HDSDI

HIGH DEFINITION SERIAL DIGITAL INTERFACE
OSD CONTROL – USER'S GUIDE

CONTENTS

● **HORIZONTAL RESOLUTION 1000 TV LINS**

Sencor : 1/3" Progressive Scan CMOS / Min.Illumination : 1 Lux at 1.2 / 0.1 Lux (B/W)

● **DAY & NIGHT FUNCTION**

This camera has a function that automa-tically selects the mode that is appropriate for daytime or night-time conditions. The COLOR mode operates in daytime conditions to provide optimum colors, and BW mode operates in nighttime conditions to enhance the definition of the image.

● **3DDNR (3D DIGITAL NOISE REDUCTION)**

By using the DNR chip, the amount of low illuminance noise has been significantly reduced, and the signal-to-noise ratio (S/N ratio) as well as horizontal resolution have been improved, resulting in a clear and sharp image display even in the dark.

● **WDR (WIDE DYNAMIC RANGE)**

By adopting a proprietary 1/3" Progressive Scan CMOS chip, the camera delivers clear, high quality pictures even in backlight, by increasing exposure in dark areas while decreasing it in bright areas; a corrected image with clear details results.

● **PRIVACY FUNCTION**

The PRIVACY function enables you to select and record only choosen area among twenty-eight areas.

● **ADDITIONAL FUNCTION**

WHITE BAL, MOTION DETECTION, MIRROR, SHARPNESS, FREEZE, DZOOM, SHADING, HLM, ACE Function are also available.

● **CONTROLLED OSD MENU**

The camera can be controlled by selecting text displayed on the monitor screen.

Do not disassemble the camera.

There are no user-serviceable parts inside it.

Do not install the camera in extreme temperature conditions.

Do use the camera under conditions where temperatures exceed -10℃ to 50℃. Especially be careful for ventilation under high temperature.

Do not install or use the camera in an environment where the humidity is high.

It can cause the image quality to be poor.

Do not install the camera under unstable lighting conditions.

Severe lighting change or flicker can cause the camera to work improperly. It can cause malfunctions to occur.

Do not touch the front glass of the camera.

It is one of the most important parts of camera. Be careful it is not smudged by fingerprint.

**Never keep the camera face to strong light directly.**

It can damage the CCD.

Do not drop the camera or subject it to shaking.

It can cause malfunctions to occur.

Note
- If the camera is exposed to spotlight or an object reflecting the strong light, smear or blooming may occur.
- Please check whether the power satisfies the normal specifications before connecting the camera.

FRONT
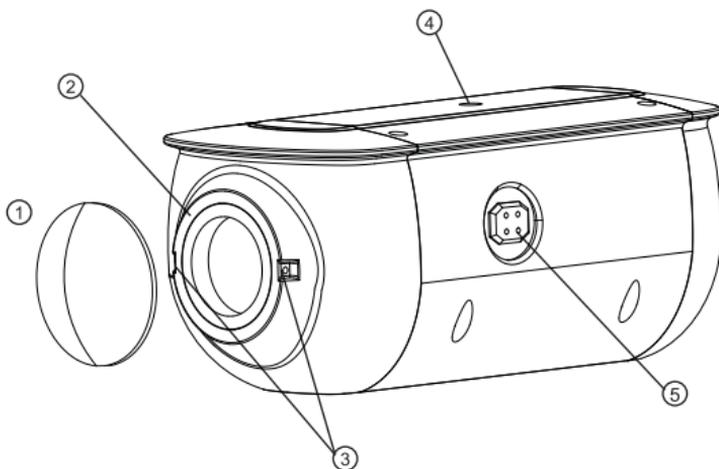
① Protective Lens Cap

② CS-Mount Lens Adapter

③ BACK FOCUS Lock Screws

These are two screws used to adjust the back focus of the camera
which is normally set on factory default. These must be loosened
(using an L-wrench) before the camera can be focused.
After readjusting, lock the screws into place.

④ Tripod Mounting Holes

You can attach a mount to the camera from either the top
or the bottom.

⑤ Auto Iris Lens Connector

When you use Auto Iris Lens, connect the lens plug to auto
iris connector located on the side of the camera.

