

## INSTRUCTION MANUAL

# **600TV Lines High Resolution Smart IR Color Camera**



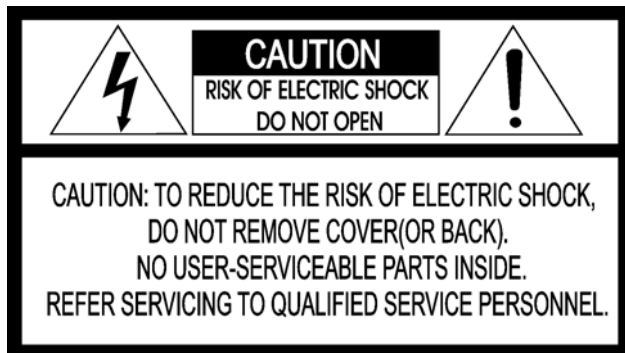
**3-AXIS VANDAL RESISTANT  
DOME CAMERA**

*Please read this manual thoroughly before use, and keep it handy for future reference.  
Design and specifications are subject to change without notice.*

## WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

## CAUTION



## EXPLANATION OF GRAPHICAL SYMBOL



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

## PRECAUTIONS

### Installation

Do not install the unit in an extremely hot or humid place or in a place subject to excessive dust, mechanical vibration.

### Cleaning

Clean the unit with a slightly damp soft cloth. Use a mild household detergent. Never use strong solvents such as thinner or Benzene as they might damage the finish of the unit.

Retain the original carton and packing materials for safe transport of this unit in the future.

### Safety

Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

Unplug the unit from the wall outlet if it is not going to be used for several days or more.

To disconnect the cord, pull it out by the plug. Never pull the cord itself.

Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on soft surfaces (rugs, carpets, sofas, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

Height and vertical linearity controls located on the rear panel are for special adjustments by qualified personnel only.

## FCC COMPLIANCE STATEMENT

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**FCC INFORMATION :** 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.

**CAUTION :** CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

## CE COMPLIANCE STATEMENT

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### **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.

# IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been moisture, does not operate normally, or has been dropped.
15. **CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU QRE QUALIFIED TO DO SO.**
16. **Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.**



# INTRODUCTION

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The camera provides high-quality images using Sony CCD technology especially designed for closed-circuit television (CCTV) and security surveillance applications.

## Features:

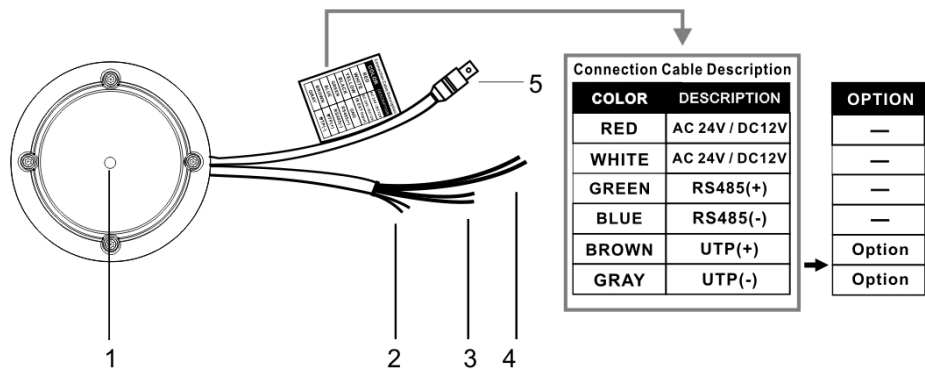
High resolution and high performance 1/3" Sony® Super HAD™ II Technology  
Excellent picture quality  
600 lines(Color) of resolution  
30EA, 850nm IR LED  
0.14 Lux(Color), 0.03 Lux(B/W) @ F1.2, 30IRE Sensitivity  
Auto electronic shutter [1/60(1/50) ~ 1/100,000] and manual electronic shutter modes  
OSD (On Screen Display)  
Auto and manual white balance modes  
BLC (Back Light Compensation)  
Day & Night (Auto / DAY / NIGHT / EXT)  
Privacy Zone 6 Point, Polygonal Mosaic  
AGC (Auto Gain Control)  
Sense-up (x2 ~ x256)  
MIRROR (NORMAL / MIRROR / VERTICAL / ROTATE)  
VIDEO OUT ( BNC,UTP(option) )  
Motion Detection(240 cells can be selected or deselected)  
SLC (Side Light Compensation)  
HDR (WDR)  
DIS (Digital Image Stabilization)  
DPC (Dead Pixel Cancellation)  
RS485 Control (pelco D)  
Operates in AC24V  $\pm$  10% / DC12V  $\pm$  10%  
Use Certified / Listed Class 2 power source only  
Camera Mount : camera mount directly to the wall or ceiling  
Test Monitor Output



**IMPORTANT:** The user of this camera is responsible for checking and complying with local, state, and federal laws and statutes concerning the recording and monitoring of audio signals.

