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

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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.

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.
1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
7. Only use attachments/accessories specified by the manufacturer.
8. 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.
9. **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 ARE QUALIFIED TO DO SO.**
10. Use satisfy clause 2.5 of IEC60950-1/UL 60950-1 or Certified/Listed Class 2 power source only.
11. Indoor use only.

**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 triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.
The 1/2.9" 2.1M Sony CMOS hcamera, especially for closed circuit television CCTV and security surveillance application.

**Features:**
- High performance SONY 1/2.9" CMOS
- 1.0 lux(Color), 0.1 lux(BW)
- Auto electronic shutter [ 1/60(1/50) ~ 1/50,000 ]
- 25/30 fps @ 1080p
- AGC (Auto Gain Control)
- Auto white balance
- 3DNR (Digital Noise Reduction)
- DWDR
- 4.3mm Pin hole Lens
- BNC(Video) & DC Jack (power)
- Operates in DC 12V

**CAMERA CONNECTIONS**

**1. Power**: 12V DC input
   power source from a DC 12V +/-10%
   Use Certified/Listed Class 2 power source only.

   *If using DC 12V power adaptor, use a power supply capable of supplying 3Watts.

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

**3. Switch Cable**: -Green & Black : open -> AHD signal BNC output
   -Green & Black : short -> CVBS signal BNC 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.
Drill feed-thru hole for cable on mounting surface 63.27" above the finished floor.
Feed wire through the 1.0 inch hole on the gimble mount.
Step 3

Center the gimbal mount to mounting surface and mark the mounting holes for the gimbal mount on the surface.

Secure the gimbal mount to the surface using installer supplied self tappers for aluminum frame structure.

If mounting on soft surface such as drywall be sure to use anchors.
Completing the housing installation

Remove the five white head M4 screws that hold the face plate to the housing and set the face plate aside.

Feed the wire coming through the gimbal mount through the 3/4" hole in the back of the camera housing.

Attach the camera housing to the gimbal mount using the M6 Allen head screws and washer previously removed.

Place the external tooth washer between the housing and the gimbal mount then the split lock washer on the M6 screw and insert the screw into the housing through the gimbal mount and external tooth lock washer.

Install the bolt and washers assembly at the bottom and top of the gimbal mount finger tight. (See Figure-1)

After connecting the video and power to their proper connections replace the face plate that was removed in an earlier step using the five screws.

Adjust the position of the housing in the gimbal mount for the proper view and then tighten the top and bottom Allen head screws using an Allen head wrench.

Verify that the housing is in the proper position and is secure.
1. The Height strip camera has the capability to be set in the housing at 5ft or 5.5ft above the floor. The default setting of the camera is set to 5.5ft. If the lower setting is desired the following housing change must be completed.

* Remove housing from gimbal
* Note the position of the hole in the housing base for cable throughput

![The cable hole is at the center of the mounting bracket](image)

* Remove four Allen flat head screws along each side of the housing and separate the front cover with the camera from the housing base.

![Allen flat head screw](image)

* From ① to ② to change the camera position. (See Figure-2)
* Replace the front cover with the camera to the housing base after turning the cover 180° from original position. Replace the three Allen head screws along each side of the housing and continue the installation

2. Camera lens position can be adjusted up and down 5 degrees.

![Camera lens position adjustment](image)

3. Two height marker strips are provided, one marked in feet and one marked in centimeters. Use the appropriate one. (See Figure-3)
DIMENSIONS

HEIGHT STRIP CAMERA

56.00

59.30

43.00

872.00

180°

0°

180°
STRUCTURE OF THE SETUP MENU

<SETUP>
- LENS
- EXPOSURE
- BACKLIGHT
- WHITE BAL
- DAY&NIGHT
- IMAGE
- FUNCTION
- SYSTEM
- EXIT

<LENS>
- DC
- MANUAL

<EXPOSURE>
- SHUTTER
- AGC
- SENS-UP
- BRIGHTNESS
- D-WDR
- DEFOG
- RETURN

<BACKLIGHT>
- OFF
- BLC
- HSBLC

<WHITE BAL>
- ATW
- AWC->SET
- INDOOR
- OUTDOOR
- MANUAL
- AWB

<DAY&NIGHT>
- AUTO
- COLOR
- B&W

<IMAGE>
- SHARPNESS
- LSC
- D-EFFECT
- RETURN

<FUNCTION>
- DNR
- MOTION
- PRIVACY
- DEFECT DET
- RETURN

<SYSTEM>
- CAMTITLE
- MONITOR
- VIDEO OUT
- LANGUAGE
- COMET
- RETURN

<RESET>
- SAVE&END
- RESET
- NOT SAVE
LENS

The EXPOSURE menu is used to set the automatic light control method for the camera. It provides the ability to adjust the SHUTTER speed. AGC SENS-UP, BRIGHTNESS, D-WDR, and DEFOG functions of the camera.

