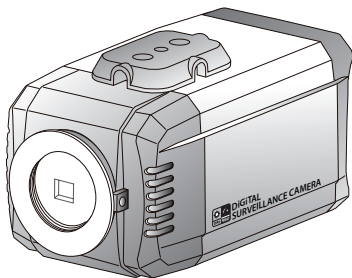


700 TVL D-WDR / 3D DNR STANDARD CAMERA USER'S MANUAL



- Sony 1/3" 960H CCD II
- High Resolution 700TV Lines
- D-WDR (Wide Dynamic Range)
- 3D DNR (Digital Noise Reduction)
- Smart IR Function
- LSC(Lens Shading Compensation)
- DEFOG
- Day & Night (ICR-Optional)
- Intelligent Motion Detection
- Back Light Compensation
- PELCO-D / RS485(Optional)
- Privacy Mask (Polygonal, 8 Colors)
- O.S.D menu function



The lightning flash with an arrowhead symbol, within an equilateral triangle 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 exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INFORMATION - This equipment has been tested and found to comply with 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 - Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION : To prevent electric shock and risk of fire hazards:

- Do NOT use power sources other than that specified.
- Do NOT expose this appliance to rain or moisture.

This installation should be made by a qualified service person and should conform to all local codes.

Precaution

	<p>Do not Keep the camera face to strong light directly</p>
	<p>Do not install the camera in extreme temperature conditions.</p>
	<p>Do not disassemble the camera even if troubles happened</p>
	<p>To avoid malfunctions, never use the camera close to a gas or oil leak</p>
	<p>Do not drop the camera or subject them to physical shocks.</p>
	<p>Do not expose the camera to rain or spill beverage on it.</p>
	<p>Do not install the camera under unstable lighting conditions</p>
	<p>Do not install or use the camera in an environment where the humidity is high</p>

1. Features

D-WDR(Wide Dynamic Range)

Delivers a powerful Wide Dynamic Range to the camera to provide D-WDR captures the images at all light levels by correcting GAMMA CURVE. If you use an ordinary camera in a scene with an intensive backlight, the object will be displayed dark on the monitor affected by the backlight. To solve this problem, you can use the D-WDR function to improve the dark part without saturation from bright part. You can adjust SET LEVEL to get clearer images.

700 TVL ULTRA HIGH RESOLUTION

The horizontal resolution of 700 TV Lines with 960H CCD. It gives a vivid image output with super high horizontal resolution using our own De-Mosaic Interpolation algorithm and a specialised built-in sharpness filter.

3D DNR(Digital Noise Reduction)

Achieves excellent 3D-DNR (3 Dimensional-Digital Noise Reduction) function very excellently by using upgraded 3D filtering and enables to keep this function automatically while operating the camera to provide the clear and superior images in very low light luminance. The SAMRT 3D-DNR will be work automatically if There is any movement or motion. Also, this can be focus on the object in reduce the "Ghost Effect" caused by moving object to it self.

Smart IR Function

LSC (Lens Shading Compensation)

DEFOG

The Camera is able to recognize the concerntration of fog in the image, and automatically defog, correct image of the bad weather such as fog, rain, mist, fumes, etc to make it clear

Sens-Up(x1024)

Achieves high quality pictures by supporting a long exposure time - more than 1/50second - and enables recognition of the shape and color of a suspended object under no light conditions

POLYGONAL PRIVACY MASKING(Polygonal, 8colors)

Ensures privacy protection for private and specific areas on the video signal output using a polygonal masking function. It allows the size and position of the masking areas to be controlled very easily, and there are 8 mask areas which are user programmable - color, brightness and mosaic.

HLC

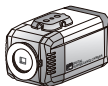
Enables the recognition of a visible car license plate by blocking unwanted light sources.

HIGH SENSITIVITY TRUE DAY&NIGHT

The Day & Night function delivers high quality color rendition and converts automatically into monochrome as luminance levels drop.

