

WISENET

High Resolution 32X Zoom Color Camera

User Manual

HCZ-6320



High Resolution 32X Zoom Color Camera

User Manual

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❖ Design and specifications are subject to change without prior notice.

Before operating the camera, confirm the camera model and correct input power voltage.
To help you understand this manual thoroughly, we'll introduce our model description.

■ HCZ-6320 SERIES

- NTSC MODEL
HCZ-6320N
- PAL MODEL
HCZ-6320P

■ MODEL DESCRIPTION

- HCZ-6320X



- SIGNAL SYSTEM
N → NTSC MODEL
P → PAL MODEL

safety information



CAUTION
RISK 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. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.



This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

- To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.
- To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

WARNING

1. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
3. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
4. Securely plug the power cord into the power receptacle. insecure connection may cause fire.
5. When installing the camera, fasten it securely and firmly. The fall of camera may cause personal injury.

6. Do not place conductive objects (e.g. screwdrivers, coins, metal parts, etc.) or containers filled with water on top of the camera. doing so may cause personal injury due to fire, electric shock, or falling objects.
7. Do not install the unit in humid, dusty, or sooty locations. doing so may cause fire or electric shock.
8. If any unusual smells or smoke come from the unit, stop using the product. in such case, immediately disconnect the power source and contact the service center. continued use in such a condition may cause fire or electric shock.
9. If this product fails to operate normally, contact the nearest service center. never disassemble or modify this product in any way. (Hanwha Techwin is not liable for problems caused by unauthorized modifications or attempted repair.)
10. When cleaning, do not spray water directly onto parts of the product. doing so may cause fire or electric shock.

CAUTION

1. Do not drop objects on the product or apply strong shock to it. Keep away from a location subject to excessive vibration or magnetic interference.
2. Do not install in a location subject to high temperature (over 55°C), low temperature (below -10°C), or high humidity. Doing so may cause fire or electric shock.
3. If you want to relocate the already installed product, be sure to turn off the power and then move or reinstall it.
4. Remove the power plug from the outlet when there is a lightning. Neglecting to do so may cause fire or damage to the product.
5. Keep out of direct sunlight and heat radiation sources. It may cause fire.
6. Install it in a place with good ventilation.
7. Avoid aiming the camera directly towards extremely bright objects such as sun, as this may damage the CCD image sensor.
8. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
9. The Mains plug is used as a disconnect device and shall stay readily operable at any time.
10. Do not expose the camera to radioactivity. Radioactivity exposure may damage the CMOS.

safety information

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions :

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received including interference that may cause undesired operation.

CAUTION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of 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.



IC Compliance Notice

This Class A digital apparatus meets all requirements of the Canadian Interference.-Causing Equipment Regulations of ICES-003.



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.



Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

important safety instructions

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 the contaminated area on the product surface with a soft, dry cloth or a damp cloth. (Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
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, 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 is 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 cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. Unplug this apparatus when a card is used. Use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as powersupply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product is intended to be supplied by Listed Power Unit marked "Class 2" or "LPS" and rated 12 Vdc, min. 0.45 A.
16. If you use excessive force when installing the product, the camera may be damaged and malfunction. If you forcibly install the product using non-compliant tools, the product may be damaged.
17. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table. This may cause damage to the product.



safety information

18. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance. Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
19. If you install/disassemble the product in a manner that has not been recommended, the production functions/performance may not be guaranteed. Install the product by referring to "Installation & connection" in the user manual.
20. Installing or using the product in water can cause serious damage to the product.



Hanwha Techwin cares for the environment at all product manufacturing stages to preserve the environment, and is taking a number of steps to provide customers with more environment-friendly products. The Eco mark represents Hanwha Techwin's will to create environment-friendly products, and indicates that the product satisfies the EU RoHS Directive.

contents

INTRODUCTION	10	Features
	11	What's included
	12	Component names and functions
10		
CONNECTION	14	Connecting to Monitor
	14	Connecting to Power
	15	Control via RS-485 Interface
	16	Using Coaxial Communications
	17	Connecting to 8P Control Terminal
14		
CAMERA OPERATION	19	Menu Configuration
	20	Menu Setup
19		
TROUBLESHOOTING	39	Troubleshooting
39		
SPECIFICATIONS	40	Specifications
	42	Dimensions
40		
SAMSUNG-T PROTOCOL COMMAND DESCRIPTION	44	SAMSUNG-T Protocol Command Description
44		

FEATURES

- **32x Optical Zoom**

The built-in HCZ-6320(32x) optical zoom lens is a highly durable component. It features auto focus, auto iris, and zoom functions.

