera sticker; therefore, it should not be removed.

#### **2. Camera is modified in any way**

If the camera is scratched, damaged, or modified in a manner not described in this manual, the warranty will be voided immediately. It is the customer's responsibility to keep the camera in good condition.

#### **3. Video or power cable is cut**

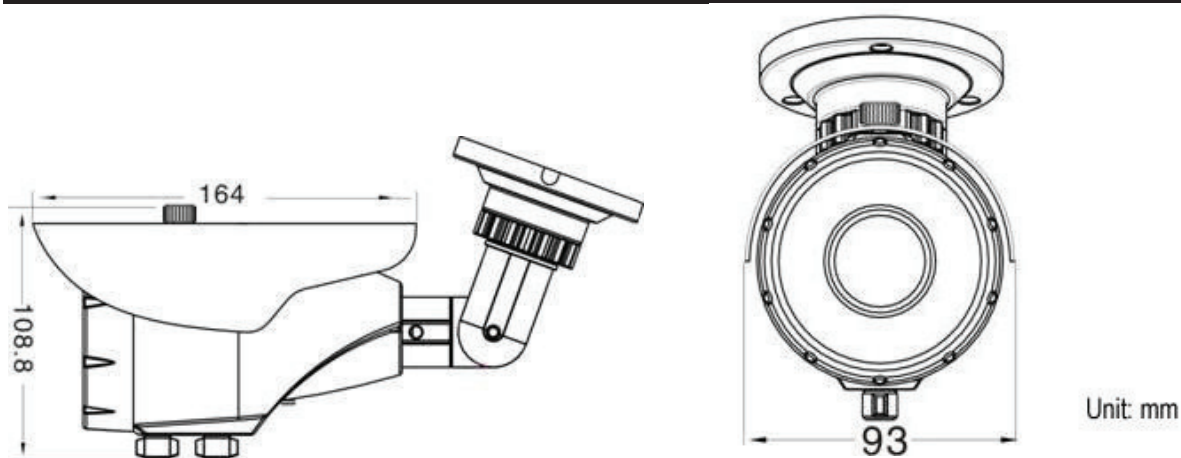
The video cable and the power cable should not be tampered with. Cutting or modifying of the cables will result in termination of the warranty.

## PACKAGE CONTENTS

- ⑩ One (1) IR Bullet Camera with power/video cable and sunshield
- ⑩ One (1) Allen Wrench
- ⑩ Three (3) Screws
- ⑩ Three (3) Wall Anchors
- ⑩ One (1) Mounting Guide Sticker
- ⑩ One (1) Operational Manual

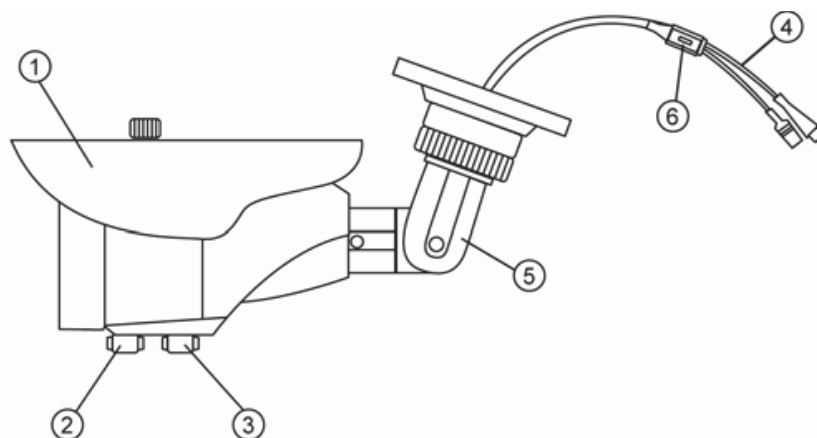
\* For any returns, please include all components listed above with original packaging in **Re-sellable Condition**. **Absolutely No Returns** will be accepted if any component is missing and or damaged.

