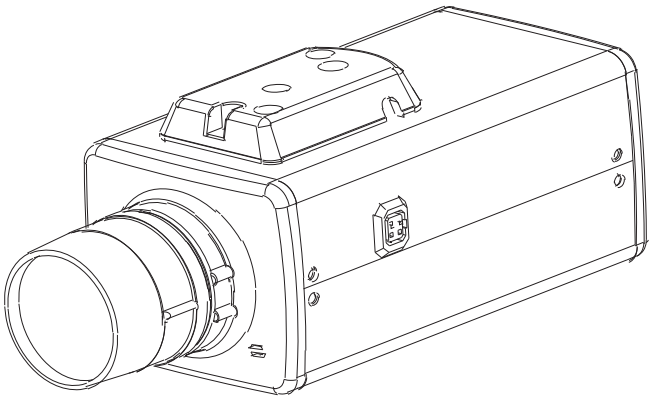
VEILUX
The Art of Surveillance

Hyper Wide Dynamic Camera (Effio WDR)

VSSC-68CDNR-90



User Manual

Thanks for purchasing our product. Before operating the unit, please read the instructions carefully and keep this manual for future reference.

Safety Warning

⚠ **1. Read this manual carefully before installing the unit**

Please read this manual first for correct installation and operation.

⚠ **2. Never install the camera on a ceiling that cannot hold its weight**

The product may fall down and cause damages.

⚠ **3. Never install the camera near electric or magnetic fields**

Install the camera away from TV, radio transmitter, magnet, electric motor, transformer, audio speakers since the magnetic fields generate from above devices would distort the video image.

⚠ **4. Never install or use the camera in areas exposed to water, oil or gas**

The water, oil or gas may result in operation failure, electric shock or fire. Do not use this unit near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, near a swimming pool, in an unprotected outdoor installation, or any area which is classified as a wet location.

⚠ **5. Never face the camera toward the sun**

Direct sunlight or severe ray may cause fatal damage to sensor and internal circuit.

⚠ **6. Power Cord Protection**

Touching the wet power cord with hands or touching the power cord with wet hands may result in electric shock. Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, playing particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. Attachments

⚠ Do not use attachment not recommended by the product manufacturer as they may cause hazards.

8. Object and Liquid Entry

⚠ Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
Never spill liquid of any kind onto the product.

9. Do not operate the camera in environments where the temperature, humidity or power source is beyond the specified ones

⚠

Use the camera in suitable environments where the temperature is within -10ûC~50ûC and humidity below 80%. Use the input power source as this instruction indicated.

⚠ 10. Cleaning

Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

⚠ 11. Never disassemble the camera nor put impurities in it

Disassembly or impurities may result in trouble or fire.

⚠ 12. Stop using when the product emits smoke or abnormal heat

⚠ 13. Servicing

Do not attempt to repair this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

⚠ 14. Retain Instructions

THE SAFETY AND OPERATING INSTRUCTIONS SHOULD BE RETAINED FOR FUTURE REFERENCE.

NOTE:

The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without notice.

Table of Contents

1. Introduction

VSSC-68CDNR-90 built with Sony's latest image processor, this super-wide dynamic camera has the capability of achieving resolutions of over 680TVL. The features include 2-D and 3-D noise reduction, sense up, spot removal, strong-light suppression, intelligent motion, face detection and OSD functions. The Camera also comes with 256x digital zoom, an intelligent auto exposure compensation system and an RS-485 remote control. VSSC-68CDNR-90F camera reproduces nearly perfect images like no other.

1.1 Main Features

- 1/3" Hyper Wide Dynamic Color Camera (Effio WDR)
- Color:680TVL, B/W:700TVL
- Color:0.03Lux@F1.0, B/W:0.01Lux@F1.0, Sense-up:0.0001Lux@F1.0
- Multi-Language OSD Control / RS485 Control
- RS485 Interface OSD Control by Pelco-D, Pelco P
- Powerful 510X WDR (54dB)
- Ideal for Backlight Environments
- 2D/3D Noise Reduction & Sense Up(512x) Functions
- High Contrast Images
- Shutter Mode (SCHEDULE / DAY&NIGHT)
- Face Detection of up to 4 faces
- E-zoom Function (1~256x)
- Advanced Motion Detection Function

- Polygonal Mosaic Privacy Mask
- Freeze / Timer Clock
- Mechanical IR Cut Filter (ICR)

1.2 Content List

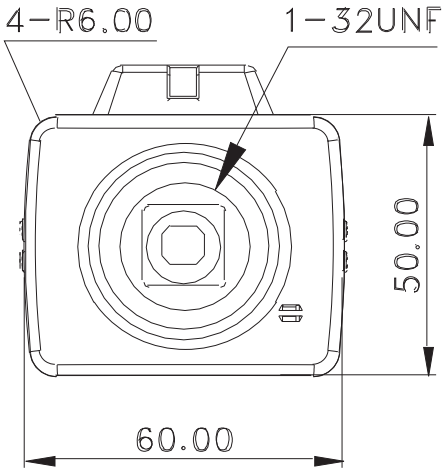
- Hyper Wide Dynamic Camera (Effio WDR): VSSC-68CDNR-90
- User's manual

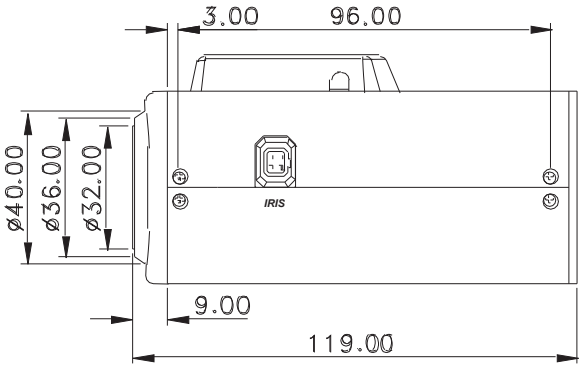
1.3 Specifications

TV System	PAL	NTSC
Image Sensor	1/3” Sony 960H Double-speed (Double-density) CCD	
Number of Total Pixels	1024(H)x596(V)	1028(H)x508(V)
Resolution	Color:680TVL, B/W:700TVL ; Sony Effio WDR	
Minimum Illumination	Color:0.03Lux@F1.0, B/W:0.01Lux@F1.0, 0.005Lux@F1.0 (with ICR), Sense-up:0.0001Lux@F1.0	
Wide Dynamic Range	510x Normal Camera (54dB)	
Video Output	1.0Vp-p Composite, 75Ω (BNC), S-Video (Y/C)	
Signal to Noise Ratio	More than 52dB (AGC off)	
Gamma Correction	0.45	
Mechanical IR Cut Filter (ICR)	Automatically Switches (Switching Lux Level can be adjusted)	
IR LED ; Working Distance	Compatible with Infrared Illuminator	
Menu	OSD Control or by RS485 Control	
Title	TITLE (LOCATION)	
Synchronizing System	INTERNAL	
Digital Day&Night Mode	COLOR / B&W / AUTO / EXT / SCHEDULE	
Electronic Shutter	AUTO (1/50(60)~1/100,000sec.)/ SCHEDULE or DAY&NIGHT / MANUAL: 1/50(60), FL 1/120(100), 1/200, 1/250, 1/350, 1/500, 1/750, 1/1,000, 1/1,500, 1/2,000, 1/3,000, 1/4,000, 1/10,000, 1/30,000, 1/60,000, 1/100,000 sec.	
Automatic Gain Control	AUTO / MANUAL / OFF	
White Balance	ATW / AWB / AWC (Push Lock) / MANUAL / OUTDOOR(1800ûK~10500ûK) / INDOOR(4500ûK~8500ûK) / ANTI CR	
Back Light Compensation	WDR / BLC / OFF	
Flickerless	ON / OFF	
Dynamic Noise Reduction	3D / 2D	
Sense Up	AUTO (Limit x2~x512) / OFF	
Face Detection	4 Face Detection	
Language	ENGLISH / TRADITIONAL CHINESE / SIMPLIFIED CHINESE / JAPANESE	
E-Zoom	x1~x256, Pan / Tilt Adjustable	
Motion Detection ; Privacy	ON / OFF (24x16 Zones, Alarm) ; ON / OFF (16 Zones Programmable, Polygonal Mosaic)	
Timer Clock	Year / Month / Date, Hour / Minute / Second	
Camera Control Interface	RS485 Interface OSD Control by Pelco-D, Pelco P	
Automatic IRIS ; Connector	VIDEO / DC ; D4 IRIS Jack	
Lens Mount	CS / C mount (With Adaptor Ring)	
Power Supply ; Consumption	12Vdc/24Vac (10.8~39Vdc/24Vac) ; 3.5W	
Operation ; Storage Temp.	-10ûC~50ûC ; -20ûC~60ûC	
Operation ; Storage Humidity	Maximum: RH80% ; RH90%	
Dimensions	60(W)x50(H)x119(L)mm	
Net Weight	350g	