- **High Resolution**

Use of a 2.38 mega pixel CMOS device provides clear pictures with a horizontal resolution of 1000TV lines.

- **SSNR (Samsung Super Noise Reduction)**

The high-performance WN2 chip effectively removes low-light gain noise and ghosting to provide clear images even in dark environments.

- **DIS (Digital Image Stabilizer)**

Digital image stabilization compensates camera shakings for enhanced image capture.

- **SSDR (Samsung Super Dynamic Range)**

For images with high contrast between bright and dark areas from difficult lighting conditions such as backlighting, this camera selectively illuminates darker areas while retaining the same light level for brighter areas to even out the overall brightness.

- **DAY&NIGHT(ICR)**

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.

- **Motion Detection**

Since the camera detects motion without any additional external sensor, you can monitor activity more efficient.

- **Miscellaneous Functions**

HLC(High Light Compensation), FLIP(H/V-REV), D-ZOOM, SHARPNESS, MOTION DETECTION and PRIVACY functions are provided.

- **Communication**

RS-485, Coaxial communication methods are supported.

- RS-485 Communications: Samsung-T/E, Pelco-D/P, Panasonic, Bosch, AD, Vicon, Honeywell

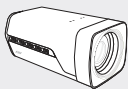
- Coaxial Communications: ACP (AHD Coax Protocol)

- **OSD**

The camera's OSD is complimented by 9 foreign languages.

- English, French, German, Spanish, Italian, Russian, Portuguese, Japanese, Korean

WHAT'S INCLUDED



Main Body



Quick Manual



8-PIN CABLE ASSY



Camera Holder (Mount)



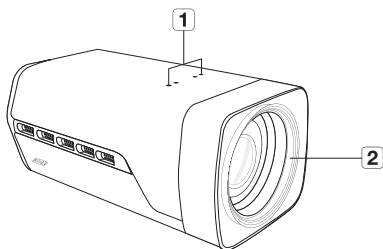
Camera Holder (Mount)
Screw



Cable for the testing
monitor

COMPONENT NAMES AND FUNCTIONS

FRONT SIDE



1 Camera Holder (Mount) Holes

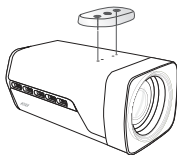
Used when you mount the camera onto the bracket by fixing the camera holder (mount) adaptor with the bracket.

2 Zoom Lens

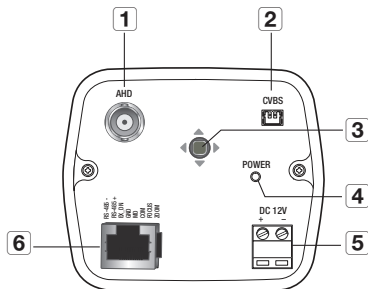
Built-in zoom lens.



- Attach the holder to the top of the camera. Use screws included in the package or their equivalent. Otherwise, the holder may not assemble to the camera properly.
- Wipe out a dirty surface of the lens softly with a lens tissue or cloth to which you have applied ethanol.



REAR SIDE



1 AHD Jack

Sends video signal and connects to the Video IN port of a AHD DVR.

2 CVBS Jack

Analog video output port. (for installation)

3 Function Setup switch

Press the Function Setup switch to display the menu screen. After the menu is displayed on the screen, move the cursor <up/down/left/right> to select the desired item or to change the value or status.

Also, moving the cursor up/down/left/right to control zoom, focus, and auto focus functions.

moving the cursor down : To widen the view. (ZOOM OUT)

moving the cursor up : To close in on a far object. (ZOOM IN)

moving the cursor left : To see a near object clearly.

moving the cursor right : To see a far object clearly.

4 Power LED

Illuminates when power is supplied.