## DIMENSIONS



## PARTS & FUNCTIONS

1. Sunshield Cover
2. Zoom Adjustor Knob
3. Focus Adjustor Knob
4. Video/Power Cable
5. 3-AXIS Bracket
6. OSD Multi-function button



# OSD OPERATIONS

## Attention:

- 1) Use the following 4 arrow buttons to navigate the menu: ←→↑↓  
Selection will have a gray background.
- 2) Use the “ENTER” button to confirm selection. Note: Options with “←” means it has a submenu.
- 3) The OSD main menu has two pages. The user can switch between the two pages by “NEXT←” or “BACK←”.
- 4) Select the “SAVE ALL” to save any changed settings, and then press “ENTER”. Otherwise it will revert back to the original when the camera reboots.

The first page of the main menu is shown below:

<b>SETUP MENU</b>	
<b>LENS</b>	<b>MANUAL</b>
<b>SHUTTER/AGC</b>	<b>AUTO ←</b>
<b>WHITE BAL</b>	<b>ATW ←</b>
<b>BACKLIGHT</b>	<b>OFF</b>
<b>PICT ADJUST</b>	<b>←</b>
<b>ATR</b>	<b>OFF</b>
<b>MOTION DET</b>	<b>ON ←</b>
<b>NEXT ←</b>	
<b>EXIT ←</b>	<b>SAVE</b>
<b>ALL</b>	

The second page of the main menu is shown below:

<b>SETUP MENU</b>	
<b>PRIVACY</b>	<b>OFF</b>
<b>DAY / NIGHT</b>	<b>AUTO ←</b>
<b>NR</b>	<b>←</b>
<b>CAMERA ID</b>	<b>OFF</b>
<b>SYNC</b>	<b>INT</b>
<b>LANGUAGE</b>	<b>ENGLISH</b>
<b>CAMERA RESET</b>	
<b>BACK ←</b>	
<b>EXIT ←</b>	<b>SAVE</b>
<b>ALL</b>	

1. LENS

<b>LENS</b>	<b>MANUAL</b>
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“LENS” has 2 options —“MANUAL” and “AUTO”. (This camera cannot install the auto-iris lens temporarily)

- 1) MANUAL - The default setting is manual. If the installed lens is manual type, please select this option.
- 2) AUTO - If the installed lens is manual one, please select this option. The user can select the option by “RIGHT” or “LEFT”.

<b>LENS</b>	<b>AUTO ←</b>
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The auto lens has the following parameters for the user to set. Enter the setting page by using the “ENTER” button.

<b>TYPE</b>	<b>DC</b>
<b>MODE</b>	<b>AUTO</b>
<b>SPEED</b>	<b>80</b>

[TYPE]: The drive mode of auto lens (or the lens type). It has 2 options-- DC and VIDEO. DC means direct current control of iris lenses, while VIDEO means video control of iris lenses.

[MODE]: 3 options for adjusting iris--AUTO, OPEN and CLOSE. AUTO means it can automatically adjust the size of the iris according to the light. OPEN means open the iris all the time, while CLOSE means close the iris.

[SPEED]: The sensitivity of the adjustment of the iris when choosing AUTO. The setting value range is 0~255.

2. SHUTTER / AGC

SHUTTER/AGC	AUTO ←
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It has 2 options--AUTO and MANUAL.

1) AUTO “AUTO” is the default setting.

AUTO SETUP HIGH	
LUMINANCE	
MODE	SHUT
BRIGHTNESS	24
LOW LUMINANCE	
MODE	AGC

[SHUT]: (The setting value range of brightness is 0~255.)

AGC (AGC / OFF) (The setting value range of AGC brightness is X0.25, X0.50, X0.75 and X1.00.)

2) MANUAL

MANUAL SETUP	
MODE	SHUT+AGC
SHUTTER	1/50
AGC	6.00

[SHUTTER]: The setting value range of SHUTTER is 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000.

[AGC]: The setting value range of AGC is 6.00, 12.00, 18.00, 24.00, 30.00, 36.00, 42.00, 44.8.

### 3. WHITE BALANCE

WHITE BAL	ATW ←
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There are 7 types of white balance mode.

- 1) ATW - ATW means automatic tracking white balance. In the range of 1800K~10500K, it can continuously survey the color temperature to automatically adjust the white balance. This mode is prior. The setting menu is show as below:

ATW	
SPEED	239
DELAY CNT	016
ATW FRAME	X1.00
ENVIRONMENT	INDOOR

[SPEED]: (The setting value range of SPEED is 0~255.)

