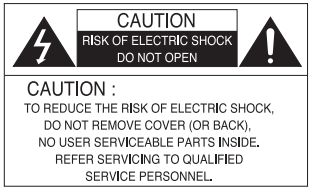

The lightning flash with an arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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.

■ Features

10x Optical Zoom Lens

The built-in 10X optical zoom lens is very reliable, If features manual focus, zoom and auto iris function.

Horizontal Resolution 500 TV Lines

Clear image quality has been achieved by employing a SONY CCD with 410,000 (effective) pixels, which provides a horizontal resolution of 500 TV lines.

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 night-time conditions to enhance the definition of the image.

Electronic IRIS

The electronic IRIS function enables continuous automatic control of the shutter between 1/60~1/120,000 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 clear images down to 0.7Lux (0.1Lux in B/W)

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 clear and sharp images displayed even in low light.

Controlled by OSD Menu

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

Built-in RS485

Protocol : PELCO-D
Baud Rate : 9,600bps , 19,200bps , 38,400bps

Weather Proof (IP67)

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.

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■ Precautions

Do not install the camera in extreme temperature conditions.

Only use the camera under conditions where temperatures are between -10°C and +50°C. Be especially careful to provide ventilation when operating under high temperatures.

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.

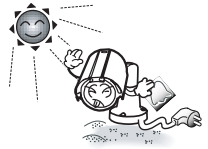
Do not touch the front lens of the camera.

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 or subject it to physical shocks.

It can cause malfunctions to occur.

Never keep the camera pointed directly at strong light.



It can damage the CCD.

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

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

Do not expose the camera to radioactivity.

If exposed to radioactivity the CCD will fail.

Note

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

■ Components

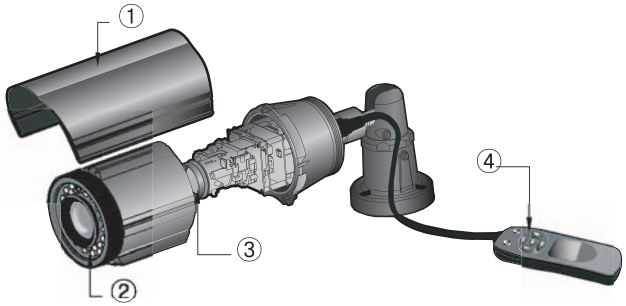
1. 10x ZOOM IR BULLET CAMERA

2. SCREWS

3. WRENCH

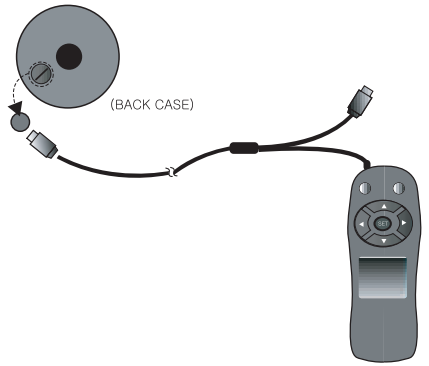
4. INSTRUCTION GUIDE

Names and Functions of Parts ■



① Sunshield
② IR-LED : 33 pieces
③ Lens : 10 X Optical Lens.
④ Remote Controller

■ Names and Functions of Parts



(ZRC Optional Item)

SET : Used to access menu mode and for configuration.

▲ : OSD mode → Moves cursor up in the menu screen.
Zoom mode → Focus control

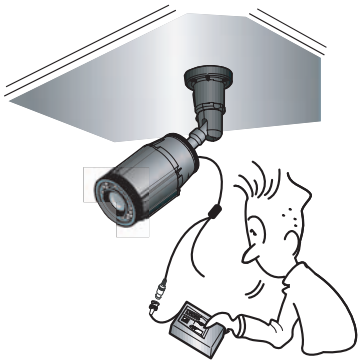
▼ : OSD mode → Moves cursor down the menu screen.
Zoom mode → Focus control

◀ : OSD mode → Moves cursor left in the menu screen.
→ Parameter change
Zoom mode → Zoom out