2. Components

D-WDR/3D DNR Camera



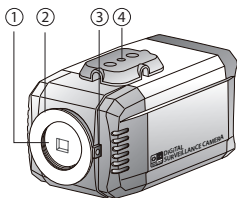
L-Wrench



Manual

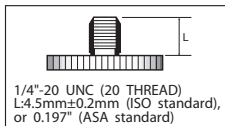


3. Names and Functions of Parts



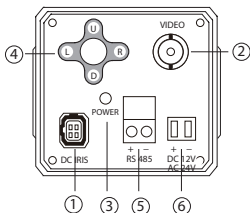
1) Front

- ① Lens protection cap
Please cover while it is out of use.
- ② CS-Mount lens adaptor
Please attach the CS-Mount lens here.
- ③ Back Focus clamp screw
Please loosen the clamp screw with a screwdriver before adjusting the Back focal length.
- ④ Mounting bracket screw hole
Please use the screw hole when fixing the camera onto the mounting bracket. Please use the clamp screw as specified in the picture.

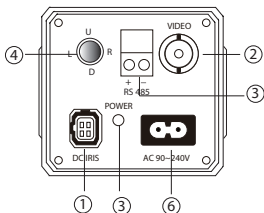


The mounting bracket can be separated and attached to the top of the camera. In this instance please do not tighten the screw to a depth of more than 5mm, otherwise serious damage can influence in the inner parts of the camera.

DC12V, DC12V/AC24V



AC 220V



2) Back

① Auto iris lens connector

This is the connection terminal for auto iris lens.

② Video composite Out

③ Power lamp

Light up when the correct power is supplied to the camera.

④ Setting button(OSD Joystick)

ENTER button : Use for menu display. This button can be used to confirm settings after changing the value of the selected function or current conditions.

UP & DOWN buttons : Use for selecting items by moving the cursor up or down on the menu screen.

LEFT(L) & RIGHT(R) buttons : Use when changing item values by moving the cursor to the left or right on the menu screen.

⑤ RS-485(Optional)

The camera can be controlled by using external controller like a remote controller.

⑥ Power input terminal

Connect to the power appropriate to each power requirement, 12V DC or 24V AC or 90~240V AC.

4. Installation

1) Lens

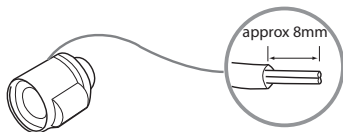
Lenses are sold separately. Lenses such as auto iris lens, CS-Mount lens and C-Mount lens can be used.

Note) How to operate this product effectively

- Please keep lens clean
- Any foreign objects and finger marks on the lens can cause inferior image quality in low light conditions.

① When using an auto iris lens

Please peel off about 8mm of the outer skin of the auto iris lens cable.

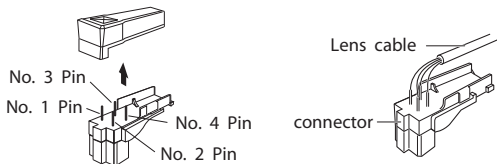


Please peel off about 2mm of the outer skin of the insulated conductor inside the lens cable.



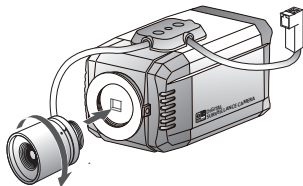
Please remove the cover of the auto iris lens connection plug and solder the lens cable to the connector pin in the plug.

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



Please fit the auto iris lens connector plug and take off the lens protection cap, and then attach the auto iris lens to the camera by screwing it in clockwise.

Please insert the connection plug that is connected to the auto iris lens cable into the auto iris lens connector, which is located on the back of the camera.



② When using a CS-Mount lens

Please take off the lens protection cap and attach the CS-Mount lens to the camera by screwing it in clockwise.

③ When using a C-Mount lens

Please take off the lens protection cap and attach the C-mount adaptor.

2) Power

* Be sure to connect power only after all installation is complete.

* Please use a power adaptor that meets the required standards.
[Recommended - Voltage : +/-20%, Current : Adapter with rated power of 2 times(than real using current)]

3) RS485(option)

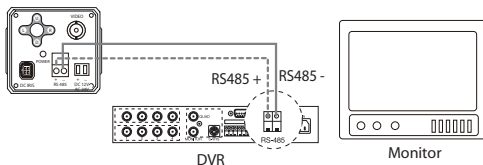
*The camera can be controlled by using external controllers like a remote controller.

* Connect the RS485 cable(+, -) to the connection port of the RS485 control that is connected to the DVR or System Controller.

* Use the PELCO-D protocol.