5 Power Input Terminal

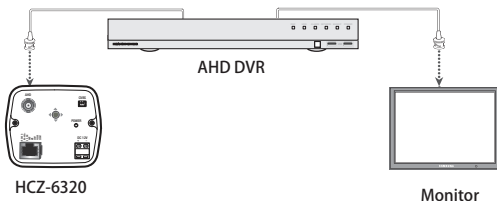
Power supply terminal (DC12V±10%)

6 RJ-45 JACK

Terminals, such as RS-485 communications, MD OUT, ZOOM, and FOCUS, EX_DN are included.

CONNECTING TO MONITOR

Refer to the following figure to connect monitors through DVR.



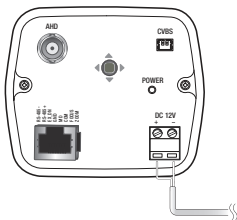
- As the connecting method varies with the instruments, refer to the manual supplied with the instrument.
- Only connect the cable when the power is turned off.

CONNECTING TO POWER

You can connect power as shown in the following figure.



- Use of an excessively long adaptor output line for connection to the camera may affect the performance of the camera.
- Standard voltage for camera operation : DC12V \pm 10%
- The wire is polarized. Match '+' and '-' terminals properly.



When the resistance value of copper wire is at [20°C(68°F)]

Copper wire size (AWG)	#24 (0.22mm ²)	#22 (0.33mm ²)	#20 (0.52mm ²)	#18 (0.83mm ²)
Resistance value(Ω/m)	0.078	0.050	0.030	0.018
Voltage Drop (V/m)	0.028	0.018	0.011	0.006

- As shown in the table above, voltage decreases as the wire gets longer. Therefore use of an excessively long adaptor output line for connection to the camera may affect the performance of the camera.
- * Standard voltage for camera operation : DC 12V±10%
- * There may be some deviation in voltage drop depending on the type of wire and the manufacturer.



- Be sure to connect power only after all the installation is complete.

CONTROL VIA RS-485 INTERFACE

The camera can be controlled by using external controllers like a Remote controller. (RS-485 Communication)

(1) To control by PC

Connect the RS-485 control port of the camera and the serial cable through an RS-485 converter.

Example) PC Serial Port → Serial Cable → RS-485 Converter → Camera RS-485 Control Port.

(2) To control using a DVR or System Controller

Connect the RS-485 cable (TRX+, TRX-) to the connection port of the 485 control board that is connected to the DVR or System Controller.

485 Control Board Connection Port	RS-485 Control Port
(+) CONNECTION TERMINAL (TRX+)	485+
(-) CONNECTION TERMINAL (TRX-)	485-

* RS-485 Communication establishment initial value

Item	Camera ID	BAUD RATE	UART MODE	RET PKT
Initial value	1	9600	8-NONE-1	ENABLE

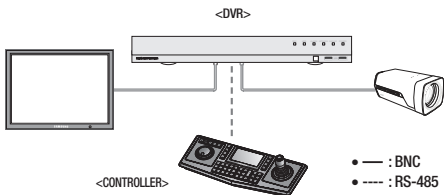


- To control the camera by constructing an additional controller, use the Samsung-T/E, Pelco-D/P, Panasonic, Bosch, AD, Vicon, Honeywell.

USING COAXIAL COMMUNICATIONS

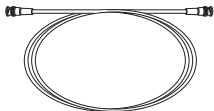
- Coaxial Communications System
- OSD Control method

CAMERA	DVR	CONTROLLER
SET	MENU/ENTER	OSD KEY
UP	UP KEY	JOYSTICK UP
DOWN	DOWN KEY	JOYSTICK DOWN
LEFT	LEFT KEY	JOYSTICK LEFT
RIGHT	RIGHT KEY	JOYSTICK RIGHT



• Video Cable

The camera's video output port is connected to the monitor with a BNC coaxial cable, shown below : If the distance between the camera and the monitor exceeds the recommended maximum, please use an auxiliary video amp.



