

# Operation Manual

## Digital Day&Night Vandal Resistant Dome Camera



### WDD-2977C / WDD-2977VDN

Please read carefully before using and keep in a safe place.  
Design and specifications are subject to change without notice.

V.09I



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



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



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.

#### **Regulatory Notice**

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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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 in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause 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.

## 1.0 Features

- 1/3" Sony Super HAD CCD II : 410K(NTSC)/470K(PAL) pixels
- High Resolution 600 TV Lines
- Day & Night (ICR)
- Digital Wide Dynamic Range
- Digital Noise Reduction
- Privacy mask Function
- On Screen Display
- Motion detection
- Parking Line
- High Light Compensation
- IR Smart

## 2.0 Warnings

- **The camera needs periodic inspection.**

Contact an authorized technician for inspection.

- **Stop using your camera when you find a malfunction.**

If you use your camera around smoke or unusual heat for a long time, fire may be caused.

- **Do not install the camera on a surface that can not support it.**

Unless the surface is suitable, it could cause falling or other hazards.

- **Do not hold plug with wet hands.**

It could cause an electric shock.

- **Do not disassemble the camera.**

It may result in fire, electric shock or other hazards.

- **Do not use the camera close to a gas or oil leak.**

It may result in fire or other hazards.

## 3.0 Precautions

**Do not install the camera in locations subject to extreme temperature conditions.**



Only use the camera in conditions where temperatures are between -10 Deg. C and +50 Deg. C. (14 Deg. F and 122 Deg. F). Be especially careful to provide ventilation when operating in high temperatures.

**Do not drop the camera or subject it to physical shock.**



It can cause malfunctions to occur.

**Do not install the camera under unstable lighting conditions.**



Severe lighting change or flicker can cause the camera to work improperly.

**Never face the camera directly into strong light.**



Never face the camera directly into strong light. It can damage the CCD.



### Note

- If the camera is exposed to spotlight or object reflecting strong light, smear or blooming may occur.
- Please check that the power satisfies the normal specification before connecting the camera.

**Stop use immediately if smoke or unusual heat is detected in the camera.**



It may result in fire.

**Installation of the camera should be performed by qualified service personnel only.**



As installation of the camera requires experience and skill, installation without the assistance of qualified service personnel may result in a risk

**Do not install the camera in an unstable location.**



It may fall.

**Do not attempt to disassemble it, or place any foreign objects inside it.**



It may result in malfunction and fire.

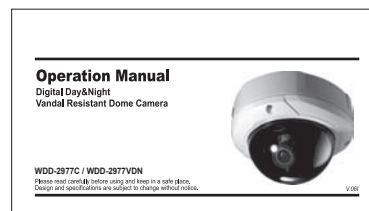
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## 4.0 Components



**COLOR DOME CAMERA**  
WDD-2977C / WDD-2977VDN



**Operation Manual**



**Screws**

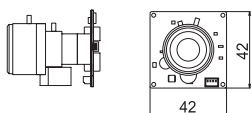


**Wrench**

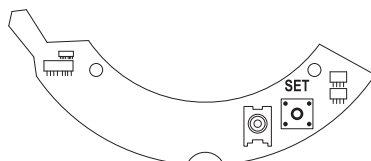
## 5.0 Names and Functions of Parts

### ① Lens

Vari-Focal Auto Iris Lens 2.8mm ~11mm or 3.8mm ~9.5mm / F1.2

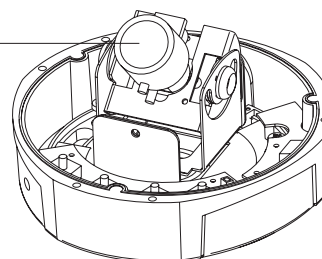


### ② OSD PCB



### ① Lens

### ② OSD PCB



- **OSD Menu is controlled by toggle Switch**
- **SET switch** : Press jog shuttle down. Used for the menu display. This switch can be used to confirm settings after change the value of the selected function or current conditions.
- **UP&DOWN switch** : Used for selecting items by moving the cursor to the left or right on the menu screen.
- **LEFT&RIGHT switch** : Used for selecting items by moving the cursor to the left or right on the menu screen.

