EN

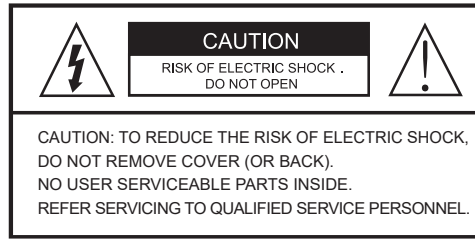
User Manual

1/2.8" HD Dome Fix, Day&Night, 3840x2160, Infrared, WDR, 2.7-13.5mm, 12VDC, Indoor

MPD-68V2713P0A

Safety Precaution

- To prevent fire or shock hazard, do not expose the unit to rain or moisture.
- To prevent electric shocks and risk of fire hazards, do NOT use other than specific power source.



The symbol 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 symbol is intended to alert the user to the presence of important operating and maintenance(servicing) instructions in the literature accompanying the unit.

- **Warning** :
  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** :
  Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
  Mains power quality should be that of a typical commercial environment. If the user of the model requires continued operation during power mains interruptions, it is recommended that the model be powered from an uninterruptible power supply (UPS) or a battery.

Safety Precaution

NOTICE

- The image used in this instruction manual are processed to help comprehension and may differ from actual video of the camera.
- Avoid installing areas where has shock or vibration which results in the problems.
- Pay attention to safety when laying the connection cable and observe that the cable is not subjected to heavy loads, kinks or damage and no moisture can get in.
- The warranty becomes void if repairs are undertaken by unauthorized persons. Maintenance and repair have to be carried out only by authorized service centers.
- Use only a mild detergent to clean the housing.
- The camera should never be operated beyond the technical specifications.
- This can lead to destruction.
  The camera should never be operated in water.

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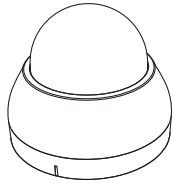
Features

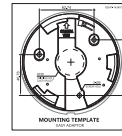
Key Features

- 8Mega Pixel CAMERA, 3840x2160(15/12.5fps)
- The best low light performance with SONY's STARVIS sensor
- Video output EX-SDI / HD-SDI / THD / CHD / AHD / CVBS(960H) Selectable
- THD mode / AHD mode / CHD mode, Video Transmission Distance over Coax.; 500M
- f= 2.7~13.5mm, 8 MP Motorized Zoom lens
- Motorized Zoom & Focus adjustment
- DIS (Digital Image Stabilization) function
- DOL(Digital OverLap) WDR
- ROI (Region of Interest) WDR mode:
  - Proper compensation of exposure for each inside and outside of interested area.
  - Better contrast and No motion ghost effect
- Improved Noise figure with the enhanced 3D-NR
- Motion Detection, Privacy Mask, Defog, Sens-up, D-Zoom, Sharpness, Mirror/Flip, BLC/HLC, LSC (Lens Shading Compensation)
- OSD Menu for easy installation & maintenance
- Menu control by UTC(THD/AHD) through compatible DVR
- Circuit protection against faulty connection in power polarity
- Built-in 2pcs High power SMD LED
- 3-Axis Gimbal
- Double side Anti-scratch Hard coated clear bubble dome
- Quick installation with Easy Adaptor (Flat or Tilted Adaptor)
- DC12V

Composition



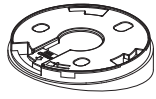
Dome Camera



Mounting Template

Operating Instruction

Easy Adaptor
(Flat type)



Easy Adaptor
(Tilted type)

Plastic Anchor:
6 x 30mm (3pcs)

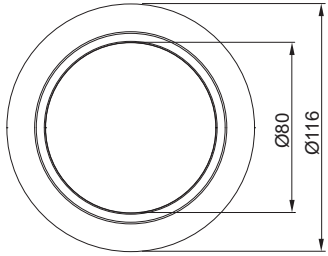
Mounting Screw:
3.5 x 25mm (3pcs)

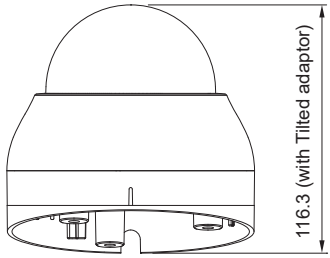
Open Driver (1pc)

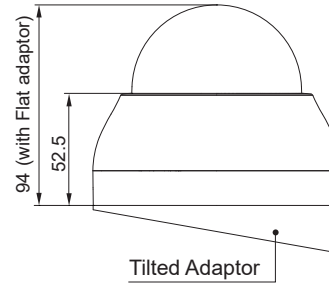
Video Sub-out Cable

Dimensions

(unit : mm)



