

HD CCTV Digital Video Camera

OPERATION MANUAL



Thank you for choosing our high quality camera.
Before attempting to connect or operate, please read and follow these instructions.

CAUTION

These servicing instructions are for use by qualified service personnel only.

To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Use Class 2 Power Supply Only

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1. CAUTIONS

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions;

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note

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.”

WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.

CAUTION

1. A regulated DC12V 500mA power supply is recommended for use with this camera for the best picture and the most stable operation.

An unregulated power supply can cause damage to the camera.

When unregulated power supply is applied, product warranty will be out of subject.

2. It is recommended that the camera is used with a monitor that has a CCTV quality 75 video impedance level. If your monitor is switched to high impedance then please adjust accordingly.

3. Do not attempt to disassemble the camera to gain access to the internal components. Refer servicing to your dealer.

4. Never face the camera towards the sun or any bright or reflective light, which may cause smear on the picture and possible damage to the CCD.

5. Do not remove the serial sticker for the warranty service.

6. Do not expose the camera to rain or other types of liquid.

7. The apparatus must be connected to a mains socket-outlet with a protective earthing connection.

1. CAUTIONS



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)



(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicate that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

This product should not be mixed with other commercial wastes purchased this product, or their local government office, for details of where and how they can take item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

Household users should contact either the retailer where they for disposal.



CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN



CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This 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.



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

2. IMPORTANT SAFETY INSTRUCTION

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

3. FEATURES

- **High Resolution**

1/3" 2.1 Mega pixel PANASONIC Color CMOS.

- **Support various digital video output**

720p 50fps / 720p 60fps

1080p 25fps / 1080p 30fps

- **Video Outputs**

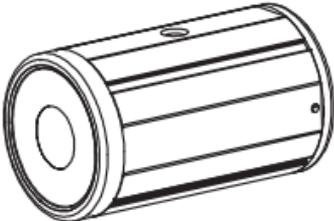
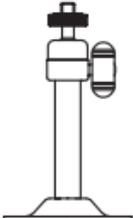
HD-SDI / CVBS

- **S/N Ratio** : More than 50dB

- **OSD menu for setup and configuration**

- **Power Source** : DC 6 ~ 15V

4. EQUIPMENT AND ACCESSORIES

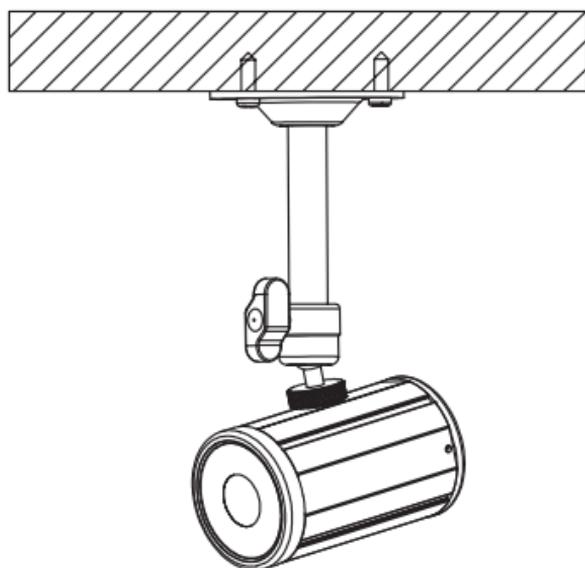
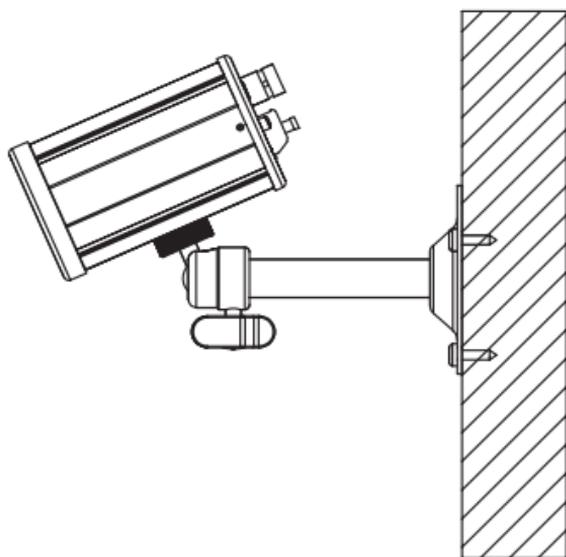
Camera	
Mounting Bracket	
Screw 3ea	
Operation Manual	
Service Video Output Test Cable	

CAUTIONS

When you connect Service Video Output Cable
WDR function does not work.