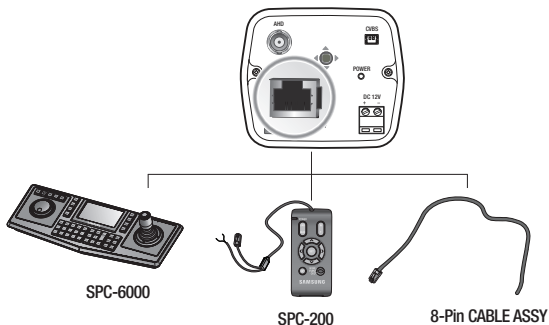
Distance	Recommended Cable Specification
500m	5C2V



- It is recommended that pure copper coax cable is used and not copper coated steel, as this will cause issues with the communication over the coaxial cable.

CONNECTING TO 8P CONTROL TERMINAL






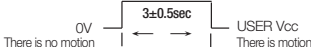
The camera can be controlled by using external controllers like a Remote controller. (RS-485 Communication)



* 8P Control Terminal Configuration

Name	Cable color	Description	Name	Cable color	Description
ZOOM	ORANGE	-	GND	BLUE	-
FOCUS	WHITE/ORANGE		EX DN	WHITE/BLUE	External D/N
COM	GREEN		485+	BROWN	RS-485 communication
MD	WHITE/GREEN		485-	WHITE/BROWN	RS-485 communication

connection

Connector	Function	Signal Level	I/O
ZOOM	Tele	 +6V ~ +12V COM	I
	Wide	 COM -6V ~ -12V	
FOCUS	Far	 +6V ~ +12V COM	I
	Near	 COM -6V ~ -12V	
COM		 COM	-
MD			O
EX DN		DAY mode : D&N terminals must be OPEN to external signals. (Do not input voltage) NIGHT mode : D&N terminal must be connected to the ground	I



- MD(Motion Detection) Output format is open collector.
- When using the MD function, the 'GND' should be connected to the frame ground.
- Do not simultaneously connect the RS-485 (+) (-) communication line when you use voltage control ZOOM and FOCUS, using the RECEIVER BOX (SRX-100B).

* Match the communication setup between devices when you use the wired controller (SPC-200) or SPC-6000.

ITEM	SPC-200	SPC-6000(Factory Default)
MODE	Serial	Serial
Data Bit	8 bit	8 bit
Bit/Sec	9600bps	9600bps
Parity	EVEN	NONE
CAM ID NO.	0	1~255
RETURN PACKET	ENABLE	See the SPC-6000 manual



- Contact an authorized technician for inspection.

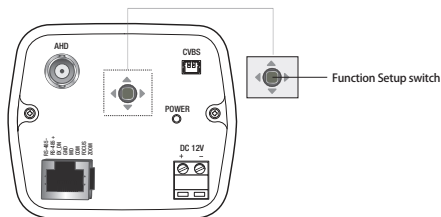
MENU CONFIGURATION

MAIN SETUP MENU			
SSDR	● ON	● OFF	
WHITE BAL	● ATW ● OUTDOOR ● SODIUM	● MANUAL ● INDOOR	● AWC→SET ● MERCURY
BACKLIGHT	● OFF ● WDR	● BLC	● HLC
INTELLIGENCE	● OFF	● ON	
FOCUS ₄ ↓	● MODE ● D-ZOOM ● LENS INIT	● ZOOM TRACK ● ZOOM POS INIT ● RETURN	● ZOOM SPEED ● USER PRESET
EXPOSURE ₄ ↓	● BRIGHTNESS ● AGC	● IRIS ● SSNR	● SHUTTER ● RETURN
SPECIAL ₄ ↓	● PRIVACY ● DEFOG ● DISPLAY	● DAY/NIGHT ● COMM ADJ ● RETURN	● DIS ● IMAGE ADJ
RESET			
EXIT			

camera operation

MENU SETUP

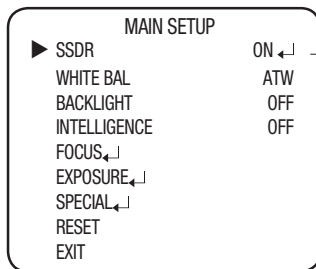
Use Function Setup switch on back of the camera.



1. Press Function Setup switch for 3 seconds.

- Main setup menu is displayed on the monitor screen.

Select the function using the Function Setup switch.



Change the status using the Function Setup switch.

2. Select a desired function using the Function Setup switch

- Place the cursor over a desired item.