1) DC
   Select the DC mode. ▶ INDOOR, OUTDOOR
   Select the DC iris speed ▶ 0~15

2) MANUAL
   Select the MANUAL mode

   MAIN MANU
   ▶ LENS DC ▼
   ▶ EXPOSURE OFF
   ▶ BACK LIGHT OFF
   ▶ WHITE BAL ATW
   ▶ DAY&NIGHT AUTO ▼
   ▶ IMAGE ▼
   ▶ FUNCTION ▼
   ▶ SYSTEM ▼
   ▶ EXIT SAVE&END

   MAIN MANU
   ▶ LENS MANUAL ▼
   ▶ EXPOSURE OFF
   ▶ BACK LIGHT OFF
   ▶ WHITE BAL ATW
   ▶ DAY&NIGHT AUTO ▼
   ▶ IMAGE ▼
   ▶ FUNCTION ▼
   ▶ SYSTEM ▼
   ▶ EXIT SAVE&END

   NOTE Choose when installed in an external DC mode outdoor.

EXPOSURE

The EXPOSURE menu is used to set the automatic light control method for the camera. It provides the ability to adjust the SHUTTER speed, AGC, SENS-UP, BRIGHTNESS, D-WDR, and DEFOG functions of the camera.

1) SHUTTER
   Select the SHUTTER speed level.
   ▶ Auto, 1/60(50), FLK~1/240 – 1/50000, x2 ~ x30

2) AGC
   Adjust the Auto Gain Control level. ▶ OFF, Auto (x2 ~ x30)

3) SENS-UP
   Select the Digital Slow Shutter level. ▶ OFF, AUTO (x2 ~ x30)

4) BRIGHTNESS
   Adjust the BRIGHTNESS level. ▶ 0 - 100

5) D-WDR
   Select the Digital WDR. ▶ AUTO, ON(level 0~8), OFF

6) DEFOG
   Select the DEFOG mode. ▶ AUTO, ON(level 0~8), OFF
   POS/SIZE
   Adjust the window position & size
   GRADATION ▶ 0 ~ 2
   DEFAULT Initialize the setting values

< EXPOSURE > MODE
The BACKLIGHT menu is used to prevent back lighting from the image.

1) BLC

Prevents such a back light effect to secure a clear image under all illumination environments.
Adjust the size of Back Light Compensation area.

- **LEVEL** Select the BLC gain ➤ Low, Middle, High
- **AREA** Adjust the window position & size
- **DEFAULT** Initialize the setting values

2) HSBLC

Mask the high light zone with specific color & level.

- **SELECT** Select the HSBLC area ➤ AREA1 - AREA4
- **DISPLAY** Adjust the HSBLC area window position & size
- **BLACK MASK** Select the BLACK MASK ➤ ON, OFF
- **LEVEL** Select the HSBLC level ➤ 0 ~ 100
- **MODE** All Day, Night
- **DEFAULT** Initialize the setting values.

< BACKLIGHT >
The screen color can be adjusted by using the Auto White Balance function. It compensates for deviations in the white color caused by changes in the color temperature of the light source so that the colors are reproduced correctly.

1) ATW: Automatically adjust color temperature.
2) AWC→SET: Automatically readjust only by pressing AWC→SET.
3) INDOOR: Set the color temperature to 3200°K
4) OUTDOOR: Set the color temperature to 6300°K
5) MANUAL: Manual mode. User can change Red and Blue gain value manually.
   BLUE: 0 ~ 100
   RED: 0 ~ 100
6) AWB: Automatically extended range of color temperature adjustment.
DAY&NIGHT
The DAY&NIGHT menu is used to configure the day and night related setting for the camera.

