



- 1/2.8" 5.14M SONY Progressive Scan CMOS
- OUTPUT MODE ( HD-SDI & EX-SDI 1.0 / 2.0 )
- Real-WDR (Wide Dynamic Range) @30fps
- 3DNR (Digital Noise Reduction 2D+3D)
- D-ZOOM ( 1.0X ~ 16.0X )
- External OSD Control
- Sense-up x 32
- Weather Proof for Outdoor
- Standard Fixed Mega Pixels Lens
- Privacy Mask Function
- 4mm or 16mm MEGA PIXELS FIXED LENS AVAILABLE



### ● Specifications

| ITEMS                  |  |
|------------------------|--|
| Imaging Sensor         | 1/2.8" 5.14Megapixel CMOS Sensor   |
| Scanning Systems       | Progressive Scan   |
| Video Output Size      | <b>2M(16:9)</b> : 1920X1080 25/30fps<br><b>4M(16:9)</b> : 2560X1440 25/30fps, <b>5M(4:3)</b> : 2592X1944 20fps |
| Min. Illumination      | Color : 1.0 Lux, BW: 0.5 Lux   |
| Video Output Level     | HD-SDI & EX-SDI 1.0 / EX-SDI 2.0   |
| S/N Ratio              | More than 50 dB  |
| O.S.D                  | Built-in   |
| Brightness             | 0 ~ 20 Step  |
| AGC                    | 0 ~ 10 Step  |
| Shutter Speed          | AUTO / FLK / MANUAL<br>NTSC : 1/30sec ~ 1/30,000sec   PAL : 1/25sec ~ 1/25,600sec                              |
| Sense-up               | OFF / X2 ~ X32   |
| Backlight Compensation | OFF / HLC / BLC / WDR  |
| Day & Night            | AUTO / COLOR / B&W / EXTERN  |
| White Balance          | AUTO / AUTOext / PRESET / MANUAL   |
| DNR                    | OFF / LOW / MIDDLE / HIGH  |
| Sharpness              | 0 ~ 10 Step  |
| Mirror                 | OFF / ON   |
| Flip                   | OFF / ON   |
| D-ZOOM (Digital Zoom)  | 1.0X ~ 16.0X   |
| ACE (D-WDR)            | OFF / LOW / MIDDLE / HIGH  |
| Defog                  | OFF / ON   |
| Shading                | OFF / ON   |
| Privacy Masking        | 24 Masks (BOX16, POLYGON 8)  |
| Motion Detection       | OFF / ON   |
| Language               | English / Chinese / Chinese(S) / Japanese / Korean   |
| Lens                   | 4.0mm Fixed Mega Lens  |
| Supplied Voltage       | DC12 ±10%  |
| Power Consumption      | Max. 1.8W(150mA)   |

### ● Structure Specifications

| MECHANICAL      |                                 |
|-----------------|---------------------------------|
| Dimension       | 18.8(Φ)X74mm(without Sunshield) |
| Weight          | 0.30kg                          |
| ENVIROMENTAL    |                                 |
| Construction    | Die-Casting(Aluminum)           |
| Operating Temp. | -10°C ~ 50°C                    |
| Storage Temp.   | 0°C ~ 50°C                      |
| Humidity        | 0% to 90%                       |

### OSD CONTROL



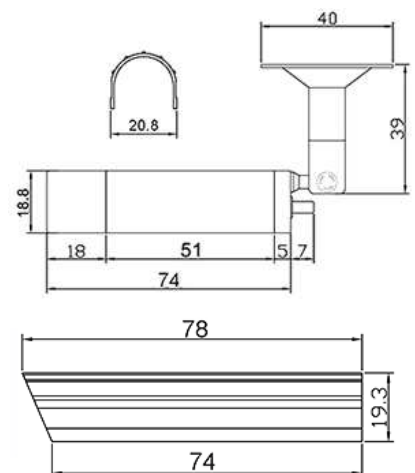
**STEP 1.**  
The OSD Control hole is covered with a Joystick cap as the pic.




