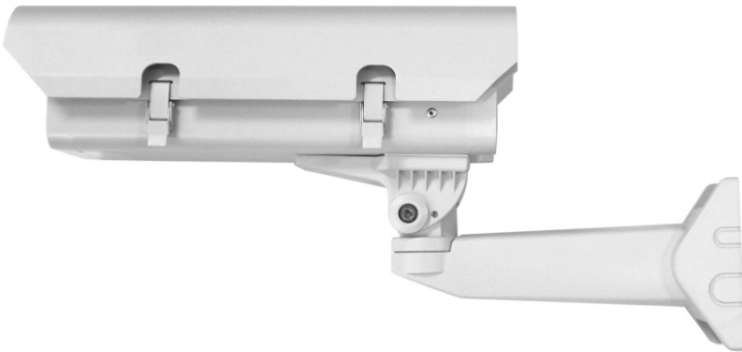


# Super High Resolution Day&Night Color Camera



Please read this manual thoroughly before use, and keep it handy for future reference. Design and specification 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 SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, 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.



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

## FCC COMPLIANCE STATEMENT

**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

### **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

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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 INSTRUCTION UNLESS YOU ARE QUALIFIED TO DO SO.**
16. **Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.**



## **PRECAUTIONS**

Before installation, carefully read the manual to ensure correct operation and setup, heeding all warnings and instructions.

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Ensure manual is kept in good condition for future use.

Do not install the device near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.

Only use attachments/accessories specified by the manufacturer.

Should any liquid get into the housing, immediately disconnect the device from the power supply and have it checked by authorized personnel before reusing.

Do not install the device in a place of high humidity or where exposed to gas or oil.

Installation and servicing by authorized personnel only, adhering to local safety regulations.

Unless you are an authorized technician, never try to dismantle the device. To avoid electric shock, never remove the screws or covers.

If a camera, do not expose the device to radioactivity. It will cause serious damage to the CCD.

Use Certified/Listed Class 2 power source only.

## **Cleaning**

Clean the device 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.

# CONTENTS OF PACKAGE

---

Installation of the camera must be performed by qualified service personnel in accordance with all local and national electrical and mechanical codes.

Carefully remove the color camera and its accessories from the carton and verify that they were not damaged in shipment.

The content of the package includes:

- 1. CAMERA HOUSING KIT
- 2. This manual
- 3. L-wrench (5mm)-----1EA  
    (25mm)-----1EA
- 4. ANCHOR (5mm)-----4EA

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# INTRODUCTION

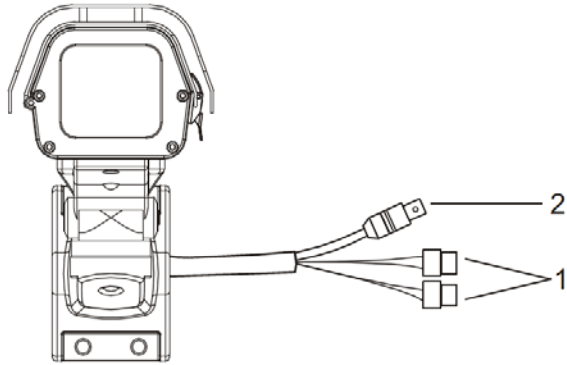
---

The camera provided high-quality image using SONY 1/3" CCD and digital signal processing LSIs.