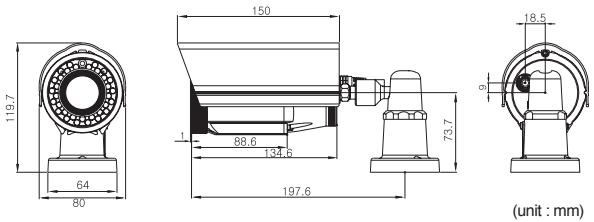
▶ : OSD mode → Moves cursor right in the menu screen.
→ Parameter change
Zoom mode → Zoom in

Names and Functions of Parts ■

Service connector for easy installation of the camera.
- A service monitor can be connected to the camera, allowing the operator to easily adjust camera angles and settings locally during installation.

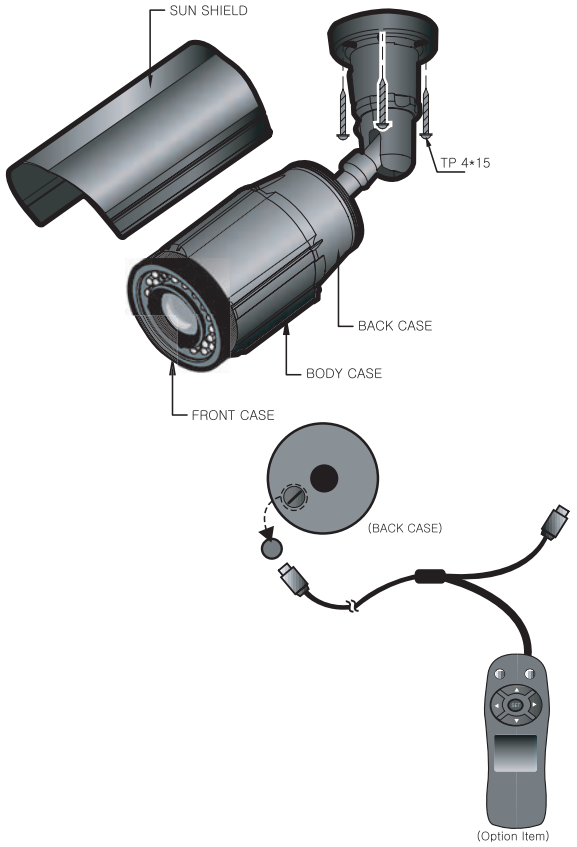


Dimensions ■



(unit : mm)

■ Installation



1. Bracket & Camera Mounting

- Affix the bracket to the mounting surface.
- Use the supplied screws to attach to the mounting surface using the pre-drilled holes in the bracket.

2. Power Connector & Monitor Impedance

- Use a DC12V/1A regulated PSU or AC24V 1A.
- To avoid fire or shock hazards, always use a CE marked PSU.
- Set the monitor impedance switch to 75½. Check the impedance switch if the screen is blurred.

3. Sun-shield Mounting

- Slide the Sun-Shield over the camera.

4. Remote control & VBS EXTRA

- Remove the cap and connect the connector of the remote control and VBS EXTRA to the cable socket.

Cable Connections ■

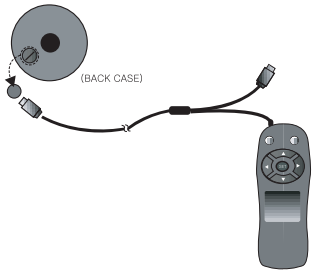
■ Camera Operation

■ Menu

SETUP menu			
LENS (selection)	• AUTO	• MANUAL	
SHUTTER (condition and speed control)	• ESC	• MANUAL	• FLK
WHITE BAL.	• ATW	• AWC	• MANUAL
BACKLIGHT (Backlight Compensation)	• OFF • HIGH	• LOW	• MIDDLE
AGC (Auto Gain Control)	• OFF • HIGH	• LOW	• MIDDLE
DNR (Digital Noise Reduction)	• OFF • HIGH	• LOW	• MIDDLE
SENS-UP (Low illuminance)	• OFF	• AUTO	
SPECIAL	• CAMERA TITLE • SYNC • PRIVACY • DIGITAL ZOOM • RESET	• DAY/NIGHT • CAM. ID • MIRROR • SHARPNESS • RETURN	
EXIT			

■ Settings

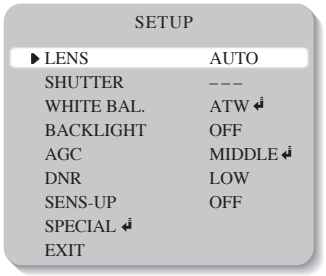
Settings can be adjusted using the remote controller.



