600TVL HIGH RESOLUTION C/W Camera.
DIGITAL BOX/DOME CAMERA SERIES

600TVL High-Resolution&Mini-Illumination Camera

OWNER'S MANUAL

◆ High Resolution 600TVL
◆ Ultra-low Illumination
◆ RS485 Remote Control
◆ Super Back light Compensation
◆ 4 Privacy Zone Setup
◆ Digital Noise Reduction Function

P/N:3810-0185D〔Ver. 0907E〕

Design and specifications are subject to change without notice.

⚡	**CAUTION** BE CAREFUL 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. ONLY FOR PROFESSIONAL REPAIR SERVICE PERSONNEL USE.		

⚡ The light flash with arrow symbol, within an equilateral triangle, is intended to alert the user that the presence of un-insulated dangerous voltage" within the product's enclosure 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 that the presence of important operating and maintenance-(servicing) instructions in the literature accompanying the appliance.

The graphic symbols with supplemental marking are on the bottom of the device.
"Warning-to prevent fire or shock hazard, do not expose the unit to rain or moisture."

2

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 their own expense.

WARNING
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 except for that specified.
 • Do not expose this appliance to rain or moisture.

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

Thank you for purchasing this COLOR VIDEO CAMERA.
Before using this camera, please read this operation manual carefully
to obtain the best result and keep this manual for future reference.

Read Instructions
Read all of the safety and operating instructions before using the product.

Retain Instructions
Save this instructions for later use.

Cleaning
Unplug this appliance from wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Water and Moisture
Do not use this product near water or moisture. (For example. near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near swimming pool, etc.)

Installation
Do not place this product on an unstable cart, stand, or table, The product may fall causing serious injury to a child or adult, and damage to the product.
Use only with a cart or stand recommended by the manufacturer, or sold with the product. Mounting should follow the manufacturer is instructions, and should use a mounting accessory recommended by manufacturer.

Power source
This product should be operated only from the type of power source indicated on the marking label.
If you are not sure of the type of power supplied to your home, consult your dealer or local power company.

Do not install the camera in extreme temperature conditions.
Operate the camera under conditions where temperatures are within −10℃ to −50℃.
Especially be careful for ventilation under high temperature.
Do not install or use the camera in an environment where the humidity is high.
It can cause the image quality to be poor.
Do not install the camera under unstable lighting conditions.
Severe lighting change or flicker can cause the camera to work improperly.
Never use the camera close to a gas or oil leak.
It can cause malfunctions to occur.
Do not disassemble the camera.
There are no user repairable parts inside.
Do not drop the camera or subject them to physical shocks.
It can cause malfunctions to occur.
Never keep the camera face to strong light directly.
It can damage CCD.
Do not expose the camera to rain or spill liquid on it.
If it gets wet, wipe it with dry cloth immediately.
Liquids can contain minerals that corrode the electronic components.

ⓘ **NOTE** **When this camera is installed near wireless communication devices that emitis strong electromagnetic field, irregularity such as noise on the monitor may appear.**

1. Diagonal 6mm (1/3") 1/3 inch SONY Super HAD CCD Ⅱ

2. Min illumintaion lllumination(F1.2)
-0.1 LUX (COLOR)
- 0.001 LUX (B/W)

3. High performance function menus
- Ultra High Resolution (600TVL)
- SBLC (Super Back Light Compensation)
- DNR (Digital Noise Reduction)
-Privacy zone selectable.
- Motion detection selectable.
- MIRROR (HORIZONTAL)
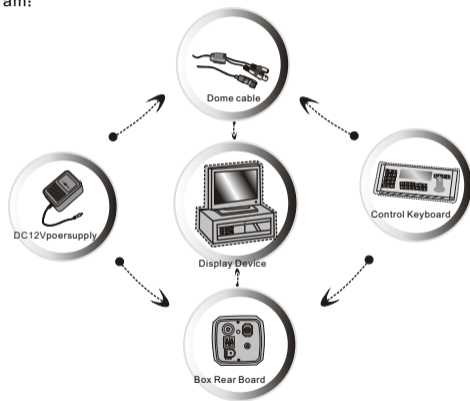- Flickerless On/Off.