BACK
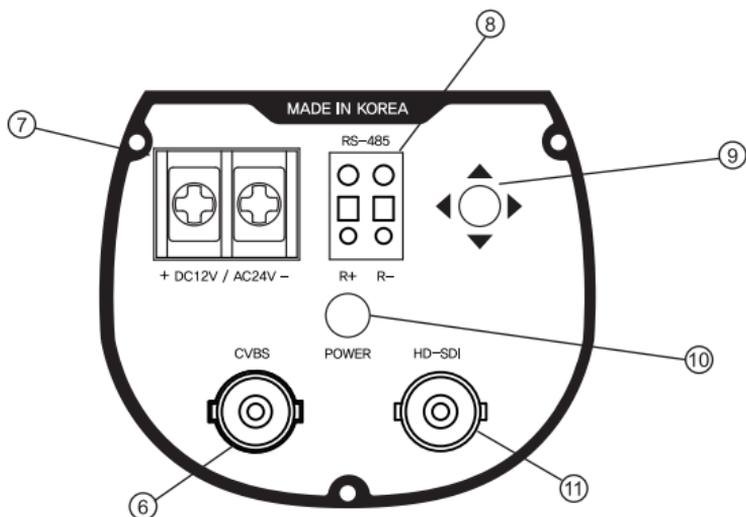
⑥ CVBS : It is a video analog BNC connector.

⑦ Power Input Terminal
Connects to the power source. Please refer to page 9.

⑧ RS-485: This is the communication port to do the remote
control OSD menu.

⑨ Function Switch Please refer to page 12.

⑩ Power Lamp
The power lamp turns on when connected to a power source.

⑪ HD-SDI : It is HD-SDI video signal output BNC connector.

CONNECTION

Please refer to the manual when connecting various instruments.

This camera is not supplied with a lens. Please purchase a lens that its your needs.

Notes :   - If the lens has fingerprints or other objects on the lens the image quality
              might be affected.
            - A higher quality lens provides a better picture.

▶ Adjust the focus if the camera is out of focus for changing between daytime
   mode and nighttime mode.

1. Installing Auto Iris Lens

① Remove the protective cap and attach the lens into the camera by turning
   it in a clockwise direction.
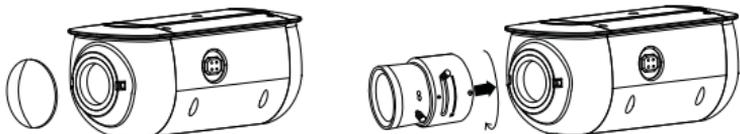
② Connect the lens plug to the auto iris connector on the side of the camera.
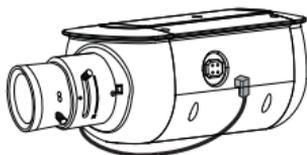
2. Installing a CS-mount Lens

Remove the protective cover and connect the lens into the camera by turning it
in a clockwise direction.
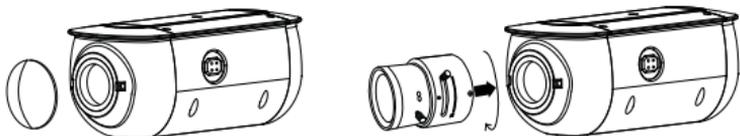
3. Installing a C-mount Lens

① Remove the protective cap and connect the c-mount adapter turning it in a clockwise direction.

② Connect the lens into the camera by turning it in a clockwise direction.
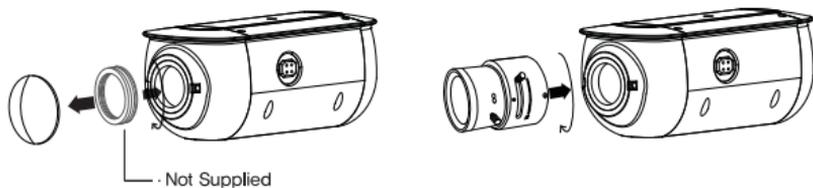
Not Supplied

▶ How to make IRIS plug connector

Remove the insulation form the outer and inner lens cables as shown in the drawing.

approx.
0.3 inch (8mm)

approx.
0.08 inch (2mm)

outer   inner
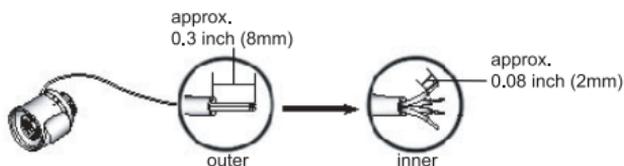
Remove the cover of the auto iris plug connector (supplied with the camera) and solder the lens cable to the pins as shown in the following configuration.

DC type
No.1 Pin Damping -
No.2 Pin Damping +
No.3 Pin Drive +
No.4 Pin Drive -

No.3 Pin
No.1 Pin
No.4 Pin
No.2 Pin

Lens cable
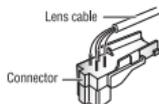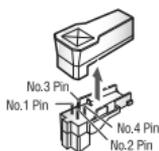
Connector

CONNECTING POWER

Different models have different power specifications, so please check
that you have the correct power source before making the connection.