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# CAMERA CONNECTIONS



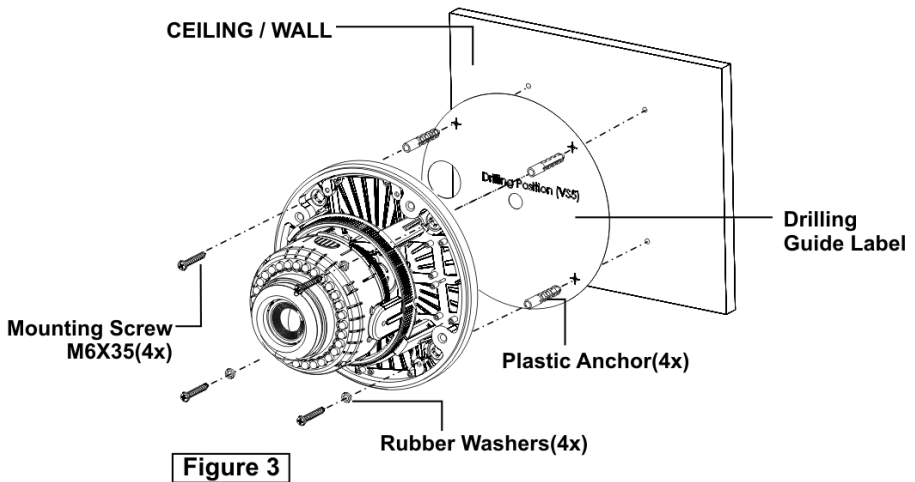
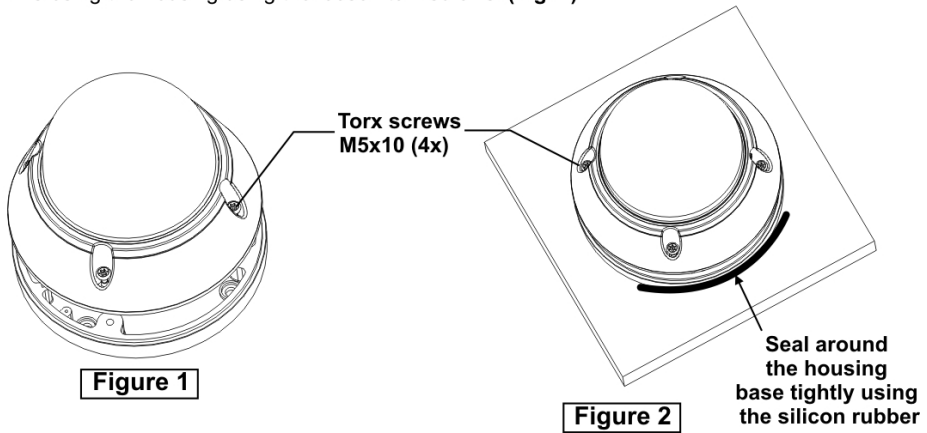
- 1. Lens :** A/I Vari-focal lens for wide area monitoring.
- 2. Power :** 24V AC input / 12V DC input  
power source from a DC 12V or AC 24V ac +/-10% 60/50Hz +/-1Hz  
Use Certified/Listed Class 2 power source only.  
  
\*If using DC 12V power adaptor,  
use a power supply capable of supplying 6 Watts.
- 3. RS485 CONTROL (pelco D)**
- 4. UTP : Video out (option)**
- 5. Video :** BNC connector used to connect the camera to a monitor, switcher, etc.



