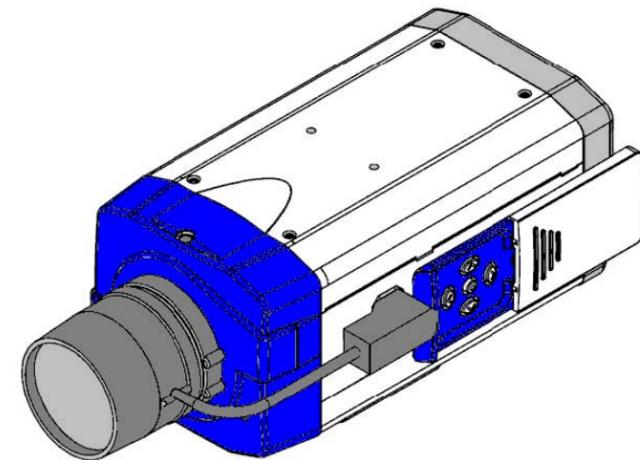




**HDC840**  
**1080p HDTV Camera**



Thank you 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 generated from the 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, paying 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 -10°C~50°C 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

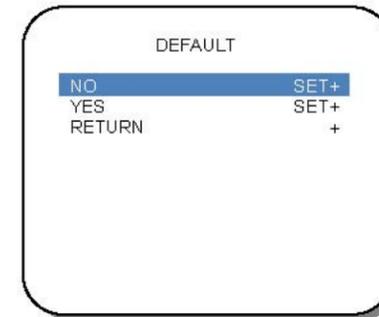
THE SAFETY AND OPERATING INSTRUCTIONS SHOULD BE RETAINED FOR FUTURE REFERENCE.

#### 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.

## 2.9 Default

In the "DEFAULT" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is to restore OSD settings to factory default values.



DEFAULT	Default Value	Other Selectable Items
NO	SET+	
YES	SET+	
RETURN	+	

#### ■ NO:

Not to restore all OSD settings to their factory default values.

#### ■ YES:

To restore all OSD settings to their factory default values.

#### ■ RETURN:

Return to upper level of OSD menu.

## 2.8 Digital Out

In the "DIGITAL OUT" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is to decide what the digital video output format is.



DIGITAL OUT	Default Value	Other Selectable Items
FROM	1280x720p 60fps	1920x1080p 60fps; 1920x1080p 30fps; 1280x720p 30fps
CHANGE TO	1280x720p 60fps	1920x1080p 60fps; 1920x1080p 30fps; 1280x720p 30fps
APPLY	-	NO; YES+
RETURN	+	

### ■ FROM:

To change the digital video output format from the value now.

### ■ TO:

To change the digital video output format to the new value.

### ■ APPLY:

To apply the change of digital output. You can choose "NO" or "YES+" in this selection.

### ■ RETURN:

Return to upper level of OSD menu.