3. Set up a selected item by using the Function Setup switch.

4. To finish the setting, select 'EXIT' and press the Function Setup switch.



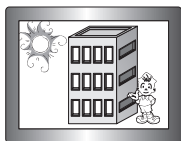
- An item with the ←| icon also has sub menus. To select a sub menu, select an item with the icon and press the Function Setup switch.
- An item with the --- icon is unavailable due to function settings.

SSDR (SUPER DYNAMIC RANGE)

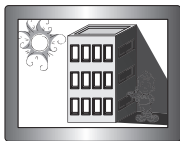
SSDR illuminates darker spots of an image while retaining the same light level for brighter spots to even out the overall brightness of images with high contrast between bright and dark spots



1. When the SETUP menu screen is displayed, select 'SSDR' by using the Function Setup switch so that the arrow indicates 'SSDR'.
2. Use the Function Setup switch to change the SSDR level according to the contrast between bright and dark areas.



SSDR ON

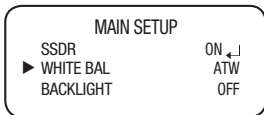


SSDR OFF

WHITE BAL (WHITE BALANCE)


Use the White Balance function to adjust the screen color.

1. When the SETUP menu screen is displayed, select 'White Bal' by using the Function Setup switch so that the arrow indicates 'White Bal'.
2. Select a desired mode using Function Setup switch.



camera operation

- ❖ Select one of the following 7 modes, as appropriate for your purpose.
 - **ATW** : Select this when the color temperature is between 1,800°K and 10,500°K.
 - **MANUAL** : Select this to fine-tune White Balance manually. Set White Balance first by using the ATW or AWC mode. After that switch to MANUAL mode, fine-tune the White Balance and then press the Function Setup switch.
 - **AWC→SET** : To find the optimal luminance level for the current environment, point the camera towards a sheet of white paper and press the Function Setup switch. If the environment changes, readjust it.
 - **OUTDOOR** : Select this when the color temperature is between 1,700°K and 11,000°K. (sodium light inclusion)
 - **INDOOR** : Select this when the color temperature is between 4,500°K and 8,500°K.
 - **MERCURY** : This is an auto compensation function that optimizes camera colors for the environments such as mercury lamps. (Color temperature : 2400°K~11000°K)
 - **SODIUM**: The image automatically compensates to the sodium lamp environment.

-  ■ White Balance may not work properly under the following conditions. In this case select the AWC mode.
 - ① When the color temperature of the environment surrounding the subject is out of the control range (e.g. clear sky or sunset).
 - ② When the ambient illumination of the subject is dim.
 - ③ If the camera is directed towards a fluorescent light or is installed in a place where illumination changes dramatically, the White Balance operation may become unstable.

BACKLIGHT

Unlike conventional cameras, the HCZ-6320 is designed to deliver a distinctive subject and background at the same time, even when the subject is backlight, by using the features of the proprietary WN2 chip.

- When the SETUP menu screen is displayed, select 'Backlight' by using Function Setup switch so that the arrow indicates 'Backlight'.
- Select a desired mode using Function Setup switch depending on the camera purpose.

MAIN SETUP	
SSDR	ON ↵
WHITE BAL	ATW
▶ BACKLIGHT	OFF
INTELLIGENCE	OFF

- OFF : Cancels the BLC function.
- BLC :
You can specify a desired area on the video manually and set the area to be displayed more clearly.
 - LEVEL : You can adjust the brightness of the monitoring area.
 - TOP/BOTTOM/LEFT/RIGHT :
You can adjust the position of the monitoring area.

BLC SETUP	
▶ LEVEL	MIDDLE
TOP	■■■■*■■■■■■■■■■ 30
BOTTOM	■■■■■■■■■■*■■■■ 70
LEFT	■■■■*■■■■■■■■■■ 30
RIGHT	■■■■■■■■■■*■■■■ 70
RETURN	↵

- HLC (HIGH LIGHT COMPENSATION) :
If the scene contains extremely bright light areas such as; from car headlight, the light can mask out much of the on-screen detail.
 - LEVEL : Adjust level of the HLC function.(LOW,MIDDLE,HIGH)
 - MASK TONE : Change the brightness