**REMINDER:**  
Never aim the camera directly into the sun.

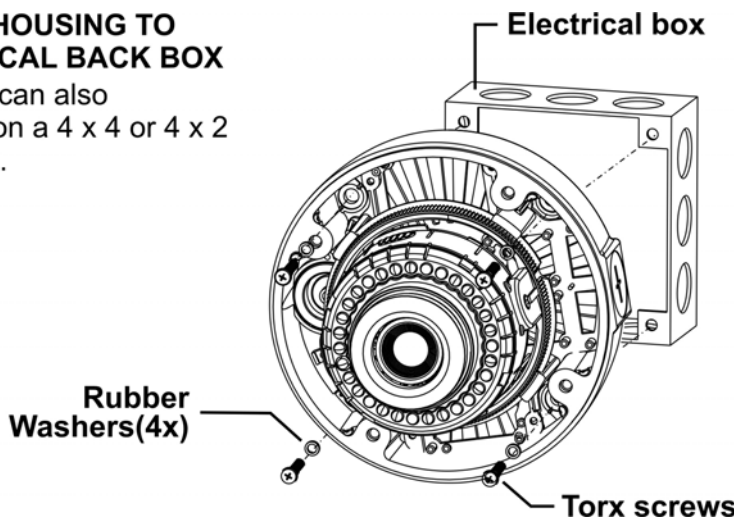
# INSTALLATION

1. Loosen the four torx screws located midway up the front of the housing leave the screws intact in the front portion. **(Fig. 1)**
2. Drill the mounting location using the supplied drill guide label. **(Fig. 3)**
3. Attach the housing to the ceiling using suitable fasteners, M6x35 tapping screws are supplied only use if they are suitable. **(Fig. 3)**
4. Closing the housing using the loosen torx screws. **(Fig. 2)**

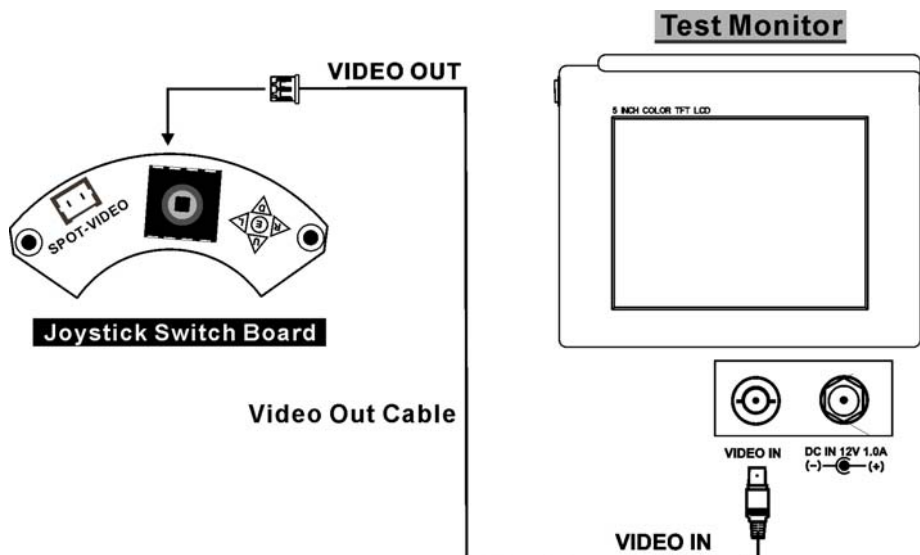


- **MOUNTING HOUSING TO AN ELECTRICAL BACK BOX**

The housing can also be mounted on a 4 x 4 or 4 x 2 electrical box.

