



CLINTON Electronics



**High Resolution
Built-in Lens Color Camera**

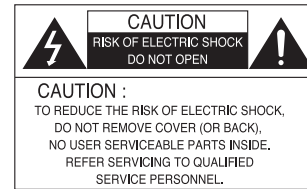
CE-X109

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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 & CE 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 those 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.

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■ Features

Auto Iris Vari-focal Built-in Lens

DC Auto Iris Vari-focal Lens is built in.

Fashionable Design

The most modernized and simple design of the camera will go well with the place inquiring good appearance.

Horizontal Resolution of 540 TV Lines

Clear image quality has been achieved by employing a SONY CCD with 410,000 (effective) pixels, which provides a horizontal resolution of 540 TV lines.

Electronic IRIS

The electronic IRIS function enables continuous automatic control of the shutter between 1/50(1/60)~1/100,000 seconds.

PRIVACY Function

The PRIVACY function conceals the areas not required to appear on the image.

High Sensitivity

The built-in high sensitivity SONY COLOR CCD enables a clear image even at 0.15Lux

Programmable GAMMA Processing

DAY & NIGHT

This camera has a function that automatically selects the mode that is appropriate for daytime or night-time conditions. The COLOR mode operates in daytime conditions to provide optimum colors, and BW mode operates in nighttime conditions to enhance the definition of the image.

DNR (Digital Noise Reduction)

The amount of low illuminance noise has been significantly reduced, and the signal-to-noise ratio (S/N ratio) as well as horizontal resolution have been improved, resulting in a clear and sharp image display even in the dark.

Controlled by OSD Menu

The camera functions are controlled by selecting text displayed on the monitor screen.

Additional Functions

MOTION DETECTION, MIRROR, SHARPNESS and COLOR ADJUST functions are also available.

Warning ■

The camera requires periodic inspection.

Contact an authorised technician to carry out the inspection.

Stop using your camera when you find it malfunctioning.

If the camera emits smoke or is unusually hot for a long period, a fire may be caused.

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

If the camera is installed on an inappropriate surface, it may fall and cause injury.

Do not hold plug with wet hands.

It could cause an electric shock.

Do not dis-assemble the camera.

It may result in an electric shock or other hazards.

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

It may result in a fire or other hazards.

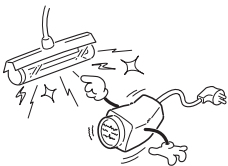
■ Precautions

Do not install the camera in extreme temperature conditions.



Only use the camera under conditions where temperatures are between -10°C and $+50^{\circ}\text{C}$. Be especially careful to provide ventilation when operating under high temperatures.

Do not install the camera under unstable lighting conditions.



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

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 touch the front lens of the camera.



This is one of the most important parts of the camera. Be careful not to leave fingerprints on the lens cover.

Do not drop the camera and protect it from physical shocks.



It can cause malfunctions to occur.

Do not expose the camera to rain or spill beverage on it.



If it gets wet, wipe it dry immediately. Liquids can contain minerals that corrode the electronic components.

Never keep the camera pointed directly at strong light.



It can damage the CCD.

Do not expose the camera to radioactivity.



If exposed to radioactivity the CCD will fail.

