

# HIGH PERFORMANCE BULLET CAMERA OPERATION MANUAL



Thank you for choosing our high quality camera. Before attempting to connect or operate, please read and follow these instructions.

## CAUTIONS

**This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions;**

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

### Note -

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.

### WARNING -

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Caution -

Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### CAUTION

1. A regulated DC12V 300mA power supply is recommended for use with this camera for the best picture and the most stable operation. **An unregulated power supply can cause damage to the camera. When unregulated power supply is applied, product warranty will be out of subject.**
2. It is recommended that the camera is used with a monitor that has a CCTV quality 75 video impedance level. If your monitor is switched to high impedance then please adjust accordingly.
3. Do not attempt to disassemble the camera to gain access to the internal components. Refer servicing to your dealer.
4. Never face the camera towards the sun or any bright or reflective light, which may cause smear on the picture and possible damage to the CCD.
5. Do not remove the serial sticker for the warranty service.

## CAUTIONS

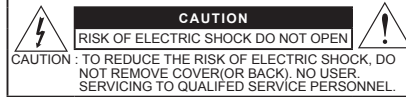
**Correct Disposal of This Product  
(Waste Electrical & Electronic Equipment)**

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicate that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

This product should not be mixed with other commercial wastes purchased this product, or their local government office, for details of where and how they can take item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. Household users should contact either the retailer where they for disposal.



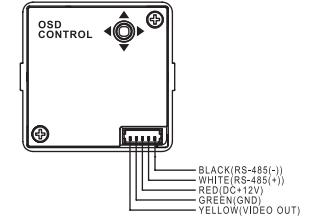
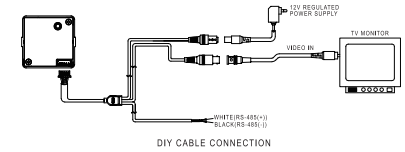
This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

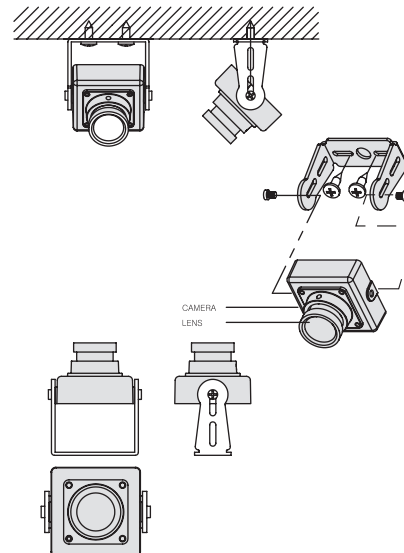
## COMPONENTS

Suaare Camera	
Mounting Bracket	
Screw 4ea	
Operation Manual	
DIY cable	

## CONNECTION

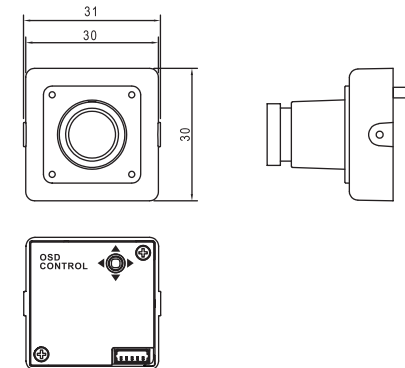


## MOUNTING POSITION



## DIMENSIONS

Unit(mm)



## SPECIFICATION

Signal Format	NTSC	PAL
Image Device	1/3" Sony Super HAD CCD II	
Total Pixels	811(H) x 508(V) approx. 410K pixels	795(H) x 596(V) approx. 470K pixels
Effective Pixels	768(H) x 494(V) approx. 380K pixels	752(H) x 582(V) approx. 440K pixels
Inter. HV	15.734/59.94Hz	15.625/50Hz
H.Resolution	More than 550TV Lines	
Minimum Illumination	0.2Lux / F2.0 (Sense-up Off)	
S/N Ratio	More than 50dB (AGC Off)	
Electronic Shutter	1/60 ~ 1/100,000 sec	1/50 ~ 1/100,000 sec
Manual Shutter	1/60(S0), FLK, 1/250, 1/500, 1/2K, 1/5K, 1/10K, 1/100K X2, X4, X8, X16, X32, X64, X128, X256	
Sense-up	X2, X4, X8, X16, X32, X64, X128, X256	
AGC	Off/Low/Middle/High	
White Balance	ATW / PUSH / PUSH-LOCK / MANUAL / Indoor / Outdoor	
Sync System	Internal	
Privacy Zone	8 Zone	
Flickerless	OFF/ON	
Lens	Board Lens, Pinhole Lens	
3DNR	Off / On(Level setting)	
Motion Detection	4 Areas	
Language	Option1: English, French, Russian, German, Spanish, Dutch Option2: English, Chinese	
Etc.	Mirror(H,V,HV), Digital Zoom, Freeze, Negative Image, BLC, D-WDR, RS-485	
Video Output	CVBS	
Input Power Source	DC12V ±10% Max 120mA	
Operating Temperature	-10°C ~ +50°C	