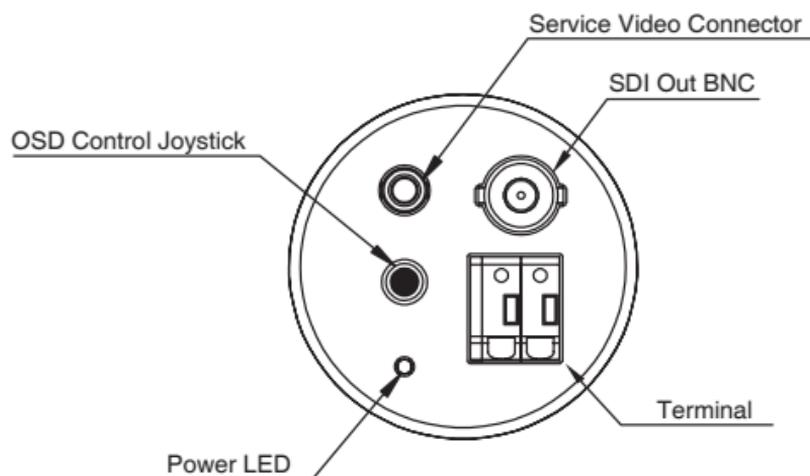
5. INSTALLATION

• CAMERA MOUNTING POSITION

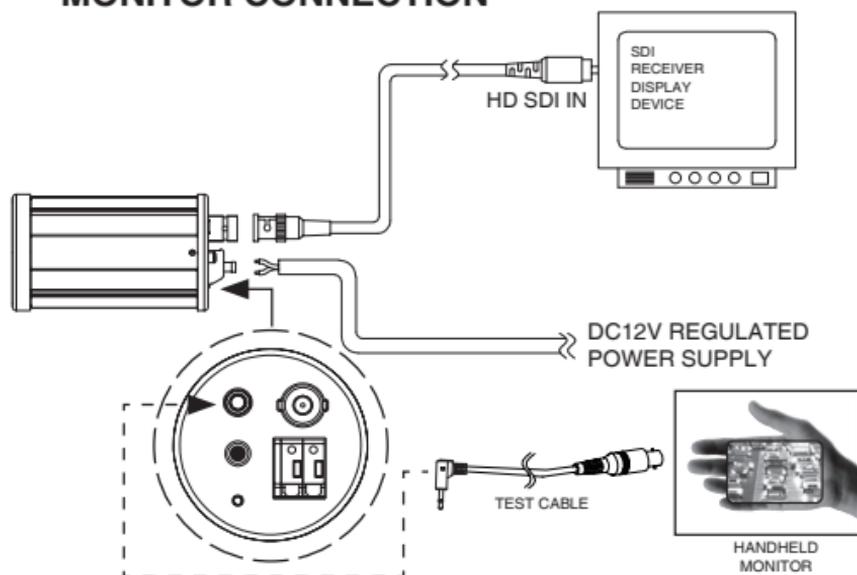


5. INSTALLATION

• Service Video Out & OSD Control

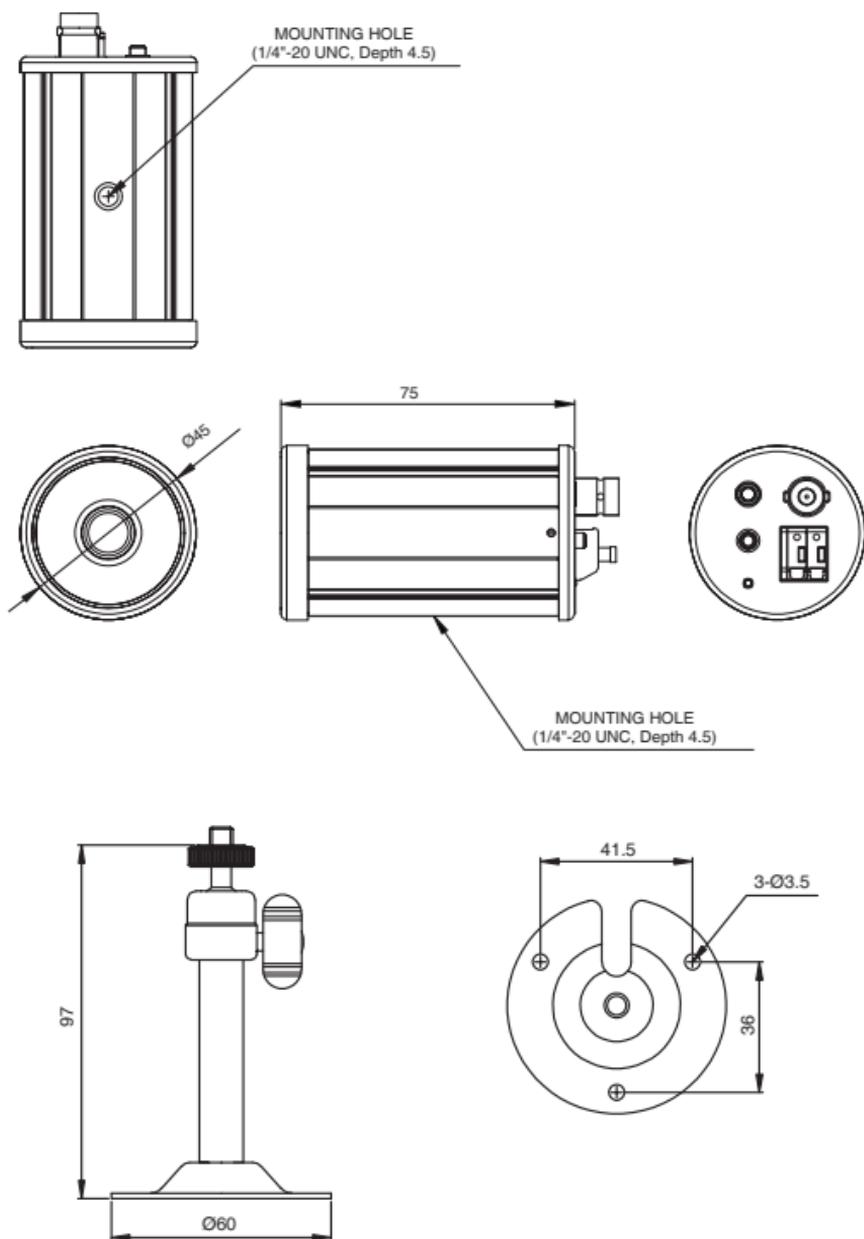


• MONITOR CONNECTION



6. DIMENSIONS

Unit(mm)



7. SPECIFICATION

CMOS	1/3" 2.1 Mega pixel PANASONIC Color CMOS
Pixel size	2.75um (H) x 2.75um (V)
Effective Pixels	1944(H) x 1092(V)
Manual Shutter	1/30(25), 1/60(50), 1/120(100), 1/250, 1/700, 1/1K, 1/1.6K, 1/2.5K, 1/5K, 1/7K, 1/10K, 1/30K
Sense-up	x 2, x 3, x4
AGC	Off / 0dB ~ 23dB
White Balance	AUTO / Manual / PUSH LOCK
Sensitivity	1.0 Lux
S/N ratio	More than 50dB
Video Output	HD-SDI / CVBS
Day & Night	OFF / ON(digital D&N)
LENS	Board Lens
Dimension	45(ø) x 75(mm)
Weight	145g
ETC.	Motion Detection, 3DNR, Mirror(H,V,H/V), Digital Zoom, BLC, WDR, OSD(JOYSTICK)
POWER Consumption	DC 6 - 15V / MAX 160mA(DC 12V(±10%))
Operating Temperature	14°F~122°F (-10°C~+50°C)
Storage Temperature	-4°F~140°F (-20°C~+60°C)

Specifications and designs are subject to change for improving the functionality of this product without notice.