4. Selectable, day & Night
 - ICR(OPTIONAL)

5. RS-485 Communiction Control Support
(OPTIONAL)
- Remote OSD menu control via an RS-485 interface is supported.

Connection Diagram：

Dome cable

Control Keyboard

DC12Vpoersupply

Display Device

Box Rear Board

LENS	ESC	BRIGHTNESS	0~20
		FLK	OFF/ON
	DC	DC LEVEL	0~20
		FLK	OFF/ON
		SHUTTER	1/60(1/50),1/120(1/100),1/250,1/500,1/700,1/1K,1/2500,11/1600
			1/2500,1/5K,1/7K,1/10K,1/30K,1/60K,1/120K
WHITE BAL	ATW		
	MANUAL	RED	0~160
		BLUE	0~160
	PUSH		
AGC	ON	LEVEL	0~20
	OFF		
DAY/NIGHT	COLOR		
	B/W	BURST	
	EXT		OFF/ON
	AUTO	DELAY TIME	0~15

IMAGE ADJ	SBLC	OFF, LOW, MIDDLE, HIGH	
	DNR	OFF, LOW, MIDDLE, HIGH	
	SHARPNESS	LEVEL	0~20
	MIRROR	OFF, ON	
	MOTION	AREA	1~4
		DISPLAY	OFF/ON
		SENSTIVITY	1~24
		TOP	8~126
		BOTTOM	8~126
		LEFT	8~119
		RIGHT	8~119
		INITIAL	OFF/ON
		RETURN	
	PRIVACY	AREA	1~4
		DISPLAY	OFF/ON
		COLOR	WHITE, YELLOW, GREEN, BLUE, RED, BLACK, GRAY
		TOP	4~63
		BOTTOM	5~64
		LEFT	18~205
		RIGHT	19~206
		INITIAL	OFF/ON
		RETURN	

IMAGE ADJ	COLOR GAIN	R−Y	0~20
		B−Y	0~20
	INITIAL		OFF/ON
	RETURN		
GENERAL	CAM ID		0~255
	ID DISPLAY		OFF/ON
	CAM TITLE	OFF	
		ON	UP/DOWN/LEFT/RIGHT
	LANGUAGE		ENG, CHN
	SYNC		INT
	BAUDRATE		2400,4800,9600,57600
	VERSION		
	INITIAL		OFF/ON
	RETURN		
INITIAL			OFF/ON
RETURN			

Dome Camera Control Board Diagram:
Use the joystick to navigate between 5 ways.
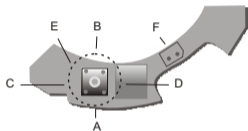
A: DOWN : Move down B: UP: Move up
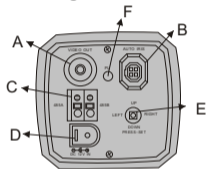C: LEFT: Move left
D: RIGHT: Move right
E: MENU(SET):
Press the joystick in its straight position.
F: Sevice Monitor Connecter:
Use service monitor connector to set camera
angle& focus when installing.
(Image cannot be seen if monitor output and
service video output is used simultaneously.)

BoxRear Board Diagram：

A： Video Out
B： Auto Iris plug
C： RS485 interface
D： Power interface
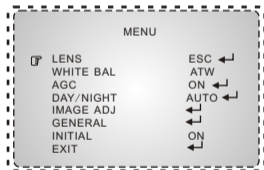E： Menu settings(Menu selection,
    UP, Down Left,Right selection)
F： Power Indicator Light

Press MENU button to access the SETUP menu.

Select each sub-menu by moving "MENU" button to up, down, left, right. Press the MENU(SET)
button to select.

```
                 MENU
☞   LENS              ESC ←
    WHITE BAL         ATW
    AGC               ON ←
    DAY/NIGHT         AUTO ←
    IMAGE ADJ         ←
    GENERAL           ←
    INITIAL           ON
    EXIT              ←
```
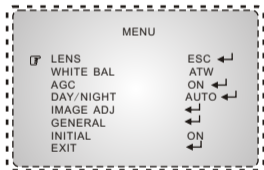
If the OSD MENU is changed then INITIAL will be OFF ← (EXCEPT: LENS, CAM ID, BAUDRATE)