1) D&N AUTO
   - Input Method: CDS
     DAY&NIGHT mode are changed according to the sensor inputs
     D&N LEVEL Adjust levels of transition ▶ 0 - 255
     N&D LEVEL Adjust levels of transition ▶ 0 -255
     DELAY 1-60 SEC
   - Input Method: AGC
     DAY&NIGHT mode are changed according to the brightness of the image.
     Use only when the camera is installed in a dark place but the camera is viewing a bright place.
     When used in a normal installation, hunting may occur.
     D&N LEVEL Adjust levels of transition ▶ 0 - 255
     N&D LEVEL Adjust levels of transition ▶ 0 -255
     DELAY 1-60 SEC

2) D&N B&W
   IR SMART LEVEL 1~15
   AREA Adjust the window position & size.

<DAY&NIGHT> MODE
The IMAGE menu provides the ability to adjust the SHARPNESS, LSC and D-EFFECT functions of the camera.

1) SHARPNESS  Adjust the SHARPNESS level. ▶ OFF, AUTO (0 - 10)
2) LSC  Select the lens Lens Shading Compensation. ▶ ON, OFF
3) D-EFFECT  FREEZE  Select real or still mode ▶ ON, OFF
      MIRROR  Select OFF, MIRROR, V-FLIP, ROTATE
      NEG. IMAGE  Select Negative image mode ▶ ON, OFF

< IMAGE >

< SHARPNESS >

< D-EFFECT >
The IMAGE menu provides the ability to adjust the DNR, MOTION, PRIVACY and DEFECT DET functions of the camera.

1) DNR
   - Select Digital Noise Reduction.
   - 2D: OFF, LOW, MIDDLE, HIGH
   - 3D: OFF, LOW, MIDDLE, HIGH

2) MOTION
   - Detects the Motioned Object in the image. ➤ ON, OFF
   - SELECT: Select the Motion area ➤ AREA1 - AREA4
   - DISPLAY: Adjust the Motion area window position & size
   - SENSITIVITY: Adjust the Motion sensitivity level ➤ 0 - 100
   - COLOR: Select the motion area color ➤ WHITE - Red, Green, Blue
   - TRANS: Select the motion area transparency ➤ 1.0, 0.75, 0.5, 0.25
   - ALARM: Select the Motion alarm
   - VIEW TYPE: Select view type of the Motion area ➤ OFF, BLOCK, OUTLINE, ALL
   - OSD VIEW: Select the Motion OSD view ➤ OFF, ON
   - TIME: Select the Motion Alarm time ➤ 1 - 15
   - DEFAULT: Initialize the setting values

3) PRIVACY
   - Hide an area you want to hide on the screen.
   - SELECT: Select the privacy zone ➤ AREA1 - AREA4
   - DISPLAY: Adjust the Privacy window type, position & size ➤ OFF, INV., MOSAIC, COLOR
   - COLOR: Select the privacy zone color ➤ WHITE - USER
   - TRANS: Select the privacy zone transparency ➤ 1.0, 0.75, 0.5, 0.25
   - DEFAULT: Initialize the setting values

4) DEFECT DET
   - Compensates for bad pixels.
   - LIVE DPC: Select the Live DPC mode ➤ OFF, ON
   - AGC LEVEL: Select the AGC level ➤ 0 - 255
   - LEVEL: Select the Live DPC level ➤ 0 - 100
   - WHITE DPC: Select the White DPC mode ➤ OFF, ON
   - POS/SIZE: Adjust the White DPC area window position & size
   - START: Start the white pixels correction
   - DPC VIEW: ➤ OFF, ON
   - LEVEL: Select the White DPC level ➤ 0 - 60
   - AGC: Select the AGC Level ➤ 0 - 14
   - SENS-UP: Select the Sens-up level ➤ x2 - x30
   - BLACK DPC: Select the Black DPC mode ➤ OFF, ON
   - POS/SIZE: Adjust the Black DPC area window position & size
   - START: Start the Black pixels correction
   - DPC VIEW: ➤ OFF, ON
   - LEVEL: Select the Black DPC level ➤ 0 - 100
### DNR