1. AC/DC Dual Power

The camera has a common power input connector for both 12V DC and 24V AC.
The unit has a wide power tolerance, within DC 12V±10% or within AC 24V±10%

* The Power input is non polarized.
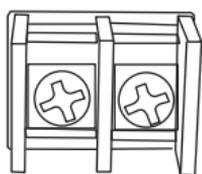
AC24V / DC12V
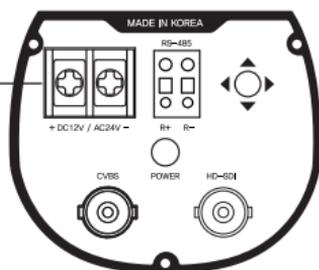
2. DC Power
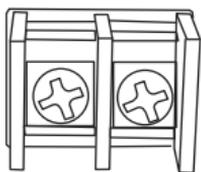
AC24V / DC12V
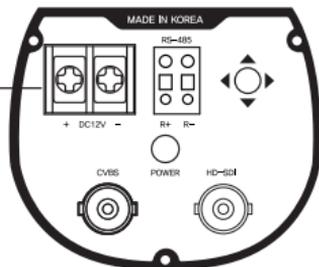
CONNECTING THE CAMERA TO THE MONITOR

1. Connect the VIDEO out jack from the camera to the video in jack on the monitor.
   Be sure the power is turned off before connecting the cable.

HD-SDI Monitor

▶ Connect to use a converter when connect
   HD-SDI output with general monitor.

Analog Monitor
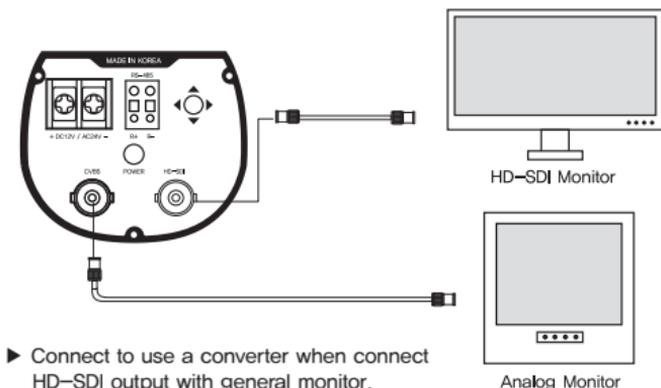
2. If using an intermediary device (DVR, VCR, etc.) between the camera and the monitor,
   please set it at Hi-Z and leave the monitor at 75Ω.
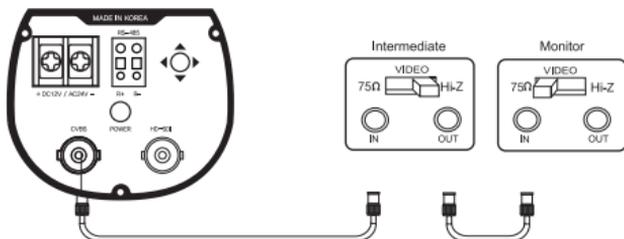
▶ Video cable.
   The cable to connect a video output of the camera and the monitor is BNC coaxial cable same
   as the below. If the install distance between a camera and the monitor is over the max video
   transmission range, please use the separated video amplifier.

Max video transmission range	Recommended cable specification
100 ~140m	5C2V (75ohm)
200m	L-6CHD (75ohm) (SDI exclusive cable)

CONNECTING TO RS−485 CONTROL CABLE
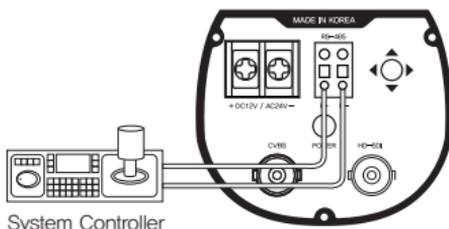
System Controller

Using a RS−485 communication, it will be able to control the OSD menu at the System Controller or DVR.

(1) The case which it controls from the PC
Using a RS−485 converter, It connects to RS−485 control cable outside camera and serial cable
EX) SERIAL PORT OF THE PC(COM1) → SERIAL CABLE → RS−485 CONVERTER → RS−485 CONTROL CABLE

(2) The case which it controls from the DVR or System Controller
It connects the RS−485 control cable in the connection terminal of 485 control boards which are connected with the DVR or System Controller.

485 Control Board Connection Port	RS−485 Control Port
(+) CONNECTION TERMINAL (R+)	485+
(−) CONNECTION TERMINAL (R−)	485−

▶ RS−485 Communication establishment initial value

Item	Camera ID	BAUD RATE	UART MODE	RET PKT
Initial value	0	9600	8−NONE−1	Not supported

NOTES

- When you construct external control systems for a camera control, please use to the PROTOCOL or PELCO−D PROTOCOL.