8. OSD MENU STRUCTURE

Main	Sub Menu	Sub Menu		
SETUP				
EXPOSURE	BRIGHTNESS	0 ~ 20		
	SHUTTER MODE	AUTO, MANUAL		
	SHUTTER SPEED	1/30(25), 1/60(50), 1/120(100), 1/250, 1/700, 1/1K, 1/1.6K, 1/2.5K, 1/5K, 1/7K, 1/10K, 1/30K.		
	DSS (Digital Slow Shutter)	OFF, X2, X3, X4.		
	AGC MAX	0 ~ 23dB		
	INITIAL			
	RETURN			
WHITE BALANCE	WB MODE	AUTO / PUSH LOCK / MANUAL		
	CHROMA	0 ~ 20		
	KELVIN	LOW, MIDDLE, HIGH		
	RED GAIN	0 ~ 20		
	BLUE GAIN	0 ~ 20		
	PUSH AUTO	-		
	INITIAL			
RETURN				
WDR / BLC	MODE	OFF, WDR, BLC		
	WDR LEVEL	0 ~ 4		
	BLC OSD	OFF, ON		
	BLC X - POSITION	0 ~ 20		
	BLC Y - POSITION	0 ~ 20		
	BLC X - SIZE	0 ~ 20		
	BLC Y - SIZE	0 ~ 20		
	INITIAL			
RETURN				
DAY & NIGHT	D&N MODE	AUTO, COLOR, BW		
	DWELL TIME	1sec ~ 10sec		
	AGC THRS	0 ~ 20		
	MARGIN	0 ~ 20		
	INITIAL			
RETURN				
IMAGE	SHARPNESS	0 ~ 10		
	MIRROR	OFF, ON		
	FLIP	OFF, ON		
	DZOOM(Digital Zoom)	1X ~ 20X		
	SHADING	OFF, ON		
	HLMASK	OFF, ON	HLMASK LEVEL	0 ~ 20
			HLMASK COLOR	WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE, BLACK
			INITIAL	
RETURN				

8. OSD MENU STRUCTURE

Main	Sub Menu	Sub Menu	
IMAGE	D-WDR	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	INITIAL		
	RETURN		
SPECIAL	CAM TITLE	CAM TITLE	
		0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K	
		L M N O P Q R S T U V W X Y Z ! - () < >	
		SPA > > << BAK	
		LOCATION	
	LANGUAGE	ENGLISH, RUSSIAN, SPANISH, GERMAN, FRENCH, PORTUGUESE	
	PRIVACY	OFF, ON	ZONE NO 0 ~ 29
			MASK MODE OFF, ON
			X - POSITION 0 ~ 60
			Y - POSITION 0 ~ 40
			X - SIZE 0 ~ 40
			Y - SIZE 0 ~ 40
			COLOR BLACK, WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE
			TRANSPARENCY 100%,75%,50%,25%,0%
			INITIAL
			RETURN
	MOTION DETECT	OFF, ON	RESOLUTION 0 ~ 4
			SENSITIVITY 0 ~ 20
			INITIAL
			RETURN
	DISPLAY	CAM TITLE	OFF, ON
		MOTION DETECT	OFF, ON
		ZOOM	OFF, ON
		INITIAL	
		RETURN	
	SYSTEM	SHADING DET	OFF, ON
		DEFECT DET	OFF, ON
		DOUT FORMAT	720P, 1080P
		DOUT FPS	50, 60 / 25, 30
		COLOR BAR	OFF, ON
		INITIAL	
		RETURN	
FACTORY DEFAULT			
EXIT			

9. OSD FUNCTION DESCRIPTION

• EXPOSURE

EXPOSURE

> BRIGHTNESS	■■■■ ■■ 14
SHUTTER MODE	AUTO
SHUTTER SPEED	---
DSS	OFF
AGC MAX	23dB
INITIAL	
RETURN	

- BRIGHTNESS:

Enable user to control the image brightness (0~20steps).

- SHUTTER MODE:

Enable user to set up the Shutter Mode.

-> AUTO, MANUAL

- SHUTTER SPEED:

Enable user to set up the Shutter Speed.

-> 1/30(25), 1/60(50), 1/120(100), 1/250, 1/700, 1/1K, 1/1.6K, 1/2.5K, 1/5K, 1/7K, 1/10K, 1/30K.

*() is for PAL TYPE.

- DSS(Digital Slow Shutter):

Enable user to set up the DSS Level. -> OFF, X2, X3, X4.

- AGC MAX:

Enable user to make imager bright to amplify the Gain(0~23dB).

- INITIAL:

Enable user to initialize the Exposure menu set up.

• WHITE BALANCE

:Enable user to represent the accurate white color by controlling the R,G,B level.

WHITE BALANCE

> WB MODE	AUTO
CHROMA	■■ ■■■■ 7
KELVIN	---
RED GAIN	---
BLUE GAIN	---
PUSH AUTO	---
INITIAL	
RETURN	

- WB MODE

1. AUTO : Enable user to trace the White Balance automatically in the range of 2,300K~10,000K.

2. PUSH LOCK : Enable user to fix the White Balance according to the color temperature in the certain environment.

3. MANUAL : Enable user to sets the White Balance according to the circumstance.

- **CHROMA:** Enable user to set the Color Gain(0~20steps).