### ③ EXTERNAL EXTRA VIDEO

Used when dome cover is open

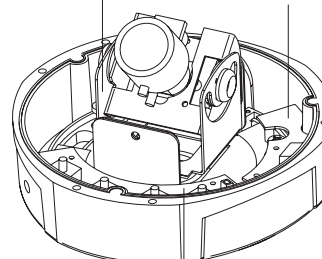
### ④ SMPS PCB FOR DUAL POWER

### ⑤ 3AXIS BRACKET

Please loosen screws and fix tilted and panned position.

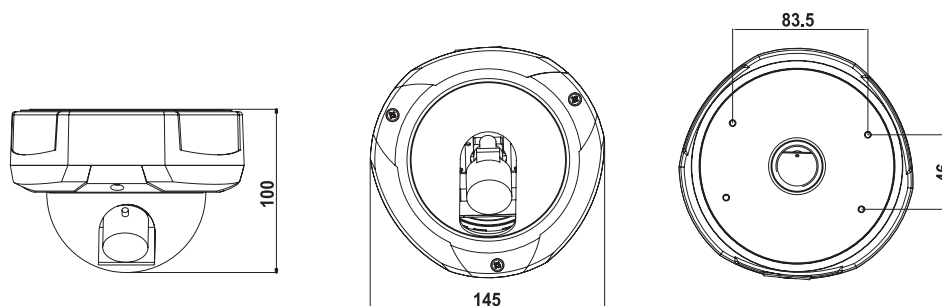
### ⑤ 3AXIS BRACKET

### ④ SMPS PCB

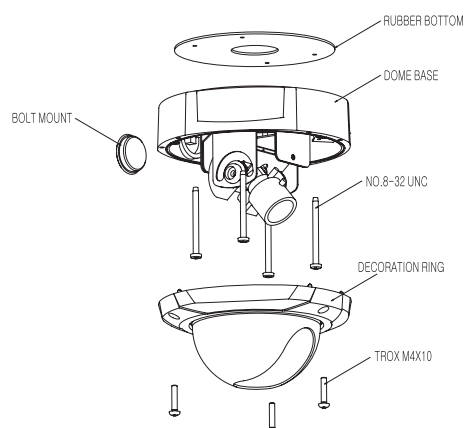


### ③ EXTERNAL EXTRA VIDEO

## 6.0 Dimension



## 7.0 Installation



### 1 Dome Base Mounting

Open the dome cover by unscrewing 3 screws using special wrench provided.  
Mount the base of camera to a sturdy surface using 4 screws (1.5inch) and 4 premade holes on the base of the dome.

### 2 Power Connect & Monitor Impedance

AC24V Class 2 power supply. (AC24V/DC12V)  
To avoid fire or shock hazard, must use a UL listed power supply.  
Set the monitor impedance switch to 75ohm.  
Check the impedance switch when the screen turns blurred.

### 3 Camera Module Adjustment

Loosen screws for 3-axis camera bracket and adjust the direction and angle of camera.  
Make sure to retighten the screws for camera bracket.  
Set any function you wish to activate by using the OSD buttons.

### 4 Dome Cover Mounting

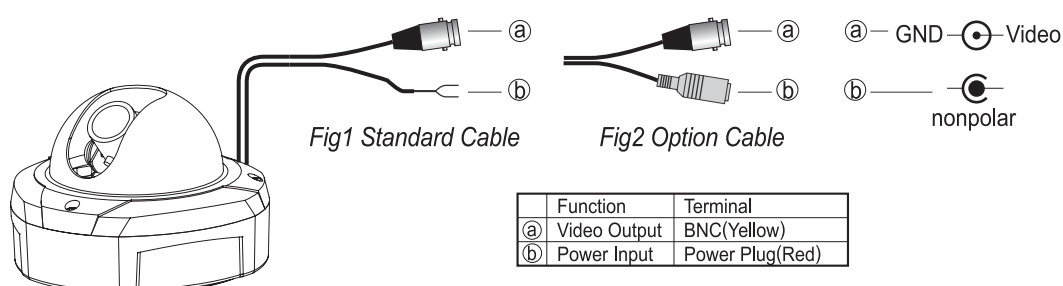
Replace the dome cover to the base and tighten 3 screws.