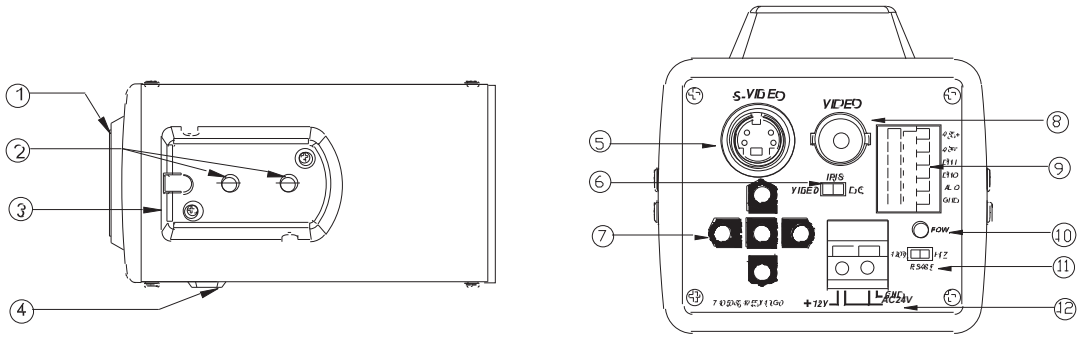
2. Camera Overview

2.1 Dimensions





2.2 Description of Camera Parts



Lens Mount

①

This mount is used to install a CS-mount lens. CS-adaptor ring is required when using a C mount lens.

② **Camera Mounting Screw Holes**

Screw holes for mounting the camera.

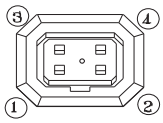
③ **Mount Adaptor**

The adaptor can be attached onto the top or the bottom of the unit.

④ **Auto Iris Lens Connector (4-pin type)**

The lens connector supplies the auto-iris lens (not supplied) with DC control signal.

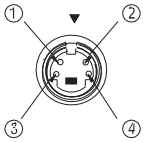
PIN NO.	VIDEO	DC
1	DC + 12V	CONTROL -
2	NC	CONTROL +
3	IRIS	DRIVE +
4	GND	DRIVE -



⑤ **S-Video Output Terminal**

Separate Y(brightness) and C(Color) signal are outputs from this terminal to obtain better video quality at a video monitor.

1. C signal: 0.3V (p-p), 75Ω, unbalance
2. Y signal: 1.0V (p-p), 75Ω, unbalance, negative synchronizing
3. C signal Ground
4. Y signal Ground



⑥ **Iris Mode Selection Switch**

Select DC or VIDEO mode according to the lens.

⑦ **OSD Control Buttons**

ENTER button

UP & DOWN buttons

LEFT & RIGHT buttons

⑧ **Video Connector**

Video can be outputted via this connector. (75Ω).

⑨ **Communication Connectors**

1. RS485+
2. RS485-
3. Day & Night External Input (controlled by external infrared illuminator)
4. Day & Night Output
5. Alarm Out
6. Ground

⑩ **Power Input Indicator Light**

When the camera is connected to a power supply, the indicator light will be on.

⑪ **RS-485 Terminal Impedance Switch**

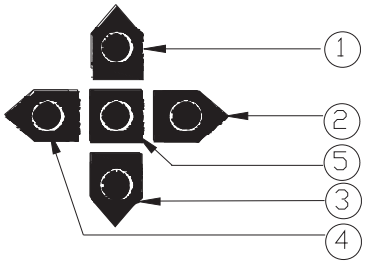
Set the first and the last equipment terminal impedances as 120Ω and set the rest parallel connection equipment in the middle as HiZ to obtain the best transmitting status.

⑫ **Power Input Terminal**

Connect the power supply of 12Vdc/24Vac (10.8~39Vdc/24Vac).

3. OSD Operation

3.1 OSD Control Buttons



①

UP

Use this button to move the cursor upwards to the desired item.

② **RIGHT**

Use this button to move the cursor to the right to select or to adjust the parameters of the selected item. The parameter increases when the right button is pressed.

③ **DOWN**

Use this button to move the cursor downwards to the desired item.

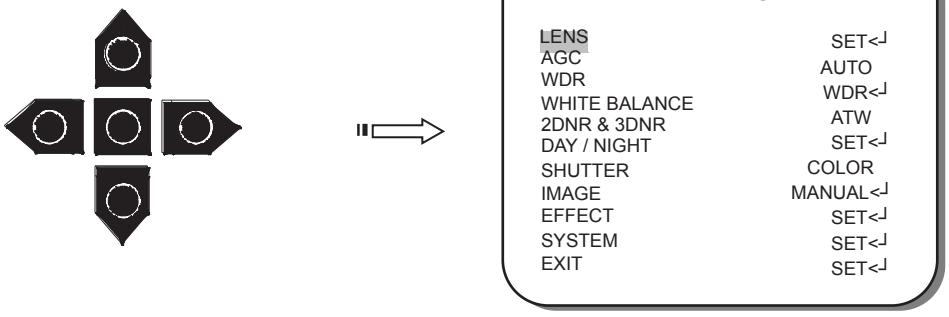
④ **LEFT**

Use this button to move the cursor to the left to select or to adjust the parameters of the selected item. The parameter decreases when the left button is pressed.

⑤ **ENTER**

Use this button to display the main menu, to confirm and to enter the submenus when they're available. Items with "↵" symbol in the end contain sub-menus. For further settings of those items, select the desired item with the button ♉ or ♉ and press the **ENTER** button to bring up the sub-menu and edit.

3.2 OSD Operation



1. Start to operate the OSD menu

Press the **ENTER** button to bring up the OSD main menu to start operating OSD menus.

2. Select items with the cursor buttons

 Use buttons

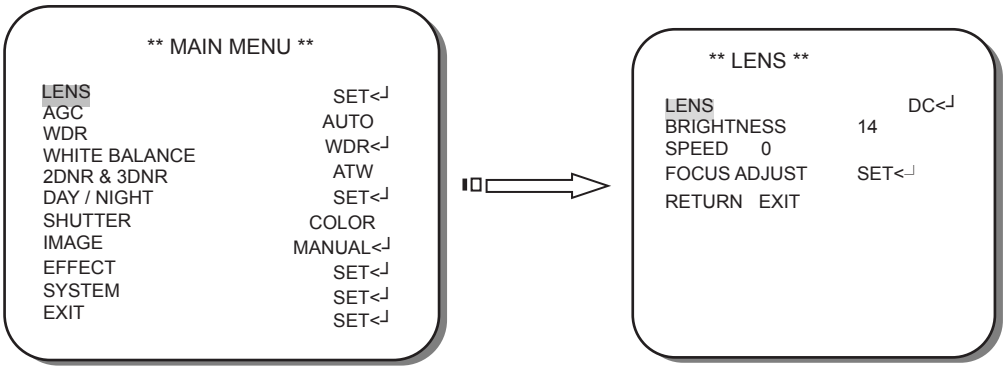
 and to move the cursor up and down.