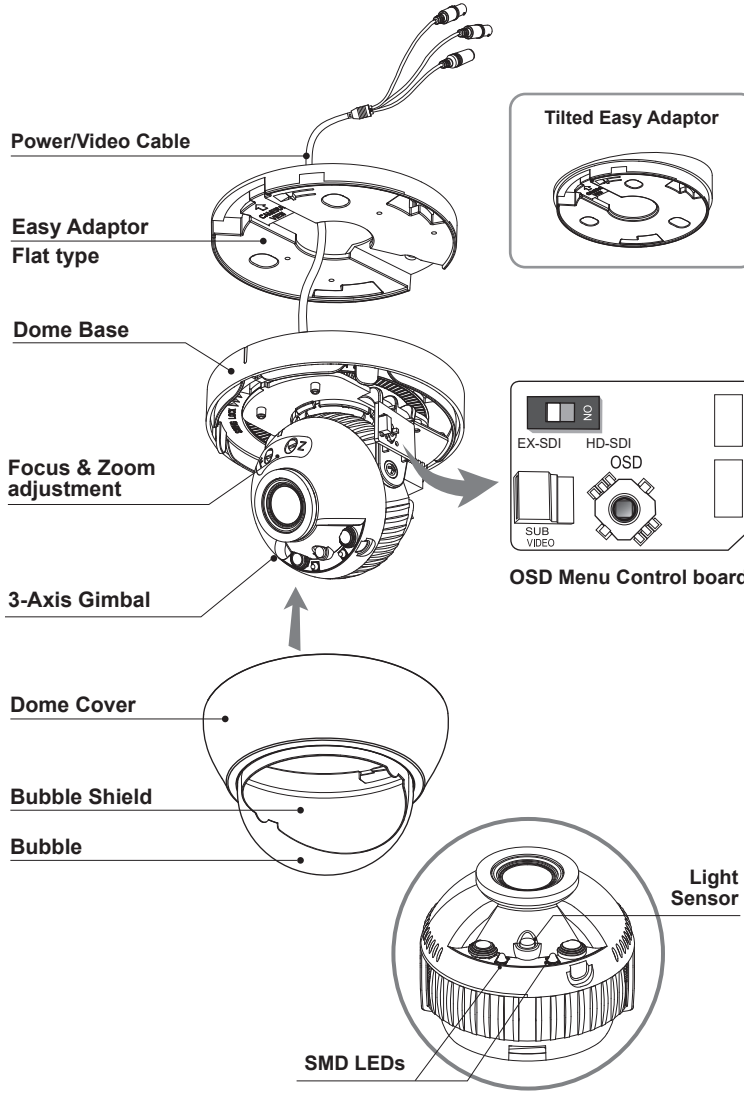




CAUTION

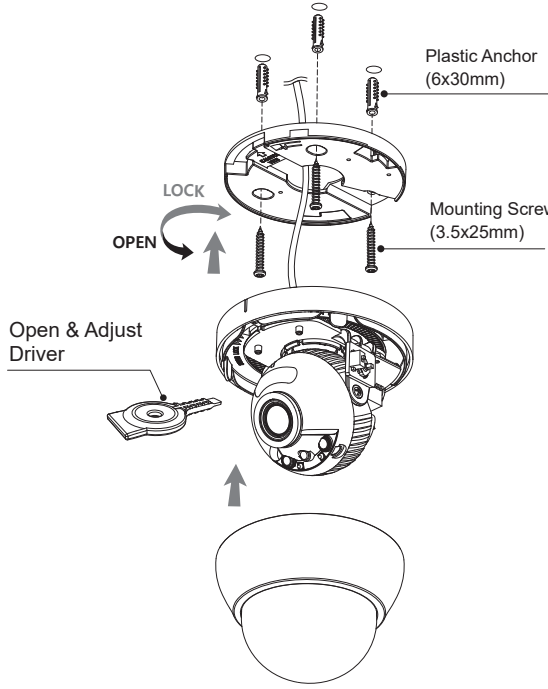
- Extreme care should be taken NOT to scratch the bubble dome surface while the camera installing or adjusting.
- Care should be taken the cable is NOT to be damaged, kinked or exposed in the hazardous area.
- Do not expose the camera directly to a strong light source such as the sun or spot light.

Part Names


Power/Video Cable
Easy Adaptor
Flat type
Tilted Easy Adaptor
Dome Base
Focus & Zoom
adjustment
3-Axis Gimbal
ON
EX-SDI
HD-SDI
OSD
SUB
VIDEO
OSD Menu Control board
Dome Cover
Bubble Shield
Bubble
Light
Sensor
SMD LEDs

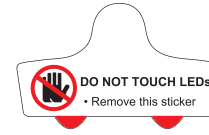
Installation Instructions

1. Drill three holes for mounting on the ceiling or wall.
2. Place the Easy Adaptors at the pre-drilled installation position and fix it by using mounting screws.
3. Route the power/video cable to the connecting place.
4. Attach the dome base assembly to the Easy Adaptor.
5. Adjust the camera's viewing angle (Pan, Tilt, Rotation)
6. Assemble the dome cover to the dome base unit.



CAUTION

- Be careful the LEDs when you control the OSD setting with the joystick.
- Remove the sticker on the gimbal after the OSD setting

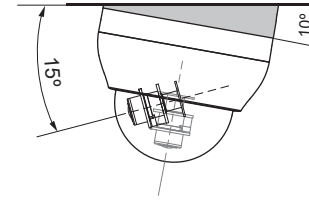


Installation Instructions

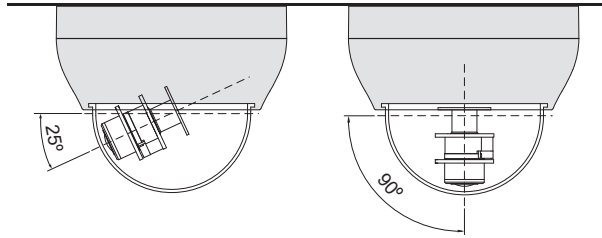
Limit of pan & tilt

1) Pan limit:
   Pan is limited to +/- 165°.
   Do NOT force to rotate the gimbal over the limit to prevent from the internal damage.
2) Tilt limit:
   Tilt is limited to 25° min ~ 90° max. with reference to the ceiling when the inclination of camera module is 0°, that is, the image is aligned horizontally.
3) Inclination limit
   (Horizontal image alignment):
   Inclination limited to +/-60° max.

■ **EXTENDED VIEWING ANGLE**

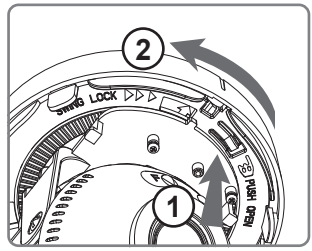


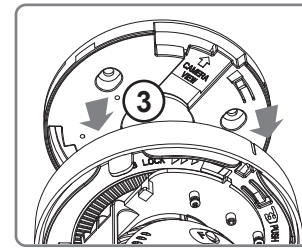
Tilted Easy Adaptor



■ **Detach the dome camera from the easy adaptor**

Push the hook on the dome base and swing the dome base to counter-clock wise. Then detach the dome camera from the installed easy adaptor.