LENS

Press the MENU button to access the SETUP menu.

```
                    MENU

☞  LENS              ESC ↵
   WHITE BAL         ATW
   AGC               ON ↵
   DAY/NIGHT         AUTO ↵
   IMAGE ADJ         ↵
   GENERAL           ↵
   INITIAL           ON
   EXIT              ↵
```
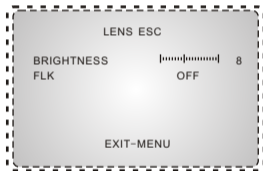
LENS
  - Select LENS using the UP or DOWN button. You can change between ESC and DC using the LEFT or RIGHT button.
Select ESC and Press MENU button to display LENS ESC.

```
┌─────────────────────────────────┐
│          LENS  ESC              │
│                                 │
│   BRIGHTNESS      |··········|  8│
│   FLK                  OFF      │
│                                 │
│                                 │
│                                 │
│            EXIT−MENU            │
└─────────────────────────────────┘
```

1. BRIGHTNESS
  - Select BRIGHTNESS using the UP or DOWN button.You can adjust between 0−20 using the LEFT or RIGHT button.
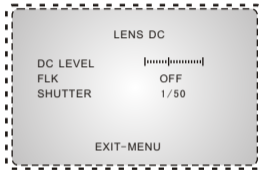**2. FLK (FLICKERLESS)**
  - Select FLK using the UP or DOWN button. You can selectbetween ON I OFF using the LEFT or RIGHT button.
NOTE: Press Menu to go back to Main Menu.

Select DC and Press the MENU button to activated LENS DC.

```
                    LENS DC

    DC LEVEL          |........|........|
    FLK               OFF
    SHUTTER           1/50


                  EXIT-MENU
```

1. DC LEVEL(Adjust brightness of the image.)
  - Select DC LEVEL using the UP or DOWN button. You can adjust **it from 0 to 20 level by** using the
    LEFT or RIGHT button.
2. FLK (FLICKERLESS)
  - Select ELK using the UP or DOWN button. You can select between ON / OFF using the LEFT
    RIGHT button.
  > OFF: You will be allowed to adjust the shutter speed.
**3. SHUTTER (Adjusts the shutter speed of the lens.)**
  - Select SHUTTER using the UP or DOWN button. You can adjust from 1/60(1/50), 1/120(1/100),
    1/250, 1/500, 1/700, 1/1K, 1/1600, 1/2500, 1/5K, 1/7K, 1/10K, 1/30K, 1/60K, 1/120K(sec) level
    using the LEFT or RIGHT button.

WHITE BAL (White Balance)

Select WHITE BAL using the UP or DOWN button. You can select from ATW, MANUAL, PUSH using the LEFT or RIGHT button.

1. ATW : Color temperature is automatically adjusted to 2,000°K 10,000°K

2. MANUAL : To set a certain color temperature with RED CONT, BLUE CONT
- Select MANUAL using the UP or DOWN button and press the MENU button to activate WB MANUAL option.

```
WB MANUAL

RED     |⋯⋯|⋯⋯|    63
BLUE    |⋯⋯⋯⋯|⋯|    96


EXIT–MENU
```
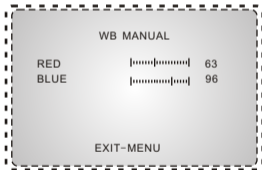
1. RED : To adjust density of RED (0˘160)
2. BLUE : To adjust density of BLUE (0˘160)

3. PUSH: If the set color temperature does not meet your environment, press the MENU button to adjust the color temperature to desired setting.

AGC (Automatic Gain Control)

Select AGC using the UP or DOWN button. You can select between OFF, ON using the
LEFT or RIGHT button.
1 ON Select ON using the LEFT or RIGHT button and press the MENU button to activate
       AGC option

```
            AGC

LEVEL           |···············|··|    15



         EXIT-MENU
```
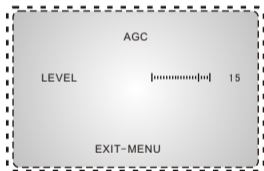
1. LEVEL : You can adjust between 0-20 using LEFT or RIGHT button.

2.OFF:Disable the AGC

DAY/NIGHT

Select DAY / NIGHT using the UP or DOWN button.You can select between AUTO, COLOR, B/W, EXT using the LEFT or RIGHT button.

1. COLOR: for color mode only (DAY mode)
2. B/W : for BLACK and WHITE mode only (NIGHT mode)
   - Select B/W using the LEFT or RIGHT button and press the MENU button to activate COLOR BURST option.

```
           COLOR BURST


BURST                    ON


         EXIT-MENU
```
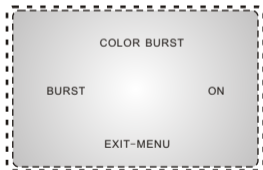
It is possible to select ON/OFF using the LEFT or RIGHT button.