 Use buttons

 and to switch the modes or to adjust the parameters or the values of the settings.

3. Switch to the sub-menu

Items with "<┘" symbol in the end contain sub-menus. For further settings of those items, select the desired item with the button or and press the **ENTER** button to bring up the sub-menu and edit.



Main Menu **Sub-Menu**

4. Return to the previous page

Select **RETURN** and press the **ENTER** button to return to the previous page.

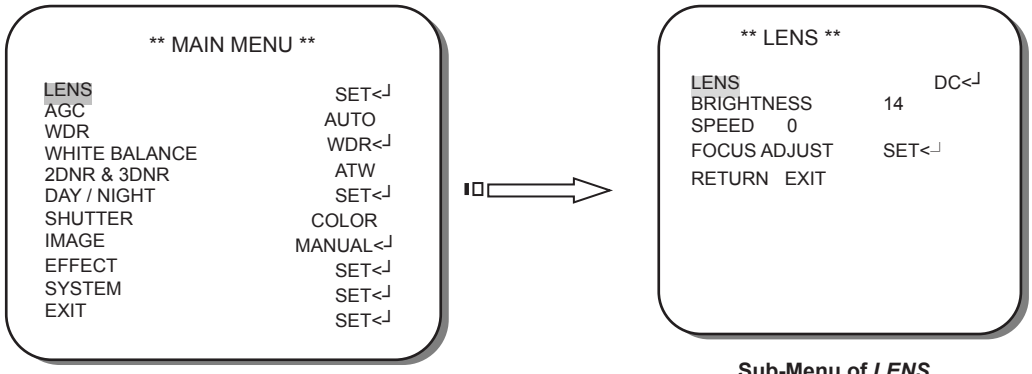
5. Exit the OSD menu

Select **EXIT** with the button or and press the **ENTER** button to exit the OSD menu.

4. Configuration

4.1 LENS

When the MAIN MENU is displayed on the screen, use the UP and DOWN buttons to the *LENS* and press the ENTER button to do further setups.



Main Menu **Sub-Menu of *LENS***

***LENS**

- When the DC LENS is in use, push IRIS SWITCH on the control board to DC, and the LENS status on the menu will be displayed as DC.
- When the VIDEO LENS is in use, push IRIS SWITCH on the control board to VIDEO, and the LENS status on the menu will be displayed as VIDEO.

***BRIGHTNESS**

When the LENS MENU is displayed on the screen, use the UP and DOWN buttons to the *BRIGHTNESS* and use LEFT and RIGHT buttons to adjust the screen brightness from *0* to *63*.

***SPEED**

The range of the SPEED can be set from -31 to 32. The speed of DC Lens is in direct ratio to the number you set.

> **NOTE**:
>
> The *SPEED* function will not work when the LENS set to *VIDEO*.

***FOCUS ADJUST**

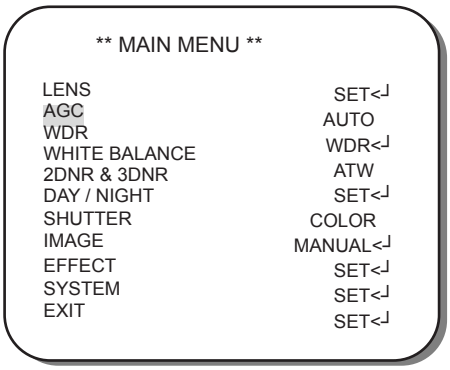
Select *FOCUS ADJUST* and click ENTER to enter the sub-menu. Click the LEFT or RIGHT button to adjust the focus manually to get clear image. The LIVE value will become higher and the MAX value will renew at mean time. When the MAX value stops renewing, the focal length brings the clearest image.

When the image becomes vague again, adjust the focus to meet the MAX value.

When switching the monitoring target, the MAX value needs to be reset. Click the LEFT or RIGHT button to reset the MAX value.

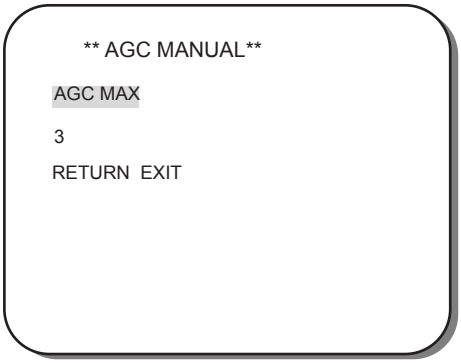
4.2 AGC

When the MAIN MENU is displayed on the screen, use the UP and DOWN buttons to the *AGC* and press the ENTER button to do further setups.



There're 3 options under *AGC*: *AUTO, OFF* and *MANUAL*.

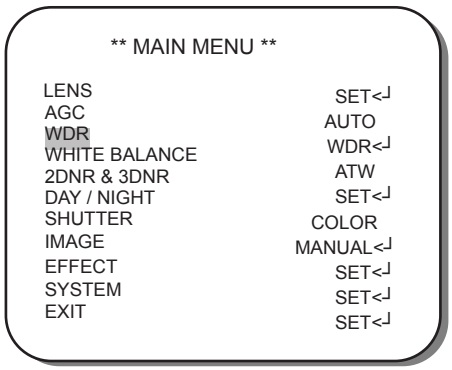
***AGC MAX**



1. Select the *AGC* and press LEFT and RIGHT buttons to adjust the *AUTO GAIN CONTROL* settings. Options are *AUTO*, *OFF*, and *MANUAL.*
2. There's a submenu under the mode *MANUAL*, press ENTER button to do further setups. The *AGC MANUAL* range under the *MANUAL* mode can be set from *0* to *15*.
3. The higher the number, the brighter the screen can be. And the noise will also be higher.

4.3 WDR

1. When the MAIN MENU is displayed on the screen, use the UP and DOWN buttons to *WDR* and press the ENTER button to do further setups.



There're 3 modes under *WDR* function: *WDR*, *BLC*, and *OFF*.

2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.

***WDR* (Wide Dynamic Range)**

When there are both bright and dark areas at the same time, selecting this mode makes both areas distinctive.

***LEVEL**

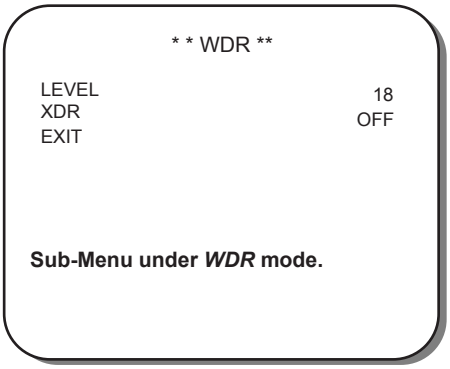
Use the LEVEL function to decrease the brightness of the bright area.

Level: 1~32

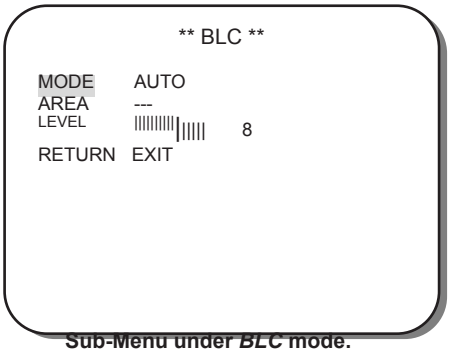
***XDR**

Use the LEVEL function to increase the brightness of the dark area.

Level: OFF~15



**BLC* (Back Light Compensation)



Sub-Menu under *BLC* mode.

There're 2 modes under *BLC* function: *AUTO* and *MANUAL.*

Even when there is a massive backlight behind the object, bright images of the background and the object can still be captured by selecting the *BLC* mode.