## 8.0 Cable Connection

### Connecting to Monitor and Power

- Connect the BNC Video In Jack to installed cabling for subsequent connection to a Monitor / DVR / VCR etc.
- Connect a Regulated DC12V Power Supply to the Power Input connector.

Note: The connecting plugs or Terminals may be used for Power and Video.



## 9.0 Setup Menu

### 9.1 MAIN MENU

SETUP	
LENS	DC
EXPOSURE	↕
WHITE BAL	ATW1
BACKLIGHT	OFF
DAY&NIGHT	AUTO ↕
DPC	↕
SPECIAL	↕
RESET	↕
EXIT	

The menu consists of the "Main Menu" and "Sub Menu".  
The main menu is 8 kinds of camera functions can be selected. To the right of each main menu selection, the sub-menu is displayed.

#### LENS

- LENS : Select lens type
- ▷ DC / VIDEO / MANUAL

### 9.2 EXPOSURE

SETUP		EXPOSURE	
LENS	DC	SHUTTER	AUTO
EXPOSURE	↕	BRIGHTNESS	50
WHITE BAL	ATW1	AGC	----
BACKLIGHT	OFF	DWDR	OFF
DAY&NIGHT	AUTO ↕	RETURN	RET ↕
DPC	↕		
SPECIAL	↕		
RESET	↕		
EXIT			

- SHUTTER : You can set to auto or manual mode.  
▷ AUTO, 1/60(50), FLK, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/5000, 1/10000, 1/100000sec
- BRIGHTNESS : You can adjust brightness level.  
▷ 0(dark) ~ 255 (bright) steps
- AGC : You can select auto gain control level  
▷ OFF / LOW / MIDDLE / HIGH
- DWDR : You can select WDR (Wide Dynamic Range) level.  
▷ DWDR : OFF / ON  
▶ LEVEL : 0~35 steps

### 9.3 WHITE BALANCE

SETUP		WB MANUAL	
LENS	DC	COLOR TEMP	MANUAL
EXPOSURE	↕	BLUE	111
WHITE BAL	ATW1	RED	095
BACKLIGHT	OFF	RETURN	RET ↕
DAY&NIGHT	AUTO ↕		
DPC	↕		
SPECIAL	↕		
RESET	↕		
EXIT			

- WHITE BAL : You can select white balance mode.  
▷ ATW1 / ATW2 / AWC → SET / MANUAL (INDOOR / OUTDOOR / MANUAL)
- ▶ ATM1 : Automatically adjusts color according to the available lighting. (2500°K → 9500°K)
- ▶ ATM2 : Automatically adjusts color according to the available lighting. (2300°K → 10000°K)
- ▶ AWC → SET : It is a fixed white balance mode that may be automatically readjusted only by pressing SET Button in ONE PUSH mode.
- ▶ OUTDOOR : Set color temperature to be Outdoor light (5400°K)
- ▶ INDOOR : Set color temperature to be Indoor light (3200°K)
- ▶ MANUAL : Color can be corrected when the user increases or decreases "Red Gain" or "Blue Gain"
- ▶ RED GAIN : Adjust R gain value 0 ~ 255
- ▶ BLUE GAIN : Adjust B gain value 0 ~ 255

### 9.4 BACKLIGHT

SETUP		BLC	
LENS	DC	AREA SEL	AREA1
EXPOSURE	↕	AREA STATE	ON
WHITE BAL	ATW1	GAIN	042
BACKLIGHT	OFF	HEIGHT	005
DAY&NIGHT	AUTO ↕	WIDTH	004
DPC	↕	LEFT/RIGHT	006
SPECIAL	↕	TOP/BOTTOM	005
RESET	↕	RETURN	RET ↕
EXIT			

- BACKLIGHT : Select OFF / BLC / HLC  
▷ BLC (Back Light Compensation)
- ▶ BLC : Select area, gain
- ▶ AREA SEL : Select AREA1, AREA2
- ▶ AREA STATE : Select OFF / ON
- ▶ GAIN : Select 0 ~ 255 steps
- ▶ HEIGHT : Select 0 ~ 15 steps
- ▶ WIDTH : Select 0 ~ 15 steps
- ▶ LEFT / RIGHT : Select 0 ~ 15 steps
- ▶ TOP / BOTTOM : Select 0 ~ 15 steps