3. EXT: To switch between COLOR or BLACK and WHITE depending on external signals.
   NOTE: This function is not supported forthis model. (Optional)
4. AUTO : To switch between COLOR or BLACK and WHITE automatically upon the illumination.
   -Select AUTO using the LEFT or RIGHT button and press MENU button to activate CHANGE
   DELAY TIME option.

```
CHANGE DELAY TIME


DELAY TIME          3  sec



        EXIT-MENU
```

You can adjust the DELAY TIME from 1~15 using the LEFT or RIGHT button.

**NOTE: In AUTO D&N model, external IR lights will cause camera D/N filter to flicker.
         Camera using external IR may cause D&N filter to flicker.**

IMAGE ADJ(Image Adjust)

Select IMAGE ADJ using the UP or DOWN button and press the MENU button to activate the IMAGE ADJ mode.

```
                    IMAGE ADJ

 ☞   SBLC              OFF
     DNR               LOW
     SHARPNESS         ↵
     MIRROR            OFF
     MOTION            ↵
     PRIVACY           ↵
     COLOR CAIN        ↵
     INITIAL           ON
     RETURN            ↵
```

1. SBLC (Super Back Light Compensation) : To lighten a darker part of the image
- Select SBLC using the UP or DOWN button. You can select between OFF, LOW, MIDDLE, HIGH using the LEFT or RIGHT button.

2. DNR (Digital Noise Reduction) : To reduce the image noise especially during the low ambient
lighting conditions.
- Select DNR using the UP or DOWN button. You can adjust between OFF, LOW, MIDDLE, HIGH
using the LEFT or RIGHT button
3. SHARPNESS : To adjust SHARPNESS of the image.
- Select SHARPNESS using the UP or DOWN button. ou can select between ON OFF using the
LEFT or RIGHT button
- Select ÷i and press the MEUN button to activate SHARPNESS option.

```
          SHARPNESS

 LEVEL        |···········|··|  10




          EXIT-MENU
```
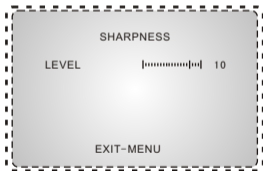
- You can adjust the sharpness from 0 20 using the LEFT or RIGHT button.

22

4. MIRROR

- Select MIRROR using the UP or DOWN button. You can select from ON/OFF using the LEFF or RIGHT button.

(1) ON : Horizontal image flip.

(2) OFF: default

5. MOTION (Motion Detect)

Select MOTION using the UP or DOWN button and press MENU button to activate MOTION DETECT option.

```
                MOTION

☞    AREA            1
     DISPLAY         OFF
     SENSITIVITY     5
     TOP             22
     BOTTOM          74
     LEFT            13
     RIGHT           89
     INITIAL         ON
     RETURN          ↵
```

1) AREA : To specify MOTION DETECTION area
- Select AREA using the UP or DOWN button. You can select from
  area 14 position using the LEFT or RIGHT button.

1	2
3	4

2) DISPLAY : To display MOTION DETECTED area on the video
- Select DISPLAY using the UP or DOWN button. You can select
  between ON/OFF using the LEFT or RIGHT button.
  (1) ON : display the MOTION DETECTED area on the screen
  (2) OFF: disable

1

3) SENSITIVITY : To setup the motion sensitivity
- Select SENSITIVITY using the UP or DOWN button. You can adjust the motion sensitivity of
  a movement from 124 using the LEFT or RIGHT button.
  (1) 1: most sensitive (highest)
  (2) 24 : least sensitive (lowest)

**4) TOP I BOTTOM I LEFT / RIGHT:** Users can specify MOTION DETECTED area.
- Select TOP, BOTTOM, LEFT, or RIGHT using the UP or DOWN button. You can adjust the AREA using the LEFT or RIGHT button.
(1) TOP : extend or reduce the upper area of the MOTION DETECTED area (8~126)
(2) BOTTOM : extend or reduce the bottom area of the MOTION DETECTED area (8~126)
(3) LEFT: extend or reduce the left side of the MOTION DETECTED area (4~191)
(4) RIGHT: extend or reduce the right side of the MOTION DETECTED area (4~191)
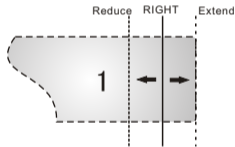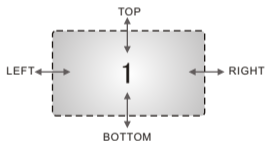
5) INITIAL : To reset the MOTION DETECT mode.
- Select INITIAL using the UP or DOWN button. You can reset the MOTION DETECT mode using the MENU button.
6) RETURN : To return to IMAGE ADJ MENU
- Select RETURN using the UP or DOWN button. You can return to IMAGE ADJ MENU using the MENU button.