- *AUTO*: Set to adjust the BLC value automatically. The default LEVEL is 8.
  LEVEL: 1 to 14
- *MANUAL*: Set to adjust the BLC value manually. The default AREA is *BOTTOM 2/3*, and the default LEVEL is *MID*. Stay with the default value, the bottom 2/3 area will be the brighter area, with the middle level of brightness.
  AREA: *BOTTOM 2/3*, *LEFT 2/3*, *RIGHT 2/3*, *BOTTOM 1/3*, and *TOP 2/3.*
  LEVEL: *HIGH*, *MID*, and *LOW.*

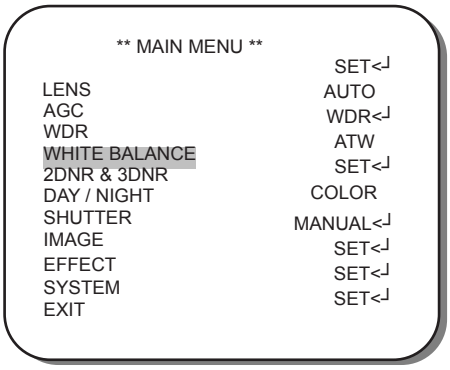
**OFF*

When set as *OFF*, there'll be no wide dynamic range.

4.4 WHITE BALANCE Control

The screen color can be adjusted by using the WHITE BALANCE function.

1. Please use the UP and DOWN buttons to *WHITE BALANCE* on the MAIN MENU and press the ENTER button to do further setups.
2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.



There're 7 modes under this function: *ATW, AWB, AWC (Push Lock), MANUAL, OUTDOOR, INDOOR* and *.ANTI CR*.

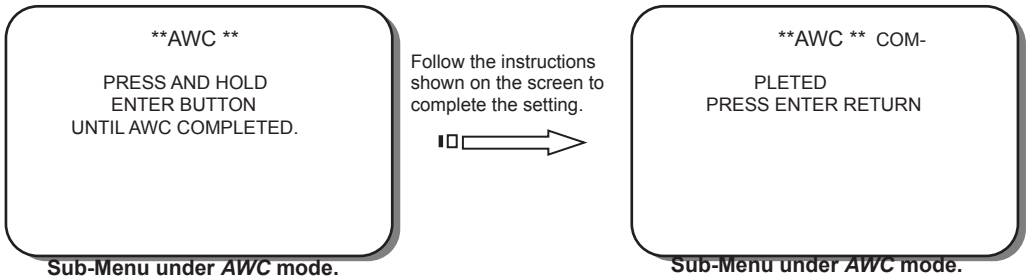
******ATW* **(Auto Tracking White Balance)**

This mode can be used within the color temperature range from 1800ûK to 10500ûK (e.g., around fluorescent lights, outdoors, around sodium vapor lamps or inside tunnels).

******AWB* **(Auto White Balance)**

Select this to allow the camera automatically adjust the white balance under all conditions.

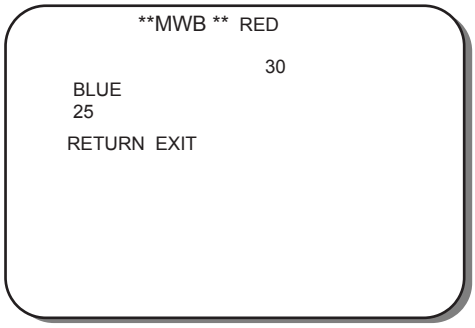
*** *AWC* (Push Lock)**



Sub-Menu under *AWC* mode. **Sub-Menu under *AWC* mode.**

To find the optimal setting for the current luminance environment in this mode, point the camera towards a sheet of white paper and press the ENTER button. Whenever the condition changes, readjust it.

*MWB (Manual White Balance)



RED color value ranges from *0* to *255*.
BLUE color value ranges from *0* to *255*.

Sub-Menu under *MWB* mode.

The manual adjustment mode enables a more precise adjustment. Increase and/or decrease the red and blue color values according to the color changes of the object to set the suitable color temperature.

RED color vale ranges from *0* to *255*.

BLUE color value ranges from *0* to *255*.

**OUTDOOR*

Select this when the color temperature is around 6300ûK.

**INDOOR*

Select this when the color temperature is around 3200ûK (when surrounded by sodium lights).

**ANTI CR* (Color rolling suppression)

Select to set the white balance mode to the ***ANTI CR*** mode.

NOTE:

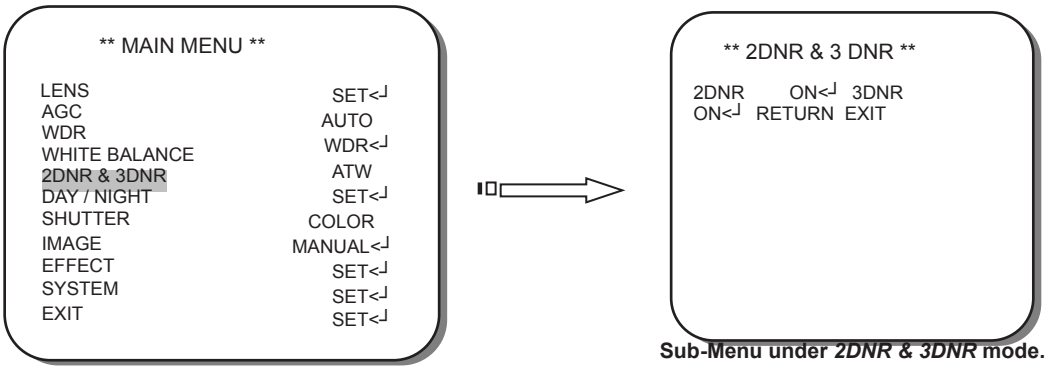
The ***White Balance*** can not fully function under the following conditions. When the following occurred, please select ***AWC*** Mode.

〈 When there's a higher temperature surrounded the object.

〈 When there's darkness surrounded the object.

〈 When there's a fluorescent light surrounded the object or where the light changes all the time.

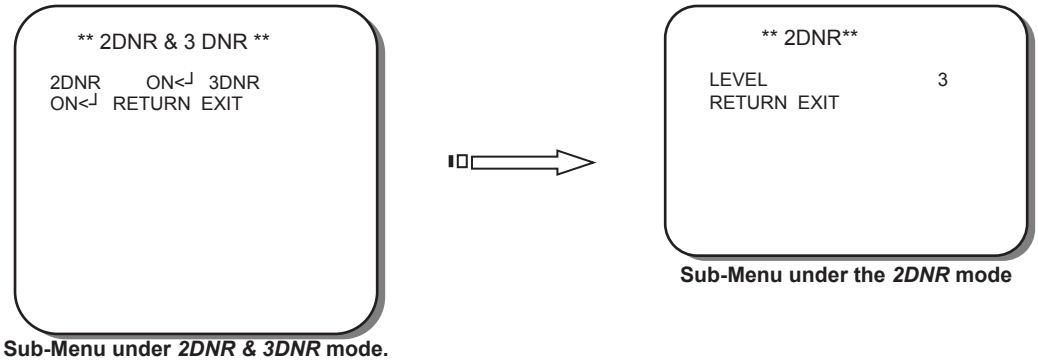
4.5 2D &3D NR (Dynamic Noise Reduction)



Sub-Menu under *2DNR & 3DNR* mode.

1. When the noise level is reduced, the camera performance can apparently be improved. When recording digitally, the image file size can be lessened by selecting the noise reduction. As the level of gain changes, the background noise in the low light level decreases automatically.
2. Please use the UP and DOWN buttons to 2*DNR & 3DNR* on the MAIN MENU and press the ENTER button to do further setups.
3. Please select the mode you would like to set by pressing the UP and DOWN buttons.

***2DNR**



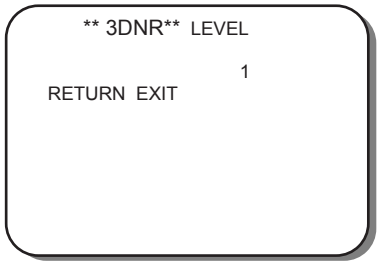
Sub-Menu under the *2DNR* mode

Sub-Menu under *2DNR & 3DNR* mode.