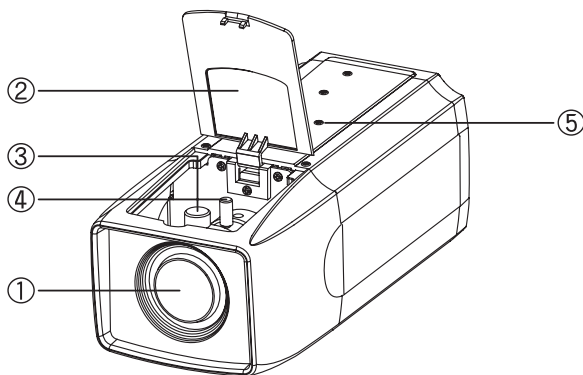


Note

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

■ Components

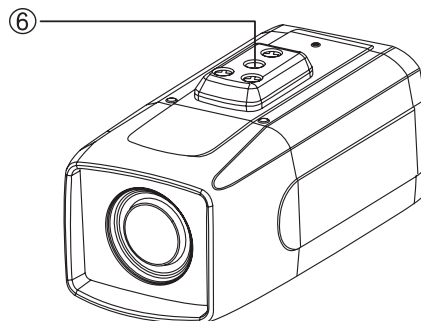
Front



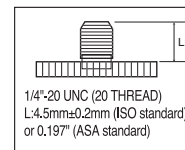
- ① **Built-in Lens**
Built-in DC Auto Iris Vari-focal lens.
- ② **Front Cover**
Used to access focus or zoom handle. After adjusting, be sure to close it.
- ③ **Focus Handle**
Used to provide accurate focusing of object within lens field of view.
- ④ **Zoom Handle**
Used to adjust zoom magnification of lens.
- ⑤ **Tripod Mount Bracket Screw Hole**
Used to fix the tripod mounting bracket on the top of the camera

Names and Functions of Parts ■

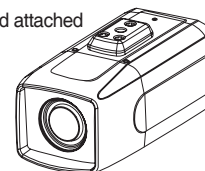
Top



- ⑥ **Mounting bracket screw hole**
Please use the screw hole when fixing the camera onto the mounting bracket. Please use the clamp screw as specified picture.

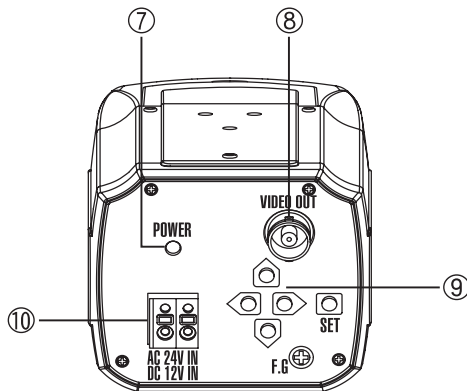


- ※ The mounting bracket can be separated and attached to the top of the camera.
In this instance please do not tighten the screw to a depth of more than 5mm, otherwise serious damage can occur to the inside of the camera.



Names and Functions of Parts

Rear

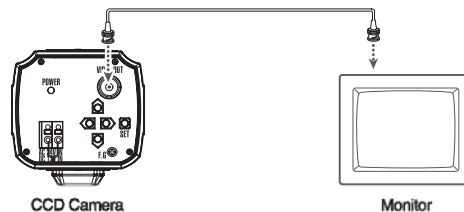


- ⑦ **Power LED**
Lights up when the correct power is supplied
- ⑧ **Video Out Jack**
Used to connect an external video Monitor
- ⑨ **Menu SET Buttons**
 - **SET Button**
Used to access menu mode.
Also used to confirm the setting.
 - **UP & DOWN Buttons**
Used to choose the desired menu item.
It also moves the cursor up or down in the menu screen.
 - **LEFT & RIGHT Buttons**
Used to change the parameter of the selected menu item.
It also moves the cursor to the left or right in the menu screen.
- ⑩ **Power Terminal**
Used to connect AC24V or DC12V power source

Installation

Connecting to a monitor

Connect the video output terminal located on the back of the camera to the monitor.

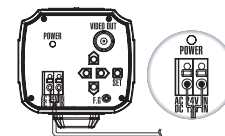


- The connection method varies depending on the type of monitor and accessories. Please refer to the user's manual for each instrument.
- Turn off the power when connecting.

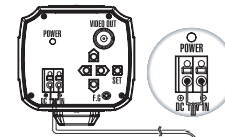
Connecting to power

Check the standard power requirement before connecting to power.

Dual Power Type (AC 24V/DC 12V, AC 24V Class2)



DC Power Type (DC 12V, 500mA)



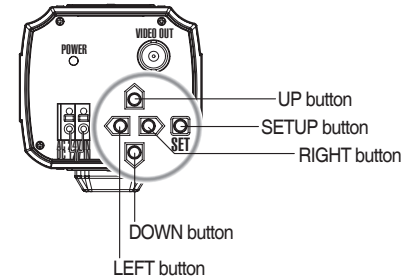
■ Camera Operation

■ Menu

SETUP menu	
LENS (selection)	· MANUAL · DC
SHUTTER (condition and speed control)	· FIXED · AUTO · FLK
WHITE BALANCE control	· ATW · AWB · FIXED · MANUAL
BLC (Back Light Compensation)	· BLC AREA · BLC RATIO
AGC (Auto Gain control)	· AGC CONTROL
ADJUST	· CONTRAST · CAMERA ID · CB - GAIN · CR - GAIN
FUNTION	· RETURN · CAMERA ID · DAY / NIGHT · MIRROR · MOTION · PRIVACY · GAMMA · LANGUAGE · RESET
EXIT	

■ Settings

Settings can be made using the 5 buttons located in the camera.