- **KELVIN:** In the MANUAL setting of WB MODE, enable user to set the color temperature range.

- **RED GAIN:** In the MANUAL setting of WB MODE, enable user to set the RED GAIN.

- **BLUE GAIN:** In the MANUAL setting of WB MODE, enable user to set the BLUE GAIN.

- **PUSH AUTO:** In the PUSH LOCK setting of WB MODE, enable user to fix the White Balance in camera setting.

- **INITIAL:** Enable user to reset the WHITE BALANCE menu setting.

9. OSD FUNCTION DESCRIPTION

• WDR/BLC

WDR / BLC

> MODE	WDR
WDR LEVEL	4
BLC OSD	ON
BLC X - POSITION	6
BLC Y - POSITION	4
BLC X - SIZE	7
BLC Y - SIZE	10
INITIAL	
RETURN	

- MODE:

Enable user to set WDR/BLC mode.

-> OFF, WDR, BLC

1. WDR(Wide Dynamic Range):

Use the condition which Image doesn't figure out with BLC such as place surrounded windows and lobby.
(*The screen display may be unnatural)

2. BLC(Backlight compensation mode):

This function works for subjects in the kind of backlight conditions.

- **WDR LEVEL:** Enable user to set up WDR Level (0~4 level).
- **BLC OSD:** Enable user to set up screen output of chosen BLC zone.
- **BLC X-POSITION:** Enable user to set up Horizontal start position(0~20steps).
- **BLC Y-POSITION:** Enable user to set up Vertical start position(0~20steps).
- **BLC X-SIZE:** Enable user to set up Horizontal size (0~20steps).
- **BLC Y-SIZE:** Enable user to set up Vertical size (0~20steps).
- **INITIAL:** Enable user to initialize the WDR/BLC setting.

• DAY&NIGHT

: Conversion of output image COLOR / BW depending on exterior environment.

DAY&NIGHT

> MODE	AUTO
DWELL TIME	3s
AGC THRS	10
MARGIN	10
INITIAL	
RETURN	

- D&N MODE

1. COLOR : Enable user to fit the output image in color.

2. B/W : Enable user to fit the output image in B/W.

3 AUTO : Enable user to convert to COLOR/BW automatically by luminance element on Screen

- **DWELL TIME:** In D&N MODE AUTO, enable user to set to delay time for changing COLOR/BW(0~10sec).
- **AGC THRS:** The value of switching from Day to Night.
In D&N MODE AUTO, enable user to set to AGC THRS level (0~20steps).
- **MARGIN:** To switch from Day to Night margins. In D&N MODE AUTO, enable user to set to MARGIN level (0~20steps).
- **INITIAL:** Enable user to initialize the setting in DAY&NIGHT menu.

9. OSD FUNCTION DESCRIPTION

• IMAGE

IMAGE	
> SHARPNESS	4
MIRROR	OFF
FLIP	OFF
DZOOM	1X
SHADING	OFF
HLMASK	OFF
D-WDR	OFF
DNR	MIDDLE
INITIAL	
RETURN	

- SHARPNESS:

Enable user to control the image sharpness (0~10steps).

- MIRROR:

Sets the horizontal flip for the display output.



(OFF)

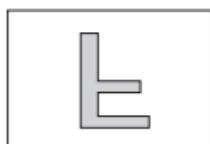


(ON)

- FLIP: Sets the Vertical flip for the display output.



(OFF)



(ON)

- DZOOM(Digital Zoom): Max. 20x Digital Zoom

- SHADING: Enable user to set up the lens shading compensation mode.

- HLMASK: This function that improves the visual recognition of license plates and other such objects by suppressing or masking strong light sources

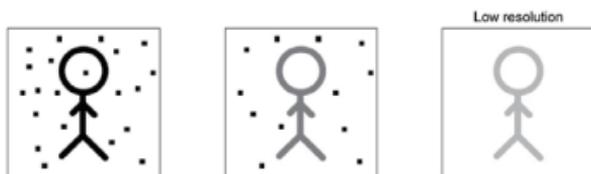
1. HLMASK LEVEL: Enable user to set HLMASK Level(0~20steps).

2. HLMASK COLOR: Set the HLMASK color

(Black, White, Yellow, Cyan, Green, Magenta, Red, Blue).

- D-WDR: In this mode, the brightness of a single image is compensated using the gamma curve.

- DNR: This function reduces noise.