•*ON*: When the *2DNR* is set to *ON*, there's a submenu available for level adjustment, ranged from 1 to 4. The higher the level, the more noise can be reduced but sharpness will decrease.

•*OFF:* When the *2DNR* is set to *OFF*. Noise will not be reduced.

3DNR



Sub-Menu under the *3DNR* mode

•*ON*: When the *3DNR* is set to *ON*, there's a submenu available for level adjustment, ranged from *0* to *15*. The higher the level, the more noise can be reduced but moving objects be blurred in low illumination condition.

•*OFF:* When the *3DNR* is set to *OFF*. Noise will not be reduced.

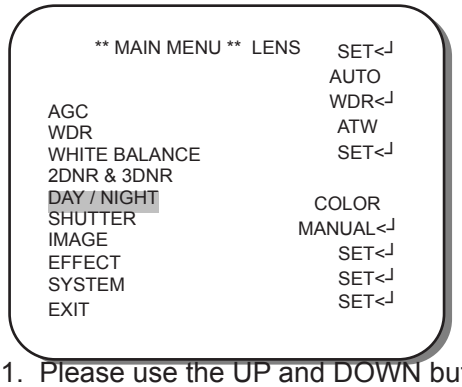
4.6 DAY/NIGHT

The camera can be set in *Color* or *B/W* mode in the *Day/Night* function.

NOTE:

1. ***DAY/NIGHT*** function is not available for **IR** cameras, unless the IR LEDs cease to function.

2. ***EXT*** function is **not** available for **DOME** cameras.



There're 5 modes under this function: *COLOR, B&W, AUTO, EXTERNAL, SCHEDULE*.

1. Please use the UP and DOWN buttons to *DAY/NIGHT* on the MAIN MENU and press the ENTER button to enter.
2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.

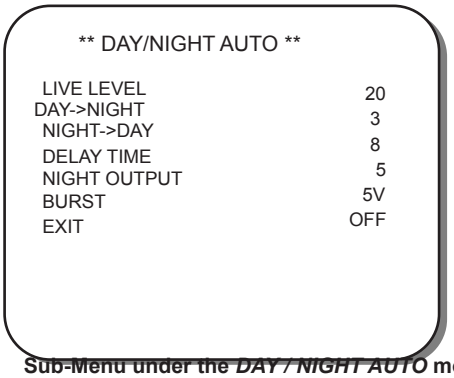
****COLOR***

The COLOR / DAY mode.

****B&W***

The BLACK & WHITE / NIGHT mode.

****AUTO***



Sub-Menu under the *DAY / NIGHT AUTO* mode

The camera will switch to *DAY/Color* mode or *NIGHT/B&W* mode according to the set value.

•*LIVE LEVEL*: This indicates the current light level.

•*DAY→NIGHT*: When the camera detects the current light level is lower than the set value, it'll switch from *DAY* mode to *NIGHT* mode. Settings can be set from 6 to 32.

•*NIGHT→DAY*: When the camera detects the current light level is higher than the set value, it'll switch from *NIGHT* mode to *DAY* mode. Settings can be set from 1 to 27.

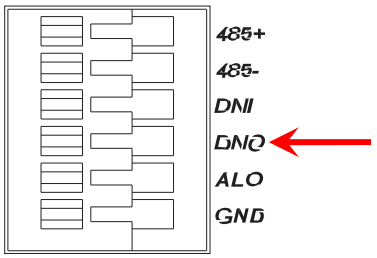
NOTE:

1. The setting differences between DAY →NIGHT and NIGHT→DAY should be more than 5, or the camera will keep switching from DAY →NIGHT and NIGHT→DAY constantly.
2. The infrared illuminator is not recommended to use under *AUTO* mode. Please switch to *EXTERNAL* mode when an infrared illuminator is installed.

•*DELAY TIME:* Sometimes there's only a sudden and short light level change. Delay time can be set to avoid switching too fast. The camera will switch the mode after the set DELAY TIME passed. DELAY TIME can be set from 0 to 255 seconds.

•*NIGHT OUTPUT*

OUTPUT / DNO / SYSTEM	**GND**	**5V**
COLOR	5V	GND
B&W	GND	5V



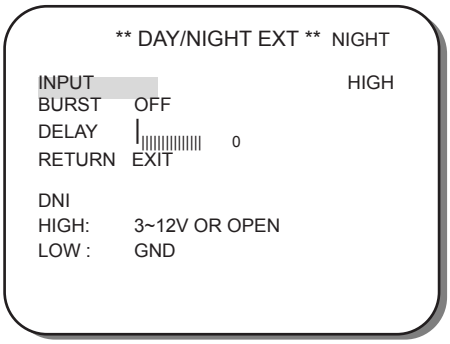
When the camera switches modes, the external components will be alerted, via DNO pin of the communication connector.

•*BURST :* Turn the *BURST* function off to reduce the color noise under B&W mode. However, not every DVR machines can receive video signals without the color burst signals. If the camera cannot switch back to COLOR mode from B&W mode, please turn the BURST function on.

NOTE:

The *BURST* function is adjustable under *B&W*, *EXTERNAL* and *SCHEDULE* mode.

*EXTERNAL



Sub-Menu under the *DAY / NIGHT EXTERNAL* mode

EXTERNAL mode allows the user to switch the DAY/NIGHT mode with external signals. For example, you can synchronize the DAY/NIGHT mode between the camera and the infrared LED illuminator.

For the camera with the light sensor, it is suggested to set the DAY/NIGHT mode to EXTERNAL to ensure the best result.

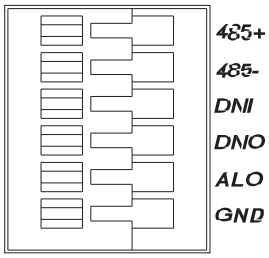
NIGHT INPUT: Select input level.

LOW : It will be the COLOR mode if the input signal is HIGH. On the contrary, it will be the B&W mode.

HIGH : It will be the B&W mode if the input signal is HIGH. On the contrary, it will be COLOR mode.

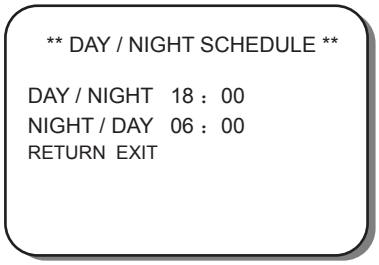
HIGH ：3~12V or OPEN
LOW ：GND

INPUT / SYSTEM / DNI	**LOW**	**HIGH**
HIGH	COLOR	B&W
LOW	B&W	COLOR



When the external infrared illuminator is in use, the camera can switch to COLOR or B/W mode, via DNI pin of the communication connector.

******SCHEDULE*



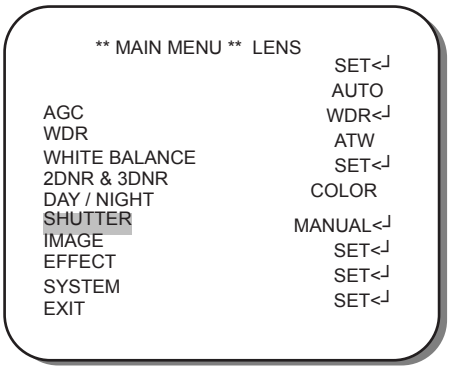
Sub-Menu under the *DAY / NIGHT SCHEDULE* mode

When the *SCHEDULE* function is selected, the camera will automatically switch between COLOR and B&W modes according to the preset time.