## OSD MANUAL

### OSD FUNCTION DESCRIPTION

#### 1. LENS

- MANUAL : Fixed for MANUAL Iris Lens.

LENS	MANUAL

#### 2. EXPOSURE

- Enable user to set up the function of SHUTTER, AGC, SENSE-UP, BLC, D-WDR

EXPOSURE	
SHUTTER	AUTO
BRIGHTNESS	50
AGC	OFF
SENSE-UP	AUTO
BLC	BLC- $\uparrow$
D-WDR	OFF
RETURN	RET- $\uparrow$

#### - SHUTTER

- AUTO : Exposure is controlled by established a standard.
- FLK : Enable user to set up the FLICKERLESS. (NTSC: 1/100, PAL: 1/120)
- FIXED : Enable user to set up the Shutter Speed. > 1/60(S0), 1/250, 1/500, 1/2K, 1/5K, 1/10K, 1/100K \* ( ) is for PAL TYPE
- BRIGHTNESS : AUTO Mode Only.
- AGC : Low, Middle, High. "If AGC feature is turned off, 3D-DNR & SENS-UP Features will not be able to use.
- SENSE-UP : Low-speed shutter control.
- BLC : The Function of Back Light Compensation.
- HSBLC : Highlight Suppression BLC will darken image portions for clearer images.
- D-WDR : allows every detail to be captured accurately even if one portion is bright while other portions are dark.

## OSD MANUAL

#### 5. IMAGE

- Setting up the FREEZE, MIRROR, D-ZOOM, SHARPNESS, COLOR GAIN, GAMMA, NEGATIVE IMAGE.

- FREEZE : Setting of moving images in freeze-frame mode
- MIRROR : Enable user to set up reversed LEFT and RIGHT image
- V-FLIP : Enable user to set up vertically flipped video.
- ROTATION : Enable user to set up 180-degree rotation flip function.
- D-ZOOM : Enable user to expand one part of the monitor screen for viewing.
- SHARPNESS : Enable user to set up sharpness control.
- COLOR GAIN : Enable user to set the RED GAIN or BLUE GAIN.
- GAMMA : Enable user to set up compensation according to gamma value.
- NEG.IMAGE : Enable user to set up negative image ON/OFF.

IMAGE	
FREEZE	OFF
MIRROR	OFF
D-ZOOM	ON- $\uparrow$
SHARPNESS	5
COLOR GAIN	J
GAMMA	0.45
NEG.IMAGE	OFF
RETURN	RET- $\uparrow$

RESET	
FACTORY RETURN	
RESET- $\uparrow$	RET- $\uparrow$

#### 6. 3DNR

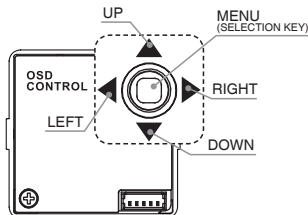
- Three-dimensional noise reduction
- LEVEL : Enable user to set up noise reduction level.

3DNR	
LEVEL RETURN	50 RET- $\uparrow$

## OSD MANUAL

### GENERAL STRUCTURE

SETUP MENU	
LENS	
EXPOSURE	•SHUTTER •BRIGHTNESS •AGC •SENSE-UP •BLC •D-WDR •RETURN
WHITE BAL	•ATW •PUSH •PUSH-LOCK •MANUAL •INDOOR •OUTDOOR
DAY&NIGHT	•COLOR •B/W •AUTO
IMAGE	•FREEZE •MIRROR •D-ZOOM •SHARPNESS •COLOR GAIN •GAMMA •NEG.IMAGE •RETURN
3DNR	•LEVEL •RETURN
SPECIAL	•CAM TITLE •LANGUAGE •RS485 •MOTION •PRIVACY •SYNC •RETURN
RESET	•FACTORY RESET •RETURN
EXIT	