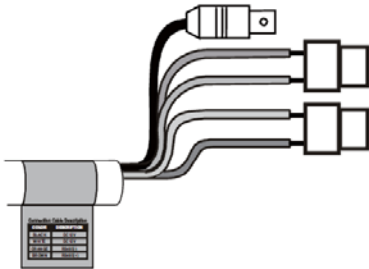
## Features:

- 1/3" Super-HAD CCD
- Super high-resolution (700TVL)
- Day & Night(Auto, Manual, Filter delay, Change level adjust)
- 0.1Lux(Color), 0.01 Lux(BW) @ F1.2 50IRE
- Auto Electronic Shutter [1/50(60) ~ 1/100,000] and manual electronic shutter modes [1/50(60) ~ 1/10,000]
- Sens-Up (~x256)
- 2D-NR, 3D-NR
- UDF Function(Ultra Deep Field)
- Multi Camera Configuration Set (4-Sets/Night Profile)
- Motion Detection
- Back Light Compensation (EHLC, Auto, Spot)
- i-Freeze Function(Reduce recording space)
- Privacy Mask or Mosaic(MAX. 10 area/4-point polygonal/transparency)
- Digital Image Stabilization.
- Digital PTZ
- Digital Effect (H/V reverse, 180 degree rotate, inverse, freeze)
- White Pixel Removal.
- Focus Aid Function.
- Color Rolling Suppression.
- System Lock (4-character password)
- Auto and Manual white balance modes
- Support Line-Lock external synchronization
- RS-485 Remote camera control
- Multi-Language (TBD)
- User Certified / Listed Class 2 power source only
- Operates in 12VDC or 24VAC

# CAMERA OVERVIEW



## 1. Color Lead Wire & Color Display Label



### Connection Cable Description

COLOR	DESCRIPTION
BLACK	AC24V
RED	AC24V
BLUE	RS485(-)
BROWN	RS485(+)



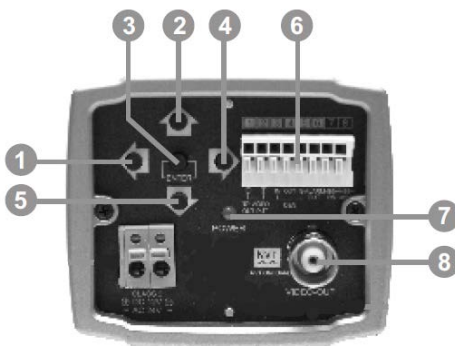
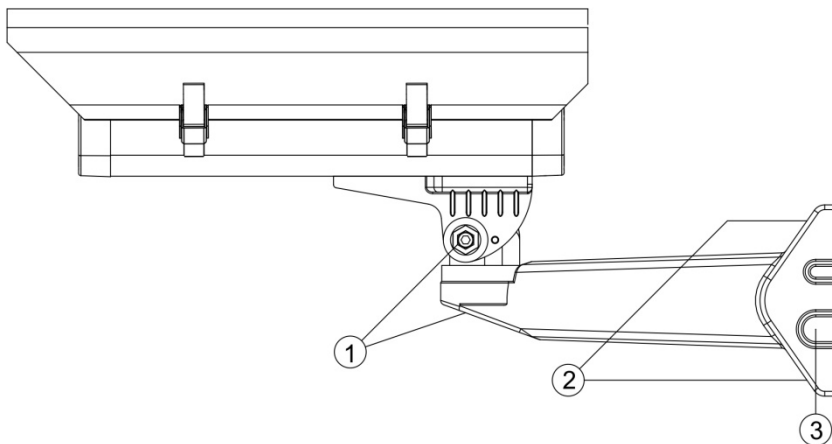
**REMINDER:**  
Never aim the camera directly into the sun.

## 2. Video : BNC connector used to connect the camera to a monitor, switcher, etc.



# WALL BRACKET MOUNTING

1. Use fasteners of appropriate size and type to attach the bracket to the wall surface. Position the housing so that it allow for viewing of the selected area.
2. Adjust the movable arm of the wall bracket to attain the desired position. Once it is in place, tighten the bolt located at the pivot point of the movable arm.
3. If you want to pull out the relevant cable, remove the knockout on the wall bracket mounting.



- ❶ Left Button
- ❷ Up Button
- ❸ Enter Button
- ❹ Right Button
- ❺ Down Button
- ❻ RS-485
- ❼ Power Indicator
- ❽ Video Output Connector (BNC)
- ❾ AC/DC Compatible Input Terminal


**REAR VIEW**


## <Remarks>


1) **Menu:** Represent present menu subject on top of screen.

