

Ultra High Resolution Color Camera

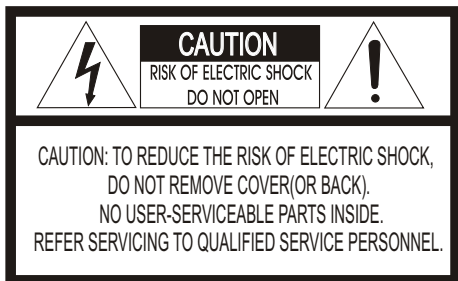


Please read this manual thoroughly before use, and keep it handy for future reference.

WARNINGS AND CAUTIONS:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION:



EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with 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 product.

PRECAUTIONS

Safety -----

Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by the qualified personnel before operating it any further.

Unplug the unit from the wall outlet if it is not going to be used for several days or more. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

Height and vertical linearity controls located at the rear panel are for special adjustments by qualified personnel only.

Installation -----

Do not install the unit in an extremely hot or humid place or in a place subject to excessive dust, mechanical vibration.

The unit is not designed to be waterproof. Exposure to rain or water may damage the unit.

Cleaning -----

Clean the unit with a slightly damp soft cloth. Use a mild household detergent. Never use strong solvents such as thinner or benzene as they might damage the finish of the unit.

Retain the original carton and packing materials for safe transport of this unit in the future.

FCC COMPLIANCE STATEMENT

FCC INFORMATION : 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.

CAUTION : CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

CE COMPLIANCE STATEMENT

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.

IMPORTANT SAFEGUARDS

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 moisture, does not operate normally, or has been dropped.
15. **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.**
16. **Use Certified/Listed Class 2 power source only.**

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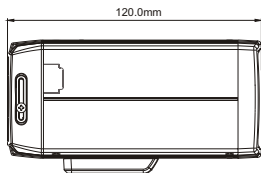
INTRODUCTION

The camera provides high-quality images using SONY CCD technology especially designed for closed-circuit television (CCTV) and security surveillance applications.

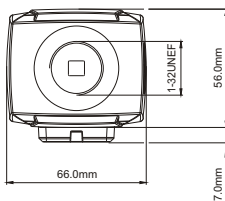
Features:

- High resolution and high performance 1/3" SONY Super HAD CCD Technology
- Excellent picture quality
- 600 lines(Color) of resolution
- 0.1 lux(Color), 0.04 lux(B/W) @ F1.2 50IRE Sensitivity
(Sense up x 256 - 0.0004 lux(Color), 0.0001 lux(B/W))
- Auto electronic shutter [1/60(1/50) ~ 1/120,000] and manual electronic shutter modes
- OSD (On Screen Display)
- 3D DNR Function
- Eclipse
- DRC (Dynamic Range Control)
- Auto and manual white balance modes
- BLC (Back Light Compensation)
- Day&Night (Auto / DAY / NIGHT / EXT)→(EXT : D&N With ICR model option)
- Private Mask (24 position, BW, Color, Mosaic)
- AGC (Auto Gain Control)
- Sense-up (x2 ~ x256)
- MIRROR (NORMAL /MIRROR/VERTICAL /ROTATE)
- VIDEO OUT(BNC,UTP(option))
- Motion Detection
- Internal / AC line lock
- RS485 CONTROL
- Compatible with video or DC - type lens with OSD select.
- Quick connect for video or DC lens with 4-pin connector.
- Operates in 12 VDC or 24 VAC
- Use Certified / Listed Class 2 power supply only.