1. Press the SET button

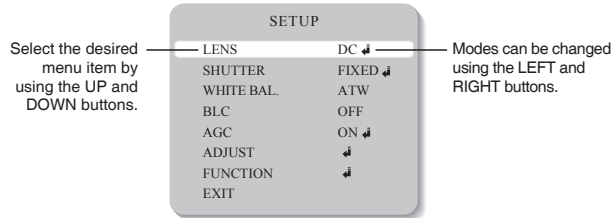
- Settings can now be made. The SETUP menu is displayed on the monitor.

SETUP	
LENS	DC
SHUTTER	FIXED
WHITE BAL.	ATW
BLC	OFF
AGC	ON
ADJUST	
FUNCTION	
EXIT	

2. Select a menu item from the list available by using the UP and DOWN buttons.

- Functions are selected using up and down buttons.
- The selected position is displayed in blue.

■ Camera Operation



3. Press the LEFT or RIGHT button to change modes.
 - When the LEFT or RIGHT button is pressed, available values and modes are displayed in order. Keep pressing the button until you get to the mode you wish to select.
4. Select 'EXIT' and then press the SET button to exit the set up menu.

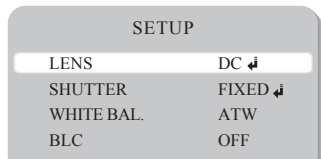
Note

- If ↕ appears at the mode selected, it means that there is a sub-menu which can be selected by pressing the SET button.

LENS (selection)

This function is used to adjust the brightness of the screen.

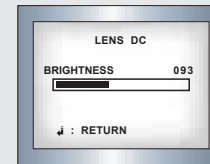
1. When the SETUP menu is displayed on the screen, position the cursor to point to 'LENS' by using the UP and DOWN buttons.
2. Select the type of the lens setting to use by pressing the LEFT or RIGHT button.



● DC : Auto Iris Lens selection

Note

- The brightness of the screen can be adjusted in DC mode. The brightness can be adjusted within the range of 0 ~255. The optimum level of brightness can be achieved using this adjustment.



● MANUAL : Manual Lens selection

3. Press the SET button to return to the previous menu.

■ Camera Operation

SHUTTER (condition and speed control)

Auto or manual control can be selected.

1. When the SETUP menu is on the screen, position the cursor to point to 'SHUTTER' by using the UP and DOWN buttons.
2. Select the shutter mode by pressing the LEFT or RIGHT button.

- **AUTO** : Automatic control of the shutter speed is enabled.
When AUTO mode is on, the shutter speed is controlled automatically according to the brightness of the scene.
- **FLK** : Select 'FLK' mode when flickering occurs on the screen due to an imbalance between illumination and frequency.
NTSC Model: 1/100, PAL Model: 1/120
- **FIXED** : The shutter speed can be controlled manually.
- **MANUAL mode (256 steps)** :

There are 256 pre-defined electronic shutter speeds in manual mode available for selection; set according to environment conditions.

SETUP	
LENS	MANUAL
SHUTTER	AUTO ↵
WHITE BAL.	ATW
BLC	OFF
AGC	ON ↵
ADJUST	↵
FUNCTION	↵
EXIT	

3. Select 'FIXED' mode for manual shutter speed adjustment.
 - Selectable speeds are from '1/60' to '1/120,000'sec (NTSC) and '1/50' to '1/120,000'sec (PAL).
4. Press the SET button when the settings are completed.

WHITE BALANCE

The screen colors can be adjusted using the WHITE BALANCE function.