In case of used Multi-Camset, Represent CAM ID and “camset” name included.

**Common Headers:**

 : Currently active menu item is displayed. Move by Up/Down keys.

 : There is sub-menu. Press Enter key going to sub-menu.

 : Indicates the selected menu item.

**Item:** Displays the current control item you are adjusting.

**Item:** Disabled menu item or can't adjust.

2) **Bottom Line Control Bar.**

**Exit:** Exit menu mode. Pop-up menu rise when configuration changed.

- **Overwrite:** Save the changed data to save area.
- **Restore:** Cancel the changes. Read from save area.
- **Cancel:** Return to menu.

**Load:** Load saved data

- **Default:** Load default configuration from default area.
- **Backup:** Load saved configuration from backup area.
- **Cancel:** Return to menu.

**Save:** Save current configuration.

- **Save:** Save current configuration to save area.
- **Backup:** Copy configurations to backup area.
- **Cancel:** Return to menu.

**Back :** Return to previous menu.

**NOTE:**

\* There are 4 types of configuration area.

*Editing Area(No Save), Default(Read Only), Save Area(Use on Start), Backup*

\* Don't Power off while doing Save, Load, Backup, Overwrite

## CAMERA ADJUSTMENT

---

### <White Balance>

1) **ATW/Wide Mode:** No limits in the range of color temperature.

2) **ATW/Indoor Mode:** Suitable for low color temperature.

- **CRS(Color Rolling Suppression)** Mode supported.

**NOTE:**

\* When you select the CRS will be processed in the following order:

*Checking Condition: Checking current environment within the range.*

*Checking Variation: Measure color rolling range during 30 seconds.*

*User can stop this action.*

*No Need CRS: Variation is low. No need to use CRS function.*

*Force CRS: Even if color variation is low, use CRS function.*

- **ATW Range:** Adjust AWB Range.
- **Convergence Shift:** Adjust AWB target.
  - R Variation:** Represent blue variation.
  - B Variation:** Represent red variation.

3) **ATW/Outdoor Mode:** Suitable for high color temperature. (Natural Light)

4) **Fix/Indoor Mode:** Fixed color temperature (3200 °K) mode, for indoor environment.

- **R**: Adjust red color.
- **B**: Adjust blue color.
- **Push/Set**: Tracking WB of current screen, and represent R, B value.
- **Default**: Restore R, B default value.

5) **Fix/FL Mode**: Fixed color temperature mode, for fluorescent lamp environment.

6) **Fix/Outdoor Mode**: Fixed color temperature (6300 °K) mode, for outdoor environment.

## <Auto Exposure>

### NOTE:

\* **MIN\_SHT (Minimum shutter speed)** : NTSC:1/60sec/ PAL:1/50sec

\* **MAX\_SHT (Maximum shutter speed)** : 1/100000sec

\* **FLC\_SHT (Flickerless shutter speed)** : NTSC:1/100sec PAL:1/120sec

### 1) AE Mode

- **Full Auto**: DC Lens or Video Lens – Fix shutter speed to MIN\_SHT.  
Manual Lens - Operating as shutter mode.
- **Fast SHT (Fast shutter mode)**: Adjust range - 1/250~1/10000
- **SHT Fix (Shutter Fix Mode)**: shutter speed is fixed at a given value.

### NOTE:

\* If lighting is not enough, noise may be increase.

\* If lighting is enough using AGC maximum, automatically decrease shutter speed.

### 2) UDF (Ultra Deep Field)

Depending on lighting conditions and Motion state, automatically adjust AE and DNR. Normally in low light environment, Sens-up feature may be missing the movement of objects and High AGC value makes increase the noise. UDF function effectively to improve this phenomenon.