(ZRC Optional Item)

1. Press the SET button

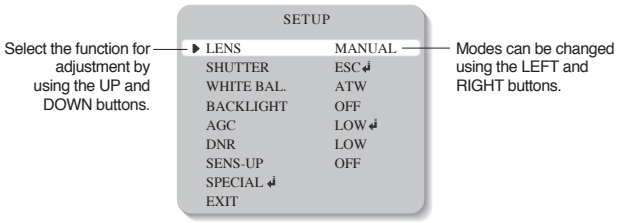
• Settings can now be made. The SETUP menu is displayed on the monitor.



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

• The cursor can be moved up or down by using the UP and DOWN buttons. Position the cursor to point to the function requiring adjsutment.

■ Camera Operation



3. 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

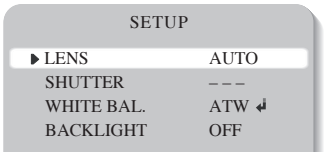
- If ↵ appears at the mode selected, it means that there is a sub-menu which can be selected by pressing the SET button.
- If – – – appears at the mode item, it means that there are no modes available for selection.

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.

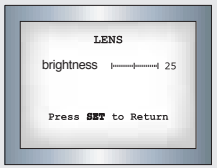


MANUAL : Manual lens selection

AUTO : Auto iris lens selection

Note

- The brightness of the screen can be adjusted in AUTO mode. The brightness can be adjusted within the range of 1 ~ 70. The optimum level of brightness for the user can be achieved by using this adjustment.
- If you select the MANUAL mode, it can be adjusted in ESC mode.



3. Press the SET button if you wish to return to the previous menu

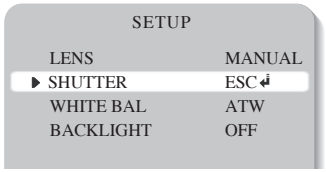
■ Camera Operation

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. (only when in LENS MANUAL mode)

- **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
- **ESC** : Auto control of the shutter speed is enabled. When ESC mode is on, the shutter speed is controlled automatically according to the brightness of the scene.
- **MANUAL** : The shutter speed can be controlled manually.



3. Select 'MANUAL' 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.

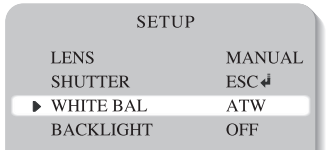
Note

- While using the internal synchronous system, if the shutter setting is on 'ESC' and the camera is directly facing bright fluorescent lights the image on the screen can be adversely affected - therefore choose the installation location carefully.
- When 'MANUAL' mode is on, the SENS UP function cannot be used.

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.



※ Select one of the 3 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.)
- **AWC(Auto White Balance Control)** : 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.
- **MANUAL** : The manual adjustment mode enables finer adjustment. Select ATW or AWC 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.

Note

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

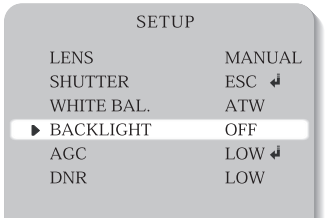
① When the object's surroundings have a very high color temperature (eg, a clear sky and sunset)
② When the object's surroundings are dark
③ If the camera directly faces a fluorescent light or is installed in a place where there are considerable changes in illumination, the WHITE BALANCE function may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

■ Camera Operation

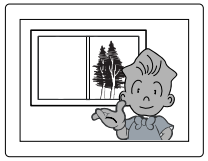
BLC (Back Light Compensation)

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.