* When controlling RS485, please check the following:

- Communication Speed : 4800 bps
- Data Bit Number : 8 bits
- Stop Bit Number : 1 bit
- Parity Bit : none



5. Setup Menu Flow

EXPOSURE

LENS	—	DC, MANUAL
AGC	—	OFF, LOW, MID, HIGH
SENSE-UP	—	AUTO, OFF, X2, X4, X8, X16, X32, X64, X128, X256, X512, X1024
BACK LIGHT	—	OFF
	—	BLC - BLC LEVEL<OFF, LOW, MID, HIGH>
	—	HLC
	—	D-WDR-SET LEVEL<0~20>
3D-DNR	—	OFF, LOW, MID, HIGH, AUTO
RETURN		

WHITE BALANCE

WB MODE	—	ATW, MANUAL, PUSH
R-Y GAIN		
B-Y GAIN		
RETURN		

DAY&NIGHT

D&N MODE	—	AUTO, COLOR, B&W, EXT, EXT2
BURST	—	ON, OFF
C_SUP	—	<0 ~ 100>
S_SUP	—	<0 ~ 100>
SMART IR	—	ON, OFF
RETURN		

IMAGE ADJUST

MIRROR	—	OFF, MIRROR
SHARPNESS	—	<0~30>
GAMMA	—	0.45, 0.55, 0.65, USER<0.2 ~ 1.0>
LSC	—	OFF, ON <0 ~ 30>
DEFOG	—	OFF, MANUAL, AUTO
MONITOR	—	CRT, LCD
RETURN		

MOTION

MOTION	—	OFF, ON
AREA	—	AREA1 ~ AREA4
SENSITIVITY	—	<1 ~ 30>
DISPLAY	—	OFF, MESSAGE, TRACE
HOLD TIME	—	<0~15>
ALARM OUTPUT	—	OFF, ON
RETURN		

PRIVACY

MASK1

⋮

MASK8

RETURN

OFF

ON

DOT SEL

DOT XY

MOVE XY

COLOR SET<1~8>

OFF

ON

DOT SEL

DOT XY

MOVE XY

COLOR SET<1~8>

SPECIAL

LANGUAGE

— 11 Language

OSD COLOR

— COLOR1~COLOR8

OSD TRANS

— 0~15

TITLE

COMMUNICATION

OFF

ON

ID<0 ~ 255>

BAUD RATE<2400, 4800, 9600>

PROTOCOL<PELCO-D>

DPC

— OFF, AUTO

FACTORY SET

— NO, YES

RETURN

EXIT

SAVE&EXIT

EXIT

RETURN

6. Special Features

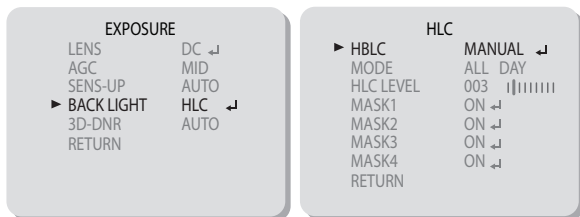
1. D-WDR(Wide Dynamic Range)

D-WDR captures the images at all light levels by correcting GAMMA CURVE. If you use an ordinary camera in a scene with an intensive backlight, the object will be displayed dark on the monitor affected by the backlight. To solve this problem, you can use the D-WDR function to improve the dark part without saturation from bright part. You can adjust SET LEVEL to get clearer images.



2. HLC

This function is to mask the bright color. You can select 4 mask areas and DAY&NIGHT and adjust HLC level.



3. 3D DNR(Digital Noise Reduction)

Select 3D DNR ON or OFF.

3D-DNR function reduce the background noise in a low luminance environment. Upgraded 3D filtering ensures even more clear image.

[DNR Level High : Picture image is more clear but Ghost is more increased.

DNR Level Low : Picture image is not clear but less Ghost.]

MAIN MENU

- ▶ EXPOSURE
- WHITE BALANCE
- DAY & NIGHT
- IMAGE ADJUST
- MOTION
- PRIVACY
- SPECIAL
- EXIT

EXPOSURE

- | | |
|------------|--------|
| LENS | DC ↙ |
| AGC | MID |
| SENS-UP | AUTO |
| BACK LIGHT | D-WDR |
| ▶ 3D-DNR | AUTO ↙ |
| RETURN | |

4. SMART MOTION

With learning capability, it memorizes the previous screen on the movement of the subject approximately in 3 to 5 seconds. When there is a change, the alarm function goes off.