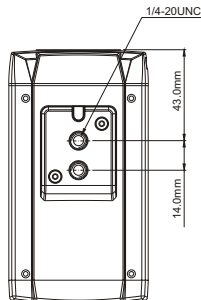
CAMERA OVERVIEW



SIDE VIEW

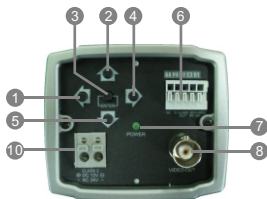


FRONT VIEW

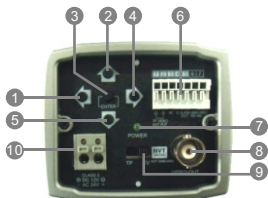


BOTTOM VIEW

REAR VIEW



< W / O UTP Model >



< W / UTP Model >

- ① Left Button
- ② Up Button
- ③ Enter Button
- ④ Right Button
- ⑤ Down Button
- ⑥ Day / Night External Input
- ⑦ Power Indicator
- ⑧ Video Out Connector (BNC)
- ⑨ UTP or BNC Transformation Switch (option)
- ⑩ AC/DC Compatible Input Terminal

Terminal Block

*⑥, ⑨ - UTP Option

CONTENTS OF PACKAGE

Installation of the camera must be performed by qualified service personnel in accordance with all local and national electrical and mechanical codes.

Carefully remove the color camera and its accessories from the carton and verify that they were not damaged in shipment.

The contents of the package includes:

1. Color CCD camera
2. Mini-DIN connector (for video-or dc-type auto-iris lens)
3. CS adapter ring for C mounting "C" lenses
4. This manual

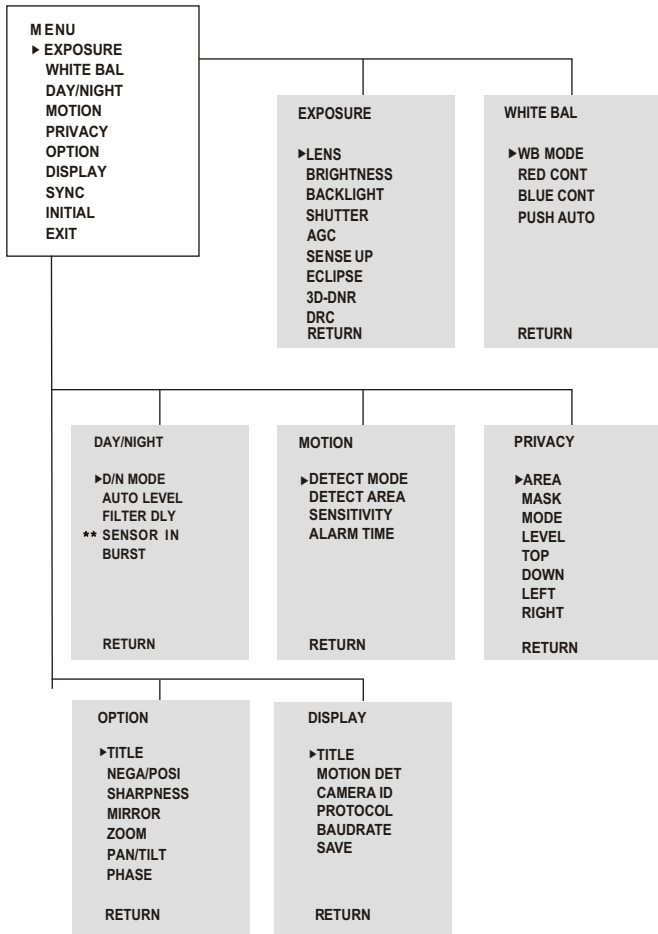
CAMERA ADJUSTMENT

OSD MAIN SCREEN

MENU	
► EXPOSURE	+...
WHITE BAL	+...
DAY/NIGHT	+...
MOTION	+...
PRIVACY	+...
OPTION	+...
DISPLAY	+...
SYNC	AUTO
INITIAL	DEF AULT
EXIT	

- [ENTER] ON or OFF of OSD MENU
- [UP] / [DOWN] UP or DOWN of Cursor
- [LEFT] / [RIGHT] SUB MENU ON or Decision

- 1) EXPOSURE, WHITE BAL, DAY/NIGHT, MOTION, PRIVACY, OPTION and DISPLAY has a SUB MENU. [UP]/[DOWN] of Cursor.
And SUB MENUS is displayed by [LEFT] / [RIGHT].
- 2) SYNC : AUTO or INT can be selected.
- 3) When making INITIAL from USER to DEFAULT, all data is initialized.
- 4) To EXIT the menu use the [LEFT] / [RIGHT] buttons when EXIT is highlighted.