### NOTE:

\* Motion is none : Noise removal mode.

\* Motion is occurred: Fast screen update mode.

3) **Low Light**: If using UDF function, this function being disabled.

- **AGC**: Boost the signal and adjusting the brightness. (Off/Low/Mid/High)
- **Sens-Up**: By summing multiple fields, adjusting the proper brightness in low light conditions (2X~ 256X)
- **Apert** : In low light conditions, reduce noise by lowering the sharpness value.
- **Color**: In low light conditions, reduce noise by lowering the color value.

### 4) WDR-Lite

WDR function can not be used with the BLC and is recommended Full Auto Modes.

- **Visibility**: Increases sharpness of the high brightness region.
- **Comb Bal** (Combination Balance) :Adjust the balance of High&low luminance area.
- **Brightness**: Adjust brightness level of WDR.

5) **BLC**: Back Light Compensation / BLC function can not be used with WDR function.

- **EHLC (Excessive High Light Compensation)** : Fill to high brightness area with gray color. Clipping of the area is more bright area than the threshold value.

**Clip Th (Clipping Threshold)** : Adjust clipping level.

**Clip Mask (Clip Mask Brightness)** : Selecting gray color of clipping area.

- **Auto**: Weighting on the dark area of AE among the splitting 9 area.
- **Spot**: Weighting on the specified area of AE.

6) **Brightness**: Adjust AE reference level.

## <Mask>

Privacy Zone can be configured with up to 10. Because they share area ID with PVA Zone, It can not be used same ID.

1) **Zone:** Select mask number.

### NOTE:

*"If you see "PVA" in the "Func" menu PVA Function is currently being used in the area.*

2) **Func:** Select mask on/off.

3) **Color:** Select mask color (15 colors available).

4) **Transparency:** Change the mask transparency.

5) **Mosaic:** Making mosaic current area.

6) **Frame:** Border display current area.

7) **Shape:** Select the shape of mask (4-point polygon or rectangle)

#### - Rect (Rectangle)

Adjust rectangle with 4-arrow keys. Press [ENTER] key is to finish edit area.

#### - Poly (4-Point Polygon/Each point can move)

If you select one of "a,b,c,d", the active point is displayed. Move the point with 4-arrow keys. Press [ENTER] key is to finish edit area.

### NOTE:

*\* For more than 180 of interior angle is not permitted.*

- **Posi:** Adjust area position with 4-arrow keys.

## <Motion Det.>

If you exit menu, doing Initialize started while 4~5 seconds the background.

During initialization the background, it is good to be none of moving objects.

When Day / Night mode is changed or Cam Set is changed, the background of the re-initialization performed.

1) **Md Sens(MD Sensitivity)** : Adjust motion sensitivity.(HW sensitivity)

2) **Zone Display** : Configuration for display zone.

- On / Off / Detect Only:

3) **Zone:** Select zone ID. Max 10 Zone can be configured.

4) **Func(Function)** : Zone Function On/Off (Blinking enabled area).

5) **Posi:** Adjust area position with 4-arrow keys.

6) **Size:** Adjust area size with 4-arrow keys.

## <Picture/DNR (Picture/Digital Noise Reduction)>

Menu for adjustment of video quality and DNR.

1) **Sharpness** : Adjust sharpness of outlines (0~15)

2) **Enhancement** : Select high resolution mode (Low/Mid/High)

3) **2D-NR:** Adjust 2D-NR strength.

4) **3D-NR:** Adjust 3D-NR strength. Remove noise by summing several frames.

5) **DNR Demo:** Represent DNR effect. Left side is none DNR screen,  
Right side is DNR screen.

4) **Color Enh(Color Enhance)** : Adjust of color strength.

## <Effect>

1) **Freeze:** When [ENTER] key pressed, still image will be output on the screen.

2) **d-Effect:** Off/Rotation/Mirror/V Flip

3) **Nega (Negative Picture)** : Inverse color effect.