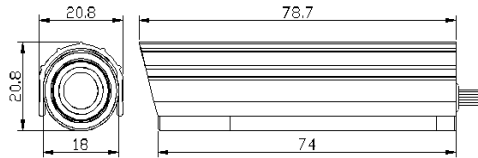
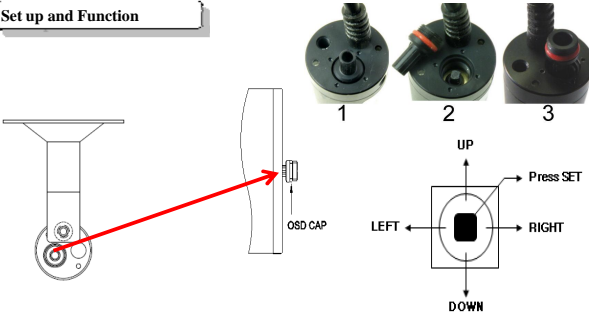
**STEP 2.**  
Turn the knob counterclockwise to open the OSD Control hole.



**STEP 3.**  
Insert the opposite side of the knob into the control hole as indicated to use the control joystick.





| Feature  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1/2.8" 5.14M SONY Progressive Scan CMOS Sensor</li> <li>OUTPUT MODE ( HD-SDI &amp; EX-SDI 1.0 / 2.0 )</li> <li>Real-WDR (Wide Dynamic Range) @30fps</li> <li>3DNR (Digital Noise Reduction 2D+3D)</li> <li>D-ZOOM ( 1.0X ~ 16.0X )</li> <li>OSD, Sense-up x 32</li> </ul> |   |
|   |   |
| Specification  |   |
| Item   | Specification   |
| Imaging Sensor   | 1/2.8" 5.14Megapixel CMOS   |
| Scanning System  | Progressive Scan  |
| S/N Ratio  | More than 50dB  |
| Video Output Size  | 2M(16:9) : 1920X1080 25/30fps<br>4M(16:9) : 2560X1440 25/30fps, 5M(4:3) : 2592X1944 20fps |
| Video Output Level   | HD-SDI & EX-SDI 1.0 / EX-SDI 2.0  |
| Lens   | 4.0mm Fixed Lens  |
| Min. Illumination  | Color : 1.0 Lux, BW: 0.5 Lux  |
| O.S.D  | Built-in  |
| Electronic Shutter Speed   | AUTO / FLK / MANUAL   |
| Brightness   | 0 ~ 20 Step   |
| AGC  | 0 ~ 10 Step   |
| Sens-up  | OFF / X2 ~ X32  |
| Backlight Compensation   | OFF / HLC / BLC / WDR   |
| Day & Night  | AUTO / COLOR / B&W / EXTERN   |
| White Balance  | AUTO / AUTOext / PRESET / MANUAL  |
| DNR (Digital Noise Reduction)  | OFF / LOW / MIDDLE / HIGH   |
| Sharpness  | 0 ~ 10 Step   |
| Mirror   | OFF / ON  |
| Flip   | OFF / ON  |
| D-ZOOM (Digital Zoom)  | 1.0X ~ 16.0X  |
| ACE (D-WDR)  | OFF / LOW / MIDDLE / HIGH   |
| Defog  | OFF / ON  |
| Shading  | OFF / ON  |
| Privacy Mask   | 24 Masks (BOX16, POLYGON 8)   |
| Motion Detection   | OFF / ON  |
| Language   | English / Chinese / Chinese(S) / Japanese / Korean  |
| Supplied Voltage   | DC12 ±10%   |
| Power Consumption  | 150mA (Max)   |

| Dimension   |  |
|---|--|
|   |  |
| Set up and Function   |  |
|   |  |
| <p>► <b>OSD FUNCTION JOYSTICK</b></p> <ul style="list-style-type: none"> <li>- SET Button : Displays the menu on the screen. Press the button to confirm status or after changing a selected item.</li> <li>- Up and Down Button : Used to move the cursor up or down in the menu screen to select a desired menu item.</li> <li>- Left and Right Button : Used to move the cursor left or right in the menu screen or to change the value of the selected item.</li> </ul> |  |
| <p>► <b>SDI Output Mode Change HOT Key</b></p> <ul style="list-style-type: none"> <li>■ <b>HD-SDI MODE</b> : Push the Right OSD key for 3 times and center OSD key once.</li> <li>■ <b>EX-SDI MODE</b> : Push the Left OSD key for 3 times and center OSD key once.</li> </ul> <p><b>* SDI Output Mode can be changed only with HOT Key.</b></p>  |  |