****SENSOR IN : Only D&N with ICR model**

<EXPOSURE>

Press the [LEFT] or [RIGHT] button to access the "EXPOSURE" mode.

- 1) LENS DC, Video, ELC can be selected.
- 2) BRIGHTNESS 0 to 60 can be selected.
* Level setting is available in DC, Video, ELC mode.
- 3) BACKLIGHT ON or OFF can be selected. (BLC level, location)
* Prevents such a back light effect to secure a clear image under all illumination environments.
- 4) SHUTTER 1/60 (1/50), FLC, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
1/30000, 1/60000, 1/120000 sec.
* When LENS is DC or VIDEO, it is possible to select it.
Another becomes NOT USE.
- 5) AGC AGC OFF, LOW, MID, HIGH can be selected.
* As the level of gain increases, the screen gets brighter and the level Of noise also increases.
- 6) SENSE UP OFF, x2, x4, x8, x16, x32, x64, x128, x256 can be selected.
* SENSE UP helps maintain a bright, clear screen image by automatically detecting change in the level of light
- 7) ECLIPSE ON or OFF can be selected.
* The function improves the identification capability of subjects facing a brightly lit situation by filtering out the strength of the light.
- 8) 3D-DNR OFF, LOW, MID, HIGH can be selected.
* Reduces the noise on the screen under low light condition
- 9) DRC ON or OFF
* The function to visibly brighten a subject in a dark area
- 10) RETURN Return to MAIN MENU.

<WHITE BALANCE>

Press the [LEFT] or [RIGHT] button to access the "WHITE BALANCE" mode.

1) WB MODE

- ATW This mode can be used within the color temperature range 1.800°K ~ 10.500°K
- AWC Please press the [LEFT] or [RIGHT] button in the PUSH AUTO mode while the camera is directed at a piece of white paper to obtain the optimum state under current illumination.
If the environment including the light source is changed, you have to adjust the White balance again.
- MANUAL Manual mode. User can change R and B Gain manually.
- INDOOR Set the color temperature to 3200°K
- OUTDOOR Set the color temperature to 6300°K

2) RED CONT

Adjust Red Gain Value (0 ~ 127)
Can be adjust while in manual mode.

3) BLUE CONT

Adjust BLUE Gain Value (0 ~ 127)
Can be adjust while in manual mode.

4) PUSH AUTO

When it is AWC, OFF to PUSH can be selected.

5) RETURN

Return to MAIN MENU.

<DAY/NIGHT>

Press the [LEFT] or [RIGHT] button to access the "DAY/NIGHT" mode.

- 1) **D/N MODE** AUTO, DAY, NIGHT, EXT can be selected.
 - AUTO This camera has a function which automatically changes to the appropriate mode for day-time or night-time.
 - DAY In this mode, the camera outputs the video image only in color.
 - NIGHT In this mode, the camera outputs the video image only in black and white.
 - EXT In this mode, an external signal changes the camera output from the COLOR mode to BW mode and back.
*EXT : Only D&N with ICR Model (Option)
- 2) **AUTO LEVEL** When set to AUTO, the 0 to 3 values can be selected.
* AGC LOW : 0 AGC MID : 0 ~1 AGC HIGH : 0 ~3
- 3) **FILTER DLY** When set to AUTO, 4 to 10 can be selected.
When AGC is OFF, NOT USED.
* Adjust the delay time of filter movement when changing from on to off or off to on.
- 4) **SENSOR IN** When it is EXT, No or NC Can be selected.
*SENSOR IN : Only D&n with ICR Model.(Option)
- 5) **BURST** When it is DAY, Not Use.
Another mode be comes ON or OFF can be selected.
- 6) **RETURN** Return to MAIN MENU.