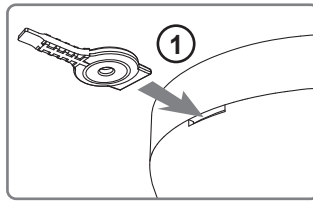


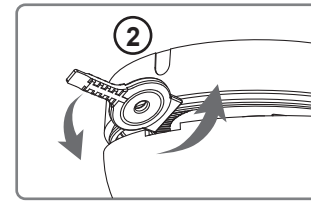


Installation Instructions

■ Open the dome cover

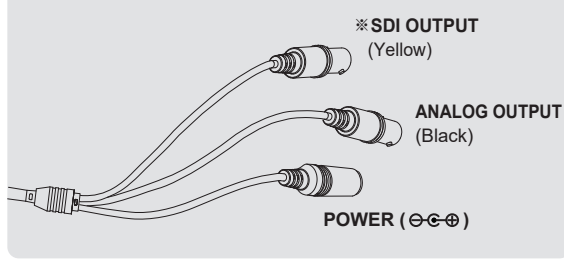
① Insert wide side of Open Tool into the lock of Dome Cover.
② Hold the Dome housing with one hand and turn the open tool until Dome Cover is sufficiently open.
③ Once Dome Base and Dome Cover are detached, press the edge of Dome Cover and pull it down with hands.





Power Supply Connections

Camera can be operated with the regulated or unregulated 12VDC but the regulated power supply of 12VDC is recommended.
Camera is protected from the damage by the reverse connection of polarity.

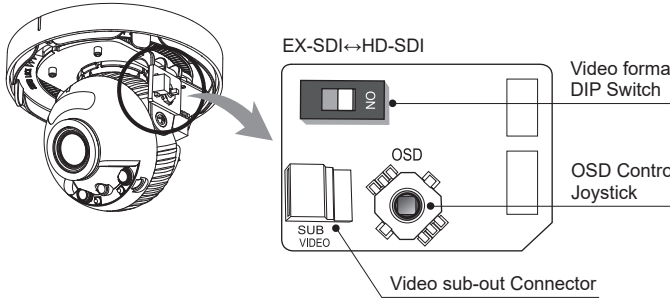


※ Please do not cut the SDI OUTPUT Cable.

Operating Instructions

Using OSD Controller

Setup menu can be accessed and controlled by OSD control joy stick on the side of the gimbal. Five commands are available with the joy stick. The design of OSD could be different according to the Model.



Description of the OSD control operation

1) SET Key (●) : Access to the menu or enter the setting.
   To enter the main menu, press the Set Key down.
2) UP/DOWN Key (▲/▼) : Choose the desired sub-menu and to move the cursor up or down.
3) LEFT/RIGHT Key (◄/►) : Set up the value of the selected menu. Used to adjust the desired menu selection and to move the cursor left or right.
4) ‘ ’ denotes the long press down straightly for about 2 seconds

Description of the Motorized ZOOM&FOCUS* adjustment

(*) Works only when OSD Menu is inactive.

1) ▲ : Zoom In
2) ▼ : Zoom Out
3) ◄ : Focus Near
4) ► : Focus Far

Using Video format DIP switch

EX-SDI↔HD-SDI: The default setting is EX-SDI mode.

※ HD-SDI or EX-SDI is selectable by Video format switch only.
AHD, THD, CHD mode is selectable in the menu only.
(SYSTEM> OUTPUT> ANALOG OUTPUT)

Operating Instructions

OSD menu Table

MENU	SUB MENU	CONFIGURATION	
LENS	DC	MODE (INDOOOR, OUTDOOR, DEBLUR)	
	MANUAL		
ZOOM / FOCUS	AF MODE	ZOOMPUSH, MANUAL	
	MODE CHANGE	ENABLE, DISABLE	
	D&N FILTER	SYNC ON, OFF	
	INITIAL	ON, OFF	
EXPOSURE	BRIGHTNESS DAY	0~20	
	BRIGHTNESS NIT	0~20	
	SHUTTER	AUTO	
		MANUAL (SPEED)	1/30(1/25), 1/60(1/50), 1/120(100), 1/250(200), 1/500(400), 1/1000(800), 1/2000(1600), 1/4000(3200), 1/8000(6400), 1/15000 (12800), 1/30000(25600)
		FLICKERLESS	
	SENS-UP	OFF, x2, x4, x8, x16, x32	
	AGC	0~10	
	3D-NR	OFF, LOW, MIDDLE, HIGH	
BACKLIGHT	OFF		
	HLC	LEVEL, COLOR	
	BLC	H/V-POS, H/V-SIZE	
	WDR	WDR MODE	FRAME
		ROI MODE	OFF, BOX, POLYGON
		WEIGHT	LOW, MIDDLE, HIGH
DAY & NIGHT	EXTERN	SMART IR, ANTI-SAT., DELAY, IR LED CTL.	
	AUTO	SMART IR, ANTI-SAT., D>N THRES, N>D THRES, DELAY	
	COLOR		
	COLOR DN	D>N THRES, N>D THRES, DELAY	
	B&W	SMART IR, ANTI-SAT.	

*IR LED CTL is supported in IR LED BULLET camera only.