| Function Menu Structure |   |
|-------------------------|---|
| Function Menu           |   |
| IRIS                    | <ul style="list-style-type: none"> <li>■ ELC                    ■ ALC</li> </ul>  |
| EDGE DET                | <ul style="list-style-type: none"> <li>■ OFF                    ■ ON</li> </ul>   |
| EXPOSURE                | <ul style="list-style-type: none"> <li>■ BRIGHTNESS    ■ SHUTTER            ■ SENS-UP    ■ AGC</li> </ul>   |
| BACKLIGHT               | <ul style="list-style-type: none"> <li>■ OFF                    ■ HLC                    ■ BLC                    ■ WDR</li> </ul>  |
| DAY & NIGHT             | <ul style="list-style-type: none"> <li>■ AUTO                    ■ COLOR                    ■ B&amp;W                    ■ EXTERN</li> </ul>  |
| COLOR                   | <ul style="list-style-type: none"> <li>■ AUTO                    ■ AUTOext                    ■ PRESET                    ■ MANUAL</li> </ul>   |
| DNR                     | <ul style="list-style-type: none"> <li>■ OFF                    ■ LOW                    ■ MIDDLE                    ■ HIGH</li> </ul>  |
| IMAGE                   | <ul style="list-style-type: none"> <li>■ SHARPNESS            ■ GAMMA                    ■ MIRROR                    ■ FLIP</li> <li>■ D-ZOOM                    ■ ACE                    ■ DEFOG                    ■ SHADING</li> <li>■ PRIVACY</li> </ul>  |
| MOTION                  | <ul style="list-style-type: none"> <li>■ OFF                    ■ ON</li> </ul>   |
| SYSTEM                  | <ul style="list-style-type: none"> <li>■ COMM                    ■ IMAGE RANGE                    ■ COLOR SPACE</li> <li>■ COLOR BAR                    ■ LANGUAGE                    ■ CAM TITLE                    ■ RESET</li> <li>■ OUTPUT</li> <li>● FRAME RATE                    ● FREQ                    ● SDI MODE</li> <li>● ANALOG MODE                    ● CONFIRM</li> </ul> |
| EXIT                    |   |

| How to use the camera   |  |
|---|--|
| <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>○ An item with the icon also has sub menus.</li> <li>○ To select a sub menu, select an item with the icon and press the function setup switch.</li> <li>○ An item with the gray word is unavailable due to function settings.</li> </ul> |  |

|  |
|--|
| <p><b>IRIS</b></p> <ul style="list-style-type: none"> <li>● Using this function, you can select DC Lens or Manual Lens.</li> </ul> <ol style="list-style-type: none"> <li>When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'IRIS'.</li> <li>Select the connected lens type by using Left and Right buttons. <ul style="list-style-type: none"> <li>► ALC : Select Auto Iris Lens</li> <li>► ELC : Select Manual Lens</li> </ul> </li> </ol> |
| <p><b>EDGE DET</b></p> <ol style="list-style-type: none"> <li>When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'EDGE DET'.</li> <li>Select a ON/OFF mode using the Left and Right buttons. <ul style="list-style-type: none"> <li>- LEVEL : 0 ~ 10</li> <li>- COLOR : YEL / CYN / GRN / MAG / RED / BLU / BLK / WHT</li> </ul> </li> </ol>  |