Noise removal effect

Low

High

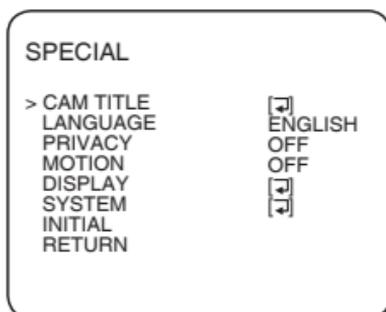
(Outline of DNR function)

- INITIAL: Enable user to initialize the setting on IMAGE menu.

9. OSD FUNCTION DESCRIPTION

• SPECIAL

: Setting up the CAM TITLE, LANGUAGE, PRIVACY, MOTION, DISPLAY, SYSTEM.

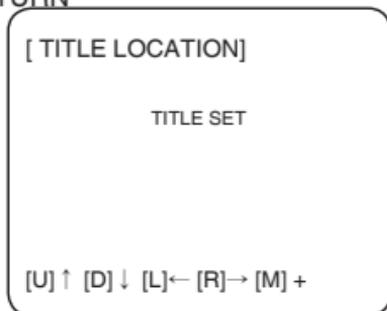


- CAM TITLE :

Enable user to choose any word in screen(Maximum 10 letter is available)



1. A letter Choice from the screen using Menu key
2. Enable user to move to next menu using LEFT, RIGHT KEY in LOCATION.
3. By using UP, DOWN, LEFT, RIGHT KEY, enable user to choose any letters in LOCATION and then get back to previous step.
4. Enable user to finish words choice and position by using LEFT, RIGHT KEY in RETURN



- LANGUAGE

: Enable user to set up an OSD language

-> ENGLISH, RUSSIAN, SPANISH, GERMAN, FRENCH, PORTUGUESE.

9. OSD FUNCTION DESCRIPTION

- PRIVACY

: Privacy is the function that covers the some part on screen to prevent private life.(Maximum 30 point covered)

PRIVACY				
> ZONE NO			0	
MASK MODE			ON	
X-POSITION			12	
Y-POSITION			2	
X-SIZE			3	
Y-SIZE			3	
COLOR			CYN	
TRANSPARENCY			0%	
INITIAL				
RETURN				

1. ZONE NO : Enable user to set up a position from 0 to 29 area.
2. MASK MODE : Enable user to set up screen output of chosen position.
3. X-POSITION : Mask Horizontal start position.
4. Y-POSITION : Mask Vertical start position.
5. X-SIZE : Mask Horizontal width.
6. Y-SIZE : Mask Vertical height.

7. COLOR : Set the mask color.

8. TRANSPARENCY : Set the transparency of the mask.

9. INITIAL : Enable user to initialize setting of PRIVACY MENU.

- MOTION:

Motion detection function.

MOTION		
> RESOLUTION		0
SENSITIVITY		10
INITIAL		
RETURN		

1. RESOLUTION : Enable user to set up resolution
2. SENSITIVITY : Enable user to set up sensitivity.
3. INITIAL : Enable user to initialize setting of MOTION DETECT

- DISPLAY :

Enable user to set up a screen marking of CAM TITLE, MOTION, DZOOM.

DISPLAY		
> CAM TITLE		OFF
MOTION		OFF
DZOOM		OFF
INITIAL		
RETURN		

1. CAM TITLE : Enable user to set up output in fixed CAM TITLE.
2. MOTION : Enable user to set up out put of MOTION on the screen as MOTION ON setting.
3. DZOOM : Enable user to set up output DZOOM ratio..
4. INITIAL : Enable user to initialize of DISPLAY menu.

9. OSD FUNCTION DESCRIPTION

SYSTEM	
> SHADING DET	OFF
DEFECT DET	OFF
DOUT FORMAT	1080P
DOUT FPS	30
COLOR BAR	OFF
CVBS	NTSC
COLOR	
INITIAL	
RETURN	

- SYSTEM

1. SHADING DET: Lens shading detection function.
2. DEFECT DET: White pixel detection and compensation function.
3. DOUT FORMAT: Enable user to set up digital output format(720p, 1080p).
4. DOUT FPS: Enable user to set up digital output frame rate.
5. COLOR BAR: Enable user to set up output colorbar.
6. CVBS: Enable user to set up CVBS type NTSC or PAL.

• FACTORY DEFAULT

: Enable user to reset all of the status as the factory default.

• EXIT

: After saving the current settings in the OSD menu and exit.