- When you connecting to RS−485 control cable, please peel off the outer skin inside the RS−485 control cable.

MENU

SETUP MENU

EXPOSURE
SENS_UP   BRIGHTNESS   LENS   SHUTTER   AGC   FREQ   RETURN

WHITE BAL
AWB   CHROMA   RETURN

IMAGE
SHARPNESS   MIRROR   FLIP   FREEZE   DZOOM   PRIVACY   SHADING   HLM
ACE   RETURN

WDR / BLC
OFF   WDR   BLC

DNR
OFF   LOW   MIDDLE   HIGH

DAY&NIGHT
AGC THRS   MARGIN   DELAY   RETURN

MOTION
RESOLUTION   SENSITIVITY   RETURN

SYSTEM
CAM ID   ID DISPLAY   BAUDRATE   DOUT SCALE   DOUT FORMAT
FACTORY SET   RETURN

EXIT

SETTINGS

Settings can be made using the 5 buttons located on the back of the camera.
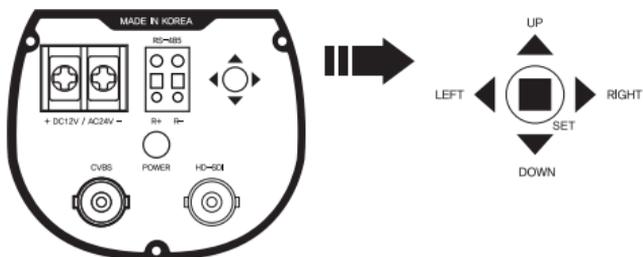
Note
• 'MANUAL' menu for fixed lens models, 'DC' menu for auto iris models.
• Box type camera have both Lens menu.

1. Please press the SET button

   • Settings can now be made. The SET menu is displayed on the monitor.

2. Please select any function you wish to activate by pushing the button Up or Down

   • The cursor position will appear green on your screen.
     You can push the button Up or Down to change function you wish to change.

MANU

MANU

Select any function you wish to operate by pushing the button Up or Down.
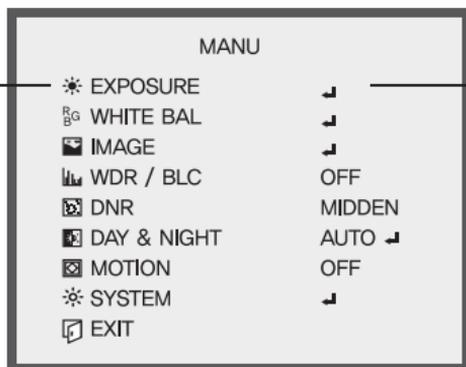
Modes can be changed pushing the button Right or Left.

☀ EXPOSURE ⏎
ᴿᴳ WHITE BAL ⏎
▦ IMAGE ⏎
▦ WDR / BLC OFF
▣ DNR MIDDEN
▣ DAY & NIGHT AUTO ⏎
▣ MOTION OFF
☀ SYSTEM ⏎
▯ EXIT

3. Please press the button Right or Left if you wish to change mode.
   • When the button is pressed Right or Left, available values and mode are displayed in order. Please keep press the button until you get the mode you wish.

4. Please select "EXIT" and then press the button to finish the setting.

SETUP

EXPOSURE, WHITE BAL, IMAGE, WDR / BLC, DNR, DAY&NIGHT, MOTTION, SYSTEM, EXIT control can be selected.

- When the MAIN MENU is on the screen, please position the cursor to SETUP by using the button. And then press the button.