- **FUNCTION**
  - DNR: ON
  - MOTION: OFF
  - PRIVACY: OFF
  - DEFECT DET: OFF
  - RETURN: RET

- **DNR**
  - 2D: MIDDLE
  - 3D: MIDDLE
  - RETURN: OFF

### MOTION

- **FUNCTION**
  - DNR: OFF
  - MOTION: OFF
  - PRIVACY: OFF
  - DEFECT DET: OFF
  - RETURN: RET

- **MOTION**
  - SELECT: AREA1
  - DISPLAY: ON
  - SENSITIVITY: 10
  - COLOR: WHITE
  - TRANS: 1.0
  - ALARM: OFF
  - DEFAULT: OFF
  - RETURN: RET

### PRIVACY

- **FUNCTION**
  - DNR: OFF
  - MOTION: OFF
  - PRIVACY: OFF
  - DEFECT DET: OFF
  - RETURN: RET

- **PRIVACY**
  - SELECT: AREA1
  - DISPLAY: COLOR
  - COLOR: WHITE
  - TRANS: 1.0
  - DEFAULT: OFF
  - RETURN: RET

### DEFECT DET

- **FUNCTION**
  - DNR: OFF
  - MOTION: OFF
  - PRIVACY: OFF
  - DEFECT DET: OFF
  - RETURN: RET

- **DEFECT DET**
  - LIVE DPC: ON
  - WHITE DPC: ON
  - BLACK DPC: OFF
  - RETURN: RET

- **LIVE DPC**
  - AGC LEVEL: 4
  - LEVEL: 2
  - RETURN: RET

- **WHITE DPC**
  - POS/SIZE: ON
  - START: ON
  - DPC VIEW: OFF
  - LEVEL: 4
  - AGC: 14
  - SENS-UP: X2
  - RETURN: RET

- **CLOSE THE IRIS**
  - THEN PRESS ENTER

- **WAITING...**

- **DEFECT DET**
  - LIVE DPC: ON
  - WHITE DPC: ON
  - BLACK DPC: ON
  - RETURN: RET

- **BLACK DPC**
  - POS/SIZE: ON
  - START: ON
  - DPC VIEW: OFF
  - LEVEL: 100
  - RETURN: RET
The IMAGE menu provides the ability to adjust the CAM TITLE, RS485, MONITOR, CVBS CROP, VIDEO OUT, LANGUAGE and VERSION functions of the camera.

1) CAM TITLE
Maximum of 15 characters are allowed.

2) MONITOR
Select the Monitor type ▶ LCD, CRT

   LCD
   BLUE GAIN Adjust the Blue gain level ▶ 0 - 100
   RED GAIN Adjust the Red gain level ▶ 0 - 100
   GAMMA Select the gamma level ▶ USER, 0.45 - 1.0

   CRT
   BLUE GAIN Adjust the Blue gain level ▶ 0 - 100
   RED GAIN Adjust the Red gain level ▶ 0 - 100
   GAMMA Select the gamma level ▶ USER, 0.45 - 1.0

4) VIDEO OUT
Select the video out type ▶ NTSC, PAL

5) LANGUAGE
OSD menu LANGUAGE (16ea) ▶ ENGLISH etc.

6) COMET
Select the COMET function ▶ OFF, ON
## EXIT

The EXIT menu provides the ability to adjust the RESET, SAVE & END and NOT SAVE functions of the camera.