### 9.5 DAY & NIGHT

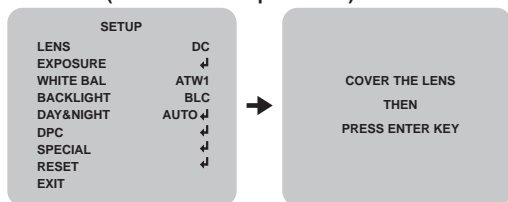
SETUP		HLC	
LENS	DC	LEVEL	200
EXPOSURE	↕	MODE	ALL DAY
WHITE BAL	ATW1	RETURN	RET ↕
BACKLIGHT	OFF		
DAY&NIGHT	AUTO ↕		
DPC	↕		
SPECIAL	↕		
RESET	↕		
EXIT			

- ▷ HLC (High Light Compensation)
- ▶ LEVEL : Select 0 ~ 255 steps
- ▶ MODE : ALL DAY, NIGHT ONLY

SETUP		D&N AUTO	
LENS	DC	DN → LEVEL	184
EXPOSURE	↕	DN → DELAY	3SEC
WHITE BAL	ATW1	ND → LEVEL	018
BACKLIGHT	OFF	ND → DELAY	3SEC
DAY&NIGHT	AUTO ↕	RETURN	RET ↕
DPC	↕		
SPECIAL	↕		
RESET	↕		
EXIT			

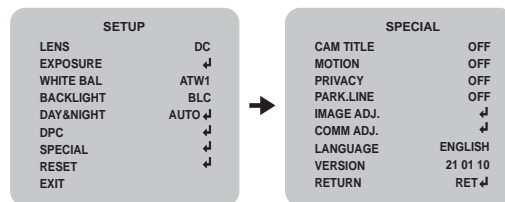
- DAY & NIGHT : Select AUTO / COLOR / B/W / EXT
- ▷ AUTO : Day & night Auto mode
  - ▶ D → N LEVEL : 128 ~ 192 steps
  - ▶ D → N DELAY : 1 ~ 30 SEC
  - ▶ N → D LEVEL : 0 ~ 64 steps
  - ▶ N → D DELAY : 1 ~ 30 SEC
- ▷ COLOR : Day & Night only color mode
- ▷ B/W : Day & night B/W mode
  - ▶ BURST : OFF / ON
  - ▶ IR SMART : OFF / ON
  - ▶ R GAIN : 0 ~ 255
  - ▶ HEIGHT : 0 ~ 15
  - ▶ WIDTH : 0 ~ 15
  - ▶ LEFT / RIGHT : 0 ~ 15
  - ▶ TOP / BOTTOM : 0 ~ 15
  - ▶ IR LEVEL : HIGH / LOW
- ▷ EXT : Day & Night EXT mode

### 9.6 DPC (Dead Pixel Compensation)



- DPC : Select dead pixel compensation processing

### 9.7 SPECIAL

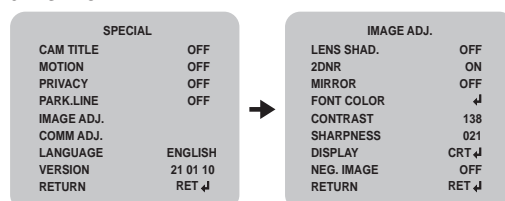


- CAM TITLE : Select camera title menu (Text edit).
- MOTION : Select camera title menu (Text edit)
  - ▶ AREA SEL : Select AREA1, AREA2, AREA3, AREA4
  - ▶ AREA STATE : Select OFF / ON
  - ▶ HEIGHT : Select 0 ~ 15 steps
  - ▶ WIDTH : Select 0 ~ 15 steps
  - ▶ LEFT / RIGHT : Select 0 ~ 15 steps
  - ▶ TOP / BOTTOM : Select 0 ~ 15 steps
  - ▶ DEGREE : Select 0 ~ 255 steps
  - ▶ VIEW : OFF / ON