- 4) DIS (Digital Image Stabilization)** : Compensation to image vibration.  
Because of this function used d-ptz, screen magnification will be changed.
- 5) dPTZ Preset** : Configuration for dPTZ preset. It will be applied when menu exit.
- **Zoom**: Adjust magnification.
  - **Pan&Tilt**: Adjust Pan/Tilt position.
  - **Up/Down**: Adjust tilt position.
  - **Left/Right**: Adjust pan position.
- 6) i-Freeze**: Select term of refresh rate for output video. This function is useful to reduce the recording data storage. When motion is detected while i-Freeze, image is refresh to live mode. So not only reducing the recording data but also not to miss object movement.
- **No Motion(s)**: Adjust Interval while no motion.
  - **Motion (0.1s)**: Adjust Interval while motion exists.

## <System Setup>

### 1) General

- **Cam Info**: Display camera basic information.

#### NOTE:

\* *Cam ID/Baud rate/Protocol/Lens Type/CCD Type/Video System/Firmware Version*

- **System Lock**: System locking by 4-characters PID (Lock/Unlock)
- **Change PID**: Change PID used in the system lock.

#### NOTE:

\* *Enter PID: Input previous password. Default PID is "0000".*

\* *Enter New PID: Input new password.*

\* *Retype New PID: Confirm of new password.*

- **Title**: Change camera title. Max. 8-characters.
- **Display**: Configurations for display camera ID&title.
  - Cam ID**: Select camera ID display on/off.
  - Title**: Select title display on/off.
  - Display Pos**: Change position the string location.
- **Language**: Change menu&OSD language.

### 2) Setup Tools

#### - System Config

**Multi-Camset**: Select On (User can use 4 configuration sets)/off

**Video Analytics**: Select PVA mode. (Simple PVA/ PVA+)

**Communication**: Configuration for RS-485.

**Cam ID**: Select the camera ID (001 - 255).

**Baud Rate**: Select serial communication speed (2400/4800/9600/19200).

**Protocol** : RS-485 protocol. (Auto, FASTRAX/PELCO-D/PELCO-P)

- **WPC (White Pixel Compensation)** : Compensation for defected pixel on CCD.

#### NOTE:

\* *While operating on WPC, Iris will be closed automatically if you using DC/IRIS Lens.  
For manual lens, you have to block the lens hole.*

**Static/Auto**: Automatic detecting for defected pixel & compensation.

**Proceeding**: Doing detection for white pixel.

#### NOTE:

\* *If brightness is too high, stop the process and print message "Bright Too High".*

- \* *This function can compensate max. 63 points.*
- \* *If detected points are more than 63 points, repeats this detection by changes conditions.*
- \* *If more than 63 point while changing conditions, stop the process, and print "Too Many WH Pixels"*
- \* *User can stop the proceeding while on operating.*

**Done:** Complete white pixel detection.  
**View** Detected WP: Print detected pixel on screen.  
**Retry:** Restart WPC process.  
**Accept:** Store WPC result, and return to precious menu.

**Dynamic**

Automated white pixel compensation for not compensated pixel by static method,  
 No limits of compensation pixel number.  
 Select level (Low/Mid/High). Higher value setting is compensating more pixels.

**NOTE:**

- \* *If the scene contains high frequency components can cause a loss.*

**Static/Manual:** Manual white pixel compensation by appointment method.  
 Move Finder window using 4-arrow keys.  
**Marker:** Expand finder window using digital zoom.  
 Move compensation pixel using 4-arrow keys.  
**Register:** Adding compensation pixel.

**NOTE:**

- \* *Registered points are more than 63 points, print "Memory Full" and stops action.*

**Marker:** Use this if user sees other points.  
**Finder:** Use this when you need to move finder screen.  
**Undo:** Cancel the registered point.  
**Done:** Return to previous menu.  
**Unregist:** Deleting registered pixel.