|   |
|---|
| <p><b>EXPOSURE</b></p> <ol style="list-style-type: none"> <li>When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'EXPOSURE'.</li> <li>Select the connected type by using SET buttons. <ul style="list-style-type: none"> <li>► BRIGHTNESS : 0 ~ 20<br/>You can control the brightness by using the Left and Right button.</li> <li>► SHUTTER : AUTO / FLICKER / MANUAL <ul style="list-style-type: none"> <li>- AUTO : Select this mode to control the shutter speed automatically.<br/>Shutter speed is automatically controlled depending on the brightness of the screen.</li> <li>IRIS (ALC) - OUTDOOR / INDOOR / DEBLUR</li> <li>IRIS (ELC) - NORMAL / DEBLUR</li> <li>- FLK : Select this when you experience picture flicker,<br/>this happen when there is a clash with the installed lighting frequency.</li> <li>- MANUAL : SPEED 1/30(25) ~ 30000(25600)</li> <li>► SENS-UP : OFF / x2 ~ x32<br/>When it is night of dark, the camera automatically detects the light level and maintains a clear picture.</li> <li>► AGC : 0 ~ 10<br/>The higher the gain level, the brighter the screen but the greater the noise.</li> </ul> </li> </ul> </li> </ol>   |
| <p><b>BACKLIGHT</b></p> <ol style="list-style-type: none"> <li>When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'BACKLIGHT'.</li> <li>Select the connected type by using Left and Right buttons. <ul style="list-style-type: none"> <li>► HLC : If there is a high light installed in a limited environment such as an apartment parking garage or gas station entrance, removing the high light makes it possible to view car license plates efficiently. <ul style="list-style-type: none"> <li>- LEVEL : 0 ~ 20</li> <li>- COLOR : WHT / YEL / CYN / GRN / MAG / RED / BLU / BLK</li> </ul> </li> </ul> </li> </ol> <div style="display: flex; justify-content: space-around; align-items: center;">  <p><b>HLC OFF</b></p>  <p><b>HLC ON</b></p> </div> <ol style="list-style-type: none"> <li>► BLC : This function allows you to get a clear pictures of objects even the objects in strong backlight.<br/>Enables a user to directly select a desired area from a picture, and to view the area more clearly. <ul style="list-style-type: none"> <li>- H-POS : 0 ~ 26</li> <li>- V-POS : 0 ~ 24</li> <li>- H-SIZE : 0 ~ 26</li> <li>- V-SIZE : 0 ~ 24</li> </ul> </li> </ol> |

- WDR : If there are bright area and dark area on the screen at the same time, this function makes both areas to be in Natural clear image.

- \* WDR MODE : LINE / FRAME  
 \* ROI MODE : OFF / BOX / POLYGON
- BOX  
 - WINDOW ZONE : 0 ~ 3  
 - WINDOW USE : ON / OFF  
 - H-POS / V-POS / H-SIZE / V-SIZE
- POLYGON  
 - WINDOW ZONE : 0 ~ 3  
 - WINDOW USE : ON / OFF  
 - POS0 X/Y, POS1 X/Y, POS2 X/Y, POS3 X/Y  
 \* WEIGHT : LOW / MIDDLE / HIGH



### DAY&NIGHT

- You can display pictures in Color or Black and White.

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'DAY&NIGHT'.
- Select the connected type by using SET buttons.

- AUTO : The mode is switched to 'COLOR' mode in a normal environment, but switches to 'B/W' mode when ambient illumination is low.

To set up the function type for AUTO mode, press the Function Setup switch.

- D>N THRES : 1 ~ 20  
 - N>D THRES : 0 ~ 19  
 - DELAY : LOW / MIDDLE / HIGH

- COLOR : The picture is always displayed in COLOR mode.

- B&W : The picture is always displayed in B/W mode.

To set up the B/W setting, press the Function setup switch.

- IR LED : OFF / FULL  
 - ANTI-SAT. : 0 ~ 20  
 - D>N THRES : 1 ~ 20  
 - N>D THRES : 0 ~ 19  
 - DELAY : LOW / MIDDLE / HIGH

- EXTERN : DAY&NIGHT control function by external signal. (Not available for this product.)

- IR LED : OFF / FULL      - ANTI-SAT. : 0 ~ 20  
 - EXTERN SW : LOW / HIGH      - D>N THRES : 1 ~ 20  
 - N>D THRES : 0 ~ 19      - DELAY : LOW / MIDDLE / HIGH

### COLOR

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'COLOR'.
- Select the connected type by using SET buttons
  - AWB : AUTO / AUTOext / PRESET / MANUAL
  - COLOR GAIN : 0 ~ 20

### DNR

- This function reduces the background noise in a low luminance environment.

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'DNR'.

- Select the connected type by using Left and Right buttons.

- LEVEL: OFF / LOW / MIDDLE / HIGH

### IMAGE

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'IMAGE'.

- Select the connected type by using SET buttons

- SHARPNESS : As you increase this value, the picture outline becomes stronger and clearer  
 Adjust this value appropriately depending on the sharpness of the picture.

- SHARPNESS : 0 ~ 10

- GAMMA : 0.45 / 0.55 / 0.65 / 0.75

- MIRROR : You can flip the picture Horizontally Rotationally on the screen.

- FLIP : You can flip the picture Vertically Rotationally on the screen.

- D-ZOOM : 1.0X ~ 16.0X

- ACE : OFF / LOW / MIDDLE / HIGH

- DEFOG : Images in extraordinary environment such as fog or rain or in a very strong luminous intensity have DR(dynamic range), lower than ordinary image.  
 Contrast-based defog function, which is used to overcome such shortcoming.