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# 1. CAMERA

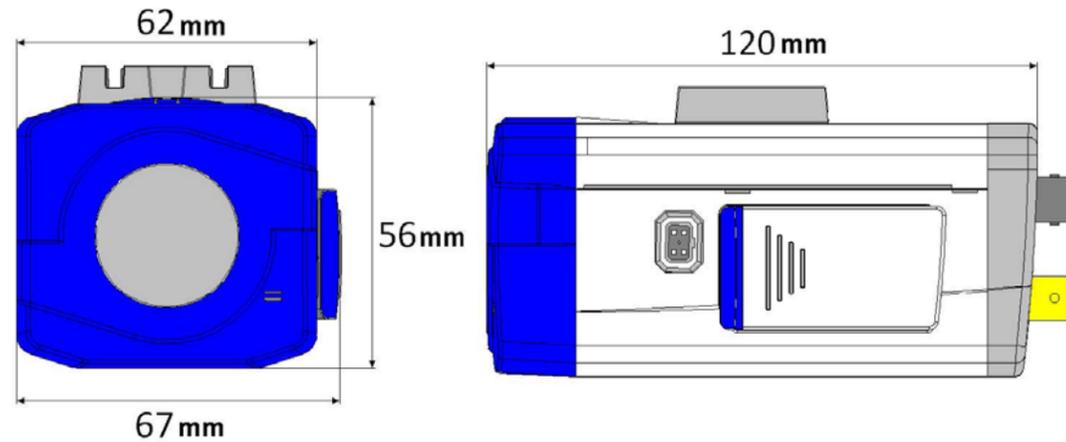
## 1.1 Feature

- 3.0 Megapixel High Definition Color Camera
- 1/2.8" Sony™ 3.0 Megapixel Exmor™ Progressive CMOS Sensor
- Full HD: 1920x1080p @60fps
- Super Low Lux, Color:0.1Lux@F1.2, B/W:0.01Lux@F1.2
- Simultaneous Video Output : HDMI, HD-SDI BNC, SD Composite BNC
- OSD Control Panel
- OSD Control by RS-485 Remote Control or by Coaxial Control
- 2D Noise Reduction & Sense Up Functions
- Shutter Mode (AUTO/MANUAL)
- Mechanical IR Cut (ICR) Filter & Built in Microphone
- RS-485x1, Dix1, DOx1 / Two-way Audio / PoC(Power over Cable)

## 1.2 List of Contents

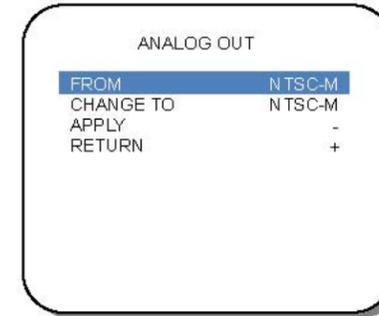
- User manual

## 1.3 Dimensions



## 2.7 Analog Out

In the "ANALOG OUT" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is to decide what the analog video output format is.



ANALOG OUT	Default Value	Other Selectable Items
FROM	NTSC-M	NTSC-J; NTSC443; PAL-B; PAL-D; PAL-G; PAL-H; PAL-I; PAL-M; PAL-N; PALNC
CHANGE TO	NTSC-M	NTSC-J; NTSC443; PAL-B; PAL-D; PAL-G; PAL-H; PAL-I; PAL-M; PAL-N; PALNC
APPLY	-	
RETURN	+	

### ■ FROM:

To change the analog video output format from the value now.

### ■ TO:

To change the analog video output format to the new value.

### ■ APPLY:

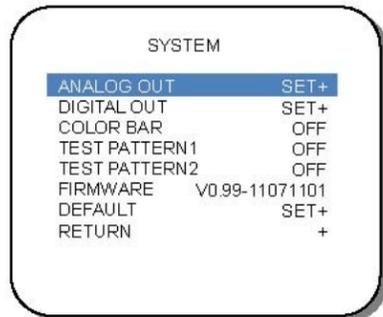
To apply the change of analog output.

### ■ RETURN:

Return to upper level of OSD menu.

## 2.6 System

In the "SYSTEM" of camera OSD, there are several sub-menus and items that can be selected to modify the settings. The main function of this page is about the video format information and OSD firmware version.



SYSTEM	Default Value	Other Selectable Items
ANALOG OUT	SET+	
DIGITAL OUT	SET+	
COLOR BAR	OFF	ON
TEST PATTERN1	OFF	MODE0; MODE1; MODE2; MODE3; MODE4; MODE5; MODE6
TEST PATTERN2	OFF	MODE0; MODE1; MODE2; MODE3; MODE4; MODE5; MODE6; MODE7; MODE8
FIRMWARE	V0.99-11071101	
DEFAULT	SET+	
RETURN	+	

### ■ ANALOG OUT:

This is a sub-menu for analog output setting. Please check the details in its section.

### ■ DIGITAL OUT:

This is a sub-menu for digital output setting. Please check the details in its section.

### ■ COLOR BAR:

For SDI video signal output testing, enable it will generate the color bar video signal on screen.

### ■ TEST PATTERN1:

For SDI video signal output testing, please select the test pattern mode you like.