[DELAY CNT]: (The setting value range of Delay CNT is 0~255.)

[ATW FRAME]: (The setting value range of ATW FRAME is X1.00 、X1.50 、X2.00)

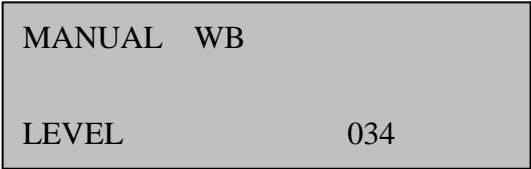
[ENVIRONMENT]: 2 options-- INDOOR and OUTDOOR.

- 2) PUSH - An auto white balance control mode. If the color temperature in the range of 2300K~10000K, it can exactly adjust the white balance.
- 3) USER1 - User-defined white balance mode 1. It can achieve the best effect by adjusting BLUE or RED. The setting page is shown below:

UESE1 WB	
B-GAIN	030
R-GAIN	033



- 4) USER2 - User-defined white balance mode 2. The settings are like above.
- 5) ANTI CR - Used in the environment where there is a serious chromatic difference.
- 6) MANUAL - Adjust the white balance mode manually. In specific lighting environment, it can achieve the best white balance results. The setting value range of Level is 0~255.



- 7) PUSH LOCK    An auto white balance lock mode.

**4. BACKLIGHT COMPENSATION (BLC)**



Backlight compensation include the following 3 options:

- 1) OFF - Close the backlight compensation function. The default setting is OFF.
- 2) Open the backlight compensation function.
- 3) Shelter from the over brightness light, such as: car license plate recognition light.  
HLC likes ECLP function.

**5. PICTURE ADJUST**



Choose “Enter←” button, then enter into the picture adjusting menu.

PICT ADJUST	
MIRROR	OFF
BRIGHTNESS	000
CONTRAST	128
SHARPNESS	128
HUE	128

- 1) MIRROR - Mirror image the whole picture. The default setting is OFF.
- 2) BRIGHTNESS - Adjust the entire brightness of the whole picture. The setting value range is 0~255.
- 3) CONTRAST - The setting value range is 0~255
- 4) SHARPNESS - The setting value range is 0~255
- 5) HUE - The setting value range is 0~255
- 6) GAIN - The setting value range is 0~255

## 6. ATR

ATR	OFF
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ATR is similar to WDR function. While bright and dark parts are displayed on the screen simultaneously, this function can help the user see the various parts of the screen more clearly. And it can be adjusted according to different circumstances. \

ATR	
LUMINANCE	MID
CONTRAST	MID

- 1) LUMINANCE - 3 options—HIGH, MID and LOW
- 2) CONTRAST - 5 options—HIGH, MIDHIGH, MID, MIDLOW, LOW

## 7. MOTION DETECTION

MOTION DET ON ←

When a moving object appears in the set detection area, the camera will alarm. We can enter the setting menu if the function is on.

MOTION DET		
DETECT	SENSE	111
BLOCK	DISP	OFF
MONITOR	AREA	ON
AREA	SEL	1/4
	TOP	000
	BOTTOM	000
	LEFT	000
	RIGHT	000

- 1) DETECT SENSE - Used to set the camera's detect sensitivity. The setting value range is 0~127.
- 2) BLOCK DISP - A block display switch. If the function on, the moving object would be traced by a flashing square grid.
- 3) MONITOR AREA - A monitoring area switch. If the function on, the square grid will appear in the monitor area.
- 4) AREA SEL - There are 4 monitor areas that can be set. The size can be adjusted by 4 buttons--up, down, left and right. The default setting is 0. If the user does not adjust the area size, the square grid will not appear.