•*DAY/NIGHT*: set the timing to switch from *DAY/COLOR* to *NIGHT/B&W.*

•*NIGHT/DAY*: set the timing to switch from *NIGHT/B&W* to *DAY/COLOR.*

4.7 SHUTTER



There're 3 modes repetitively for 2 situations under this function:

MANUAL, AUTO, DAY/NIGHT

(when the *DAY / NIGHT* function has set to *AUTO, EXTERNAL,* or *SCHEDULE* mode),

or

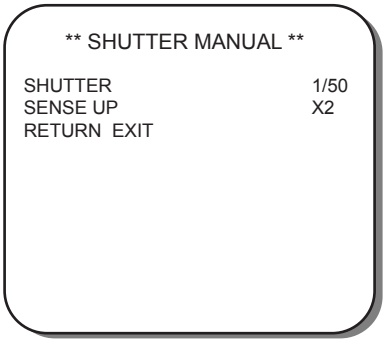
MANUAL, AUTO, SCHEDULED SHUTTER

(when the *DAY / NIGHT* function has set to *COLOR* or *B&W* mode.)

When the DAY / NIGHT function has set to AUTO, EXTERNAL, or SCHEDULE mode: *MANUAL, AUTO,* and *DAY/NIGHT* modes are available under the *SHUTTER* function.

1. Please use the UP and DOWN buttons to *SHUTTER* on the MAIN MENU and press the ENTER button to enter.
2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.
3. *SENSE-UP* is used to maintain a brilliant, vivid screen image by automatically detecting changes in the level of light under low light level conditions. Select the desired item and press LEFT and RIGHT buttons to adjust the settings. The options are *x2, x4, x8, x16, x32, x64, x128, x256, x512*, and *OFF*.

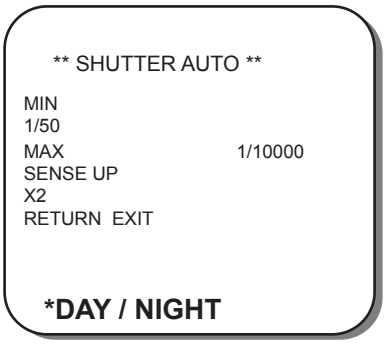
***MANUAL**



There're 16 speed types under the *SHUTTER MANUAL* mode: 1/50(60), 1/120(100), 1/200, 1/250, 1/350, 1/500, 1/750, 1/1000, 1/1500, 1/2000, 1/3000,

1/4000, 1/10000, 1/30000, 1/60000, 1/100000 SENSE UP only works when the Shutter is at PAL: 1/50 (NT:1/60).

***AUTO**



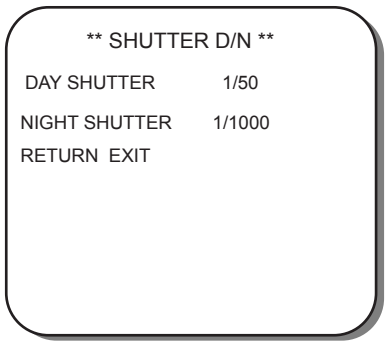
The *MINIMUM* and the *MAXIMUM* of the SHUTTER SPEED can be set under *AUTO* mode. The *MINIMUM* can be set from 1/50(60) to 1/60000 and the *MAXIMUM* can be set from 1/120 (100) to 1/100000.
SENSE UP only works when the Shutter is at PAL: 1/50 (NT:1/60).

***DAY / NIGHT**

NOTE:
The *MINIMUM* value is available for **Car License Plate** cameras only.

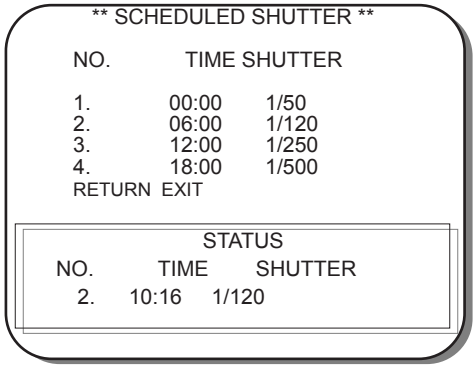
DAY/NIGHT

When the DAY / NIGHT function is set to AUTO, EXTERNAL, or SCHEDULE mode, you can set DAY SHUTTER and NIGHT SHUTER individually.



The *DAY SHUTTER and the NIGHT SHUTTER* can be set in 16 steps..

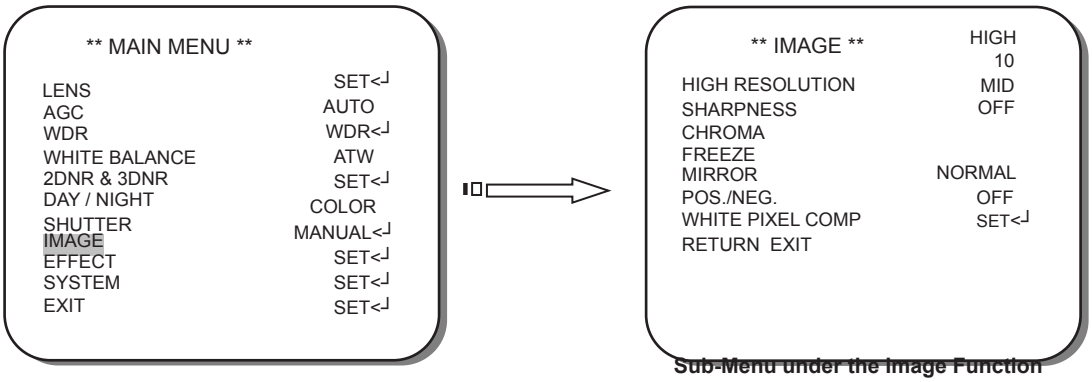
SCHEDULED SHUTTER



There're 16 speed types to choose from. Shutter can be changed according to the set schedule; up to 4 different schedules can be set.

The current status shows the actual time and the working shutter speed.

4.8 IMAGE



Sub-Menu under the Image Function

1. Please use the UP and DOWN buttons to *IMAGE* on the SETUP MENU and press ENTER button to enter.
2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.

HIGH RESOLUTION Options are *HIGH, MID, LOW, and OFF.*

SHARPNESS

Level 0~15. The contour of the video image becomes cleaner and more distinguished as the level of SHARPNESS increases. If the level goes up extremely, it may affect the video image and cause noise.

CHROMA

Options are *HIGH, MID, LOW*.

FREEZE

ON/OFF. When set as *ON*, the screen holds still for a clear view.

MIRROR

NORMAL, VERTICAL (vertical rotated), *MIRROR* (horizontal rotated), and *ROTATE* (vertical and horizontal rotated).

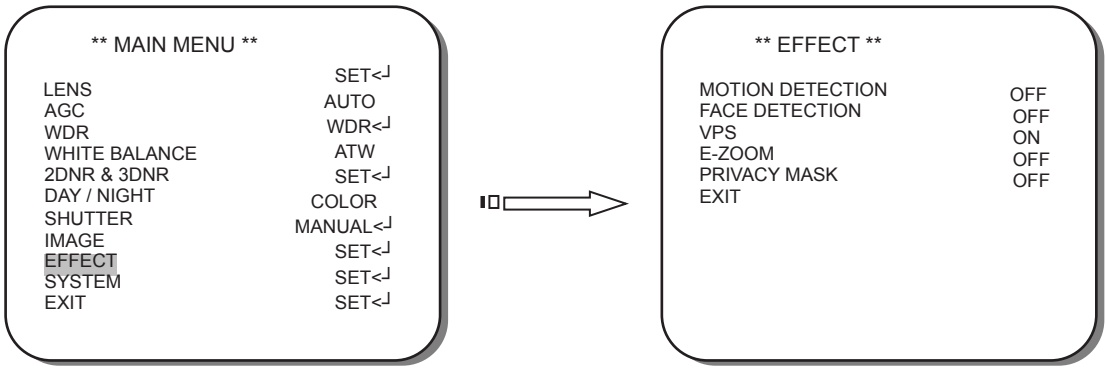
POS. / NEG.

ON/OFF. Negative/Positive Reversal. Select *ON* or *OFF* to enable or disable this function.

WHITE PIXEL COMP

Level: 2~13. Select to enter the sub-menu for further settings. Click START to search for the white pixels of CCD, and set MARKER to *ON* to display the pixels on the screen. Decrease the THRESHOLD value to find more white pixels, or increase the value to reduce the number of white pixels.