### ■ TEST PATTERN2:

For SDI video signal output testing, please select the test pattern mode you like.

### ■ FIRMWARE:

The firmware version number of this SDI camera.

### ■ DEFAULT:

This is a sub-menu for factory default value restoring. Please check the details in its section.

### ■ RETURN:

Return to upper level of OSD menu.

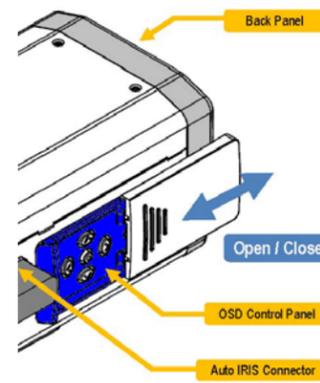
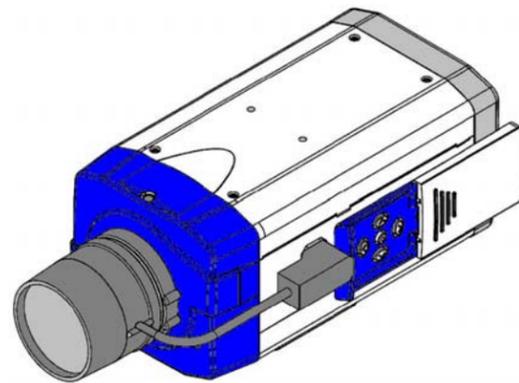
## 1.4 Specification

<b>VIDEO &amp; AUDIO</b>	Video System	NTSC / PAL Selectable (For SD Composite Video Output)
	Image Sensor	1 / 2.8" Sony™ 3.0Megapixel Progressive Exmor™ CMOS Sensor
	Resolution	1920(H)x1080(V) (1080p)
	Frame Rates	1920x1080p @60fps (3G-SDI)
	SDI Standards	3G-SDI (SMPTE 424M); HD-SDI (SMPTE 292M)
	Minimum Illumination	Color:0.1Lux@F1.2, B/W:0.01Lux@F1.2
	Digital Wide Dynamic Range	On / Off
	Digital Video Output	Gold-plated BNC Connector x1 (SDI) / HDMI x 1
	Analog Video Output	BNC Connector x 1 (1.0Vp-p Composite, 75Ω)
	Audio Streaming	Two-way Audio
Mechanical IR Cut Filter (ICR)	Automatically Switches (Switching Lux Level Can Be Adjusted) / External	
<b>FUNCTION &amp; MENU</b>	OSD Menu	OSD Control by RS-485 Remote Control or by Coaxial Control
	Digital Day & Night Mode	Auto / Color / Black& White
	Auto Electronic Shutter	Auto:1/60 to 1/2,000 sec. (60Hz) ; 1/50 to 1/2,000 sec. (50Hz)
	Manual Electronic Shutter	1/30; 1/50; 1/60; 1/100; 1/120; 1/150; 1/180; 1/200; 1/250; 1/300; 1/350; 1/400; 1/450; 1/500; 1/600; 1/750; 1/1000; 1/2000; 1/3000; 1/4000; 1/10000 Sec.
	Automatic Gain Control	Auto / Manual / Off
	Flickerless	Auto / Manual / Off
	White Balance	Auto (1,800°K~10,000°K) / Manual (Color Temperature Level Can Be Adjusted)
	Backlight Compensation (BLC)	On / Off
	Dynamic Noise Reduction	2D DNR
	Sense Up	On / Off
<b>GENERAL</b>	Back Focus	Yes
	I/O Connectors	DC12V Power Jack, BNC (Composite Video Out) x1, BNC(SDI) x1, HDMI x1 RS-485(Pelco™-D/P)x1, Digital Input x1, Digital Output x1, Audio Input(3.5mm) x1, Audio Output(3.5mm) x1, D4 IRIS Jack(Automatic IRIS)
	Lens Mount	CS / C Mount
	Power Supply; Consumption	12V DC / PoC(Power over Cable) ; 5W
	Operation; Storage Temp.	-10°C ~ 50°C ; -20°C ~ 60°C
	Operation; Storage Humidity	Maximum: RH80% ; RH90%
	Dimensions	2.40" x 2.64" x 4.73" (61mm x 67mm x 120mm)
Net Weight	12.35 oz. (350g)	

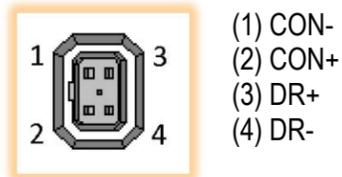
Subject to change without notice.