☀ EXPOSURE

- When the SETUP menu screen is displayed, select EXPOSURE by using the Up and Down buttons so that arrow indicates EXPOSURE.
- Select a desired mode using the Up and Down buttons.

```
              MANU
 ☀ EXPOSURE              ⏎
 WHITE BAL               ⏎
 IMAGE                   ⏎
 WDR / BLC              OFF
 DNR                    MIDDEN
 DAY & NIGHT            AUTO ⏎
 MOTION                 OFF
 ☀ SYSTEM               ⏎
 EXIT
```

```
           ☀ EXPOSURE
 SENS_UP              x4
 BRIGHTNESS           |■□|■■■■|
 LENS                 DC
 SHUTTER              MANUAL ⏎
 AGC                  |■■■■■■|
 FREQ                 60Hz
 RETURN
```
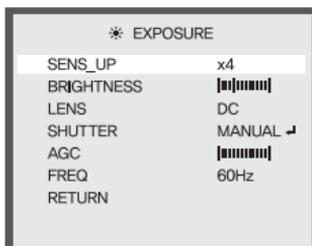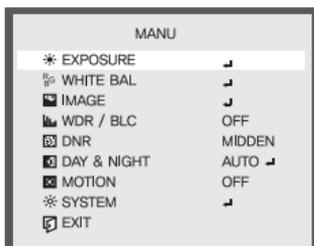
- SENS_UP : OFF / x2 / x3 / x4
  - Sens-up is realized in the most low illumination quality and it provides the image without a noise at the low illumination quality.
  - When it is night or dark, the camera automatically detects the light level and maintains a clear picture if this mode is activated.
  - When "SENS_UP" is on, shutter cannot be adjusted.
- BRIGHTNESS : Left Key (Level DECREMENT), Right Key (Level INCREMENT)
- LENS : When using BUILT-IN LENS, the type of the lens is able to fix.
  (DC / MANUAL)
- SHUTTER :
  - You can select either auto or manual shutter.
   (1/30, 1/60, 1/120, 1/240, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000, 1/30000, 1/60000)
  - Shutter is set to "Manual" when DC Lens is selected
  - Shutter is set to "Auto" when Manual Lens is selected
- AGC (Auto Gain Control)
  - The higher the gain level, the brighter the screen - but the higher the noise.
- FREQ (AC Power Frequency Set)
  - You can select either 50Hz or 60Hz
  - Do the setting the frequency of the commercial power in a camera and prevent Flicker state.
- RETURN

WHITE BAL

• Use the White Balance function to adjust the screen color.

• When the SETUP menu screen is displayed, select 'White Bal.' by using the Up and Down buttons so that the arrow indicates 'White Bal.' .

• Select a desired mode using the Up and Down buttons.

```
          MANU
  ☼ EXPOSURE          ↵
  ℗ WHITE BAL         ↵
  ▣ IMAGE             ↵
  ▦ WDR / BLC        OFF
  ▨ DNR              MIDDEN
  ▨ DAY & NIGHT      AUTO ↵
  ▨ MOTION           OFF
  ☼ SYSTEM            ↵
  ▨ EXIT
```

```
        ℗  WHITE BAL
  AWB              AUTO
  CHROMA          |▮|▮▮▮▮|
  RETURN
```
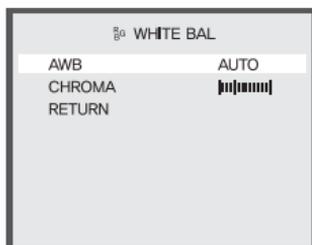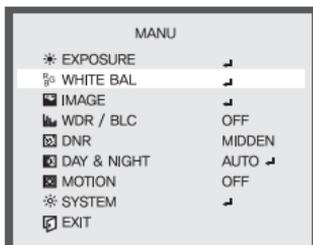
Select one of the following 2 modes, as appropriate for your purpose.

— AWB
  • AUTO   : Default - This function continuously adjusts the white balance automatically
               to adapt to changes in lighting conditions.
  • PUSHING : This function adjusts the white balance regardless of the subject conditions.
  • MANUAL   : User perset
    KELVIN : LOW / MIDDLE / HIGH
    R—GAIN : Left Key (Level DECREMENT), Right Key (Level INCREMENT)
    B—GAIN : Left Key (Level DECREMENT), Right Key (Level INCREMENT)
    RETURN
— CHROMA   : Left Key (Level DECREMENT), Right Key (Level INCREMENT)
— RETURN

NOTE

• Under the following conditions the WHITE BALANCE function may not operate properly. In such cases, please select the AWB mode.

❶ When the object's surroundings have a very high color temperature (eg, a clear sky and sunset)

❷ When the object's surroundings are dark

❸ If the camera directly faces a fluorescent light or is installed in a place where there are considerable changes in illumination, the WHITE BALANCE function may become unstable.

IMAGE

```
              MANU
   ☀ EXPOSURE           ↵
   ⬚ WHITE BAL          ↵
   ⬚ IMAGE              ↵
   ⬚ WDR / BLC          OFF
   ⬚ DNR                MIDDEN
   ⬚ DAY & NIGHT        AUTO ↵
   ⬚ MOTION             OFF
   ☀ SYSTEM             ↵
   ⬚ EXIT
```

```
              IMAGE
   SHARPNESS           8
   MIRROR              OFF
   FLIP                OFF
   FREEZE              OFF
   DZOOM               0
   PRIVACY             OFF
   SHADING             OFF
   HLM                 OFF
   ACE                 OFF
   RETURN
```

— SHARPNESS : Control 0 to 10 by right and left button.
— MIRROR / FLIP : You can select function by using LEFT or RIGHT button.

OFF	MIRROR (ON)	FLIP (ON)

— FREEZE : The video can be stopped.
— DZOOM : You can use a digital zoom of 0 ∼ x 112
— PRIVACY : This modes conceals the areas you do not wish to appear on the screen.