Operating Instructions

PICT. ADJUST	AWB	AUTO, AUTOext, PRESET, MANUAL (C-TEMP, R/B-GAIN)	
	COLOR GAIN DAY	0~20	
	COLOR GAIN NIT	0~20	
	SHARPNESS	0~10	
	GAMMA	0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75	
	D-WDR	OFF, LOW, MIDDLE, HIGH	
	DEFOG	OFF, ON	MODE, LEVEL
	SHADING	OFF, ON	WEIGHT
DIS	OFF, ON	RANGE	10% ~ 30%
		FILTER	LOW, MIDDLE, HIGH
		AUTO-C	OFF, HALF, FULL
SPECIAL	MIRROR	OFF, ON	
	FLIP	OFF, ON	
	D-ZOOM	1. 0X	
	PRIVACY	BOX	ZONE NUM, ZONE DISP, H/V-POS, H/V-SIZE, Y LEVEL, CB/CR LEVEL, TRANS
		POLYGON	ZONE NUM, ZONE DISP, POS 0-X/Y, POS 1-X/Y, POS 2-X/Y, POS 3-X/Y, Y LEVEL, CB/CR LEVEL, TRANS
	MOTION	DET WINDOW	WINDOW USE, WINDOW ZONE, DET H/V-POS, DET H/V-SIZE
		SENSITIVITY	0~10
		ESTIMATE	OFF, ON
		QUICK ZOOM	ZOOM SPEED, TRACKING, REPEAT
		MOTION OSD	OFF, ON
		TEXT ALARM	OFF, ON
SYSTEM	OUTPUT	ANALOG OUTPUT	THD / CVBS-SUB, CVBS, AHD / CVBS-SUB, CHD / CVBS-SUB
		FRAME RATE	2160P 15/12.5, 1440P 30/25(CROP), 1440P 15/12.5(only AHD mode), 1080P 30/25, 1080P 60/50(only CVBS, 3G-SDI)
		TV SYSTEM	EU(PAL), US(NTSC)
		SDI OUTPUT	EX-SDI, HD-SDI
		CONFIRM	OFF, ON
	LANGUAGE	ENG, GER, KOR, CHN, CHN(S), JPN	
	CAM TITLE	OFF, RIGHT UP, LEFT DOWN	
	FACTORY RESET	OFF, DONE	
EXIT	SAVE, CANCEL		

Operating Instructions

i Supported resolution according to Video format.

DIP Switch (EX-SDI set)

ANALOG OUT FRAME RATE(NT/PAL)	THD / CVBS-SUB [THD MODE]	AHD / CVBS-SUB [AHD MODE]	CHD / CVBS-SUB [CHD MODE]	CVBS	EX-SDI
2160P 15 /12.5	O	15P(O) / 12.5P(N/A)	O	O	O
1440P 30/25(CROP)	O	O	O	O	O
1440P 15/12.5	N/A	15P(O) / 12.5P(N/A)	N/A	O	N/A
1080P 30/25	O	O	O	O	O
1080P 60/50	N/A	N/A	N/A	O	N/A

DIP Switch (HD-SDI set)

ANALOG OUT FRAME RATE(NT/PAL)	THD / CVBS-SUB [THD MODE]	AHD / CVBS-SUB [AHD MODE]	CHD / CVBS-SUB [CHD MODE]	CVBS	HD-SDI
2160P 15 /12.5	O	15P(O) / 12.5P(N/A)	O	O	N/A
1440P 30/25(CROP)	O	O	O	O	N/A
1440P 15/12.5	N/A	15P(O) / 12.5P(N/A)	N/A	O	N/A
1080P 30/25	O	O	O	O	O
1080P 60/50	N/A	N/A	N/A	O	O

Operating Instructions

OSD menu Startup

Press the 'OSD menu SET key' down to access the setup menu mode.

- EXIT : Enters 'EXIT' menu with save current setting or without save.
- RETURN : Returns to the previous menu.

MENU V0. XX

1. LENS	DC ↲
2. ZOOM/FOCUS	↲
3. EXPOSURE	↲
4. BACKLIGHT	OFF
5. DAY&NIGHT	COLOR DN ↲
6. PICT. ADJUST	↲
7. DIS	ON ↲
8. SPECIAL	↲
9. SYSTEM	↲
A. EXIT	SAVE ↲

1. LENS

Lens can be selected either DC or MANUAL lens.
It should be selected according to lens type.

1-1. DC : DC is for the best image when DC Auto iris Vari-focal lens is installed.

- MODE : Selects MODE according to lighting condition.
  - INDOOR: Optimized of indoor environment.
  - OUTDOOR: Optimized of outdoor environment.
  - DEBLUR: It enables to reduce the blur in a certain indoor environment. Noise or color rolling can be increased.

1-2. MANUAL : MANUAL is for the best image when Fixed lens is installed.

Operating Instructions

2. ZOOM/FOCUS

2-1. AF MODE

- ZOOMPUSH: Focusing works steadily for sharp focusing on the object. In the case of a Motor driven lens, focusing resumes in about 7~8 seconds to save the lens lifetime when the focus gets lost.
- MANUAL: Focusing can only be adjusted by ▲,▼ of OSD control joystick.

2. ZOOM/FOCUS

AF MODE	ZOOMPUSH
MODE CHANGE	ENABLED
D&N FILTER	SYNC OFF
INITIAL	OFF
RETURN	↲

AF MODE Changes to MANUAL automatically after 3 hrs when MODE CHANGE is ENABLED.

2. ZOOM/FOCUS

AF MODE	ZOOMPUSH
MODE CHANGE	NOT USED
D&N FILTER	SYNC OFF
INITIAL	OFF
RETURN	↲

2-2. MODE CHANGE (Available only with AF MODE is ZOOMPUSH)

MODE CHANGE is activated to set ZOOMPUSH in AF MODE.
It is for locking of the lens control to prevent undesirable operation.

- ENABLED : Locks and disables the lens operation after 3 hours. It is recommended to maintain the working-life of the motorized zoom lens.
- DISABLED : Disables the locking feature allowing lens operation at any time.

2-3. D&N FILTER

- SYNC ON : Focusing is activated whenever ICR filter is changed when camera switches from Day to Night or Night to Day.
- SYNC OFF : Focusing is not activated even if ICR filter is changed.

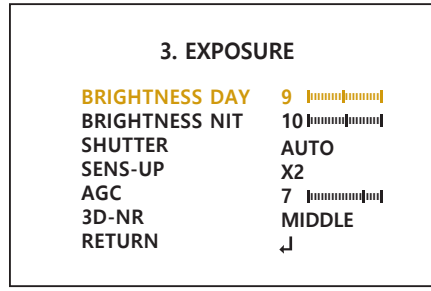
2-4. INITIAL

Lens initialization is necessary during the installation or the regular operation to align the position data with the mechanical positions whose lens elements may move and deviate from its calibrated position by the shock or vibration, for example, during the transportation. Lens initialization is automatically executed at power up.
INITIAL starts the lens initialization when pressing the joystick straight down for about 2 sec. It is strongly necessary to execute LENS INIT in cases below;

- At the final step for the installation.
- When focus becomes out of control by the shock or vibration.