## 1.5 Camera Itself

### 1. Overview



### 2. Auto IRIS Connector



- (1) CON-
- (2) CON+
- (3) DR+
- (4) DR-

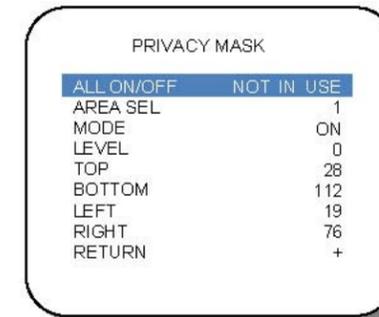
### 3. OSD Control Panel



- (1) ↑: Up
- (2) ↓: Down
- (3) ←: Left
- (4) →: Right
- (5) ■: Enter

## 2.5 Privacy Mask

In the "PRIVACY MASK" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is about the privacy mask size and position.



PRIVACY MASK	Default Value	Other Selectable Items
ALL ON/OFF	NOT IN USE	ALL ON; ALL OFF
AREA SEL	1	(1-6)
MODE	ON	OFF
LEVEL	0	(0-15)
TOP	28	(0-254)
BOTTOM	112	(1-255)
LEFT	19	(0-254)
RIGHT	76	(1-255)
RETURN	+	

#### ■ ALL ON/OFF:

To enable or disable all of the privacy mask. You can choose "ALL ON" or "ALL OFF" in this selection.

#### ■ AREA SEL:

It divides the whole screen into six areas. You can use these to design your desired privacy mask combination.

#### ■ MODE:

To decide which one of these six areas will enabled or not.

#### ■ LEVEL:

The transparency level of privacy mask.

#### ■ TOP/BOTTOM/LEFT/RIGHT:

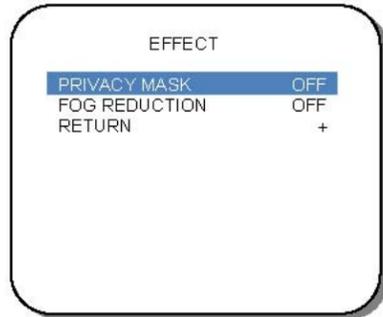
The setting values of privacy mask size and position.

#### ■ RETURN:

Return to upper level of OSD menu.

## 2.4 Effect

In the "EFFECT" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is about the privacy mask and fog reduction effects.



EFFECT	Default Value	Other Selectable Items
PRIVACY MASK	OFF	ON+
FOG REDUCTION	OFF	ON+
RETURN	+	

### ■ PRIVACY MASK:

To enable the "privacy mask" effect or not. Enable this will go its sub-menu for privacy mask setting. Please check the details in its section.

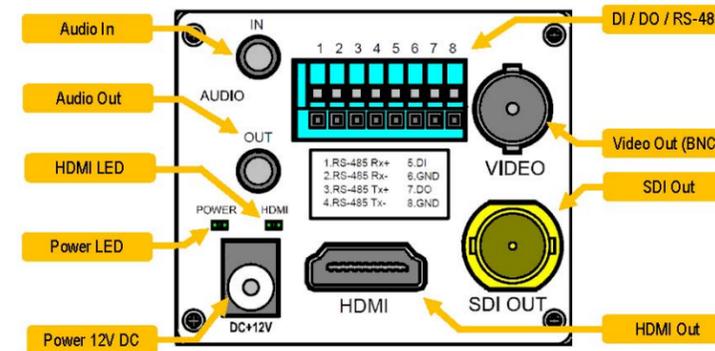
### ■ FOG REDUCTION:

To enable the "fog reduction" effect or not.