6 PRIVACY
  - Select PRIVACY using the UP or DOWN button and press the MENU button to active the
    PRIVACY option.

```
                PRIVACY

    ☞   AREA                1
        DISPLAY             OFF
        COLOR               WHITE
        TOP                 16
        BOTTOM              38
        LEFT                44
        RIGHT               104
        INITIAL             ON
        RETURN              ↵
```

1) AREA : To specify the PRIVACY area
- Select AREA using the UP or DOWN button. You can select area from 1 4 position using the LEFT or RIGHT button.

1	2
3	4

2) DISPLAY : To display the Privacy Zone area
- Select DISPLAY using the UP or DOWN button. You can select between ON/OFF using the LEFT or RIGHT button.
 (1) ON : display the Privacy Zone area
 (2) OFF: disable

3) COLOR : To change color of privacy zone
- Select COLOR using the UP or DOWN button. You can adjust from WHITE, YELLOW, GREEN, BLUE, RED, BLACK,or GRAY using the LEFT or RIGHT button.

**4) TOP I BOTTOM I LEFT / RIGHT:** Users can specify PRIVACY ZONE area
- Select TOP, BOTTOM, LEFT or RIGHT using the UP or DOWN button. You can adjust the privacy zone using the LEFT or RIGHT button.
(1) TOP : extend or reduce the upper area of the MOTION DETECTED area (4˜63)
(2) BOTTOM extend or reduce the bottom area of the MOTION DETECTED area (5˜64)
(3) LEFT: extend or reduce the left side of the MOTION DETECTED area (18˜205)
(4) RIGHT: extend or reduce the right side of the MOTION DETECTED area (19˜206)
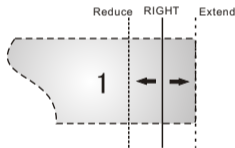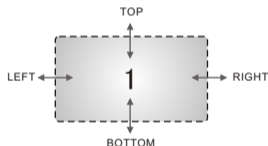
5) INITIAL : To reset to factory default only on the PRIVACY mode.
- Select INITIAL using the UP or DOWN button. You can reset the PRIVACY mode using the MENU button.
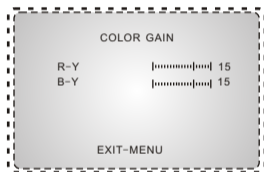**6) RETURN :** To return to IMAGE ADJ MENU
- Select RETURN using the UP or DOWN button. You can return to IMAGE ADJ MENU using the MENU button.

7. COLOR GAIN
- Select COLOR GAIN using the UP or DOWN button and press MENU button to activate COLOR MODE option.

```
                    COLOR GAIN

        R-Y        |············|···| 15
        B-Y        |············|···| 15



                    EXIT-MENU
```

1. R-Y : To adjust density of RED(0˚20)
2. B-Y : To adjust density of BLUE(0˚20)

8. INITIAL: To reset to factory default only on the IMAGE ADJ mode.
- Select INITIAL using the UP or DOWN button and reset the IMAGE ADJ mode using the MENU button.
9. RETURN: To return to MAIN MENU
-Select RETURN using the UP or DOWN button and return to MENU using the MENU button.

GENEAAL

Select GENERAL using the UP or DOWN button and press the MENU button to activate the GENERAL mode.

```
               GENERAL

☞   CAMID              1
     ID  DISPLAY        OFF
     CAM  TITLE         OFF
     LANGUAGE          ENG
     SYNC              INT
     BAUDRATE          2400
     VERSION           AP. 1. 4. 03
     INITIAL           ON
     RETURN            ↵
```

1. CAM ID : CAMERA ID (RS-485 Communication ID)

- Select CAM ID using the UP or DOWN button. You can select between the range 000~255 using the LEFT or RIGHT button.

NOTICE : CAM ID does not reset after user setting.