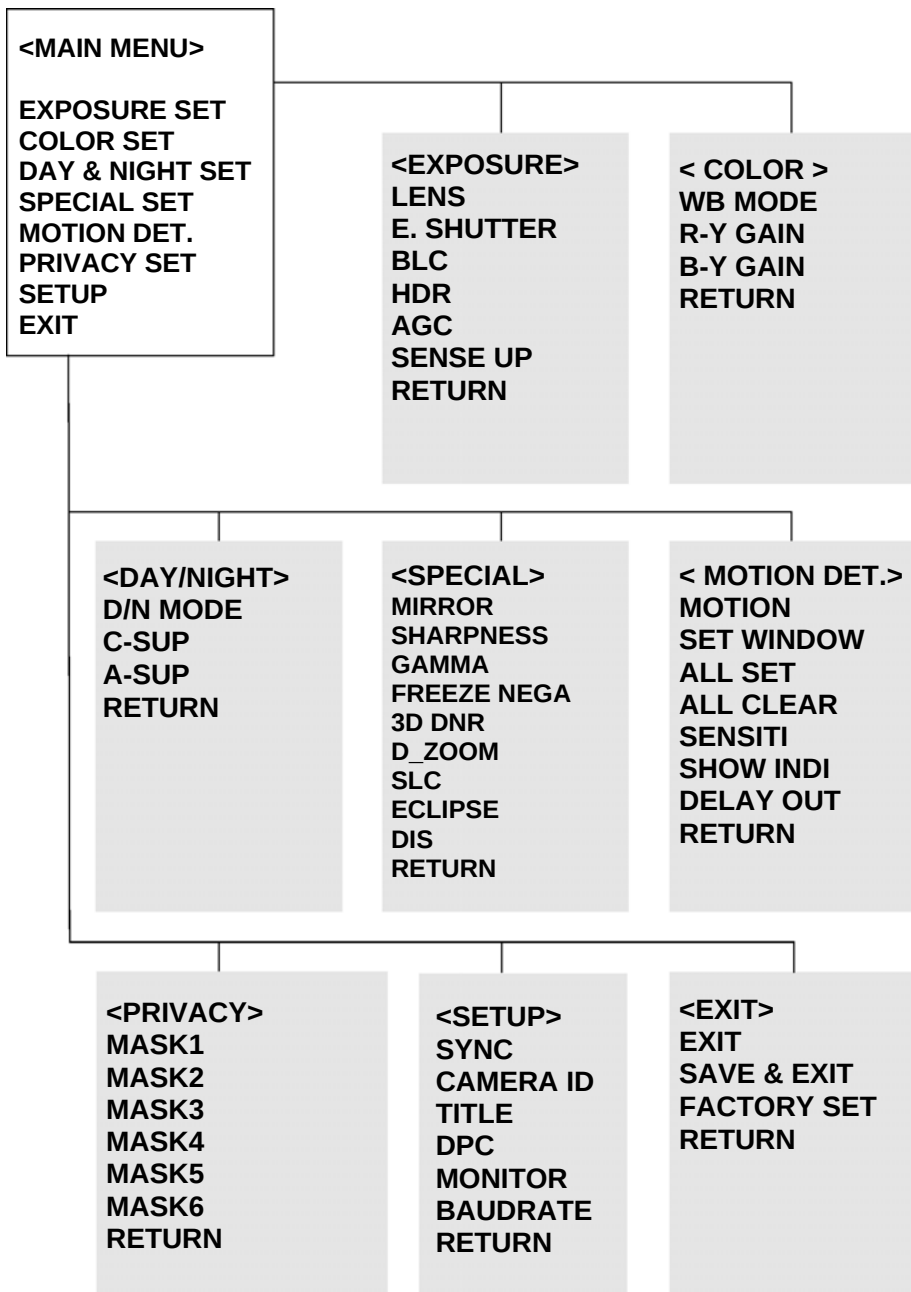


## - Video out check-



# CAMERA OPERATION WITH O.S.D

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# OSD MAIN SCREEN

ALL operation is via the tact switch

- [CENTER]            Turn OSD menu ON or to go into Sub Menu
- [UP] / [DOWN]     UP or DOWN of Cursor
- [LEFT] / [RIGHT]   Change setting

## <EXPOSURE SET>

Press the [ENTER] button to access the “EXPOSURE SET” mode.

**1) LENS :** Select the type of lens.

**MANUAL :** Select when fixed lens is used  
Sub Menu - MANUAL Level adjustment  
(Adjust brightness of fixed lens)

**DC :** Select when DC Varifocal lens is used  
Sub Menu -DC Level adjustment  
(Adjust brightness of varifocal lens)

**2) E. SHUTTER :** Shutter setting

Able to set from 256 to 1/100000 (Shutter speed adjustment)  
Change FLK MODE(Select when using flicker mode)

**3) BLC :** BLC Setting

Select BLC ON/OFF(Backlight compensation function)  
Sub Menu -Set BLC activity area

**4) HDR :** HDR Setting

Select HDR ON/OFF (Similar function as WDR)  
Sub Menu - Adjust HDR level

**5) AGC :** AGC Setting

Select AGC OFF / LOW / MIDDLE / HIGH

**6) SENSE UP :** Sense up Setting

Shutter Scale function( OFF, x2 ~ x256 )