# 8. PRIVACY AREA SHIELD

PRIVACY	OFF
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The user can set privacy area on the image randomly. If the function on, the user can enter the setting menu. The setting page is show as below:

PRIVACY		
AREA	SEL	1/8
	TOP	000
	BOTTOM	000
	LEFT	000
	RIGHT	000
COLOR		1
TRANSP		1 00

- 1) AREA SEL - There are 8 zones that can be set. Their size can be adjusted by 4 buttons--up, down, left and right. The default setting is 0. If the user does not adjust the area size, the square grid will not appear.
- 2) COLOR - For every zones' color setting, the user has 8 options—red, green, blue, light green, light blue, light red, white and black.
- 3) TRANSP - The function is used for setting privacy area's transparency. There are 4 options--0.00 、 0.05 、 0.75 and 1.00 .
- 4) MOSAIC - Set the privacy area to mosaic. Notice the privacy area will be dim if the transparency is too high. It will be clear if the setting value is adjusted to 0.00.

9. DAY/NIGHT MODE

DAY/NIGHT	AUTO ←
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The Day/night Mode has 3 options: Auto, Color and B/W.

- 1) AUTO - If the setting is set to “Auto”, the camera will switch the mode automatically. In the daytime, the camera is in color to get perfect color; whereas, the camera is in B/W at night.

DAY/NIGHT	
BURST	ON
DELAY CNT	010
DAY→NIGHT	003
NIGHT←DAY	005

- [BURST]: (It is a Burst switch.)
- [DELAY CNT]: (It’s used to set mode conversion delay time. The setting value range is 0~255.)
- DAY→NIGHT]: (It’s used for set DAY→NIGHT switching sensitivity. The setting value range is 0~255.)
- [NIGHT←DAY]: (It’s used for set NIGHT←DAY switching sensitivity . The setting value range is 0~255.)
- 2) COLOR - Used to switch the mode to Color manually
- 3) B/W - Used to switch the mode to B/W manually. If the user meets Burst interference, the user can turn off the “BURST”.

B/W	
BURST	ON

10. NR

The settings of “NR MODE” has 4 options—Y/C, Y, C and OFF. The settings can be adjusted by Level Y and C.

NR ←

NR  
NR MODE Y/C

# 11. CAMERA ID

CAMERA	ID	OFF
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The user can set the CAMERA ID by Menu.

CAMERA	ID
CAMERA	
ABCDEF	GHIJKLMNOPQRSTU
WXYZ01	23456789-!~#\$%&’
( ) _ `	, ¥ ¥ : ; <=> ? @ \ ^ * . x + /
CHR1	CHR2
← → ↑ ↓	CLR POS

The Menu has 7 sections:

- 1) CAMERA - There are 2 lines for inputting ID characters.
- 2) CHARACTER - It indicates every character’s position. There are 2 group characters—CHR1 and CHR2. CHR1 consists of 26 English letters, 10 digitals and 28 specific symbols.
- 3) CHR1 - CHR1 consists of 26 English letters, 10 digitals and 28 specific symbols.
- 4) CHR2 - CHR2 has no character temporarily.
- 5) ←→↑↓- When input ID, please use “←→↑↓” to move the cursor. Choose one of them, and then press “ENTER”.
- 6) CLR - Used to Clear ID characters. Move the cursor to the ID character needs to be cleared. Then choose “CLR” and press “ENTER”. This way, the user can clear ID character one after another.
- 7) POS - Used to preview ID.

12. SYNCHRONIZATION MODE

SYNC	INT
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13. LANGUAGE

LANGUAGE	ENGLISH
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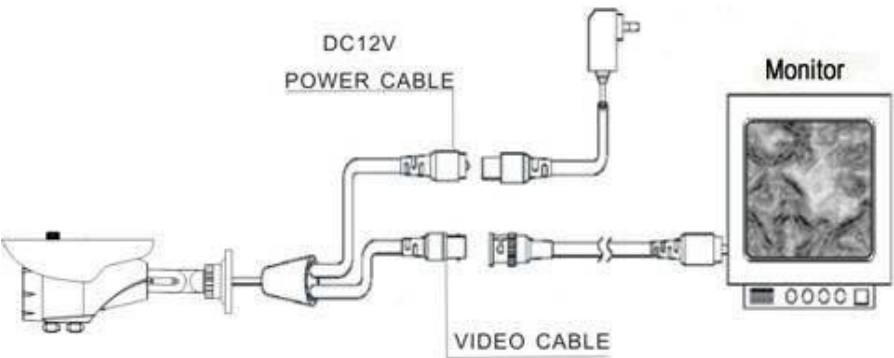
There are 8 languages: Chinese, English, Japanese, German, French, Russian, Portuguese and Spanish.