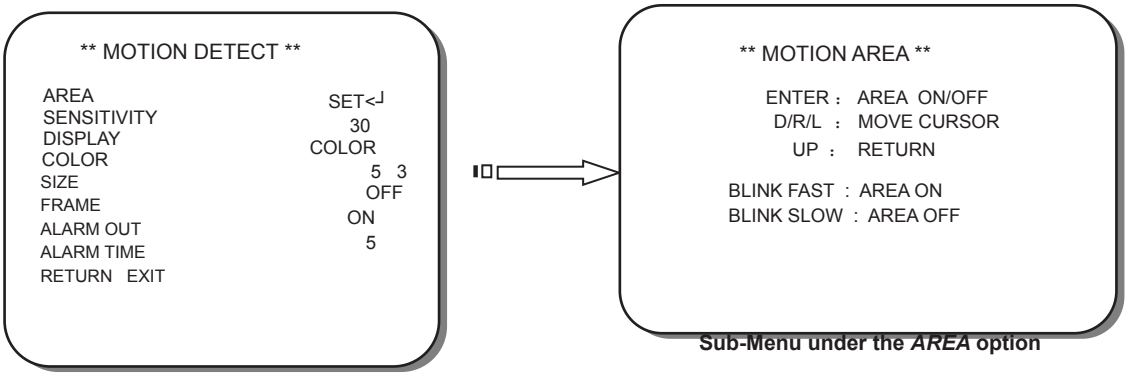
4.9 EFFECT



1. Please use the UP and DOWN buttons to *EFFECT* on the MAIN MENU and press ENTER button to enter.
2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.

**** MOTION DETECTION***

Options are ON/OFF. When *MOTION DETECTION* is set as *ON*, there're several submenus under this function:



Sub-Menu under the *AREA* option

•*AREA:* There're sub-menus under this option. Press the ENTER button to do the further settings.

1) Press SET to display the on-guard areas or press ENTER again to hide the on-guard areas.
2) Press DOWN, RIGHT, LEFT buttons to do the selection.
3) Press UP button to return to the previous page.
4) When the on-guard block blinks fast, this indicates the on-guard AREA will be shown on the screen; while it blinks slowly, the protected AREA will be hided from the screen.

•*SENSITIVITY:* Sensitivity can be set from *1* to *32*. The higher the number, the more sensible the camera can be.

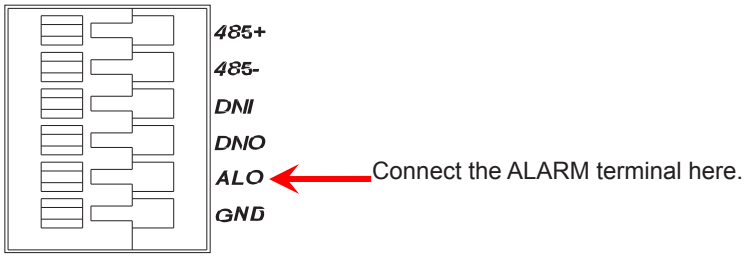
•*DISPLAY:* Options are in *COLOR*, in *INVERSE* or *OFF*.

•*COLOR:* 16 colors to choose from, *RED PURPLE, PINK, RED, DARK YELLOW, LIGHT YELLOW, LIGHT GREEN, GRASS GREEN, DARK GREEN, WATER BLUE, BABY BLUE, BLUE, PURPLE, WHITE, LIGHT GRAY, DARK GRAY,* and *BLACK.*

•*SIZE:* Size of the block can be adjusted from *1* to *15*; the higher the number, the bigger the block can be.

•*FRAME:* Choose *ON* to display block only in frame, or *OFF* to display a whole block.

•*ALARM OUT:* Choose *ON* to output the alarm; connect the alarm device to the ALO of the communication port on the rear panel so that the alarm can be output. Be sure to turn off all the power before connecting.



•*ALARM TIME:* Alarm time can be set from *1* to *60* seconds.

* FACE DETECTION

ON/OFF. Click *ON* to enter the submenu to further adjust the settings.

•*SENSITIVITY:* 0~31 (The default value is 23.)

•*ALARM OUT: ON/OFF*, when set as ON, the camera will transmit the voltage of 5V to alarm the control center.

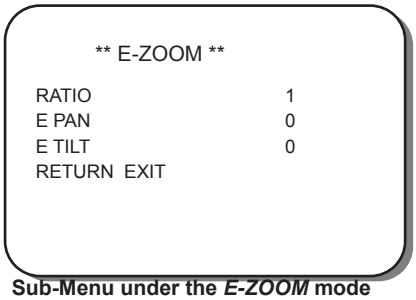
•*ALARM TIME:* 1~60(sec.). The default value is 5 seconds.

NOTE:
The *ALARM OUT* function is not available for **DOME** cameras.

* VPS

Virtual Progressive Scan *ON/OFF.*

* E-ZOOM



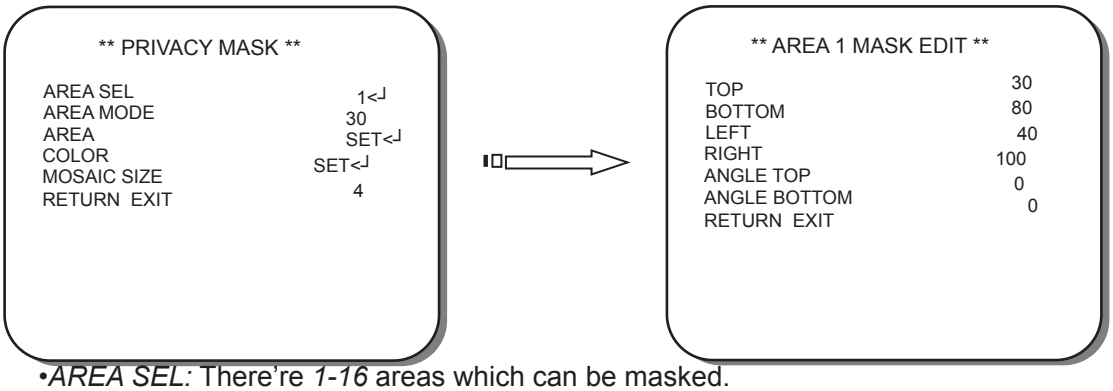
Sub-Menu under the *E-ZOOM* mode

When *VPS* set as *ON*, this *E-ZOOM* mode is available, press Enter button to do further setups.

Options are *RATIO 1x~256x* (zoom in 1 to 256 times), *E PAN -15~16* (horizontal zoomed-in viewing), and *E TILT -15~16* (vertical zoom-in viewing).

**** PRIVACY MASK***

ON/OFF, when *PRIVACY MASK* is set as *ON*, there're several submenus under this mode:

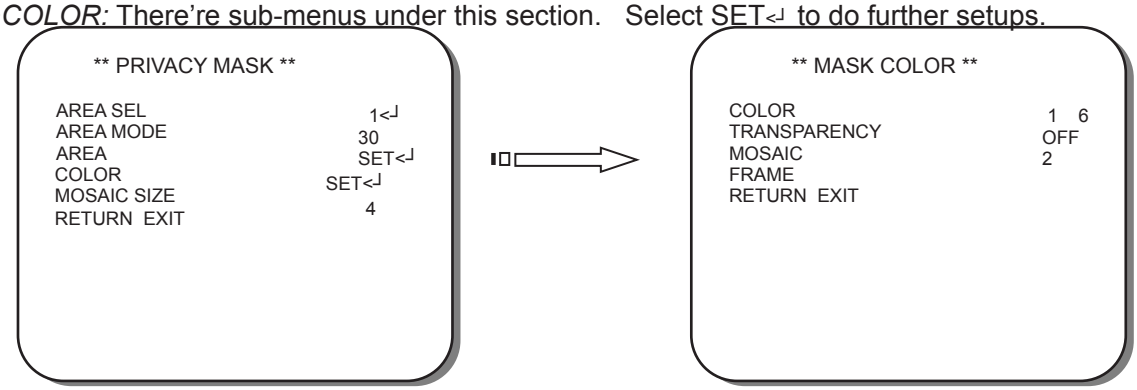


•*AREA SEL:* There're *1-16* areas which can be masked.