  • OFF : Cancels the PRIVACY mode
  • SET : Operates the PRIVACY mode

```
              IMAGE
   SHARPNESS           8
   MIRROR              OFF
   FLIP                OFF
   FREEZE              OFF
   DZOOM               0
   PRIVACY             SET ↵
   SHADING             OFF
   HLM                 OFF
   ACE                 OFF
   RETURN
```

```
              PRIVACY
   ZONE NO             0
   ZONE OP             ON
   X − POS             12
   Y − POS             2
   X − SIZ             3
   Y − SIZ             3
   COLOR               CYN
   TRANS               4
   RETURN
```

  • ZONE NO : Adjust the size of masking area from 0 to 31
  • ZONE OP : On or off masking
  • X − POS : Adjust the horizontal position of masking area from 0 to 60
  • Y − POS : Adjust the vertical position of masking area from 0 to 40
  • X − SIZ   : Adjust the width of masking area from 0 to 40
  • Y − SIZ   : Adjust the height of masking area from 0 to 40
  • COLOR   : WHT / YEL / CYN / GRN / MAG / RED / BLU / BLK
  • TRANS   : Adjust the transparency of masking area from 0 to 40
  • RETURN

– SHADING ：When using wide angle lens, you can compensate darkness of corner
　　　　　　　on the screen.

– HLM (High Light Mask)

　HLM (High Light Mask) funcion is being prevented against headlights of vehicle
　effectively. It is the most suitable function to see license plates at night

```
       IMAGE                          HLM
  SHARPNESS      8                LEVEL    |IIII|IIII|
  MIRROR         OFF              COLOR    BLK
  FLIP           OFF              RETURN
  FREEZE         OFF
  DZOOM          0
  PRIVACY        OFF
  SHADING        OFF
  HLM            SET  ↵
  ACE            OFF
  RETURN
```

　　• LEVEL ：Left Key (Level DEC), Right Key (Level INC)
　　• COLOR ：WHT / YEL / CYN / GRN / MAG / RED / BLU / BLK
　　• RETURN

– ACE (Adaptive Color & Contrast Enhancement)：OFF / ON

```
              IMAGE
         SHARPNESS     8
         MIRROR        OFF
         FLIP          OFF
         FREEZE        OFF
         DZOOM         0
         PRIVACY       OFF
         SHADING       OFF
         HLM           OFF
         ACE           ON
         RETURN
```

　ACE black performs an image Enhancement processing to enhance visibility of
　an image by changing the brightness values to the level that people can
　recognise the change.
　This processing technique is equivalent to the dynamic range reduction technique.
　Which converts the HDR (High Dynamic Range) into the restricted LDR
　(Low Dynamic Range)

– RETURN

WDR / BLC

• OFF : function does not operate.

MANU	
☀ EXPOSURE	↵
WHITE BAL	↵
IMAGE	↵
WDR / BLC	WDR ↵
DNR	MIDDEN
DAY & NIGHT	AUTO ↵
MOTION	OFF
☀ SYSTEM	↵
EXIT	

WDR / BLC	
WDR_WRT	2
RETURN	

• WDR (Wide Dynamic Range)

Realize the improved backlight compensation function more than existed WDR (Wide Dynamic Range) with a fusion ratio of the optimum by pixel, when they composite both a shutter of high speed at the light area and the shutter of low speed at the dark area.

– WDR_WGT : The available range of level is 0 ~ 4
– RETURN

WDR (ON)   WDR (OFF)

• BLC (Backlight Compensation)

When there is a strong backlight behind the object, clear images of the background as well as the object can still be obtained by using the BLC function.

MANU	
☀ EXPOSURE	↵
WHITE BAL	↵
IMAGE	↵
WDR / BLC	BLC
DNR	MIDDEN
DAY & NIGHT	AUTO ↵
MOTION	OFF
☀ SYSTEM	↵
EXIT	

WDR / BLC	
BLC WINDOW	OFF
BLC POS–X	5
BLC POS–Y	5
BLC SIZ–X	2
BLC SIZ–Y	2
RETURN	
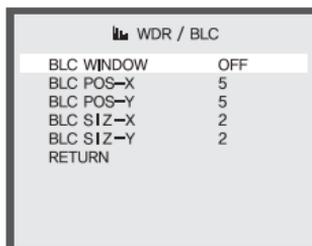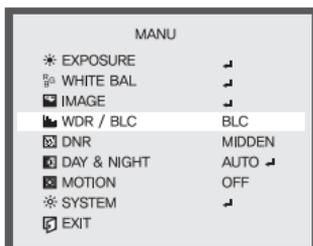
– BLC WINDOW : You can choice ON or OFF
– BLC POS–X : The available range of level is 0 ~ 20
– BLC POS–Y : The available range of level is 0 ~ 20
– BLC SIZ–X : The available range of level is 0 ~ 20
– BLC SIZ–Y : The available range of level is 0 ~ 20
– RETURN