Operating Instructions

3. EXPOSURE



3-1. BRIGHTNESS DAY

Adjusts the brightness of video in DAY mode (0~20).

3-2. BRIGHTNESS NIGHT

Adjusts the brightness of video in NIGHT mode (0~20).

3-3. SHUTTER

Selects AUTO or set manually.
If SHUTTER set to MANUAL modes, SENS-UP mode is inactivated.

3-3-1. AUTO: Selects NORMAL or set DEBLUR.
Optimizes the video level by controlling the iris and the shutter speed automatically.

3-3-2. MANUAL : 1/30(1/25), 1/60(1/50), 1/120(100), 1/250(200), 1/500(400), 1/1000(800), 1/2000(1600), 1/4000(3200), 1/8000(6400), 1/15000(12800), 1/30000(25600) Shutter can be set to fix.

3-3-3. FLICKERLESS : Flicker is used to remove the flickering on screen due to differences in light and electric frequencies.

3-4. SENS-UP (4MP, 2MP only)

The brighter video can be obtained by increasing the exposure time in the night with SENS-UP. It can be set to Off, x2, x4, x8, x16 or x32.
Higher setting can get the brighter video but the slower frame rates with more white pixels.

3-5. AGC

AGC(0~10) amplifies the video gain for brighter video but noise and white pixel accordingly.

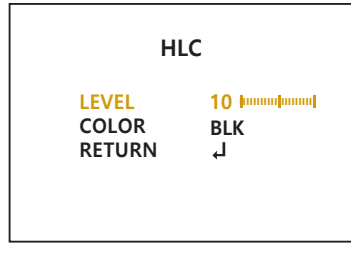
Operating Instructions

3-6. 3D-NR

DNR function improves picture quality by filtering out signal noise which is generated under the low light conditions. Sets off, low, middle or high level. 3DNR(3-dimensional noise reduction) which reduces the noise by the multi frames.
It is effective at low light. Setting high is strength of noise reduction but the result may occur in loss of sharpness and the tail effect of a comet.

4. BACKLIGHT

Compensates the video image to cut out the highlight area with mask or control the contrast of video. It can be set the compendation level or areas.

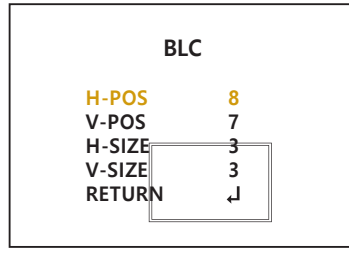


4-1. HLC (High Light Compensation)

Cuts out the highlight area with mask and excludes it from compensation.

4-1-1. LEVEL (0~20): Sets the HLC level. It determines the video level that starts cutting out. Lower setting starts the cut out at lower level.
The cut out area is masked with selected color.

4-1-2. COLOR : Select mask color from 9 colors.
Black, White, Yellow, Cyan, Green, Magenta, Red, Blue and Customize.



Operating Instructions

4-2. BLC (Backlight Compensation)

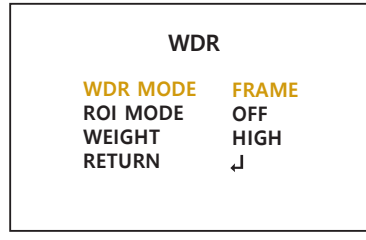
This function is used to brighten an image in the foreground with a highly light area behind it such as sunlight, limiting the affect of silhouette.
BLC has a target window for compensation and its size and position can be set by H-POS, V-POS, H-SIZE and V-SIZE.

4-2-1. H-POS, V-POS :

Sets the position of BLC area to move vertically and horizontally.

4-2-2. H-SIZE, V-SIZE :

Sets the size of BLC area to move vertically and horizontally.



4-3. WDR (Wide Dynamic Range)

WDR is extended the gain range of the video that is mostly useful if camera takes a simultaneous picture of both indoor and outdoor nearby window.
It improves contrast of the picture in outdoor scenery as well as indoor.
Video outputs image processed from two images by dual shutter (long and short shutter) in a field to provide the best dynamic range. Highlight area is compensated by the short shutter and dark area is compensated by the long shutter. Final video may have less contrast compared to the conventional camera which does not have WDR function.

4-3-1. WDR MODE

FRAME : It is conventional WDR mode.

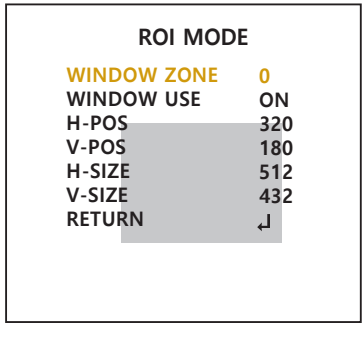
4-3-2. ROI MODE (Region Of Interest) :

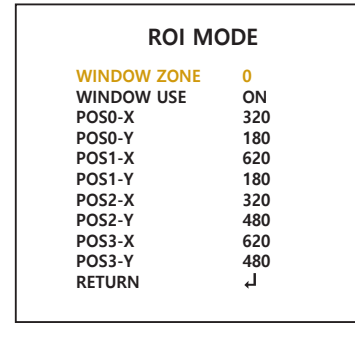
Sets specific area of WDR by window setting.
Select window zone number from 0 to 3 and window use set to on.
Then the window zone can be modified position and size.

Operating Instructions

• BOX : Set area to select zones by square.

WINDOW ZONE : Set the detection zone number from 0 to 3.
WINDOW USE : Sets ON/OFF motion detection area which you selected.
If set to ON, It can be adjusted position and size.
H/V-POS : Adjusts the ROI area H, V position which you selected zone.
H/V-SIZE : Adjusts the area size using H, V direction which you selected zone.





• POLYGON : Set area to select zones by polygon shape.