### 9.7 SPECIAL

- PRIVACY : You can select Hide an area on the screen.
  - ▶ AREA SEL : Select AREA1, AREA2, AREA3, AREA4, AREA5, AREA6, AREA7, AREA8
  - ▶ AREA STATE : Select OFF / ON
  - ▶ HEIGHT : Select 0 ~ 124 steps
  - ▶ WIDTH : Select 0 ~ 200 steps
  - ▶ LEFT / RIGHT : Select 0 ~ 200 steps
  - ▶ TOP / BOTTOM : Select 0 ~ 124 steps
  - ▶ COLOR : Select 0 ~ 15 steps
- PARK. LINE : You can select parking line on the screen.
  - ▶ LT : You can adjust the top left area on screen.(0 ~ 255 steps)
  - ▶ LB : You can adjust the bottom left area on screen.(0 ~ 255 steps)
  - ▶ RT : You can adjust the top right area on screen.(0 ~ 255 steps)
  - ▶ RB : You can adjust the bottom right area on screen.(0 ~ 255 steps)
  - ▶ F : You can adjust the front area on screen.(0 ~ 255 steps)
  - ▶ N : You can adjust the near area on screen.(0 ~ 255 steps)
  - ▶ T : You can adjust the parking line thickness.(0 ~ 15 steps)

### 9.7 SPECIAL

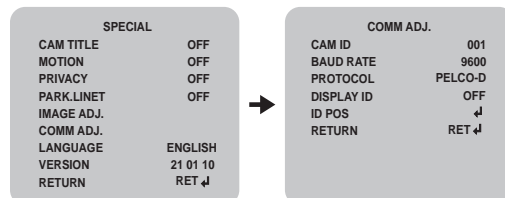


- IMAGE ADJ. : You can adjust camera image.
  - ▶ LENS SHAD : You can adjust lens shading on screen.
    - ▶ LEVEL : 0 ~ 255 steps
  - ▶ 2DNR : You can select Digital Noise Reduction on screen. (OFF/ON)
  - ▶ MIRROR : You can select mirror on screen. (OFF/ON)
  - ▶ FONT COLOR : You can select font color on screen.
    - ▶ FONT : 0 ~ 15 steps
    - ▶ ID & TITLE : 0 ~ 15 steps

### 9.7 SPECIAL

- ▶ CONTRAST : You can adjust contrast on screen. (0 ~ 255 steps)
- ▶ SHARPNESS : You can adjust sharpness on screen. (0 ~ 31 steps)
- ▶ DISPLAY : You can adjust display. (CRT / LCD / USER)
  - ▶ CRT (Cathode Ray Tube, Braun tube)
    - ▶ PED LEVEL : 0 ~ 63 steps
    - ▶ COLOR GAIN : 0 ~ 255 steps
  - ▶ LCD (Liquid Crystal Display)
    - ▶ GAMMA : 0.05 ~ 1.00 steps
    - ▶ PED LEVEL : 0 ~ 63 steps
    - ▶ COLOR GAIN : 0 ~ 255 steps
  - ▶ USER
    - ▶ GAMMA : 0.05 ~ 1.00 steps
    - ▶ PED LEVEL : 0 ~ 63 steps
    - ▶ COLOR GAIN : 0 ~ 255 steps
- ▶ NEG.IMAGE : You can select negative display. (OFF/ON)

### 9.7 SPECIAL



- COMM ADJ. : You can adjust command.
  - ▶ CAM ID : Select the camera ID
    - ▶ 0 ~ 255
  - ▶ BAUD RATE : Select serial communication speed.
    - ▶ 2400 / 4800 / 9600 / 19200 / 38400 / 57600 bps
  - ▶ PROTOCOL : Select operating protocol
    - ▶ PELCO-D / PELCO-P
  - ▶ DISPLAY ID : Select display item.
    - ▶ OFF/ON
  - ▶ ID POS : You can adjust ID position on screen.
- LANGUAGE : You can select language
  - ▶ ENGLISH / CHINESE
- VERSION : Factory vision.
- RESET : Factory default reset.

## 10 TROUBLESHOOTING

If there are problems in operation, please refer to the items below.

If the problem persists, please contact the agent you purchased this product from.