**NOTE:**

- \* *No more exist register pixel, Print "Memory empty" and stops action.*

**Marker:** Select for if you continue unregister action.  
**Undo:** Cancel the unregistered point.  
**Done:** Return to previous menu.  
**Default:** Recover to factory adjustment state.

**- Focus Aid**

For prevent the spread of light, AE mode changed to Shutter Fix Mode.  
**Min SHT (sec):** Adjust minimum shutter speed.  
**Zoom:** Zoom to focus window.  
**Adj: Adjust.**  
**Start:** Start measurement of maximum focus value.  
**Stop:** Stop the measurement. And initialize maximum focus value.

**NOTE:**

- \* *FAD Max: Hold maximum focus value.*
- \* *FAD Val: Print present focus value.*
- \* *Usage:*
- Step1: Point target to focus window.*
- Good target: higher contrast, more complex patterns.*
- Step2: Minimize the spread of light with adjust shutter speed.*
- Step3 : Turn the lens focus ring to end, start "Adj"*

Step4: Turn the lens focus ring slow by opposite side, record max focus value.  
 Step5: If current fad value is lower than Max fad value, stop turning focus ring.  
 Step6: Adjust focus ring to be closer to the max fad value.

- 3) Lens :** Select lens (DC lens/Video lens/Manual Lens)  
 - Iris Speed: Only for DC/Video Lens, Adjust Iris speed.

**NOTE:**

\* If iris speed is too high, it can occur AE hunting.  
 \* If iris speed is too low, IRIS adjusting operate too slowly.

**4) LLC (Line Lock Control)**

Active only used AC Power. - Int(Internal)/Ext(External)  
 If mode is set to Ext, Sync Phase can be adjusted.

**5) Day/Night**

- **Detection:** Configuration D/N change method. (Internal/Fix-Day/Fix-Night/EXT-IN)  
**Internal:** Operating DN changing with internal detection algorithm.  
**Fix-Day:** Day mode fixed.  
**Fix-Night:** Night mode fixed.
- **Burst:** Select burst signal on/off at night mode.
- **Delay (sec):** Select Delay time in D/N mode changing.
- **D/N Threshold:** Configuration for threshold level in D/N mode changing.  
 (Low/Mid/High/User)

**NOTE:**

\* User Mode : Difference of D>N Level and N>D Level must be more than 2,  
 and D>N must be less than N>D.

D>N: Adjust level that changing point of Day -> Night.

N>D: Adjust level that changing point of Night -> Day.

- **OPD:** Optical detector value. Represent present physical brightness.

## CONTROL AND CONNECTIONS OF TERMINALS

1	2	3	4	5	6	7	8
NC	NC	NC	NC	NC	NC	RS-485+ (RX)	RS-485- (TX)

**1) POWER INPUT TERMINAL**



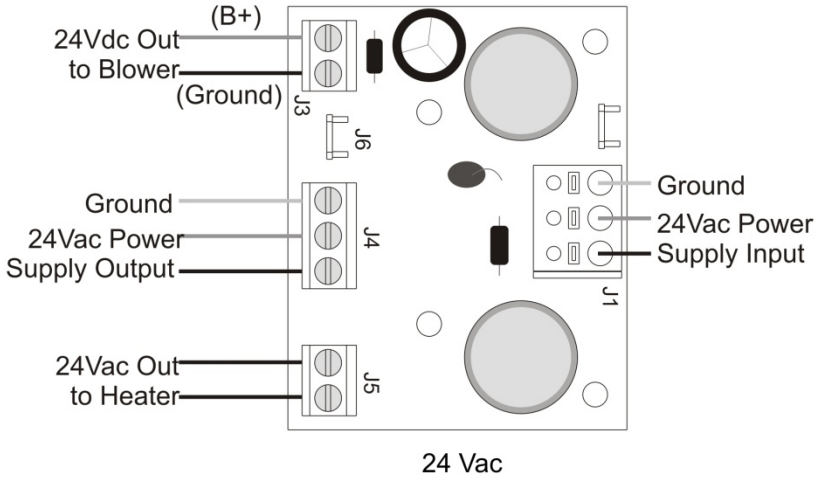
- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V ac +/-10% 60/50Hz +/- 1Hz.
- Use Certified/Listed Class 2 power supply only.
- It is recommended to use the DC power supply that can support inrush current over 0.55A