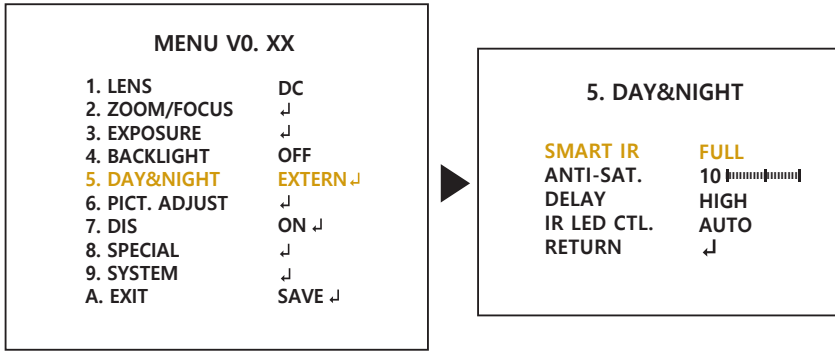
WINDOW ZONE : Selects mask zone number from 0 to 3 to be adjusted.
WINDOW USE : Displays OFF/ON for the mask area which you selected zone.
POS0-X,Y~POS3-X,Y : Adjusts the mask area H, V position and make polygon shape which you selected zone.

4-3-3. WEIGHT : LOW, MIDDLE, HIGH
Selects the WDR value that you set the WDR mode.

Operating Instructions

5. DAY & NIGHT

DAY/NIGHT is used to control the setting during day-time and night-time operation. Select the mode according to the light condition and the camera types.



5-1. EXTERN

DAY or NIGHT is determined by the built-in light photo sensor.
Camera with IR LED must be set to EXTERNAL.

5-1-1. SMART IR

: SMART IR can be set to reduce the saturation by the strong IR illumination in the night in any menu of EXTERN, AUTO and B/W(NIGHT). Set to ON, SMART IR is enabled and ANTI-SAT. level is controlled.

5-1-2. ANTI-SAT. (Available only with the SMART IR is ON)

: Sets the anti saturation level 0~20. Setting high level avoids the saturation strongly but the corners will be darker accordingly.

5-1-3. DELAY

: D→N DELAY is time in second while camera maintains its status before Day to Night switches. DELAY can avoid the unwanted/frivolous switching by a short term lights such as light from the passing car. Sets delay term low, middle or high.

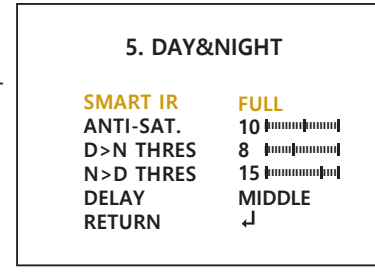
5-1-4. IR LED CTL. (IR LED CTL is supported in IR LED BULLET camera only)

: IR LED Control(AUTO/OFF) is available with IR LED model only.
If it is set to OFF, IR LED will be turned OFF but DAY or NIGHT is still determined by the built-in light photo sensor.

Operating Instructions

5-2. AUTO

Used when DAY or NIGHT is determined by light level through the lens and DAY from/to NIGHT is switched automatically by the scene brightness.



5-2-1. SMART IR

: SMART IR can be set to reduce the saturation by the strong IR illumination in the night in any menu of EXTERN, AUTO and B/W(NIGHT). Set to ON, SMART IR is enabled and ANTI-SAT. level is controlled.

5-2-2. ANTI-SAT. (Available only with the SMART IR is ON)

: Sets the anti saturation level 0~20. Setting high level avoids the saturation strongly but the corners will be darker accordingly.

5-2-3. D>N THRES, N>D THRES

: D>N THRES : Threshold level switching from DAY to NIGHT
N>D THRES : Threshold level switching from NIGHT to DAY

5-2-4. DELAY

: D→N DELAY is time in second while camera maintains its status before Day to Night switches. DELAY can avoid the unwanted/frivolous switching by a short term lights such as light from the passing car. Sets delay term low, middle or high.

5-3. COLOR

The camera is always in COLOR mode.
Forcibly DAY/NIGHT is disabled and outputs color video.

Operating Instructions

5-4. COLOR D/N

Forcibly Color mode, optimized for night condition. It is available to recognize colors of car, people and moving objects even at night. Parameters can be controllable & programmable according to circumstance. Application for bright circumstance at night such as downtown, civic area, street, mall and etc.

5-4-1. D>N THRES, N>D THRES

: D>N THRES : Threshold level switching from DAY to NIGHT
N>D THRES : Threshold level switching from NIGHT to DAY

5-4-2. DELAY

: D→N DELAY is time in second while camera maintains its status before Day to Night switches. DELAY can avoid the unwanted/frivolous switching by a short term lights such as light from the passing car. Sets delay term low, middle or high.

5-5. B&W

The camera is always in B&W mode.
Forcibly removes IR cut filter and switches to B/W regardless of light level.

5-5-1. SMART IR

: SMART IR can be set to reduce the saturation by the strong IR illumination in the night in any menu of EXTERN, AUTO and B/W(NIGHT). Set to ON, SMART IR is enabled and ANTI-SAT. level is controlled.

5-5-2. ANTI-SAT.

: Sets the anti saturation level 0~20. Setting high level avoids the saturation strongly but the corners will be darker accordingly.

Operating Instructions

6. PICT. ADJUST

PICT. ADJUST

AWB	AUTO
COLOR GAIN DAY	10
COLOR GAIN NIT	10
SHARPNESS	5
GAMMA	0.5
D-WDR	MIDDLE
DEFOG	OFF
SHADING	OFF
RETURN	↲

6-1. AWB

Automatically tracks the changes of color temperature and continuously adjusts the white balance. AUTO, AUTOext, PRESET and MANUAL modes are available.

- AUTO : Optimized for Indoor installation and more easily compensates AWB for low color temperature such as incandescent lights.
- AUTOext : Optimized for outdoor sunlight applications and more easily compensates AWB for high color temperature such as sunlight.
- PRESET : AWB is performed only whenever ● is pressed.
- MANUAL : White balance is fixed to the settings by Color-Temperature Red-GAIN and Blue-GAIN. It can be used only when the color temperature does not vary.