<MOTION>

Press the [LEFT] or [RIGHT] button to access th "MOTION"mode.

- 1) **DETECT MODE** ON or OFF can be selected.
* Turning on becomes invalid while displaying OSD.
However, it becomes effective only at MOTION AREA.
- 2) **DETECT AREA** MOTION AREA is displayed.
- 3) **SENSITIVITY** 0 to 8 can be selected.
- 4) **ALARM TIME** 1 to 60 sec can be selected.
- 5) **RETURN** Return to MAIN MENU.

<PRIVACY>

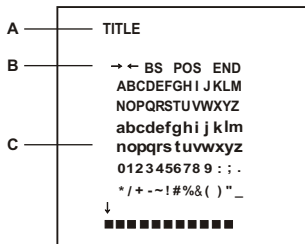
Press the [LEFT] or [RIGHT] button to access the "PRIVACY" mode.

- 1) **AREA** 1 to 24 can be selected.
- 2) **MASK** ON or OFF can be selected.
- 3) **MODE** When MASK is ON, BW, MOSAIC, COLOR can be selected.
- 4) **LEVEL**
 - BW : 0 to 15 can be selected.
 - MOSAIC : SMALL or MIDDLE or LARGE can be selected.
 - COLOR : RED, BLUE, GREEN, YELLOW, CYAN, MAGENTA can be selected.
- 5) **TOP** When MASK is ON, 3 to 124(NTSC) or 6 to 150(PAL) can be selected.
- 6) **DOWN** When MASK is ON, 5 to 126(NTSC) or 8 to 152(PAL) can be selected.
- 7) **LEFT** When MASK is ON, 0 to 187(NTSC) or 0 to 185(PAL) can be selected.
- 8) **RIGHT** When MASK is ON, 2 to 189(NTSC) or 2 to 187(PAL) can be selected.
- 9) **RETURN** Return to MAIN MENU.

<OPTION>

Press the [LEFT] or [RIGHT] button to access the "OPTION" mode.

1) TITLE



- A. TITLE**
- B. Command Line**
- ← : Move to left
 - : Move to right
 - BS : Erase a left character
 - POS : Change the position of the title
 - END : End
- C. Character Table**
- : blank
 - : space

- | | |
|---------------------|--|
| 2) NEGA/POSI | NEGA or POSI can be selected. |
| 3) SHARPNESS | 0 to 15 can be selected. |
| 4) MIRROR | NORMAL, MIRROR, VERTICAL, ROTATE can be selected. |
| - MIRROR | Horizontal image inversion |
| - VERTICAL | Vertical image inversion |
| - ROTATE | Horizontal image and Vertical image inversion |
| 5) ZOOM | 0FF(x1) and ON1 to ON8(x4) can be selected.
When PAN/TILT is ON, it is NOT USE. |
| 6) PAN/TILT | OFF or ON(x2) can be selected.

* When OSD MENU is OFF and PAN/TILT is ON,
operate by [UP],[DOWN],[LEFT],[RIGHT]. |
| 7) PHASE | Sync phase is adjustable in line lock mode (Auto mode)
0 ~ 524 (NTSC) or 0 ~ 624 (PAL). |
| 8) RETURN | Return to MAIN MENU |

<DISPLAY>

Press the [LEFT] or [RIGHT] button to access the "DISPLAY" mode.