**7) RETURN :** Return to Main menu.

## <COLOR SET>

Press the [ENTER] button to access the “COLOR SET” mode

### 1) WB MODE : WB Setting (White Balance)

Select AWC/ATW/MANUAL/PUSH LOCK (adjust white balance)

Select MANUAL WB (Manual white balance mode)

Sub Menu -Select M.WB R (Adjust Red level when using manual WH)

Sub Menu -Select M.WB B (Adjust Blue level when using manual WH)

### 2) R-Y GAIN : Adjust RED gain

### 3) B-Y GAIN : Adjust BLUE gain

### 4) RETURN : Return to Main menu.

## <DAY & NIGHT SET>

Press the [ENTER] button to access the “DAY & NIGHT SET” mode

### 1) D&N MODE : DAY & NIGHT Setting

Select AUTO/COLOR/BW/EXT

(TDN FUNCTION/COLOR/BLACK AND WHITE)

**AUTO** : The camera automatically switches between day and night

**BURST** : Burst ON / OFF Setting(Only removing burst signal)

**COLOR ► BW** : Switching time setting

**BW ► COLOR** : Switching time setting

**READ TIME** : Read Time setting(Adjust filter switching time)

**RETURN**

**COLOR** : The camera stays in day mode.

**B/W** : The camera stays in night mode.

**EXT** : The camera stays in external mode.

### 2) C-SUP : Color Suppress Setting

### 3) A-SUP : Aperture suppress setting

### 4) RETURN : Return to Main menu.

## <SPECIAL SET>

Press the [ENTER] button to access the “**SPECIAL SET**” mode

- 1) **MIRROR** : OFF/MIRROR/V\_FLIP/ROTATE Selectable  
(left&right / up&down / rotate)
- 2) **SHARPNESS** : Adjust Sharpness (Image sharpness can be adjusted)
- 3) **GAMMA** : GAMMA Setting  
Select 0.45/0.6/1.0(Adjust gamma level)
- 4) **FREEZE** : Image freeze function
- 5) **NEGA.** : Y Signal,Color Reverse function
- 6) **3D DNR** : 3D DNR OFF/LOW/MIDDLE/HIGH Setting  
(Adjust NOISE when low light condition)
- 7) **D\_ZOOM** : D\_ZOOM ON/OFF Setting  
Adjustable from X1.0 to X3.0  
Change left/right, up/down  
Show ZOOM,PAN,TILT amount (shows on the right side of the bottom)
- 8) **SLC** : Side Light Compensation (Make brighter image of corner of screen)  
SLC Level Setting(corner of screen can be adjusted)
- 9) **ECLIPSE** : Eclipse ON/OFF Selectable  
Eclipse Level Setting (Brightness of Eclipse is adjustable)
- 10) **DIS** : DIS ON/OFF Setting (Digital Image Stabilization)
- 11) **RETURN** : Return to Main menu.

## <MOTION DET.>

Press the [ENTER] button to access the “**MOTION DET.**” Mode

- 1) **MOTION** : Motion ON/OFF Setting
- 2) **SET WINDOW** : Set the range when using motion detection function.  
Set the screen range for motion detection.  
(240 cells can be selected or deselected)

This feature allows you to detect the movement of an object in 240 different areas of the screen and display an alarm on the screen.

- 3) **ALL SET** : Set entire screen as a range for motion.
- 4) **ALL CLEAR** : Cancel entire screen range setting for motion.
- 5) **SENSITI.** : Adjust sensitivity when using motion detection.  
As the sensitivity level increases, smaller movements are detected
- 6) **SHOW INDI.** : Motion detected indicator can be selected as OFF / ICON / TRACE
- 7) **DELAY OUT** : Alarm signal display on the screen is delayed from 1sec to 15sec
- 8) **RETURN** : Return to Main menu.

## <PRIVACY SET>

Press the [ENTER] button to access the “PRIVACY SET” Mode

- 1) **MASK1** : MASK1 Screen setting
- 2) **MASK2** : MASK2 Screen setting
- 3) **MASK3** : MASK3 Screen setting
- 4) **MASK4** : MASK4 Screen setting
- 5) **MASK5** : MASK5 Screen setting
- 6) **MASK6** : MASK6 Screen setting
- 7) **RETURN** : Return to Main menu.