6-2. COLOR GAIN DAY

Sets the color gain control level in DAY mode. (0~20)

6-3. COLOR GAIN NIGHT

Sets the color gain control level in NIGHT mode. (0~20)

6-4. SHARPNESS

Sets the Sharpness level 0~10. Increases or decreases the sharpness of the picture. Too much sharpness can make image harsh and show more noise as well as line flicker at the edge of object in the picture.

Operating Instructions

6-5. GAMMA

Adjust gamma level of video.

6-6. D-WDR

Improves the visibility for the high bright area and the dark area by compensating the video gain. Care should be taken to select low, middle or high level, because video may lose its quality in some environments by the over compensation. Video noise can be increased in the dark area accordingly.

6-7. DEFOG

Enhance the foggy video according to status of scene. Video quality can be less in normal environments. Sets AUTO or MANUAL mode.

6-7-1. MODE :

- AUTO : Enhance the foggy video automatically according to status of scene.
- MANUAL : Sets to enhance the foggy video manually regardless of status of scene.

6-7-2. LEVEL : Sets Low, Mid or High.
Video quality can be less in normal environments.

6-8. SHADING

ON enables to compensate the shade caused by wide lens setting.
Sets shading WEIGHT from 0% to 100%.

Operating Instructions

7. DIS (Digital Image Stabilization)

7-1. RANGE

Sets the image compensation range. 10%, 20%, 30%.
Higher values attempt to stabilize the image against big displacement but the field of view is narrowed.

7-2. FILTER

: LOW, MIDDLE, HIGH
Sets the sensitivity to initiate DIS function.

7-3. AUTO-C

: OFF, HALF, FULL
Sets how to align video at center after finishing the stabilization.

SPECIAL

MIRROR	OFF
FLIP	OFF
D-ZOOM	1.0X
PRIVACY	↵
MOTION	OFF
RETURN	↵

8. SPECIAL

8-1. MIRROR

The Video is reversed left and right if it turns ON.

8-2. FLIP

The Video is reversed upside down if it turns ON. When the video is fliped by Vertical, then the joystick directions are reversed accordingly. It is very useful when a camera in installed in upside

8-3. D-ZOOM (4MP, 2MP only)

Sets the Digital Zoom ratio.

Operating Instructions

8-4. PRIVACY

Set the Privacy zones which can be enabled individually by BOX or POLYGON are available to mask the video.

8-4-1. BOX : Set area to select privacy zones by square.

- ZONE NUM : Set a number to select a privacy zone from 1~10.
- ZONE DISP : ON enables a relevant privacy zone.
- H-POS, V-POS, H-SIZE and V-SIZE : Adjust the size and position of zone.
- Y LEVEL : Set the brightness of color.
- CB LEVEL : Higher value makes the privacy color bluish.
- CR LEVEL : Higher value makes the privacy color reddish.
- TRANS : Defines the transparency for the mask zone.

8-4-2. POLYGON : Set area to select privacy zones by polygon shape.

- ZONE NUM : Set a number to select a privacy zone from 1~4.
- ZONE DISP : ON enables a relevant privacy zone.
- POSX-X/Y : Set the position of X/Y Coordinate value.
- Y LEVEL : Set the brightness of color.
- CB LEVEL : Higher value makes the privacy color bluish.
- CR LEVEL : Higher value makes the privacy color reddish.
- TRANS : Defines the transparency for the mask zone.

BOX

ZONE NUM	3
ZONE DISP	ON
H-POS	12
V-POS	2
H-SIZE	6
V-SIZE	6
Y-LEVEL	0
CB LEVEL	10
CR LEVEL	10
TRANS	0
RETURN	↵

POLYGON

ZONE NUM	0
ZONE DISP	ON
POS0-X	80
POS0-Y	5
POS1-X	88
POS1-Y	5
POS2-X	88
POS2-Y	13
POS3-X	80
POS3-Y	13
Y-LEVEL	0
CB LEVEL	10
CR LEVEL	10
TRANS	0
RETURN	↵

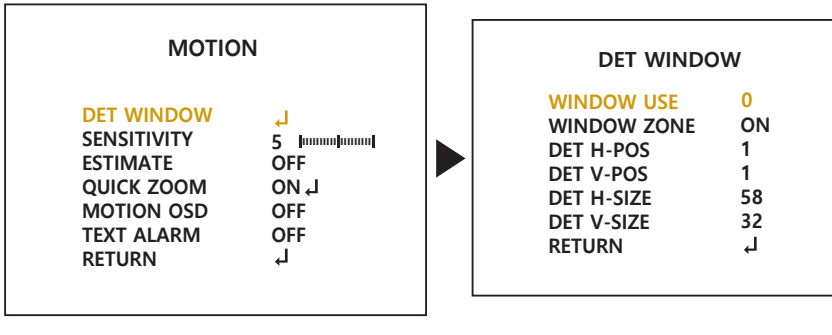
Operating Instructions

8-5. MOTION

4 motion detection areas are available and each area is programmable in size and location. The motion can be detected the changes in the motion areas and displays the results in blocks and/or a text message.

8-5-1. DET WINDOW : Sets the MOTION DETECTION areas on screen.

- WINDOW USE : Set the detection zone number from 0 to 3.
- WINDOW ZONE : Sets ON/OFF motion detection area which you selected. If set to ON, It can be adjusted position and size.
- DET H-POS, V-POS :
  Adjusts the detection area H, V position which you selected zone.
- DET H-SIZE, V-SIZE :
  Adjusts the area size using H, V direction which you selected zone.



8-5-2. SENSITIVITY

Sets the detection sensitivity for motion (0~10). High value increases the sensitivity to detect the small motion easily. Too low value will cause the erratic detection by the tree leaves or the light level changes.

8-5-3. ESTIMATE

ON enables to estimate to find Motion quickly in advance.

8-5-4. QUICK ZOOM

ON enables to be zoomed quickly when Motion is detected.