- | | |
|----------------------|--|
| 1) TITLE | ON or OFF can be selected. |
| 2) MOTION DET | ON or OFF can be selected. |
| 3) CAMERA ID | Select the camera ID. (001 ~ 254) |
| 4) PROTOCOL | Select operating protocol
FASTRAX : Fastrax protocol.
PELCO-D : PELCO-D protocol.
PELCO-P : PELCO-P protocol. |
| 5) BAUDRATE | Select serial communication speed. (2400 / 4800 / 9600 / 19200) |
| 6) SAVE | Save the changed parameters of CAMERA ID, PROTOCOL, BAUDRATE. |
| 7) RETURN | Return to MAIN MENU. |

CONTROL AND CONNECTIONS/DAY&NIGHT INPUT / ALARM OUT TERMINALS - (UTP MODEL)

<WITH UTP MODEL>

1	2	3	4	5	6	7
TP VIDEO OUTPUT		D&N	COM	ALARM	RS-485	
⊖	⊕	IN	GND	OUT	RS 485+(RX)	RS 485-(TX)

*3Pin : Only D&N with ICR model option (DDN model : NC)

1) CAMERA CONTROL

- 6 PIN : RS 485+
- 7 PIN : RS 485-

2) DAY&NIGHT INPUT Terminal (Only D&N with ICR model option)

To select Day/Night mode using external equipment, connect control line to the appropriate terminal.

• DAY&NIGHT EXTERNAL INPUT (2pin)

It is the function that can be switched to DAY Mode or NIGHT Mode by receiving the D&N on/off signal from external light sensor or IR LED LAMP. When D&N Mode is set "EXT" on the OSD menu of the camera.



3) ALARM OUT (5pin)

Motion detection signals are output through this port. (OFF : GND, ON : 3.3V)

4) POWER INPUT TERMINAL



- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V ac +/-10% 60/50Hz +/- 1Hz.
- Use Certified/Listed Class 2 power supply only.
- In DC power, use the Adapter mode than DC 12V 500mA Capacity.

5) VIDEO OUT CONNECTOR

BNC : This BNC connector provides a 1.0Vp-p/75 ohms composite video Signal.

UTP : Unshielded Twisted Pair video Transmission for effective installation(option).

1PIN : TP VIDEO OUTPUT ⊖

2PIN : TP VIDEO OUTPUT ⊕

CONTROL AND CONNECTIONS/DAY&NIGHT INPUT / ALARM OUT TERMINALS - (W/O UTP MODEL)

<W/O UTP MODEL>

1	2	3	4	5
D&N	COM	ALARM	RS-485	
IN	GND	OUT	RS 485+(RX)	RS 485-(TX)

*1Pin : Only D&N with ICR model option (DDN model : NC)

1) CAMERA CONTROL

- 4 PIN : RS 485+
- 5 PIN : RS 485-

2) DAY&NIGHT INPUT Terminal (Only D&N with ICR model option)

To select Day/Night mode using external equipment, connect control line to the appropriate terminal.

• DAY&NIGHT EXTERNAL INPUT (2pin)

It is the function that can be switched to DAY Mode or NIGHT Mode by receiving the D&N on/off signal from external light sensor or IR LED LAMP. When D&N Mode is set "EXT" on the OSD menu of the camera.



3) ALARM OUT (3pin)

Motion detection signals are output through this port. (OFF : GND, ON : 3.3V)

4) POWER INPUT TERMINAL



- This terminal accepts a DC12V or AC24V power source from a DC12V or AC24V ac +/-10% 60/50Hz +/- 1Hz.
- Use Certified/Listed Class 2 power supply only.
- In DC power, use the Adapter mode than DC 12V 500mA Capacity.

5) VIDEO OUT CONNECTOR

BNC : This BNC connector provides a 1.0Vp-p/75 ohms composite video Signal.

LENS

The lens is not supplied with this camera. Purchase a lens suitable for your environment. This camera accepts the auto iris lens and both C-and CS-mount lens.

* Notes *

- For using main functions it is recommended to use Auto Iris Lens with DC type.
- If the lens is marked with fingerprints other marks, the image quality might be poor.
- It is recommended to use a high quality lens to improve the image quality under low illumination.