### ■ RETURN:

Return to upper level of OSD menu.

## 4. Back Panel



### ■ Power / HDMI LED:

- (1) **Power LED(Green):** **On**—Power Ready **Off**—No Power
- (2) **HDMI LED(Green):** **On**—Successfully Connected **Off**—Connection Not Ready

### ■ DI / DO / RS-485 Port:

- (1) **RS-485 Rx:** Controlled by RS-485 receiving signal (POSTIVE).
- (2) **RS-485 Rx:** Controlled by RS-485 receiving signal (NEGATIVE)
- (3) **RS-485 Tx:** Controlled by RS-485 transmitting signal (POSTIVE)
- (4) **RS-485 Tx:** Controlled by RS-485 transmitting signal (NEGATIVE)
- (5) **DI:** Digital Input
- (6) **GND:** Ground
- (7) **DO:** Digital Output
- (8) **GND:** Ground

### ■ HDMI Out:

ONLY supports HDMI 1.3a version and later. The suggested length is shorter than 30 ft. (10 meters).

### ■ SDI Out: (Gold-plated BNC Connector)

For SDI signal output, it supports PoC (Power over Cable) technology.

### ■ Video Out (BNC Connector):

For analog composite video TV signal output. Please DO NOT plug into PoC (Power over Cable) technology device, otherwise the camera will be damaged.

### ■ Audio In/Out:

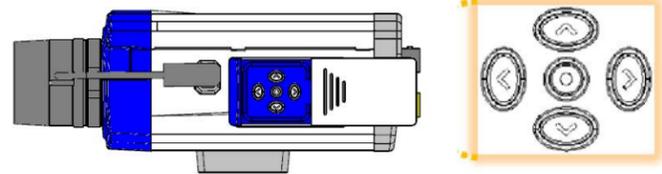
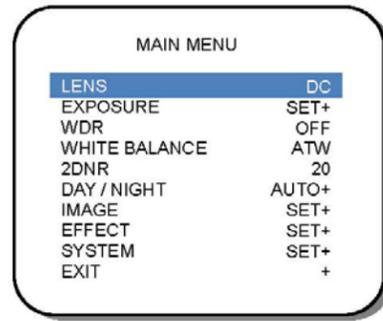
For analog audio input / output, stereo 3.5mm (1/8") mini phone jack. Some models have no such audio interface.

### ■ DC 12V:

DC Jack 2.1mm, DC12V---0.5A or higher.

## 2. Camera OSD

The OSD (On-Screen Display) control menu of the camera operates similar to a traditional analog camera control interface. To operate the camera OSD setting, you might need to open the control panel case and use the control key pad to control it. After you connect all the cables and power adaptor, then push the "Enter" (Enter) button which is in the center of the control panel. You will see the "MAIN MENU" on the TV/Monitor screen as below. Please check the OSD content list tables to find out the functions you need.



### ■ Main Menu

MAIN MENU	Default Value	Other Selectable Items
LENS	DC	MANUAL
EXPOSURE	SET+	
WDR	OFF	BLC+; WDR+
WHITE BALANCE	ATW	AWB; MANUAL+; PUSH LOCK+
2DNR	20	(0-31)
DAY/NIGHT	AUTO+	EXTERNAL+; COLOR; B/W
IMAGE	SET+	
EFFECT	SET+	
SYSTEM	SET+	
EXIT	+	

### ■ Exposure

EXPOSURE	Default Value	Other Selectable Items
MODE	MANUAL	NTSC AUTO; PAL AUTO
FLICKERLESS	OFF	NTSC 60HZ; PAL 50HZ
BRIGHTNESS	25	(0-255)
SHUTTER	1/30	1/50; 1/60; 1/100; 1/120; 1/150; 1/180; 1/200; 1/250; 1/300; 1/350; 1/400; 1/450; 1/500; 1/600; 1/750; 1/1000; 1/2000; 1/3000; 1/4000; 1/10000
SHUTTER MIN	-	
AGC GAIN	80	(8-100)
SENSE UP	-	OFF; 1/15(S); 1/10(S); 1/8(S); 1/5(S); 1/3(S); 1/2(S); 1(S)
RETURN	+	

## 2.3 Image

In the "IMAGE" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is about the image settings.