Problems	Troubleshooting
Nothing appears on the screen.	<ul style="list-style-type: none"> <li>Please check the power connection.</li> <li>Please check the video signal line connection.</li> <li>Please check and make sure that the lens mode is set to DC (VIDEO) when using a VIDEO (DC) lens.</li> </ul>
The video image is not clear.	<ul style="list-style-type: none"> <li>Please clean the lens with a clean cloth or brush.</li> <li>Please adjust that the screen is not exposed directly to a bright light.</li> <li>Please move the camera if necessary.</li> <li>Please readjust the back-focus of the camera.</li> </ul>
The screen is dark.	<ul style="list-style-type: none"> <li>Please adjust the contrast feature of the monitor.</li> <li>If you have an intermediate device, set the 75Ω /Hi-Z properly, and check the terminals.</li> <li>Please check if an auto iris lens is being used and adjust the brightness level.</li> </ul>
The MOTION DETECTION function is not working	<ul style="list-style-type: none"> <li>Please check if "MOTION DETECTION" mode is turned on.</li> <li>Please check if the MD Sensitivity is too low.</li> <li>Please check the setting of the MD AREA.</li> </ul>

Problems	Troubleshooting
The WDR function is not working	<ul style="list-style-type: none"> <li>Please check if the WDR Level is too low.</li> <li>Please check if the AE Mode is set to MANUAL. The WDR doesn't work in MANUAL Exposure mode.</li> </ul>
Colors are not quite right.	<ul style="list-style-type: none"> <li>Please check if the camera is facing directly into sunlight or fluorescent light.</li> <li>Please check if an auto iris lens is being used.</li> <li>Please check the connection of the lens connector cable.</li> </ul>
The Day&Night function doesn't work	<ul style="list-style-type: none"> <li>Please check if the AGC of EXPOSURE menu is set to OFF.</li> <li>The Auto Day&amp;Night Function doesn't work in AGC OFF.</li> </ul>

## 11 Specification

	NTSC	PAL
Model	1/3" SONY Super HAD CCD II	
Image Sensor	811(H) × 508(V)	
Total Pixels	795(H) × 596(V)	
Scanning system	2:1 Interface	
Scanning Frequency	15.734KHz(H), 59.94Hz(V)	
Sync. System	Internal	
Resolution	Max 600 TV lines in color (650TV lines in B/W)	
Min. Illumination	Color : 0.1 lux , BW : 0.05 lux (0 lux @ IR LED on)	
Video Output	1.0 Vp-p (75 ohm, composite)	
S/N Ratio	more than 50dB (AGC off)	
Exposure	Shutter/Brightness/AGC/DWDR	
Lens	DC / VIDEO / MANUAL	
Gain Control	Off / Low / Middle / High	
Shutter Speed	1/60 ~ 1/100,000 sec	
DWDR	1/50 ~ 1/100,000 sec	
Flickerless	Off / On (0 ~ 35 steps)	
Brightness	Off / On	
White Balance	0 ~ 255steps	
BLC	ATW1 / ATW2 / AWC / Outdoor / Indoor / Manual	
BLC	Off / BLC / HLC	
HLC	Area / Gain selectable	
Day&Night	All Day / Night / (0~255 steps)	
Auto	Auto / Color / BW / Ext	
BW	Level / Delay selectable	
DPC	Burst off/on / IR Smart off/on (Gain/level selectable)	
Special	Dead Pixels Compensation	
	Title / MD / PM / Parking / Image / Comm / Language / Version	

## 11 Specification

Model	NTSC	PAL
Cam Title	Text Edit	
Motion	Off / On (4 position)	
Privacy	Off / On (8 position)	
Park. Line	Off / On (variable size)	
Comm ADJ.	Cam ID / Baud Rate 2400, 4800, 9600, 19200, 38400, 57600	
Language	Protocol (Pelco-P/D) / ID Display (Position)	
Image ADJ	English / China	
Lens Shading	Lens Shad / DNR / Mirror / Font color / Contrast /	
DNR	Sharpness / Display / Neg. Image	
Mirror	Off / On (0~255 steps)	
Font Color	Off / On	
Contrast	ID & Title / OSD Font color selectable	
Sharpness	0~255 steps	
Display	0~31 steps	
Negative Image	CRT / LCD / User	
Power Source	Off / On	
Power Input	AC24V / DC12V	
Operating Temperature	Connector	
Operating Humidity	-10℃ ~ +50℃	
Storage Temperature	0 ~ 86% (non-condensing)	
	-20℃ ~ +60℃	