- ZOOM SPEED : Sets LOW, MIDDLE or HIGH.
- TRACKING : ON enables Zoom to trace the direction of Motion.
- REPEAT : ON enables to repeat as it is set.

Operating Instructions

8-5-5. MOTION OSD

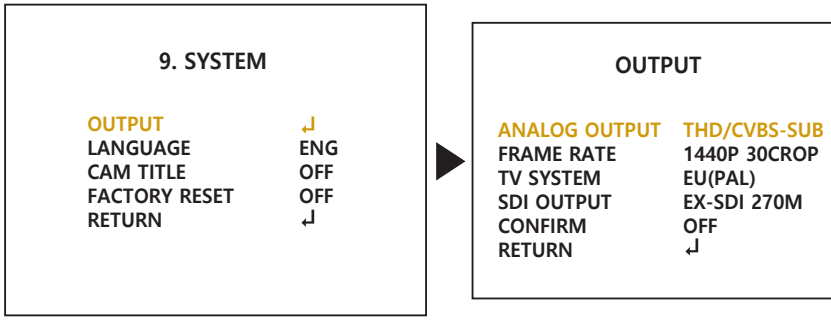
Sets ON or OFF to display the motion results.

8-5-6. TEXT ALARM

Setting ON enables to display a text message ‘ WINDOWS MOVING!!’ or icon when the motion is detected.

9. SYSTEM

Sets the system related functions.



9-1. OUTPUT : Selects the main video output.

9-1-1. ANALOG OUTPUT :

Selects ANALOG OUTPUT Modes, THD/CVBS-SUB, AHD/CVBS-SUB, CHD/CVBS-SUB or CVBS.
ANALOG OUTPUT is set to THD/CVBS-SUB, AHD/CVBS-SUB or CHD/CVBS-SUB and then Sub-out port is connected,
ANALOG VIDEO turns into CVBS automatically.
If Sub-out port is disconnected, ANALOG VIDEO goes back to THD, AHD or CHD as set.

9-1-2. FRAME RATE

2160P 15 /12.5, 1440P 30/25(CROP) / 1440P 15/12.5(only AHD mode)
1080P 30/25 , 1080P 60/50 (only CVBS, 3G-SDI)

Operating Instructions

9-1-3. TV SYSTEM

Selects HDTV standards for US(60HZ) or EU(50HZ). By this selection, 2nd analog video output switches to NTSC or PAL accordingly.

9-1-4. SDI OUTPUT

HD-SDI or EX-SDI is selectalbe by video format switch on OSD board only.

9-1-5. CONFIRM

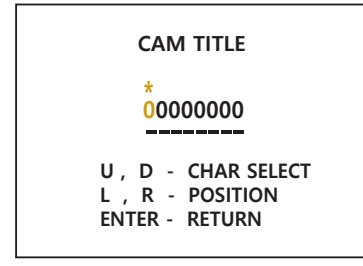
CONFIRMATION, ON enables to save configuration values of sub menu in SYSTEM.
Saving without CONFIRMATION, ON doesn't save configuration values.

9-2. LANGUAGE

5 languages are available for OSD menu.
English, German, Korean, Japanese, Chinese(S), Chinese.

9-3. CAM TITLE

Camera title(name) can be set and edited with alphanumeric characters. Select the camera title position 'LEFT DOWN' or 'RIGHT UP' on the video.
Then ◀,▶ moves the cursor and ▲,▼ choose a character to select it. The selected characters are added and displayed on the input line.



9-4. FACTORY RESET

OFF or DONE.

A. EXIT

Exits SETUP MENU and returns to the normal display.

A-1. SAVE : Save all the setting and exit the setup menu.

A-2. CANCEL : Exit the setup menu without save.

Specifications

ITEM	NTSC	PAL
Imaging Sensor	Sony 1/2.8” 8.46 Mega pixel STARVIS CMOS Sensor	
Effective Pixels	3864 (H) × 2192 (V) approx. 8.46M Mega pixels	
Scan Frequency	30Hz(V), 22.5Khz(H) Progressive	25Hz(V), 18.75Khz(H) Progressive
Video Format	3840x2160p @15/12.5fps, 2560x1440p @30/25fps, 1920x1080p @30/25fps	
	NTSC/PAL (16:9)	
Video Output	EX-SDI, HD-SDI, THD mode, CHD mode, AHD mode, CVBS(960H)	
Synchronization	Internal	
Min.Illumination	Color : 0.005 Lux, B/W : 0.0005 Lux	
S/N Ratio	50dB	
Lens	2.7~13.5mm, 8 MP Motorized Zoom lens	
LED	Built-in 2pcs High power SMD LED	
Exposure	Automatic, Manual, Flickerless	
DAY / NIGHT	True Day & Night by ICR	
White Balance	AUTO / AUTOext / PRESET / MANUAL	
DOL WDR	DOL(Digital OverLap) WDR	
ROI WDR	Yes	
DNR	2D-NR, 3D-NR	
Functions	Motion Detection, Privacy Mask, Defog, Sens-up, WDR, D-Zoom, Sharpness, Mirror/Flip, BLC/HLC, LSC (Lens Shading Compensation), DIS (Digital Image Stabilization)	
OSD Language	English, Korean, Japanese, Chinese(S) / Chinese	
Video Sub-out	NTSC/PAL Standard 1Vp-p ± 10%, 75Ω	
Installation Temp.	-10°C ~ +50°C (Humidity : 20%RH ~ 80%RH, Non-condensing)	
Operating Temp.	-10°C ~ +50°C (Humidity : 20%RH ~ 80%RH, Non-condensing)	
Operating Power	DC12V Circuit protection against faulty connection in power polarity.	
Housing	Double side Anti-Scratch hard coated clear bubble, 3-Axis gimbal, Easy Adaptor (Flat/Tilted type)	
Dimensions	116mm(Ø) x 94mm(H)_ Bubble: Ø80 / About 260g	

(*) Design and specifications are subject to change for product improvements without prior notice.

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