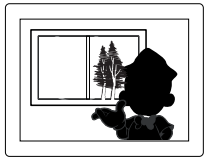
1. Position the cursor to point to 'BACKLIGHT' on the SETUP menu by using the UP and DOWN buttons.
2. Select the value required by pressing the LEFT or RIGHT button.



- **HIGH** : The gain increases from 0dB up to 42dB.
- **MIDDLE** : The gain increases from 0dB up to 30dB.
- **LOW** : The gain increases from 0dB up to 18dB.
- **OFF** : BACKLIGHT function does not operate.



BACKLIGHT ON

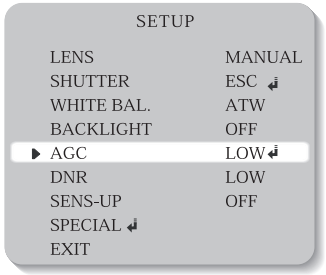


BACKLIGHT OFF

AGC (Automatic 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.

- **HIGH** : The gain varies between the range of 6dB ~ 42dB.
- **MIDDLE** : The gain varies between the range of 6dB ~ 30dB.
- **LOW** : The gain varies between the range of 6dB ~ 18dB.
- **OFF** : The gain is fixed at 6dB.

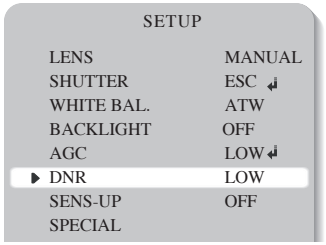


■ Camera Operation

DNR (Digital Noise Reduction)

The level of background noise in low light decreases automatically as the level of gain changes.

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



- **OFF** : There is no reduction in noise level.
- **LOW** : There is a small reduction in noise level with almost no ghost image.
- **MIDDLE** : The most effective mode. There is a sufficient reduction in noise levels without causing significant ghosting.
- **HIGH** : The level of noise is reduced greatly, however there is an increase in ghosting.

Note

• When AGC is turned off, DNR does not operate.

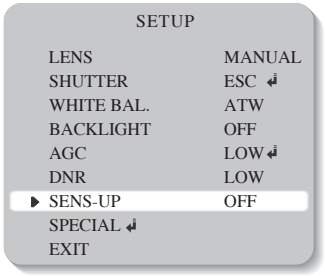
SENS UP (Low illuminance)

SENS UP helps maintain a bright, clear screen image by automatically detecting changes in the level of light in low light level conditions.

1. Position the arrow to point to 'SENS UP' on the SETUP menu by using the UP and DOWN buttons.
2. Select the value required by pressing the LEFT or RIGHT button.
   - **AUTO** : Low light level automatic mode.
   - **OFF** : The function does not operate.

Note

• When SHUTTER is in the manual or flk mode, SENS UP does not operate.
• When AGC is turned off, SENS UP does not operate.



3. Press the SET button when all the settings are complete.

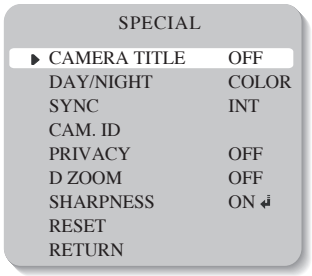
Note

• The maximum storage magnification in low light level movement situations can be adjusted by pressing the SET button in 'AUTO' mode.(X2~X128)
• As the magnification increases the screen gets brighter; however the after image also increases.
• If storage magnification is increased while SENS UP is operational, it may cause noise and spots may appear; this is normal.

■ Camera Operation

SPECIAL

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



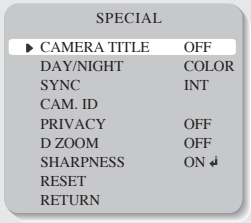
✪ CAMERA TITLE : If a TITLE is input, this camera TITLE appears on the monitor and recorded footage.

1) Position the cursor to point to 'CAMERA TITLE' by using the UP or DOWN button.