1) **EXIT**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESET</strong></td>
<td>Factory initialization of camera settings</td>
</tr>
<tr>
<td><strong>SAVE &amp; END</strong></td>
<td>Save and exit menu</td>
</tr>
<tr>
<td><strong>NOT SAVE</strong></td>
<td>Exiting the menu without saving</td>
</tr>
</tbody>
</table>
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Height Strip Covert Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td></td>
</tr>
<tr>
<td>Power Source</td>
<td>DC12V ± 10%</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Max 2.2 Watts (180mA)</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Image Sensor</td>
<td>1/2.9&quot; 2.1M Sony CMOS</td>
</tr>
<tr>
<td>Total Pixels</td>
<td>2000(H) x 1121(V)</td>
</tr>
<tr>
<td>Active Pixels</td>
<td>1920(H) x 1080(V)</td>
</tr>
<tr>
<td>Scanning System</td>
<td>Progressive</td>
</tr>
<tr>
<td>Sync. System</td>
<td>Internal</td>
</tr>
<tr>
<td>Video Frame Rate</td>
<td>1920×1080p@25 fps ; 1920×1080p@30 fps</td>
</tr>
<tr>
<td>Min. illumination</td>
<td>1.0 lux(COLOR), 0.1 Lux(B/W)</td>
</tr>
<tr>
<td>Video Output</td>
<td>BNC (AHD / CVBS Selectable)</td>
</tr>
<tr>
<td>Camera Control</td>
<td>OSD Menu (Coaxial control)</td>
</tr>
<tr>
<td>S/N Ratio</td>
<td>More than 50dB (AGC off)</td>
</tr>
<tr>
<td><strong>Lens</strong></td>
<td>MANUAL</td>
</tr>
<tr>
<td>Exposure</td>
<td></td>
</tr>
<tr>
<td>Shutter</td>
<td>AUTO, 1/60, FLK ~ 1/50,000 sec</td>
</tr>
<tr>
<td>AGC</td>
<td>1 ~ 15</td>
</tr>
<tr>
<td>Sens-UP</td>
<td>OFF / AUTO (x2, x4, x6, x8, x10, x15, x20, x25, x30)</td>
</tr>
<tr>
<td>Brightness</td>
<td>1 ~ 100</td>
</tr>
<tr>
<td>D-WDR</td>
<td>OFF / ON / AUTO</td>
</tr>
<tr>
<td>Defog</td>
<td>OFF / AUTO</td>
</tr>
<tr>
<td>Backlight</td>
<td>OFF / BLC / HSBLCL</td>
</tr>
<tr>
<td>White Balance</td>
<td>ATW / AWG / INDOOR / OUTDOOR / AWB</td>
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<tr>
<td>Day &amp; Night</td>
<td>AUTO / COLOR / B&amp;W</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td></td>
</tr>
<tr>
<td>DNR</td>
<td></td>
</tr>
<tr>
<td>2DNR</td>
<td>OFF / LOW / MIDDLE / HIGH</td>
</tr>
<tr>
<td>3DNR</td>
<td>OFF / LOW / MIDDLE / HIGH</td>
</tr>
<tr>
<td>S/P/E/C/I/A/L</td>
<td></td>
</tr>
<tr>
<td>Camera Title</td>
<td>OFF / ON</td>
</tr>
<tr>
<td>D-Effect</td>
<td>OFF / FREEZE / MIRROR / NEG.IMAGE</td>
</tr>
<tr>
<td>Motion Detection</td>
<td>OFF / ON (4 zone)</td>
</tr>
<tr>
<td>Privacy Masking</td>
<td>OFF / ON (4 zone)</td>
</tr>
<tr>
<td>Language</td>
<td>ENG / CHN1 / CHN2 / GER / FRA / ITA / SPA / POL / RUS / POR / NED / TUR / KOR / JPN / HEB / ARB</td>
</tr>
<tr>
<td>Defect Detection</td>
<td>LIVE DPC / WHITE DPC / BLACK DPC</td>
</tr>
<tr>
<td>Sharpness</td>
<td>OFF / AUTO (0 ~ 10)</td>
</tr>
<tr>
<td>Monitor</td>
<td>CRT / LCD</td>
</tr>
<tr>
<td>LSC (Shading)</td>
<td>OFF / ON</td>
</tr>
<tr>
<td>Video mode</td>
<td>NTSC / PAL</td>
</tr>
<tr>
<td><strong>Connector &amp; ETC</strong></td>
<td></td>
</tr>
<tr>
<td>Power input</td>
<td>DC JACK</td>
</tr>
<tr>
<td>Video output</td>
<td>BNC Connector (AHD / CVBS)</td>
</tr>
<tr>
<td>Transmission Distance</td>
<td>Over 500m via 5C-2V coaxial cable</td>
</tr>
<tr>
<td>Lens mount</td>
<td>Fixed mount</td>
</tr>
<tr>
<td>Lens</td>
<td>f=4.3mm F2.0 Megapixel Fixed Pin Hole Lens</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>14°F ~ 122°F (-10°C ~ +50°C)</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>0 ~ 90% (non-condensing)</td>
</tr>
<tr>
<td>External dimension</td>
<td>55.0mm x 872.6mm x 31.5 (44.45mm Inclusion bracket)</td>
</tr>
<tr>
<td>Weight</td>
<td>Unit : 1.36kg, Shipping : 2.0kg</td>
</tr>
</tbody>
</table>