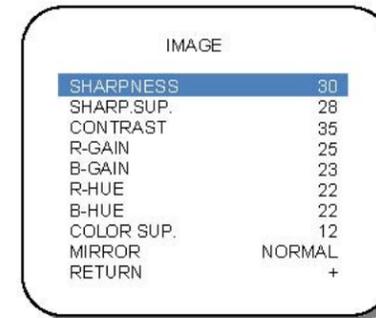


IMAGE	Default Value	Other Selectable Items
SHARPNESS	30	(0-63)
SHARP. SUP.	28	(0-47)
CONTRAST	35	(0-63)
R-GAIN	25	(0-50)
B-GAIN	23	(0-50)
R-HUE	22	(0-50)
B-HUE	22	(0-50)
COLOR SUP.	12	(0-47)
MIRROR	NORMAL	MIRROR; VERTICAL; ROTATE
RETURN	+	

### ■ SHARPNESS:

To modify the value of sharpness.

### ■ SHARP.SUP.:

To modify the value of sharpness suspense.

### ■ CONTRAST:

To modify the value of contrast.

### ■ R-HUE/B-HUE/R-GAIN/B-GAIN:

To modify the value of r-hue/b-hue/r-gain/b-gain.

### ■ COLOR SUP.:

To modify the value of color suspense.

### ■ MIRROR:

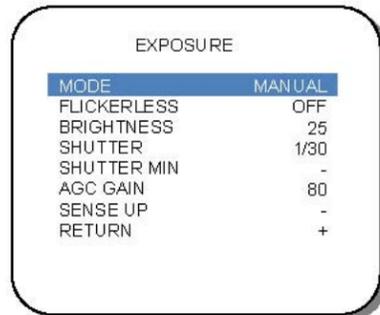
To select the mode of image mirror.

### ■ RETURN:

Return to upper level of OSD menu.

## 2.2 Exposure

In the "EXPOSURE" of camera OSD, there are some items that can be selected to modify the settings. The main function of this page is about the optical settings.



EXPOSURE	Default Value	Other Selectable Items
MODE	MANUAL	NTSC AUTO; PAL AUTO
FLICKERLESS	OFF	NTSC 60HZ; PAL 50HZ
BRIGHTNESS	25	(0-255)
SHUTTER	1/30	1/50; 1/60; 1/100; 1/120; 1/150; 1/180; 1/200; 1/250; 1/300; 1/350; 1/400; 1/450; 1/500; 1/600; 1/750; 1/1000; 1/2000; 1/3000; 1/4000; 1/10000
SHUTTER MIN	-	
AGC GAIN	80	(8-100)
SENSE UP	-	OFF; 1/15(S); 1/10(S); 1/8(S); 1/5(S); 1/3(S); 1/2(S); 1(S)
RETURN	+	

### ■ MODE:

To select the optical setting on manual or on TV system.

### ■ FLICKERLESS:

To select the lighting flicker speed or not.

### ■ BRIGHTNESS:

To modify the value of brightness.

### ■ SHUTTER/SHUTTER MIN:

To modify the value of shutter speed and time.

### ■ AGC GAIN:

To modify the value of AGC (Automatic Gain Control) gain.

### ■ SENSE UP:

To modify the "sense up" speed setting.

### ■ RETURN:

Return to upper level of OSD menu.