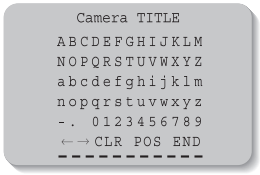
2) Select 'ON' by pressing the LEFT or RIGHT button.

Note

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

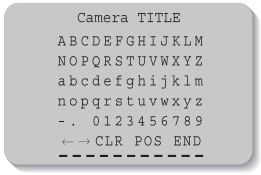


3) Press the SET button.



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

① Move the cursor to the letter required by using the UP and DOWN button.



② Select an ID from A,B~Y,Z, a,b~y,z, 0,1~8,9 by using the UP, DOWN, LEFT and RIGHT buttons.

③ Lock in the characters by using the SET button.

• Once locked in the cursor moves to the next space in the TITLE.

④ Repeat the above steps until the TITLE is complete.

Note

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

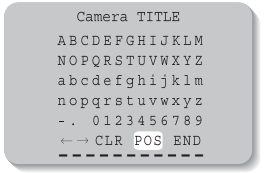
Press the SET button after moving the cursor to CLR and all the letters will be erased. If you want to correct a letter move the cursor to the arrow at the bottom left of the screen and press 'SET'.

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.

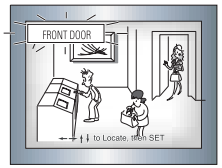
■ Camera Operation

5) When the camera TITLE is complete, select a position for the name to be displayed.

① Move the cursor onto 'POS' and then press the SET button.



② The TITLE will appear in the top left corner.



③ Select the position where the TITLE is to be displayed by using the 4 directional buttons, and then press the SET button.

6) Select 'END' and press the SET button to complete TITLE input.

DAY/NIGHT

- **COLOR** : IR - Cut Filter is in position for color mode.
- **B/W** : IR - Cut Filter is mechanically removed for B/W mode.
- **AUTO** : In AUTO mode the external light levels determine whether the camera is in COLOR or B/W mode, it switches after a stabilisation period of 3~4sec.

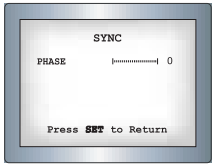
Note

• When Day/Night mode is set to Auto, under conditions where there are strong IR lights periodically flickering, the IR-Cut fliter could malfunction.

SYNC : Two sychronisation modes are available, INTERNAL and EXTERNAL LINE-LOCK. In LINE-LOCK mode, it synchronises the video signal between cameras without a synchronous generator. The line-lock synchronisation is only used in areas of 60Hz (NTSC Models) / 50Hz (PAL Models).

- INT : Internal synchronisation
- LL : External line-lock synchronisation

• If 'LL' is selected, it can be adjusted to the desired phase. Press the SET button.
• Adjust to the desired phase from 0 to 359.



Note

• When the mains frequency is 50Hz, the line-lock mode (NTSC Models) cannot be used.
• When the mains frequency is 60Hz, the line-lock mode (PAL Models) cannot be used.

■ Camera Operation

CAMERA ID:

The Zoom and Focus functions can be remotely controlled by RS-485 communication.

- Press the SET button.
- Select the ID of the Camera by pressing the LEFT or RIGHT button.

- The available ID range of the Camera is 1~255.
- The available communication speed is 9,600bps , 19,200bps , 38,400bps

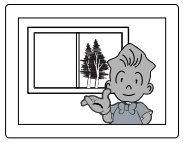
PRIVACY : This mode conceals up to 4 areas that need to be masked on the screen.

- OFF : Cancels the PRIVACY mode. - ON : Enables the PRIVACY mode.
- Press the SET button.

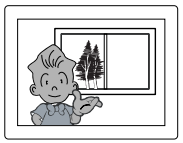
- Select the area to be masked from the 4 areas in AREA SEL mode.
- Select ON mode for the chosen area.
- Adjust the size and position of the area to be concealed by using the UP, DOWN, LEFT and RIGHT buttons.

MIRROR

- OFF : Cancels inversion.
- VET : Sets a vertical image inversion.
- V-H : Sets a vertical and horizontal image inversion.
- HOR : Sets a horizontal image inversion.