Select MASK1~6 (Set from 1 to 6 where wish to be hidden )

Mask Range can be adjusted, Able to set in different shapes

Mask color setting(Can change the color of hidden part)

This function sets a certain areas of the screen to be hidden.

The image is divided into 6 zones.

## <SETUP>

Press the [ENTER] button to access the “SETUP” Mode

- 1) **SYNC** : Sync Setting  
Line Lock Mode Setting(Select when using line lock)  
RANGE SETTING(Set line lock range)
- 2) **CAMERA ID** : Camera ID Setting (Set a camera ID no. as a unique identifier)
- 3) **TITLE** : Title ON/OFF Setting  
Title EDIT(Select desired characters using joystick)  
Title Reset (Clears the title)  
Title Position Select
- 4) **DPC** : DPC Auto Setting (Dead pixels are automatically removed)  
WHITE THR.(Cancelling White defective pixels)  
BLACK THR. (Cancelling Black defective pixels)  
DPC Level gain setting (Overall level can be adjusted)
- 5) **MONITOR** : Monitor Setting Mode (CRT/LCD Selectable)
- 6) **BAUDRATE** : Set Data communication speed
- 7) **RETURN** : Return to Main menu.

## <EXIT>

Press the [ENTER] button to access the “EXIT” Mode

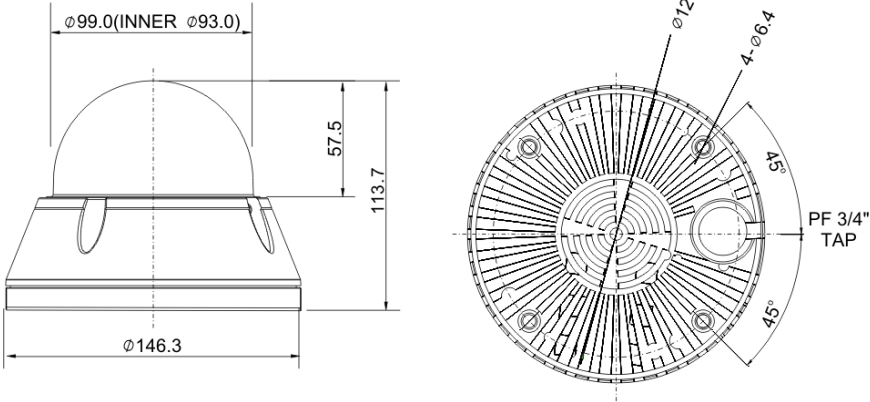
- 1) **EXIT**
- 2) **SAVE & EXIT** : OSD menu after saving current setting.
- 3) **FACTORY SET** : Go back to factory default.
- 4) **RETURN** : Return to Main menu