## OSD MANUAL

#### 3. WHITE BALANCE

- Enable user to represent the accurate white color by controlling the R,G,B level.
- ATW : Enable user to trace the White Balance automatically in the Wide range (2,500K ~ 9,500K)
- PUSH : Enable user to trace the White Balance automatically in all the range.
- P-LOCK : Enable user to set up automatically readjusted only at the request of the user.
- MANUAL : Enable user to set the RED GAIN or BLUE GAIN.
- INDOOR : Enable user to set up 3,200K base mode.
- OUTDOOR : Enable user to set up 5,400K base mode

WHITE BAL MANUAL	
BLUE	24
RED	32
RETURN	RET- $\uparrow$

#### 4. DAY&NIGHT

- Conversion of output image COLOR/BW depending on exterior environment.
- AUTO : Color or B/W mode auto change
- DETECT MODE VIDEO : Select to detect mode as level of VIDEO.
- DWELL TIME : Time to protect susceptible conversion of COLOR/BW (0-10 SEC).
- D>N LEVEL : Turnover level from COLOR(Day) to BW(Night).
- N>D LEVEL : Turnover level from BW(Night) to COLOR(Day).
- B/W : Enable user to fix the output image in B/W.
- BURST ON/OFF : Select the burst signal ON/OFF when Night condition.
- COLOR : Enable user to fix the output image in COLOR.

DAY & NIGHT AUTO	
DWELL TIME	10sec
D-N LEVEL	4
N-D LEVEL	6
RETURN	RET- $\uparrow$

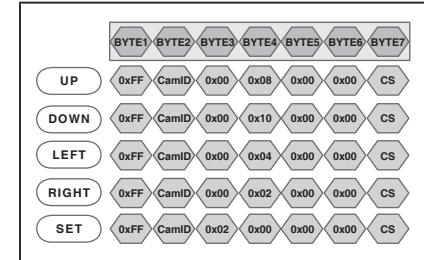
## OSD MANUAL

#### 7. SPECIAL

- Setting up the CAM TITLE, LANGUAGE, RS485, MOTION, PRIVACY, SYNC.
- CAMERA TITLE : Display the title editing menu
- LANGUAGE : Enable user to set up Language for OSD (Option1: English, Russian, Spanish, German, French, Dutch Option2: English, Chinese)
- RS485 : CAM ID : Camera identification number  
BAUD RATE : Serial communication speed (2400/4800/9600/19200/38400/57600 bps)
- MOTION : The camera monitors the movement of image, and it sends an alarm signal or OSD icon.
- AREA SELECT : Enable user to select the 4 motion area.
- AREA DISPLAY : Enable user to set up ON/OFF in selected area
- LEFT/RIGHT : Enable user to set up LEFT/RIGHT position in selected area.
- WIDTH : Enable user to set up width in selected area.
- TOP/BOTTOM : Enable user to set up TOP/BOTTOM position in selected area.
- HEIGHT : Enable user to set up height in selected area.
- SENSITIVITY : Enable user to set up the movement detection threshold value.
- MOTION VIEW : Display the motion area on the screen.
- PRIVACY : Privacy is the function that covers the some part on screen to prevent private life Maximum 8 point covered.
- AREA SELECT : Enable user to set up a area from 1 to 8.
- AREA DISPLAY : Enable user to set up ON/OFF in selected area
- LEFT/RIGHT : Enable user to set up LEFT/RIGHT position in selected area.
- WIDTH : Enable user to set up width in selected area.
- TOP/BOTTOM : Enable user to set up TOP/BOTTOM position in selected area.
- HEIGHT : Enable user to set up height in selected area.
- COLOR : Enable user to set up MASK COLOR
- SYNC : Synchronization pulses for lock the viewing monitor on the picture.
- INT : Internal Synchronization system

SPECIAL	
CAM TITLE	OFF
LANGUAGE	ENGLISH
RS485	J
MOTION	ON- $\uparrow$
PRIVACY	ON- $\uparrow$
SYNC	INT
RETURN	RET- $\uparrow$

### Pelco "D" Protocol Commands



- \* Sync Byte : FFh(BYTE1)
- \* Address : Camera ID (1-255) (01h - FFh)
- \* Check sum : It is 8 bit(module 256) sum of the payload bytes(BYTE2-BYTE6)
- BYTE7 = BYTE2+...+BYTE6
- ex) if BYTE2+...+BYTE6 = 1FCh, then BYTE7 = FCh