1. Position the cursor to point to 'WHITE BAL' on the SETUP menu by using the UP and DOWN buttons.
2. Select the mode you wish to adjust by pressing the LEFT or RIGHT buttons.

SETUP	
LENS	MANUAL
SHUTTER	FIXED ↵
WHITE BAL.	ATW
BLC	OFF

※ Select one of the 4 modes below.

- **ATW(Auto Tracking White Balance)** : This mode can be used within the color temperature range 1,800°K ~ 10,500°K (eg, fluorescent light, outdoor, sodium vapour lamp etc.)
- **AWB(Automatic White Balance)** : Press the SET button 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, changes the white balance will need to be adjusted again.
- **AWB FIXED optimized at 2100°K**
MODE1 : 2680°K (No light source)
MODE2 : 3200°K
MODE3 : 5500°K (Fluorescent light source)
MODE4 : 5100°K
- **MANUAL** : The manual adjustment mode enables finer adjustment. Select ATW or AWB first then change to manual adjustment mode and press the SET button. Set the appropriate color temperature then increase / decrease the red and blue color values and monitor the color changes of the object.

■ Camera Operation

Note




Under the following conditions the WHITE BALANCE function may not operate properly. In such cases, please select the AWB mode.

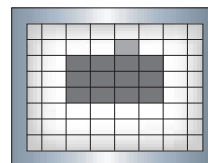
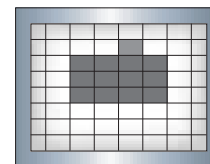
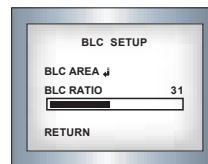
- ① When the object's surroundings have a very high color temperature (eg, a clear sky and sunset)
- ② When the object's surroundings are dark
- ③ If the camera directly faces a fluorescent light or is installed in a place where there are considerable changes in illumination, the WHITE BALANCE function may become unstable.

BLC (Back Light Compensation)

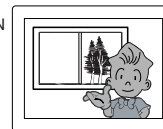
When there is a strong backlight behind the object, clear images of the background as well as the object can still be obtained by using the BACKLIGHT function.

1. Position the cursor to point to 'BLC' on the SETUP menu by using the UP and DOWN buttons.
2. Select the value required by pressing the LEFT or RIGHT button.
3. Press the SET button to enter the BLC AREA and BLC RATIO menus.
4. The BLC Area contains a grid of 64 squares where BLC can be applied.
5. The BLC RATIO can now be adjusted (64 steps); a higher value leads to a clearer image.

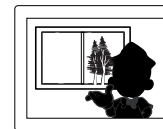
SETUP	
LENS	MANUAL
SHUTTER	FLK
WHITE BAL.	ATW
BLC	OFF
AGC	ON 
ADJUST	
FUNCTION	
EXIT	



BACKLIGHT ON






BACKLIGHT OFF



AGC (Auto Gain Control)

1. Position the cursor to point to 'AGC' on the SETUP menu by using the UP and DOWN buttons.
2. Select the value required by pressing the LEFT or RIGHT button. As the level of gain increases the screen gets brighter but the level of noise will also increase. (256 steps)

SETUP	
LENS	MANUAL
SHUTTER	FLK
WHITE BAL.	ATW
BLC	ON 
AGC	ON 
ADJUST	

■ Camera Operation

ADJUST

SETUP	
LENS	MANUAL
SHUTTER	AUTO ↕
WHITE BAL.	ATW
BLC	ON ↕
AGC	ON ↕
ADJUST	↕
FUNCTION	↕
EXIT	

- **Contrast** : The image contrast can be adjusted using the left and right buttons. (256 steps)
- **Sharpness** : The sharpness of the image can be adjusted using the left and right buttons. (32 steps)
- **CB-Gain** : The blue color can be increased/decreased using the left and right buttons. (256 steps)
- **CR-Gain** : The red color can be increased/decreased using the left and right buttons. (256 steps)

DAJUST	
CONTRAST	083
SHARPNESS	16
CB_GAIN	193
CR_GAIN	253
RETURN	

FUNCTION

1. Position the cursor to point to 'FUNCTION' on the SETUP menu by using the UP and DOWN buttons.
2. Select the mode required by pressing the LEFT and RIGHT button.