- MODE : AUTO / MANUAL

- LEVEL : LOW / MIDDLE / HIGH

- SHADING : OFF / ON

- MODE : 0% ~ 100%

- PRIVACY : Mask an area you want to hide on the screen.

- BOX      ● POLYGON
- ZONE NUM : 0 ~ 15      - ZONE NUM : 0 ~ 7  
 - ZONE DISP : ON / OFF      - ZONE DISP : ON / OFF  
 - H-POS / V-POS / H-SIZE / V-SIZE      - POS0 X/Y, POS1 X/Y, POS2 X/Y, POS3 X/Y  
 - Y LEVEL : 0 ~ 20      - Y LEVEL : 0 ~ 20  
 - CB LEVEL : 0 ~ 20      - CB LEVEL : 0 ~ 20  
 - CR LEVEL : 0 ~ 20      - CR LEVEL : 0 ~ 20  
 - TRANS : 0 ~ 3      - TRANS : 0 ~ 3

### MOTION

- This product has a feature that allows you to observe movement of objects, and the special words appear on the screen when movement is detected. You can monitor activity more efficient.

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'MOTION'.
- Select an ON/OFF mode using the Left and Right buttons.

- DET WINDOW  
 - WINDOW USE : 0 ~ 3  
 - WINDOW ZONE : ON / OFF  
 - DET H-POS : 0 ~ 80  
 - DET V-POS : 0 ~ 45  
 - DET H-SIZE : 0 ~ 80  
 - DET V-SIZE : 0 ~ 45
- SENSITIVITY : 0 ~ 10  
 ► MOTION OSD : ON / OFF  
 ► TEXT ALARM : ON / OFF  
 ► SIGNAL OUT : ON / OFF



### SYSTEM

- When the SETUP menu screen is displayed, using the Up and Down buttons so that the yellow bar indicates 'SYSTEM'.
- Select the connected type by using SET buttons

- COMM. : This function sets up the camera communication status when controlling the camera through an external device.  
 You can control SETUP Menu through this port by using external controllers like a remote controller that RS-485 communication is supported.
- CAM ID : 0 ~ 255  
 - BAUDRATE : 2400 / 4800 / 9600 / 57600 / 115200

### OUTPUT

- FRAME RATE : 1994P 12.5 / 1944P 20 / 1440P 30(25) / 1080P 30(25) / 720P 30(25)  
 - FREQ : 50HZ / 60HZ  
 - SDI MODE : HD-SDI / OFF & EX-SDI 2.0 / EX-SDI 1.0 / OFF  
 \* SDI Mode returns to the initial value (HD-SDI) upon RESET.  
 \* According to the standard, HD-SDI does not support 4Mega(1440P). (Only EX-SDI can support 4Mega.)  
 - ANALOG MODE : OFF / CVBS / TVI / CVI / AHD  
 - CONFIRM : YES

#### Notes

- ⊙ In "OUTPUT" mode is changed to the set function only when "CONFIRM" is executed.  
 ⊙ The SET button must be pressed for more than 2 seconds.

- IMAGE RANGE : FULL / COMP / USER  
 - OFFSET : 0 ~ 32  
 ► COLOR SPACE : HD-CbCr / YUV / SD-CbCr  
 ► COLOR BAR : ON / OFF  
 ► LANGUAGE : You can select the menu language according to your requirement.  
 - Supplied Language : English, Chinese, Chinese(S), Japanese, Korean  
 ► CAM TITLE : If you enter a title, the title will be appear on the monitor.

#### Notes

- ⊙ When the CAM TITLE menu is 'OFF', no title will be displayed on the monitor screen even if you enter one.

- You can use the left and right buttons to display 'CAM TITLE' at the desired location.  
 - LEFT DOWN / RIGHT UP
- Use the Up&Down buttons to select the desired letter and use the Left&Right buttons to move to a desired position.
- Repeat this to enter multiple letters. You can enter up 8 letters.
- When the 'CAM TITLE' input is completed, press the SET button to finish.

- RESET: Resets the camera settings to the factory defaults.  
 The SET button must be pressed for more than 2 seconds.

### EXIT

- EXIT : Used to exit the MENU after setting the function.

#### Notes

- ⊙ You can go back to the top menu by using the return function.