2. ID DISPLAY (CAMERA ID DISPLAY)

- Select ID DISPLAY using the UP or DOWN button. You can select between ON/OFF using the LEFT or RIGHT button.
 (1) ON : To display camera ID on the screen
  (2) OFF: disable

3. CAM TITLE

- Select CAM TITLE using the UP or DOWN button. You can adjust ON/OFF using the LEFT or RIGHT button.
  (1) ON : To display the camera title on the screen
  (2) OFF: disable

```
┌─────────────────────────────┐
│          CAM TITLE          │
│   ┌─┐                       │
│   │ │────────────────────   │
│   └─┘                       │
│  UP/DN   -   CHAR SELECT    │
│  LE/RI   -   POSITION       │
│        EXIT-MENU            │
└─────────────────────────────┘
```

- Select ON and Press MENU button to display CAM TITLE.
  (1) UP/DN : To select character using the UP or DOWN button (0~9,A~Z)
  (2) LE/RI : To select position using the LEFT or RIGHT button.
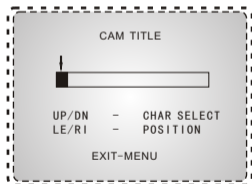
4. LANGUAGE
- Select LANGUAGE using the UP or DOWN button. You can change between ENG or CHN using the LEFT or RIGHT button.

5. SYNC
- Internal Synchronization Type: INT

6. BAUDRATE
- Select BAUDRATE using the UP or DOWN button. You can change from 2400bps, 4800bps 9600bps, 57600bps using the LEFT or RIGHT button.

7. VERSION

8. INITIAL : To reset to factory default only on the GENERAL mode.
- Select INITIAL using the UP or DOWN button, You can reset to factory default for GENERAL mode using the MENU button.

9. RETURN : To return to MENU
- Select RETURN using the UP or DOWN button. You can return to the MENU using the MENU button.

(INITIAL)
To reset to factory default.
- Select INITIAL using the UP or DOWN button and reset to factory default using the MENU button.

(EXIT)
To exit out from the OSD setup menu.
- Select EXIT using the UP or DOWN button and close the OSD setup menu by pressing MENU button.

Model		
Signal System	PAL	NTSC
Scanning System	2：1Interlace	
Scanning Frequency(H)	15.625KHZ	
Scanning Frequency(V)	50HZ	60HZ
Image Sensor	1/3 inch SONY Super HAD CCD Ⅱ	
Sync. System	Internal	
Effective Pixels Number	752(H) x 582(V)	768(H) x 494(V)
Horizontal Resolution	Colour600TV Lines (B/W650TV Lines)	
Video Output Level	1.0Vp-p(75Ω, Composite)	
S/N Ratio	More than50dB(AGC OFF)	
Min. Illumination	0.1lux(Color),0.001lux(B/W)	
Day & Night System	AUTO/COLOR/BW	
Digital Noise Reduction (SDNR)	Low, Middle, High, Off	
AGC	On/Off	
SBLC	Off, Low, Middle, High	
Electronic Shutter Speed	1/50~1/120,000	1/60~1/120,000
OSD Menu	English, Chinese	
Mirror Function	Horizontal	
Privacy Zone	On/Off (4 Programmable Zone)	
Motion detection	On/Off (4 Programmable Zone)	
White Balance	ATW, Manual, Push	
Power Voltage	DC12V(DC10V～DC15)	
Power Consumption	Max2.2W/180mA	

If you have trouble operating your camera, refer to the following guidelines. If the guidelines do not help you to solve the problem, contact an authorized technician.

Nothing appears on the screen
1. Check that the power cord and line connection between the camera and monitor are fixed properly.
2. Check that you have properly connected VIDEO cable to the camera VIDEO output jack.

The Image on the screen is dim.
1. Is lens stained with dirt? Clean your lens with soft, clean cloth.
2. Set the monitor to proper condition.
3. If the camera is exposed to too strong light, change the camera position.
4. Adjust the lens' focus properly.

The image on the screen is dark
1. Adjust the contrast feature of the monitor.
2. If you have an intermediate device, set the 750 / Hi-z properly.
3. Adjust DC Level, VR level properly.

The camera is not working properly, and the surface of the camera is hot.
Check that you have properly connected the camera to an appropriate power source.

The image on the screen flickers.
Check whether the camera is exposed to strong sunlight or fluorescent lighting.