# SPECIFICATIONS

| Power    | Power source             | AC24V $\pm$ 10% / DC12V $\pm$ 10%                                                     |
|----------|--------------------------|---------------------------------------------------------------------------------------|
|          | Power consumption        | 0.42A (5.0 Watts) max                                                                 |
| General  | Image sensor             | 1/3" Sony Super HAD II                                                                |
|          | Total number of pixels   | NTSC : 811(H) x 508(V), PAL : 795(H) x 596(V)                                         |
|          | Scanning system          | 2:1 interlace                                                                         |
|          | Scanning frequency       | NTSC : 15.734KHz(H) x 59.94Hz(V)<br>PAL : 15.625KHz(H) x 50Hz(V)                      |
|          | Sync. system             | Internal / Line Lock                                                                  |
|          | Electronic shutter       | 1/60(50) ~ 1/100,000sec                                                               |
|          | Resolution               | 600 TVL (color)                                                                       |
|          | Min. illumination        | 0.14 Lux(Color), 0.03 Lux(B/W) @ F1.2, 30IRE                                          |
|          | Video output             | 1.0Vp-p (75ohm, composite)                                                            |
|          | S/N ratio                | More than 50dB (AGC OFF, Sense up OFF)                                                |
|          | Camera Control           | OSD(TACT Switch), RS-485,<br>compatible with Pelco D                                  |
|          | IR LED / Sensor          | 30EA, 850nm IR LED / Photocell Sensor 1EA                                             |
|          | IR LED Lighting Distance | 30m                                                                                   |
| Function | Exposure Shutter         | 1/60(1/50), Flickeless, 1/250 ~ 1/100,000sec                                          |
|          | Lens (Auto Iris Control) | DC / ELC                                                                              |
|          | Lens Level(Brightness)   | 0 ~ 99                                                                                |
|          | BLC                      | OFF/ON                                                                                |
|          | AGC                      | OFF / LOW / MIDDLE / HIGH                                                             |
|          | HDR(WDR)                 | OFF / ON (0~20)                                                                       |
|          | Sense-up                 | OFF, x2~x256                                                                          |
|          | Eclipse                  | OFF / ON                                                                              |
|          | 3D-DNR                   | OFF / LOW / MIDDLE / HIGH                                                             |
|          | DIS                      | OFF / ON (Digital Image Stabilization)                                                |
|          | White Balance            | AWC / ATW / MANUAL / PUSH                                                             |
|          | Color or B/W             | AUTO / COLOR / B&W                                                                    |
|          | Privacy zone             | OFF / ON (6 Point, Polygonal Mosaic)                                                  |
|          | Display Title            | OFF / ON ( EDIT, RESET, POSITION)                                                     |
|          | Gamma                    | USER, 0.45, 0.6, 1.0                                                                  |
|          | Freeze                   | OFF / ON                                                                              |
|          | NEGA                     | OFF / ON                                                                              |
|          | SLC                      | OFF / ON (0~50) / Side Light Compensation                                             |
|          | Motion Detection         | OFF / ON, (SET WINDOW, ALL SET, ALL CLEAR,<br>SENSITIVITY, SHOW INDICATOR, DELAY OUT) |
|          | DPC                      | OFF / AUTO (WHITE, BALCK, DPC LEVEL)<br>(Dead Pixel Cancellation)                     |
|          | LANGUAGE                 | ENGLISH                                                                               |

|                       |                       |                                                                                      |
|-----------------------|-----------------------|--------------------------------------------------------------------------------------|
|                       | Video Picture         | POSI / NEGA                                                                          |
|                       | Sharpness             | 0~49                                                                                 |
|                       | Mirror                | OFF / MIRROR / V-FLIP / ROTATE                                                       |
|                       | Sync                  | INTER / AUTO                                                                         |
|                       | Zoom & Pan/Tilt       | ZOOM (X1~X3), PAN(-128~+127), TILT(-82~+81)                                          |
|                       | V - Phase (LineLock)  | 0 ~ 199                                                                              |
|                       | Camera ID             | 0 ~ 254                                                                              |
|                       | EXIT                  | EXIT / SAVE & EXIT / FACTORY SET                                                     |
| Connector<br>&<br>ETC | Power input           | 2-Pin Wire                                                                           |
|                       | Video output          | BNC connector                                                                        |
|                       | Lens mount            | Fixed Mount                                                                          |
|                       | Lens                  | f=2.8~12mm F1.2~360 Varifocal, ICR (D&N) /<br>f=9~22mm F1.4~360 Varifocal, ICR (D&N) |
|                       | RS-485                | 2-Pin Wire                                                                           |
|                       | UTP                   | 2 Pin wire (Option)                                                                  |
|                       | Operating Temperature | -10°C~+55°C [14°F~131°F]                                                             |
|                       | Operating humidity    | 0~96% (non-condensing)                                                               |

# EXTERNAL DIMENSION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <div><div>Dimensions</div><div><p>The side view (left) shows a circular device with a flat base and a hemispherical top. The base diameter is <math>\phi 146.3</math>. The inner diameter of the top opening is <math>\phi 99.0</math> (INNER <math>\phi 93.0</math>). The height from the base to the top of the hemisphere is <math>57.5</math>, and the total height is <math>113.7</math>. The top view (right) shows a circular face with a central circular feature of diameter <math>\phi 121.0</math>. There are four holes, each with a diameter of <math>\phi 6.4</math>, arranged in a square pattern. The distance from the center to each hole is <math>45^\circ</math>. The holes are labeled "PF 3/4\" TAP".</p></div></div> |                                                                                    |
| Window Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.1 in. (2.5mm thick),<br>impact-resistant P.C (LEXAN)<br>3.93 in. (10cm) diameter |
| Cable Entry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | One 1" opening holes                                                               |
| Weight - Unit:<br>Shipping:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.54 lb. (0.7kg)<br>2.11 lb. (0.96 kg)                                             |