▨ DNR

DNR (Digital Noise Reduction)

• Improve S/N ratio and more clean the low illumination quality and can be monitoring
at night clearly without the image drag and noise phenomenon.

```
                    MANU
      ☀ EXPOSURE          ↵
      ▨ WHITE BAL         ↵
      ▨ IMAGE             ↵
      ▨ WDR / BLC         OFF
      ▨ DNR               MIDDEN
      ▨ DAY & NIGHT       AUTO ↵
      ▨ MOTION            OFF
      ☀ SYSTEM            ↵
      ▨ EXIT
```
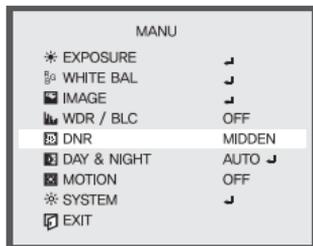
‒ OFF : DNR function does not operate.
‒ LOW / MIDDLE / HIGH : You can select 'LOW', 'MIDDEN' or 'HIGH' menu as DNR condition.

▨ DAY&NIGHT

```
                MANU
  ☀ EXPOSURE          ↵
  ▨ WHITE BAL         ↵
  ▨ IMAGE             ↵
  ▨ WDR / BLC         OFF
  ▨ DNR               MIDDEN
  ▨ DAY & NIGHT       AUTO ↵
  ▨ MOTION            OFF ↵
  ☀ SYSTEM            ↵
  ▨ EXIT
```

```
            DAY & NIGHT
  AGC THRS      [■■■■▶|]
  MARGIN        [■■■■■■]
  DELAY         LOW
  RETURN
```

```
            DAY & NIGHT
  CDS D 〉〉 N    [■■■■▶|]
  CDS D 〈〈 N    [■■■|■■■]
  DELAY         LOW
  RETURN
```
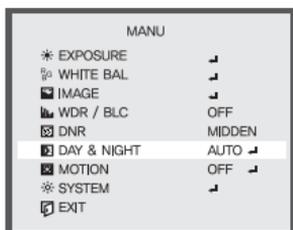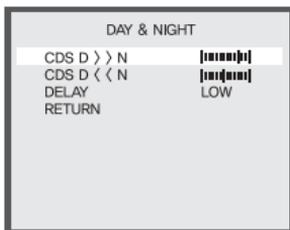
〈 AUTO 〉   〈 EXTERN 〉

• AUTO   : The camera will automatically show color image in high lux and black /
            white image in low lux.
• COLOR : This picture is always displayed in color.
• B&W   : The picture is always displayed in black and white.
            You can turn on or off the burst signal on B/W mode.
• EXTERN : Select this when the color is controlled by CDS sersor.
   ▶ May not work for some models

◙ MOTION

This product has a feature that allows you to observe movement of objects in
3 different areas on the screen, and the words 'MOTION' appear on the screen
when movement is detected. you can monitor activity more efficient.

MANU	
☀ EXPOSURE	↵
WHITE BAL	↵
IMAGE	↵
WDR / BLC	OFF
DNR	MIDDEN
DAY & NIGHT	AUTO ↵
MOTION	SET ↵
☀ SYSTEM	↵
EXIT	

◙ MOTION	
RESOLUTION	‖‖‖‖‖‖‖
SENSITIVITY	‖‖‖‖‖‖‖
RETURN	
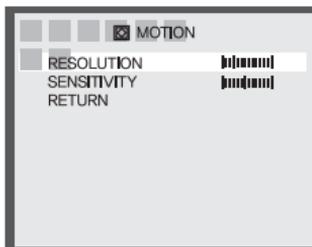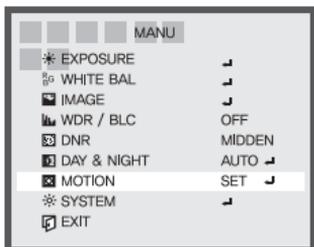
- OFF : MOTION mode is cancelled.
- SET : Any motion in the selected areas is observed.
  • Please select the area you wish to observe from the areas in SELECT mode.
  • Please select ON mode for the chosen area.
  • Please adjust the level of observation by using MOTION mode.
  • Please press the RETURN to save the changes and complete the setting.

