



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

COMPONENTS

Square Camera	
Mounting Bracket	
Screw 4ea	
Operation Manual	
LEAD cable (DIY cable)	

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.

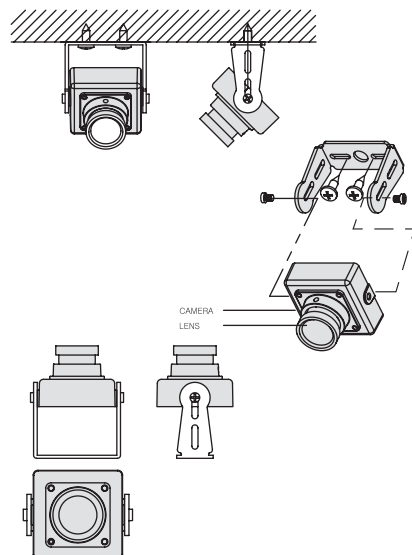


1. A regulated DC12V 300mA power supply is recommended for use with this camera for the best picture and the most stable operation.

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.

MOUNTING POSITION



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.



CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER(OR BACK). NO USER-SERVICING TO QUALIFIED SERVICE PERSONNEL.

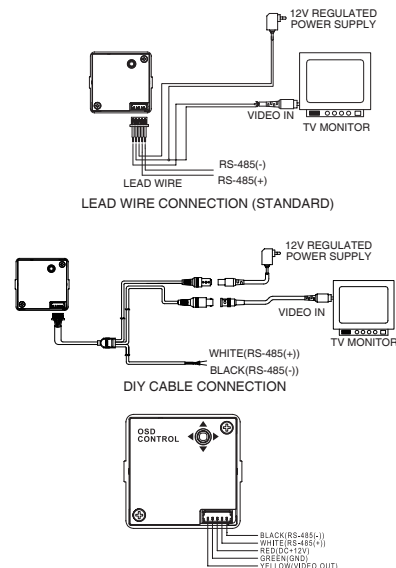


This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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

CONNECTION

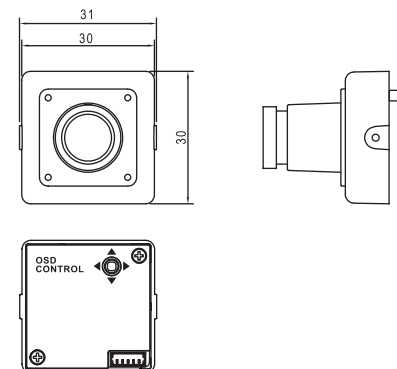


FEATURES

- **1/3" 410K/470K Sony Super-HAD CCD II**
Minimum Illumination 0.2 Lux(F2.0, 30 IRE, Sense-up Off)
S/N Ratio 50dB
- **High Resolution 550TV Lines**
This camera has realized high resolution of 550TV lines using the top-notch full digital image processing, 10 Bit A/D serial signal processing and special algorithm technologies.
- **3D DNR (3D Digital Noise Reduction)**
The DNR technology eliminates noise thus generating a distinct and clear image.
This camera DNR function utilizes an adaptive 3D Filter reducing noise caused by movement.
- **DAY&NIGHT**
Day&Night operation feature an 'auto' mode which switches between day and night mode automatically based upon the level of illumination on the scene. And also, the COLOR mode operates in daytime conditions to provide optimum colors, and B/W mode operates in night-time conditions to enhance the definition of the image.
- **Privacy Mask Function**
Privacy masking allows for the 'blanking' of specific areas of a scene, where the viewing or recording of images is prohibited or undesired.
- **OSD (On Screen Display)**
This camera can easily controlled by multi-language OSD function on the monitor screen.

DIMENSIONS

Unit(mm)



SPECIFICATION

Signal Format	NTSC		PAL	
Image Device	1/3" Sony Super HAD CCD II			
Total Pixels	811(H) x 508(V)		795(H) x 596(V)	
Effective Pixels	768(H) x 494(V)		752(H) x 582(V)	
Inter. H/V	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(50), 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, Varifocal Lens			
3DNR	Off / On(Level setting)			
Motion Detection	4 Areas			
Language	Standard: English, French, Russian, German, Spanish, Dutch Option1: English, Chinese / Option2: English, Japanese			
Etc.	Mirror(H,V,H/V), 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

5. IMAGE

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

IMAGE	
FREEZE	OFF
MIRROR	OFF
D-ZOOM	ON- [↓]
SHARPNESS	0
COLOR GAIN	3
GAMMA	0.45
NEG. IMAGE	OFF
RETURN	RET- [↓]

- FREEZE : Setting of moving images in freeze-frame mode
- MIRROR :
 - 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.

6. 3DNR

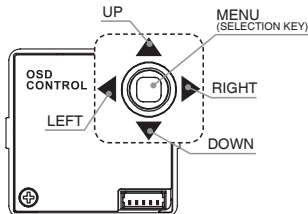
- Three-dimensional noise reduction
- LEVEL : Enable user to set up noise reduction level.

3DNR	
LEVEL	50
RETURN	RET- [↓]

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	



7. SPECIAL

- Setting up the CAM TITLE, LANGUAGE, RS485, MOTION, PRIVACY, SYNC.

SPECIAL	
CAM TITLE	OFF
LANGUAGE	ENGLISH
RS485	↓
MOTION	ON- [↓]
PRIVACY	ON- [↓]
SYNC	INT
RETURN	RET- [↓]

- CAMERA TITLE : Display the title editing menu
- LANGUAGE :
 - Enable user to set up Language for OSD
 - Standard: English, Russian, Spanish, German, French, Dutch
 - Option1: English, Chinese / Option2: English, Japanese
- 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.

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- [↓]
D-WDR	OFF
RETURN	RET- [↓]

- 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(50), 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

- 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

8. RESET

- Enable user to reset all of the status as the factory default

RESET	
FACTORY	RESET- [↓]
RETURN	RET- [↓]

OSD MANUAL

3. WHITE BALANCE

- Enable user to represent the accurate white color by controlling the R.G.B level.

WHITE BAL MANUAL	
BLUE	24
RED	32
RETURN	RET- [↓]

- 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

4. DAY&NIGHT

- Conversion of output image COLOR/BW depending on exterior environment.

DAY & NIGHT AUTO	
DWELL TIME	10sec
D-N LEVEL	4
N-D LEVEL	6
RETURN	RET- [↓]

- 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.

Pelco "D" Protocol Commands

	BYTE1	BYTE2	BYTE3	BYTE4	BYTE5	BYTE6	BYTE7
UP	0xFF	CamID	0x00	0x08	0x00	0x00	CS
DOWN	0xFF	CamID	0x00	0x10	0x00	0x00	CS
LEFT	0xFF	CamID	0x00	0x04	0x00	0x00	CS
RIGHT	0xFF	CamID	0x00	0x02	0x00	0x00	CS
SET	0xFF	CamID	0x02	0x00	0x00	0x00	CS

- * 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