**2) CAMERA CONTROL**

- 7 PIN: RS 485+
- 8 PIN: RS 485-

# WIRING DIAGRAM

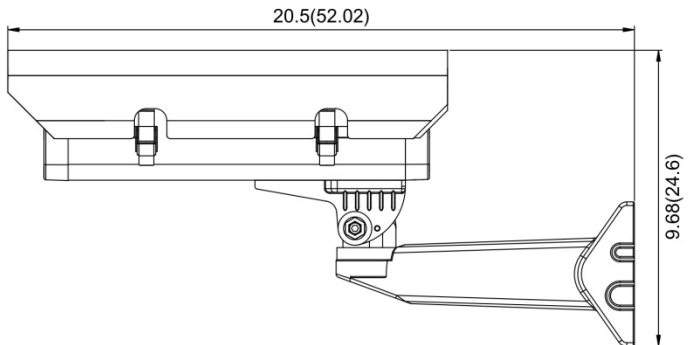
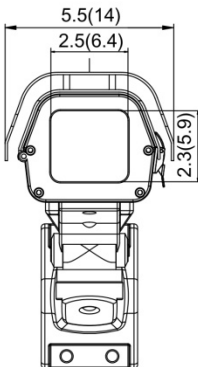
## \* HEATER AND BLOWER



# HOUSING KIT SPECIFICATIONS

Camera Housing Window Size	2.5" W x 2.3" H (6.4cm x 5.9cm)
Camera Housing Construction	Die-cast, extruded, and sheet aluminum
Camera Housing Finish	Light-gray ployester powder coat
Wall Bracket Pan Adjustment	360°
Wall Bracket Tilt Adjustment	70°
Wall Bracket Locking Method	4 holes for fasteners of a suitable size & type. Mount to a secure solid surface.
Total Dimension(WxHxL)	5.5" W x 9.68" H x 20.5" D (14cm x 24.6cm x 52.02cm)
Total Weight	9.15lb( 4.15kg)

Unit: inch(cm)





# LENS

The lens is not supplied with this camera. Purchase a lens suitable for your requirements. These cameras accept both C-and CS-mount type lens.

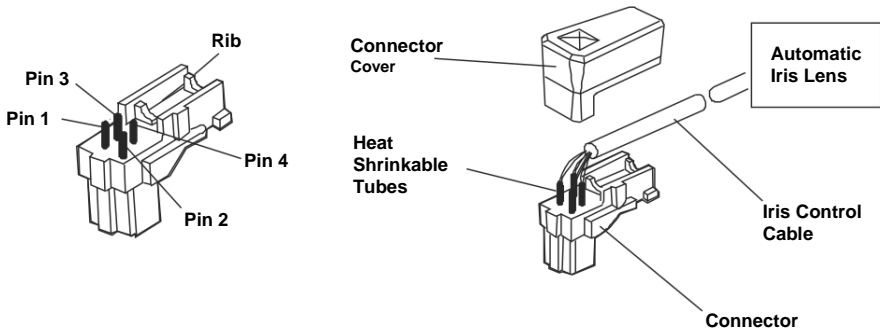
<Notes >

- \*) For using main functions it is recommended to use Auto Iris Lens with DC type. If the lens is marked with fingerprints other marks, the image quality might be poor.
- \*) It is recommended to use a high quality lens to improve the image quality under low illumination.