FUNCTION	
RETURN	
CAMERA ID	ON ↕
DAY NIGHT	COLOR
MIRROR	OFF
MOTION	OFF
PRIVACY	OFF
GAMMA	0.45
LANGUAGE	ENGLISH
RESET	↕

- **CAMERA ID** : If an ID is input, this camera ID appears on the monitor and recorded footage.
 - 1) Position the cursor to point to 'CAMERA ID' by using the UP or DOWN button.
 - 2) Select 'ON' by pressing the LEFT or RIGHT button.

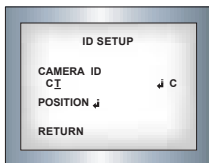
Note

- If 'OFF' is selected, the ID does not appear on the monitor even if it has been input.

FUNCTION	
RETURN	
CAMERA ID	ON ↕
DAY NIGHT	COLOR
MIRROR	OFF
MOTION	OFF
PRIVACY	OFF
GAMMA	0.45
LANGUAGE	ENGLISH
RESET	↕

■ Camera Operation

3) Press the SET button.



4) Up to 15 characters can be used for the camera ID.

- Move the cursor to a Position and choose a character by using the UP and DOWN button.
- Move the cursor to '↓' symbol and press SET to finish the ID process.
- Move the cursor to 'C' letter and press SET to delete the selected letter.
- Select from the alphabet, numbers(0-9) or 27 special symbols.
- Lock in the characters by using the SET button at '↓' position.
- Repeat the above steps until the ID is complete.

5) User can select a position to display the camera ID.



Note

• If the wrong name has been input....

Press the SET button after moving the cursor to CLR and all the letters will be erased. If you want to correct a letter move the cursor to the arrow at the bottom left of the screen and press 'SET'.

Position the cursor above the letter you wish to correct and then move the cursor onto the letter you wish to choose and press the SET button.

● DAY & NIGHT

- AUTO : This camera has a function which automatically changes to the appropriate mode dependant on lighting levels. COLOR mode is selected during daylight and B/W mode at night time.
- COLOR : The color mode is selected as the default, and the camera does not change automatically.
- B/W : Discards the color information and displays in black and white.

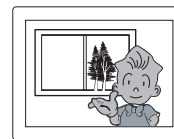


Note

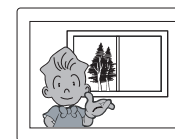
- When the AGC is turned off, COLOR does not operate.

● MIRROR

- ON : Sets a horizontal image inversion.
- OFF : Cancels the inversion.



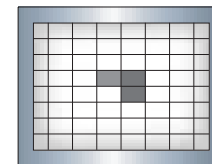
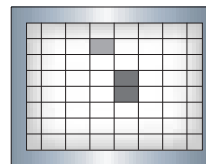
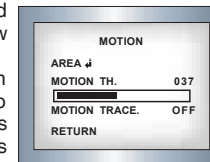
MIRROR ON



MIRROR OFF

● MOTION DETECTION

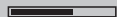


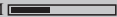

Users can set the motion detection area just like BLC area setting. The screen is divided in to 64 squares. Selected areas are brighter than non-selected areas. The cursor turns red within selected areas, whilst it turns yellow in non-selected areas. To escape from the area selection press the 'SET' button for 3 seconds and select 'EXIT' to return to the main menu. Users can select all areas using 'ALL SET' and can deselect all areas using 'ALL CLEAR'.



■ Camera Operation


● PRIVACY

Users can set up to 4 areas as privacy zones. 'AREA STATE' allows users to turn the privacy mode on or off within each designated area. The value of 'LEFT' cannot be greater than the value of 'RIGHT'. The value of 'TOP' cannot be greater than the value of 'BOTTOM'. 'COLOR' setting is applied to all 4 privacy areas.

PRIVACY	
AREA SEL	AREA 0
AREA STATE	ON
LEFT	 137
RIGHT	 185
TOP	 029
BOTTOM	 084
COLOR	 008
RETURN	


● GAMMA

Users can change the gamma setting in 0.5 steps, between 0 and 1.0 (20 steps).