MIRROR ON



MIRROR OFF

D ZOOM : Digital Zoom

-Selectable from OFF, 2X, 4X or 8X

SHARPNESS : The outline of the video image becomes cleaner and more distinctive as the level of SHARPNESS increases. If the level goes up excessively it may affect the video image and generate noise.

- Press the SET button.

- The available range for sharpness adjustment is between 0 ~ 31.

RESET : Returns the camera to factory settings.

RETURN : Saves the SPECIAL 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.	• Check the power connection. • Check the video signal line connection.
The video image is not clear.	• 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.	• Adjust the contrast control of the monitor. • If there is an intermediate device, set the75ohm Hi-z correctly, and also check the connections. • If necessary, adjust the brightness level.
The camera surface is too hot and black stripes appear on the screen.	• Please 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.	• Check if 'MOTION DETECTION' mode is turned on. • Check the setting of the MD AREA.
Colors are not quite right.	• Check the 'WHITE BAL' setting. (Please refer to page 19)
The screen is flickering.	• Check if the camera is facing directly into sunlight or fluorescent light.
L/L mode isn't able to be selected.	• Is the camera connected to a DC power source? Connect it to an AC power source.
L/L mode is not available.	• Check the mains frequency of power supply (60Hz for NTSC, 50Hz for PAL).
COLOR mode is not working.	• Check if the AGC menu is set to the OFF position.
SENS-UP function is not working.	• Check if the AGC menu is set to the OFF position. • Check if the SHUTTER menu is set to MANUAL mode.

■ Specifications

ITEM		NTSC	PAL
Power Supply		DC12V / AC24V	
Power Consumption		800mA MAX. at IR LED ON (DC 12V)	
CCD	Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
	Image Sensor	1/ 4 inch interline transfer CCD	
	Scanning System	2:1 Interlace	
SYNC	Synchronization	INT/LL Selectable	
	Frequency	15.734KHz(H), 59.94Hz(V)	15.625KHz(H), 59.94Hz(V)
ELECTRICAL	Resolution	500 TV Lines(Min.) : Color (WIDE)	
		570 TV Lines(Min.) : B / W (WIDE)	
	Video Output	CVBS : 1.0Vp-p(75 Ohm Load)	
	S/N Ratio(Y signal)	50dB (AGC OFF)	
	Min. Illumination	0.7Lux/F1.8(50 IRE) : Color, 0.1Lux / F1.8(50 IRE) : B/W	
	Gain Control	OFF / Low / Middle, High selectable	
	White Balance	ATW / AWC / MANUAL(1,800¡K~10,500¡K)	
	Optics	10X, f=3.8 to 38.0mm(F1.8 to 2.8)	
	Digital Zoom	OFF, X2, X4, X8 selectable	
	Angle Field of View	H : Appr. 51.2¡(Wide) to 5.58¡(Tele)	
		V : Appr. 39.3¡(Wide) to 4.27¡(Tele)	
	Zoom/Focus	Manual	
	Iris Control	Auto / Manual(Full Open)	
	Camera Title	OFF / ON(Displayed 15 characters)	
	Back Light compensation	Off, Low, Middle, High	
	Shutter Speed	ESC(X128~1/60~1/20000)	ESC(X128~1/50~1/20000)
		Mnual(x128~1/60sec~1/120000)	Mnual(x128~1/50sec~1/120000)
		Flickerless(1/100sec)	Flickerless(1/120sec)
	O.S.D	Built-in	
	Motion Detection/Privacy Function	OFF / ON(4 Programmable Zone per Screen)	
	DNR	OFF, Low, Middle, High	
	Mirror	OFF, Horizontal, Vertical, Vertical-Horizontal	
Communication		RS-485	
OperatingTemperature/Humidity		-10¡C ~ +50¡C / 95% RH max.	
Weight		900g	

Memo ■

HUNT
ELECTRONIC

Model : HTC-7AH10Z

Day&Night IR 10X Zoom Camera with IR Cut Filter

Instruction Guide

Modle : HTC-7AH10Z
Day&Night IR 10X Zoom Camera with IR Cut Filter

Made in KOREA