•*AREA MODE:* Choose *ON* to show the protected area on the screen, *OFF* to hide the protected area on the screen.

•*AREA:* There're sub-menus under this mode. Press ENTER button to do further setups. Set the area size and shape here. The bigger the number, the bigger the block size can be. Polygon shapes can also be created by adjusting ANGLE TOP and ANGLE BOTTOM.

•*COLOR:* There're sub-menus under this section. Select SET↵ to do further setups.

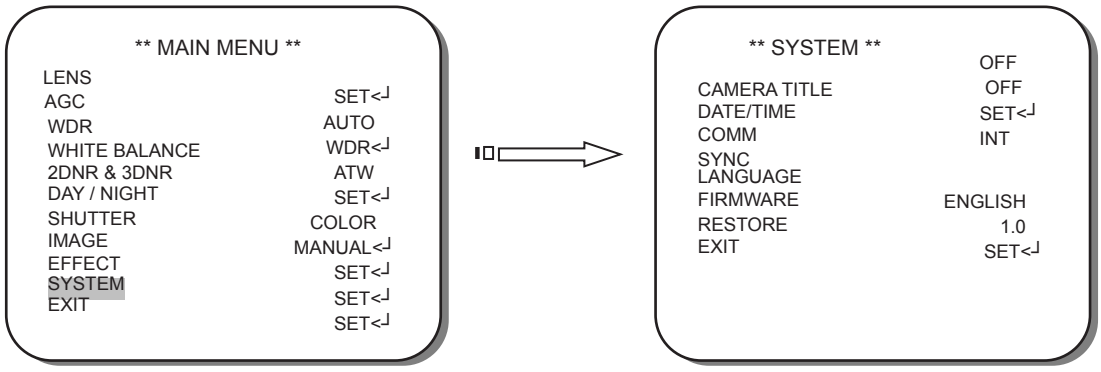


1) *COLOR*: There're 16 colors available. *RED PURPLE, PINK, RED, DARK YELLOW, LIGHT YELLOW, LIGHT GREEN, GRASS GREEN, DARK GREEN, WATER BLUE, BABY BLUE, BLUE, PURPLE, WHITE, LIGHT GRAY, DARK GRAY,* and *BLACK.*
2) *TRANSPARENCY:* the block can also be transparent. The bigger the number, the more transparent the block can be.
3) *MOSAIC: ON/OFF.* To display the block in mosaic or not.
4) *FRAME:* Frame thickness can be set. The bigger the number, the thicker the frame of the block can be.

•*MOSAIC SIZE:* The mosaic density can be set; the bigger the number the vaguer the block can be. Use LEFT and RIGHT buttons to adjust.

4.10 SYSTEM

1. Please use the UP and DOWN buttons to *SYSTEM* on the MAIN MENU.



2. Please select the desired item and press LEFT and RIGHT buttons to adjust the settings.

NOTE:
The version of FIRMWARE shown on the above is for reference only. The actual version varies by the production.

**** CAMERA TITLE***

Numbers, letters and symbols can be used for naming the camera title.

*Use direction buttons to select the desired character.

*Press SET button to confirm each selection.

*Use the direction buttons to OK to confirm the setting.

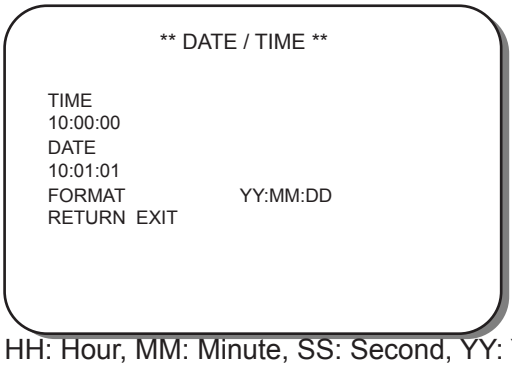
*Use the direction buttons to CANCEL to abort the setting.

*Select POSI to change the position of the shown camera title.

*Select SPACE when a blank / a space is needed.

*Select BACKSPACE to clear the precedent character.

**** DATE / TIME***



HH: Hour, MM: Minute, SS: Second, YY: Year, MM: Month, DD: Date.

Select ON/OFF to show/hide the Date/Time on the screen.

**** COMM***

Select SET↵ to enter sub-menu for further settings.

1. The CAM ID, PROTOCOL and BAUD RATE will be displayed for the first five seconds on boot.

2. Changes made to the CAM ID, PROTOCOL and BAUD RATE will only take effect after you exit the COMM page. This is to prevent the camera from unexpected disconnecting caused by remote access.

•*CAM ID:* 1~1024

•*DISP CAMERA ID:* ON/OFF (*Select ON/OFF to show/hide the CAM ID on the screen.)

•*PROTOCOL:* PELCO-D, PELCO-P

•*BAUD RATE:* 2400/4800/9600/19200/38400

NOTE:
The *COMM* function is available for models with RS485 only.

**** SYNC***

•*INT:* Internal synchronization

•*LL:* External line-lock synchronization: when LL is selected, press the ENTER button to confirm. The phase can be set from *0* to *359*.

**** LANGUAGE***

Use the LEFT & RIGHT buttons to select the language preference.

There are 2 *LANGUAGE* sets, varied by regions.

1. •*ENGLISH* •简体中文 •繁體中文

2. •日本語 •*ENGLISH*

**** FIRMWARE***

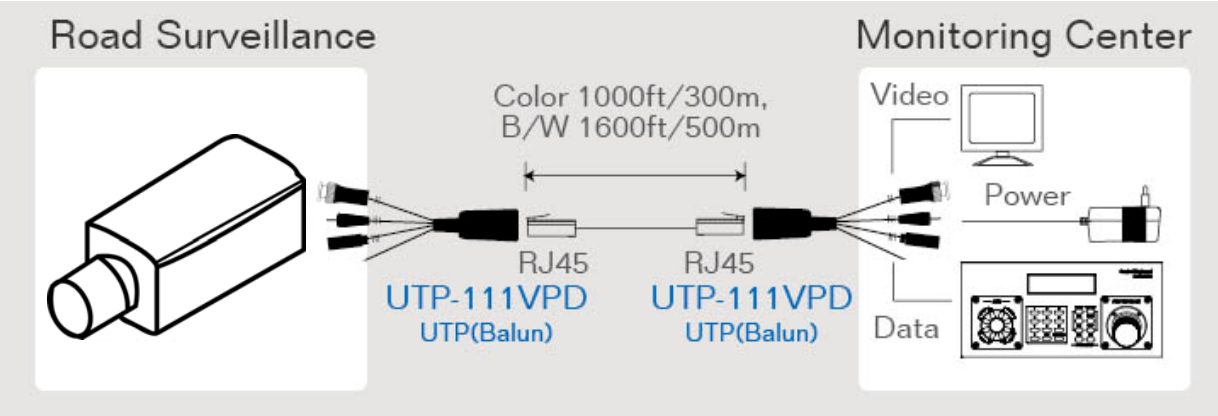
Please refer to the actual firmware.

**** RESTORE***

Please choose *CANCEL* to exit; once the *CONTINUE* is chosen, all the settings will be restored to the defaults except for the following: *CAM ID*, *PROTOCOL*, *BAUD RATE* and *LANGUAGE*.

4.11. Balun Function (UTP)

A Balun's function is available for **BOX** cameras only. It would normally require 3 terminals (Video + Power + RS485) to succeed a connection. However, via Balun, 1 is sufficient. The cameras OSD can be used and controlled remotely via RS485 communication port. The most important thing is transmission can still stay clear and true.



4.12. EXIT

Select EXIT to leave the MENU.