14. CAMERA RESET

CAMERA RESET
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Used to restore to factory defaults. If parameter settings are disordered, please choose “CAMERA RESET”, and then press “ENTER”.

CONNECTION





## TROUBLESHOOTING

Item	Problems	Remedies
1	No picture or unstable	Check video connection and power line
2	The image is blurred	<p>First: check the lens for dirt or dust, then use customized lens paper or cotton with little alcohol to clean.</p> <p>Second; check the focus length and OSD settings</p>
3	The image is dim	Adjust the CNT of monitor and iris.
4	No motion detection frame and privacy shaded frame	Check the option is ON or OFF. Or check the menu parameters
5	Screen color cast in the special environment	Adjust WEB mode or direction
6	The screen glittering	The camera might be facing the sun
7	Functions are unresponsive	Restore default settings
8	Camera is not working correctly and surface overly hot	Cut off the power supply, Then contact manufacturer

## INSTALLATION

### NOTES:

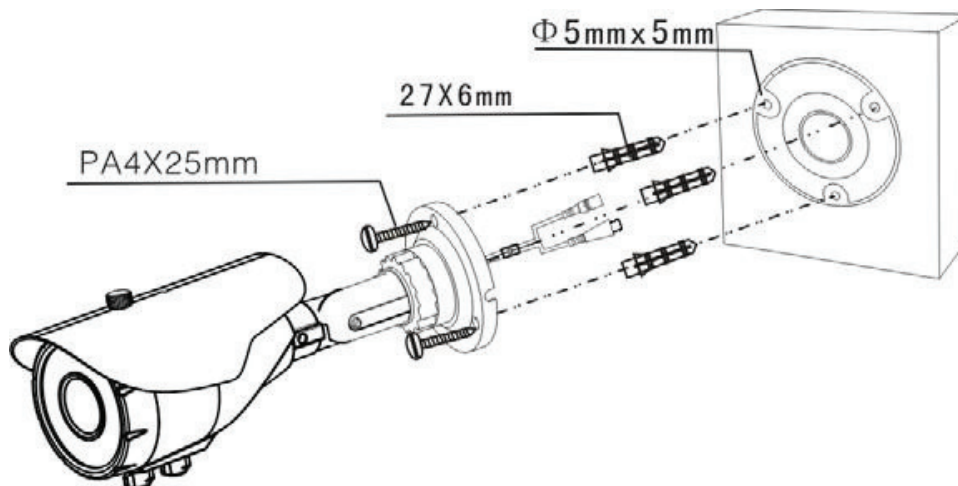
1. Avoid pointing the lens directly towards the sun or intense sources of light even when the camera is off. The subject must not be backlit.
2. Do not install the camera in a place where temperature is below -20°C / -4°F or above 50°C / 122°F.
3. Avoid the following location for camera installation:
4. Near an object that releases a strong magnetic or electric field.
5. Areas with strong vibrations.