MAIN MENU

- EXPOSURE
- WHITE BALANCE
- DAY & NIGHT
- IMAGE ADJUST
- ▶ MOTION
- PRIVACY
- SPECIAL
- EXIT

MOTION

- | | |
|--------------|-------|
| ▶ MOTION | ON |
| AREA ↙ | |
| SENSITIVITY | 007 |
| DISPLAY | TRACE |
| HOLD TIME | 003 |
| ALARM OUTPUT | OFF |
| RETURN | |

7. SPECIFICATIONS

TV System	NTSC	PAL
Sensor	Sony 1/3" 960H CCD II	
Total Pixels	(H)1020 x (V)508	(H)1020 x (V)596
Effective Pixels	(H)976 x (V)494	(H)976 x (V)582
Synchronization	H/V 15.734/59.94Hz	H/V 15.625/50Hz
Scanning System	2:1 Interlace	
Horizontal Resolution	700 TV Lines	
Min. Illumination	Sens-Up Off	0.12 Lux(15IRE), 0.2Lux(30IRE), 0.4Lux(50IRE) F1.2
	Sens-Up On	0.0002Lux(15IRE), 0.0005Lux(30IRE), 0.0008Lux(50IRE) F1.2
Video Output	1.0Vp-p/75ohm Video 0.71Vp-p	
γ Correction	0.45, 0.55, 0.65, USER	
Monitor	CRT, LCD	
S/N	More than 52dB (AGC off)	
O.S.D	LENS, AGC, SENS-UP, BACK LIGHT(BLC, HLC, D-WDR), 3D-DNR, WHITE BALANCE, DAY & NIGHT MIRROR, SHARPNESS, GAMMA, MONITOR, LSC, DEFOG MOTION, PRIVACY (MASK1 ~MASK8), LANGUAGE OSD COLOR, OSD TRANS, COMMUNICATION, DPC	
Electrical Shutter	1/60~1/100,000	1/50~1/100,000
Privacy Masking	8 Windows(Polygonal, 8 Colors)	
Day & Night	AUTO, COLOR, BW, EXT, EXT2	
Motion Detection	ON / OFF	
Sens-Up(Low Shutter)	AUTO, OFF~x1024	
Language	11 Language	
White Balance	ATW / MANUAL / PUSH	
D-WDR	ON / OFF (WDR LEVEL)	
Mirror	ON / OFF	
3D-DNR	OFF, LOW, MID, HIGH, AUTO	
LSC	ON / OFF	
DEFOG	OFF, MANUAL, AUTO	
Smart IR	ON / OFF	
Day & Night System	ICR (Optional)	
Lens	C /CS Mount	
Operating Temperature/Humidity	-20℃ ~60℃ / 30% ~80%	
Storage Temperature/Humidity	-30℃ ~60℃ / 20% ~90%	
Supply Voltage	Only DC 12V	AC 24V / DC 12V
Current	110mA	80mA / 200mA
Power Consumption	1.4W	2W / 2.4W
	[Recommended-Voltage : +/- 20%, Current: Adapter with rated power of 2 times(than real using current)]	
Dimension	61(W) x 55(H) x 106(L)mm	

Design and specifications are subject to change without notice

PRODUCT WARRANTY CARD

1) ITEM # :

2) S/N # :

3) INSTALLATION CONDITION

- Indoor ☐ / Outdoor ☐
- Power supply SPECIFICATION :
DC12V ☐ / AC24V ☐
CURRENT _____ mA

4) TROUBLESHOOTING

- No picture ☐
- Bad image ☐
- No power ☐
- Water damage ☐
- LED ON ☐ / OFF ☐
- ETC. : ☐

* Please keep this warranty card with the manual.

* Please fill out this warranty card and send us this warranty card with the faulty units together.

■ Following cases can be charged even within the warranty period.

- a. When defects are caused by user's carelessness.
- b. When improper or unauthorized repairs are done or when the inside is modified or damaged.
- c. Defects caused by natural disaster or power problem.
- d. When the warranty card is not filled out or corrected unconfirmed.