FUNCTION	
RETURN	
CAMERA ID	OFF
DAY NIGHT	COLOR
MIRROR	OFF
MOTION	OFF
PRIVACY	OFF
GAMMA	0 . 45
LANGUAGE	ENGLISH
RESET	

● LANGUAGE

Users can select their preferred language for the OSD menu from either, English, Korean, Chinese (Big5), Chinese (Simplified) or Japanese.

FUNCTION	
RETURN	
CAMERA ID	OFF
DAY NIGHT	COLOR
MIRROR	OFF
MOTION	OFF
PRIVACY	OFF
GAMMA	0 . 45
LANGUAGE	ENGLISH
RESET	

● **RESET** : Returns to factory settings.

● **RETURN** : Saves the FUNCTION menu and returns to the SETUP menu.

EXIT

Saves all the setting menus and then exits.

■ Troubleshooting

If there are problems with the camera operation, check the tables below. If the problem persists, please contact the agent who supplied the product.

Problems	Troubleshooting
Nothing appears on the screen.	<ul style="list-style-type: none"> • Check the power connection. • Check the video signal line connection.
The video image is not clear.	<ul style="list-style-type: none"> • Make sure that the lens is clean. Clean the lens with a clean lint free cloth or brush. • Adjust the contrast control on the monitor. • Make sure that the screen is not exposed directly to a bright light. Re-position the camera if necessary.
The screen is dark.	<ul style="list-style-type: none"> • Adjust the contrast control of the monitor. • If there is an intermediate device, set the 75ohm Hi-z correctly, and also check the connections. • If necessary, adjust the brightness level.
There is a problem with the camera operation. The camera surface is too hot and black stripes appear on the screen.	<ul style="list-style-type: none"> • Check if an appropriate power source to the camera complies with the manufacturer's standard requirement, or if the voltage is fluctuating. Check for ground loops.

Problems	Troubleshooting
The MOTION DETECTION function is not working.	<ul style="list-style-type: none"> • Check if 'MOTION DETECTION' mode is turned on. • Check the setting of the MD AREA.
Colors are not quite right.	<ul style="list-style-type: none"> • Check the 'WHITE BAL' setting. (Please refer to page 16)
The screen is flickering.	<ul style="list-style-type: none"> • Check if the camera is facing directly into sunlight or fluorescent light.
COLOR mode is not working.	<ul style="list-style-type: none"> • Check if the AGC menu is set to the OFF position.

■ Specifications

ITEM		NTSC		PAL	
Power Source		AC24V / DC12V	DC12V	AC24V / DC12V	DC12V
		130mA(AC24V)/180mA(DC12V)	130mA	130mA(AC24V)/180mA(DC12V)	130mA
C C D	Total Pixels	811(H) x 508(V)		795(H) x 596(V)	
	Effective Pixels	768(H) x 494(V)		752(H) x 582(V)	
	Size	SONY 1/3" Super HAD High Sensitivity Color CCD			
	Scanning System	2:1 Interlace			
sync	Synchronisation	INT			
E L E C T R I C A L	Frequency	Horizontal:15.734 KHz Vertical :59.94 Hz		Horizontal: 15.625 KHz Vertical : 50.00 Hz	
	Resolution	More than 540 TV Lines			
	Video Output	1.0Vp-p/75(Video 0.714Vp-p Sync 0.286Vp-p)		1.0Vp-p/75 (Video 0.7 Vp-p Sync 0.3 Vp-p)	
	S/N (Y signal)	50dB (AGC Off)			
	Min. Illumination	0.15Lux 40 IRE (F1.2)			
	Color	COLOR / AUTO / BW			
	White Balance	ATW / AWB / FIXED / MANUAL(1,800°K~10,500°K)			
	Electronic Shutter Speed	AUTO / MANUAL(1/60~1/100,000)		AUTO / MANUAL(1/50~1/100,000)	
	O.S.D	Built-in			
	Motion Detection	ON / OFF (64 Programmable Zones)			
BLC	ON / OFF (64 Programmable Zones)				
Mirror	Built-in (Horizontal Image Inversion)				
Privacy Function	ON / OFF (4 Programmable Zones)				
Operating Temperature/Humidity		-10°C ~ +50°C / 30~90% RH			
Weight		380g			



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