## <INSTALLING AUTO IRIS LENS>

1. Remove the cover from the iris lens plug supplied, and solder the lens cable to the plug as shown below.

- Video type:
  - Pin 1 --- Red (Power source)
  - Pin 2 --- N.C
  - Pin 3 --- White (Video signal)
  - Pin 4 --- Black (GND)
- DC type:
  - Pin 1 --- Damping-
  - Pin 2 --- Damping+
  - Pin 3 --- Drive+
  - Pin 4 --- Drive-



2. Remove the protective cap, and attach the lens to the camera by turning clockwise.

# SPECIFICATIONS

ITEM	NTSC	PAL	
<b>ELECTRICAL</b>			
Input Voltage	DUAL(DC12V, AC24V) ±10%		
Power Consumption	3.5 Watts(300mA)		
Power Connector	2-Pin Terminal Block		
<b>VIDEO</b>			
Image Device	1/3" Sony EXview 960H CCD II		
Total Pixels	1020(H) x 508(V)	1020(H) x 596(V)	
Effective Pixels	976(H) x 494(V)	976(H) x 582(V)	
Scanning System	2:1 Interlace		
Sync. System	Internal / Line Lock (Phase Control)		
Scanning Freq.	15.734KHz(H),59.95Hz(V)	15.625KHz(H),50Hz(V)	
Horizontal Resolution	700TVL		
Min. illumination	0.1 Lux(Color), 0.01 Lux(BW), 0.0001 Lux(Sens-Up B/W) @ F1.2 50IRE		
S/N (Y signal)	More than 50dB		
Video Output	CVBS 1.0Vp-p, 75Ω , UTP(Optional)		
<b>OPERATIONAL</b>			
Image Enhancement	WDR-Lite		
White Balance	ATW/Wide, ATW/Indoor, ATW/Outdoor, Fix/Indoor, Fix/Outdoor, Fix/FL, CRS, ATW Range Adjust		
Exposure	Full Auto , Manual Shutter , Flickerless, Low Light(AGC, Sens-Up), UDF(Ultra Deep Field)		
Electronic Shutter Speed	1/60 ~ 1/10,000 Auto : ~ 100,000	1/50 ~ 1/10,000 Auto : ~ 100,000	
Dynamic Noise Reduction	2D + 3D : Gain Adjust, DNR Demo		
Day & Night	Auto , Day , Night		
Sens-up	x256		
Backlight Compensation	EHLC , AUTO , SPOT		
Motion Detection	Max 10 Zone		
Digital Image Stabilizer	OFF / ON		
Privacy Masking	Max 10 ( 4-point polygonal, Color, Transparency, Mosaic )		
Digital Zoom	x4 / D-PTZ Support		
Digital Image Effect	V-FLIP, MIRROR , ROTATION , NEGA&POS1 , FREEZE , SHARPNESS, STILL SHOT		
Display	Camera Name : ON / OFF/Adjustable Location Camera ID : ON / OFF/Adjustable Location		
Language	English,German(TBD),French(TBD),Portuguese(TBD),Spanish(TBD)		
Camera ID	001~ 255		
Camera Control	Tact Switch , RS485		
Protocol	Auto, FASTRAX , PELCO-D, PELCO-P		
<b>ENVIRONMENTAL</b>			
Operating Temperature	-10℃ ~ +50℃		
Operating Humidity	20 ~ 80% RH		
Approvals	FCC (Class A), UL Listed	CE(Class A) Listed	
<b>BLOWER</b>		<b>HEATER</b>	
Power supply	24Vac	Power supply	24Vac
Power consumption	3.4W	Power consumption	20W
Blower ON	t°C > 35°C +/-3°C T°F > +5°C +/-5°C	Blower ON	t°C > 5°C +/-3°C T°F > 41°C +/-5°C
Blower OFF	t°C > 20°C +/-3°C	Blower OFF	t°C > 15°C +/-3°C

**Super High Resolution  
Day & Night Color Camera**

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