☀ SYSTEM

MANU	
☀ EXPOSURE	↵
WHITE BAL	↵
IMAGE	↵
WDR / BLC	OFF
DNR	MIDDEN
DAY & NIGHT	AUTO ↵
MOTION	OFF
☀ SYSTEM	↵
EXIT	

☀ SYSTEM	
CAM ID	0
ID DISPLAY	OFF
BAUDRATE	9600
DOUT SCALE	COMP
DOUT FORMAT	1080P
FACTORY SET	ON
RETURN	
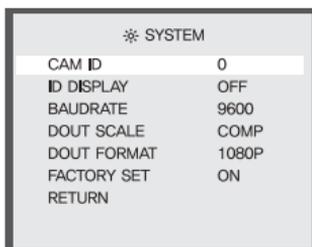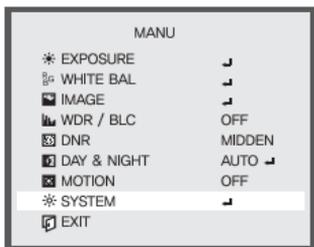
- CAM ID：You can select camera ID from 0 to 254 when using remote control.
- ID DISPLAY：You can select ID ON or OFF
- BAUDRATE：You can select 2400 / 4800 / 9600 / 19200/ 57600 / 115200 bps.
            Support "pel-D protocol"
- DOUT SCALE：- FULL：Full Image out
              - COMP：Compress Image out
- DOUT FORMAT：You can select (1080P / 720P)
- FACTORY SET ：Factory initialize
- RETURN

If there are problems in operation, please refer to the items below. If the problem persists, please contact the agent you purchased this product from.

Nothing appears on the screen.

• Please check the power connection.
• Please check the video signal line connection.
• Please check and make sure that the auto lens switch is set to DC (VIDEO) when using a VIDEO(DC) lens.

The video image is not clear.

• Please check if the lens is clean.
  Please clean the lens with a clean cloth or brush.
• Please adjust the contrast feature of the monitor.
• Please make sure that the screen is not exposed directly to a bright light.
  Please move the camera if necessary.
• Please readjust the back focus of the camera.

The screen is dark.

• Please adjust the contrast feature of the monitor.
• If you have an intermediate device, set the 75Ω/Hi-z properly, and check the terminals.
• Please check if an auto iris lens is being used and adjust the brightness level.

The MOTION DETECTION function is not working.

- Please check if 'MOTION DETECTION' mode is turned on.
- Please check if the MD LEVEL is too low.
- Please check the setting of the MD AREA.

Colors are not quite right.

- Please check the 'WHITE BAL' setting.

The screen is flickering.

- Please check if the camera is facing directly into sunlight or fluorescent light.
- Please check if an auto iris lens is being used.
- Please check the connection of the lens connector cable.

COLOR mode is not working.

- Please check if the AGC menu is set to the OFF position.

There is a problem with the camera operation.
The camera surface is too hot and black stripes appear on the screen.

- Please check if an appropriate power source to the camera complies with the manufacturer's standard requirement, or if the voltage keeps changing.

SPECIFICATION

Resolution	HD−SDI(1080P, 720P) / 1000 TV LINE OVER
Sensor	1/3 inch Panasonic CMOS
Total Pixels	2010(H) X 1108(V) = 2,227,080
Effective Pixels	1944(H) X 1092(V) = 2,122,648
Scanning System	PROGRESSIVE
S/N (Y signal)	More than 52 dB (AGC Off)
Video Output	SMPTE292M (HD−SDI) / CVBS: 1.0Vp−p (75ohm)
Min.Illumination	1 Lux at F1.2 / 0.1 Lux (B/W)
White Balance	ATW /PUSH/MANUAL
Electronic shutter speed	Auto / Manual (1/30sec ~ 1/30,000sec)
Brightness	ADJUSTABLE (0 ~ 20 STEP)
SENS_UP	OFF / X2 / X3 / X4
DNR	OFF / LOW / MIDDLE / HI
WDR/BLC	OFF / WDR / BLC
HLM	OFF / SET
ACE	OFF / ON
Day & Night	Auto (Day ⟨—⟩ Night TIME Change) , COLOR , B/W
Privacy	OFF / ON (28 Zone)
Motion Detection	OFF / ON (8 Zone)
D.ZOOM	0 ~ X112
FLIP	OFF / ON
FREEZE	OFF / ON
Language	ENGLISH
Sharpness	ADJUSTABLE (0 ~ 10 STEP)
Mirror	ON / Off
COMM.	RS−485(PELCO−D)
Operating Temperature/Humidity	−10˚C~+50˚C / 30%~80% RH
Storage Temperature/Humidity	−20˚C~+60˚C / 20%~90% RH
Power	DC12V ±10% Only / DC12V · AC24V ±10% DualPower (option)

HS−SDI	100 ~ 150m
Transmission range	Max transmission range is depends on the cable manufacturer and the installation environment.