### ■ Image

IMAGE	Default Value	Other Selectable Items
SHARPNESS	30	(0-63)
SHARP. SUP.	28	(0-47)
CONTRAST	35	(0-63)
R-GAIN	25	(0-50)
B-GAIN	23	(0-50)
R-HUE	22	(0-50)
B-HUE	22	(0-50)
COLOR SUP.	12	(0-47)
MIRROR	NORMAL	MIRROR; VERTICAL; ROTATE
RETURN	+	

### ■ Effect

EFFECT	Default Value	Other Selectable Items
PRIVACY MASK	OFF	ON+
FOG REDUCTION	OFF	ON+
RETURN	+	

### ■ Privacy Mask

PRIVACY MASK	Default Value	Other Selectable Items
ALL ON/OFF	NOT IN USE	ALL ON; ALL OFF
AREA SEL	1	(1-6)
MODE	ON	OFF
LEVEL	0	(0-15)
TOP	28	(0-254)
BOTTOM	112	(1-255)
LEFT	19	(0-254)
RIGHT	76	(1-255)
RETURN	+	

### ■ System

SYSTEM	Default Value	Other Selectable Items
ANALOG OUT	SET+	
DIGITAL OUT	SET+	
COLOR BAR	OFF	ON
TEST PATTERN1	OFF	MODE0; MODE1; MODE2; MODE3; MODE4; MODE5; MODE6
TEST PATTERN2	OFF	MODE0; MODE1; MODE2; MODE3; MODE4; MODE5; MODE6; MODE7; MODE8
FIRMWARE	V0.99 [current version]	
DEFAULT	SET+	
RETURN	+	

### ■ Analog Out

ANALOG OUT	Default Value	Other Selectable Items
FROM	NTSC-M	NTSC-J; NTSC443; PAL-B; PAL-D; PAL-G; PAL-H; PAL-I; PAL-M; PAL-N; PALNC
CHANGE TO	NTSC-M	NTSC-J; NTSC443; PAL-B; PAL-D; PAL-G; PAL-H; PAL-I; PAL-M; PAL-N; PALNC
APPLY	-	
RETURN	+	

■ **Digital Out**

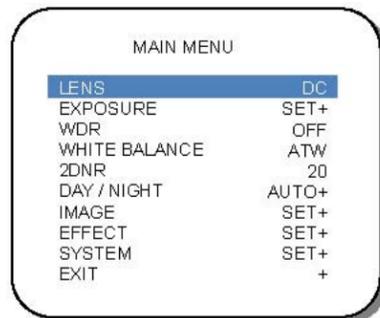
DIGITAL OUT	Default Value	Other Selectable Items
FROM	1280x720p 60fps	1920x1080p 60fps; 1920x1080p 30fps; 1280x720p 30fps
CHANGE TO	1280x720p 60fps	1920x1080p 60fps; 1920x1080p 30fps; 1280x720p 30fps
APPLY	-	NO; YES+
RETURN	+	

■ **Default**

DEFAULT	Default Value	Other Selectable Items
NO	SET+	
YES	SET+	
RETURN	+	

## 2.1 Main Menu

In the "MAIN MENU" of camera OSD, there are several sub-menus and items that can be selected to modify the settings.



MAIN MENU	Default Value	Other Selectable Items
LENS	DC	MANUAL
EXPOSURE	SET+	
WDR	OFF	BLC+; WDR+
WHITE BALANCE	ATW	AWB; MANUAL+; PUSH LOCK+
2DNR	20	(0-31)
DAY/NIGHT	AUTO+	EXTERNAL+; COLOR; B/W
IMAGE	SET+	
EFFECT	SET+	
SYSTEM	SET+	
EXIT	+	

■ **LENS:**

To select if the lens is on manual or on DC.

■ **EXPOSURE:**

This is a sub-menu for exposure setting. Please check the details in its section.

■ **WDR:**

To select the mode of WDR (Wide Dynamic Range).

■ **WHITE BALANCE:**

To select the mode of white balance.

■ **2DNR:**

To modify the value of 2DNR (Two Dimension Noise Reduction).

■ **DAY / NIGHT:**

To select the mode of day/night.

■ **IMAGE:**

This is a sub-menu for image setting. Please check the details in its section.

■ **EFFECT:**

This is a sub-menu for effect setting. Please check the details in its section.

■ **SYSTEM:**

This is a sub-menu for system setting. Please check the details in its section.

■ **EXIT:**

After you have finished all the settings, to exit the OSD select the "EXIT" on the "MAIN MENU". Just push the "Enter" button, and then it will quit the setting menu.