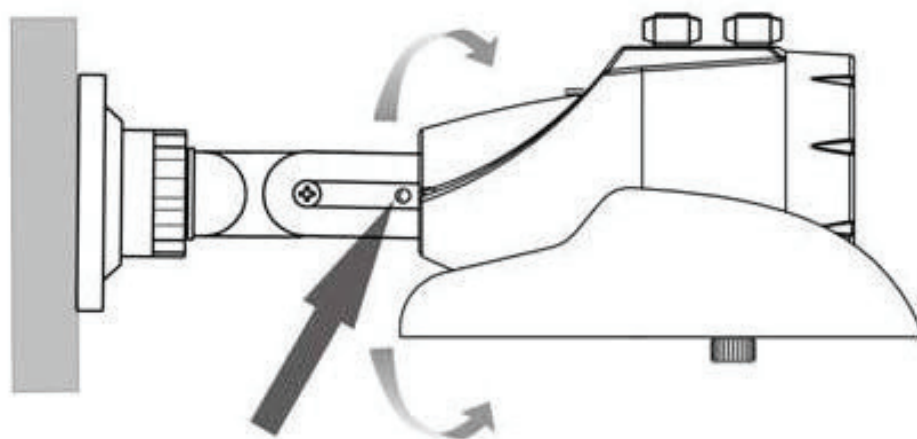
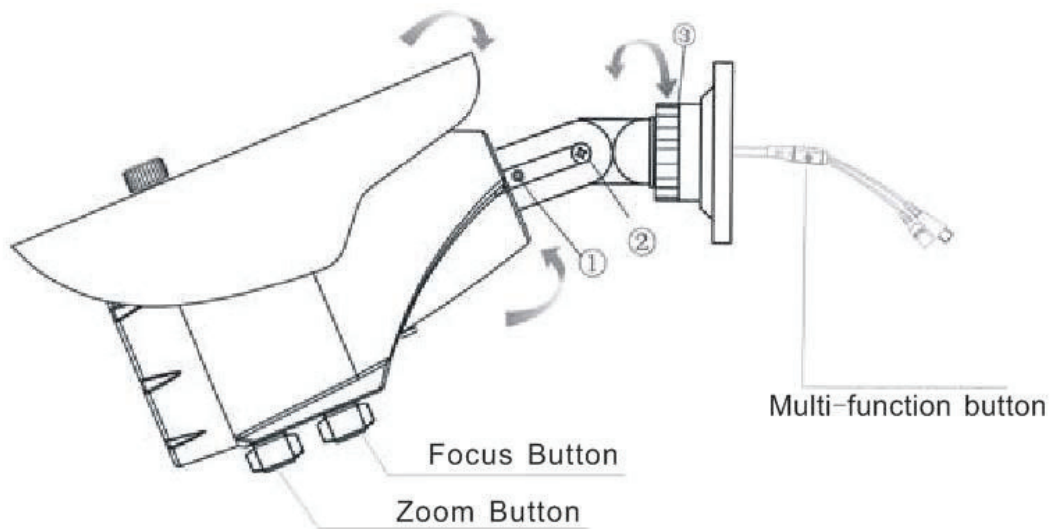
**Step 1.** Adhere the Ø84mm position sticker on the wall.

**Step 2.** Drill a Ø5mm hole on the position selected, insert the plastic plug into hole.

**Step 3.** Put the power cable, communication cable and video cable through bracket hole and leave sufficient length of connect cable.

**Step 4.** Fix the bracket on the wall with 3pcs PA4×25mm screws.





## SPECIFICATIONS

Model (NTSC)	<b>BIPRO-420VF9</b>	
Image Sensor	1/3" Sony Ex-View CCD II	
DSP	Sony Effio-E	
Total Pixel	270k	
Synchronizing System	Internal	
Resolution	<b>500 TV Lines</b>	
Minimum Illumination	0 Lux @ IR "on" / F1.2	
S/N Ratio	>52B	
Auto Gain Control	Auto / Manual, 8 setting values	
White Balance	ATW / PUSH / USER1 / USER2 / ANTI CR / MANUAL / PUSH LOCK	
Back Light Compensation	Backlight compensation, highlighting compensation, WDR	
Day & Night Function	Auto / Manual ; Color / B&W	
Gamma	0.45	
Electronic Shutter	1/60~1/100,000s (NTSC); 1/50~1/100,000s (PAL) Auto / Fixed	
Video Output	Composite Video 1.0Vp-p/75 Ohms	
Lens	<b>2.8mm~12.0mm Varifocal Lens</b>	
IR LED	42 IR LED	
IR Wavelength	850nm	
IR Distance	<b>Max illumination is up to 95ft / 30m</b>	
Control Mode	OSD Menu, Supports 8 languages	
Motion Detection	Box tracking and 4 zones ; set the position and size randomly	
Privacy	8 zones ; set the position and size randomly (8 colors)	
IP Rating	<b>Weatherproof rating of IP65</b>	
Power Supply	<b>12V DC</b>	
Power	IR ON	420mA max.
	IR Off	120mA max.
Operating Temperature	-4°F ~ 122°F / -20°C ~ 50°C	
Dimension	6.46(L) x 4.28(H) x 3.66 (Ø) inches / 164(L) x 108.8(H) x 90(Ø) mm	
Weight	2.2 lbs / 1 kg	

\* Specifications are subject to change without notice