<INSTALLING AUTO IRIS LENS>

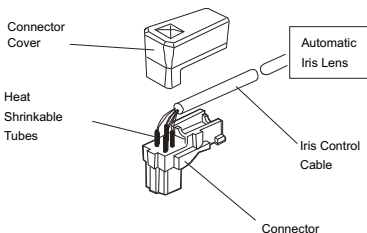
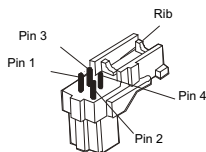
1. Remove the cover from the iris lens plug supplied, and solder the lens cable to the plug as shown below.

• Video type :

- Pin 1 --- Red (Power source)
- Pin 2 --- N.C
- Pin 3 --- White (Video signal)
- Pin 4 --- Black (GND)

• DC type :

- Pin 1 --- Damping-
- Pin 2 --- Damping+
- Pin 3 --- Drive+
- Pin 4 --- Drive-



2. Remove the protective cap, and attach the lens to the camera by turning clockwise.

SPECIFICATIONS

	MODEL	NTSC	PAL	
POWER	Power source	DC 12V / AC 24V±10%		
	Power consumption	4.5 Watts		
G E N E R A L	Image sensor	1/3" SONY Super-HAD Color CCD		
	Total number of pixels	811(H) x 508(V)	795(H) x 596(V)	
	Scanning system	2:1 interlace		
	Scanning frequency	15.734KHz(H), 59.94Hz(V)	15.625KHz(H), 50Hz(V)	
	Sync. system	Internal / Line lock		
	Electronic shutter	1/60 ~ 1/120,000 sec	1/50 ~ 1/120,000 sec	
	Resolution	600 TV Lines(Color)		
	Min. illumination	0.1 lux(Color), 0.04 lux(B/W) @ F1.2 50IRE (Sense up x 256 - 0.0004 lux(Color), 0.0001 lux(B/W))		
	Video output	1.0 Vp-p (75 ohm, composite)		
	S/N Ratio	More than 55dB (AGC OFF, Sense up OFF)		
	Camera Control	RS485 (Fastrax, Pelco D, Pelco P), TACT Switch		
	F U N C T I O N S	Auto Exposure	1/60(1/50) / FLICKERLESS / MANUAL SHUTTER (1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000, 1/60000, 1/120000)	
		Lens	DC / VIDEO / ELC	
		BLC	ON / OFF (Position, Level)	
		AGC	OFF / LOW / MIDDLE / HIGH	
		Sense-up	OFF / x2 ~ x256	
		Eclipse	OFF / ON	
		3D-DNR	OFF / LOW / MIDDLE / HIGH	
		DRC	ON / OFF	
		White Balance	ATW / AWC / MANUAL / INDOOR / OUTDOOR	
		Day & Night	AUTO / DAY / NIGHT / EXT(EXT : D&N with ICR model option)	
	C O N N E C T O R & E T C.	Motion detection	OFF / ON (Sensitivity & Alarm time Selective)	
		Privacy zone	OFF / ON (24 point, Mask BW, Color, Moasic)	
		Display Title	OFF / ON	
		Video Picture	POSI / NEGA	
Brightness		0~60		
Sharpness		0~15		
Mirror		NORMAL / MIRROR / VERTICAL / ROTATE		
Zoom		OFF / ON(x4) / PAN&TILT(x2)		
Sync		INT/AUTO		
Camera ID		1 ~ 254		
	Baudrate	2400 / 4800 / 9600 / 19200		
	IR EXT IN	NC / NO(Only D&N with ICR model option)		
	Preset	INITIAL / EXIT(Auto save) / RETURN		
	Power input	2-Pin Terminal block		
	Video output	BNC, UTP(option)		
	Auto iris output	4-Pin Terminal din jack (standard connection)		
	Lens mount	C/CS mount (Selected through back focus)		
	Mounting hole	1/4"-20 UNC (top or bottom)		
	Operating temperature	-10°C ~ +50°C [14°F ~ 122°F]		
	Operating humidity	0 ~ 96% (non-condensing)		
	External dimension	66 (W) x 56 (H) x 120 (D)mm		
	Weight	250g		

600TV Lines Ultra High Resolution Color Camera

50302592A