HLC SETUP	
▶ LEVEL	MIDDLE
MASK TONE	■■■■*■■■■■■■■■■ 7
RETURN	↵



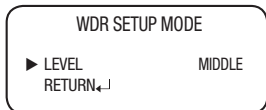
- Since the following symptoms may occur according to the ambient illumination when WDR/BLC is selected, set it to OFF.
 - ① Color or screen changes unnaturally.
 - ② Noise appears in the bright part of the screen.
- Since the performance of the BLC/WDR/HLC function may be affected by the area of the bright part of the screen, optimize the installation angle for the best BLC/WDR/HLC performance.
- Activating BLC may cause the camera to repeat the Auto Focus operation depending on lighting conditions. It is recommended that you use the Focus Setup menu in One-Push or Manual mode.
- Smart Zoom and BLC cannot be used in conjunction with each other.
- Setting up Smart Zoom and then BLC automatically cancels Smart Zoom.
- When dark, the HLC is only activated when a bright light exceeding a specific size. (In NIGHT ONLY mode.)

camera operation

- WDR

When there are both bright and dark areas at the same time, this mode makes both areas distinctive.

- LEVEL : Select one from low, middle, high to adjust the brightness of the WDR setup.
- RETURN: Return to the MAIN SETUP menu.



<WDR ON>



<WDR OFF>

INTELLIGENCE

Commands the camera to motion-detect and trace an object

- When the SETUP menu screen is displayed, select 'INTELLIGENCE' by using the Function Setup Switch so that the arrow indicates 'INTELLIGENCE'.
- Select a desired mode using the Function Setup switch.

- DETECTION : Since the camera detects motion without any additional external sensor, you can monitor activity more efficient.
- TRACKING : Commands the camera to detect and trace a moving object.
 - TYPE : Two types, line and area, of fences are available.
 - COUNT : Displays the number of times that an object enters or leaves a fenced area.
 - DISPLAY : Determines whether to display the fence.
 - FILL : Fill or remove color from the FENCE.
 - POSITION : Defines the position and detection direction of a line or fenced area.

1) LINE FENCE

- SEL POS : Selects a position from POS1, POS2.
- X POS / Y POS : Adjust the size and position of the selected line fence.
- DIRECTION
 - DIR1 : Detects objects moving left to right on the fence line.
 - DIR2 : Detects objects moving right to left on the fence line.
 - DIR1/2 : Detects all objects moving crosswise on the fence line.
- RETURN : Select this to save the POSITION menu settings and return to the TRACKING menu.

2) AREA FENCE

- SEL POS : Selects a position from POS1 ~ POS4.
- X POS / Y POS : Adjust the size and position of the selected area fence.

INTELLIGENCE	
▶ DETECTION	OFF
TRACKING	OFF
FIXED/MOVED	OFF
TAMPERING	OFF
DETECT BOX	OFF
ALARM OUT	ON
SMART ZOOM	OFF
SETUP CONFIG	
RETURN	

TRACKING	
▶ TYPE	LINE
COUNT	OFF
DISPLAY	ON
FILL	ON
POSITION	
RETURN	

camera operation

- DIRECTION

- IN : Detects objects entering the fenced area.
- OUT : Detects objects exiting the fenced area
- IN/OUT : Detects all objects entering and exiting the fenced area.

TRACKING	
▶ SEL POS	POS1
X POS	*****960
Y POS	******0
DIRECTION	DIR1
RETURN	←↓

TRACKING	
▶ SEL POS	POS1
X POS	*****640
Y POS	***288
DIRECTION	IN
RETURN	←↓

- RETURN : Select this to save the POSITION menu settings and return to the TRACKING menu.
- FIXED/MOVED : Detects an object that emerges or disappears from the screen, or stays onscreen without movement.



- A detection (FIXED/MOVED) error may occur if :
 - multiple motions occur continuously in random directions
 - a fixed object moves in one position continuously
 - a second object screens the first moving object
- TAMPERING: You can set to detect tampering attempts and trigger events, such as blocked lens.
- DETECT BOX : Outlines an object on the screen in a box when its movement matches a custom Motion Type.
- ALARM OUT : Releases a signal from the MD Output Port on the back of the camera when an object's movement matches a custom Motion Type.
- SMART ZOOM :

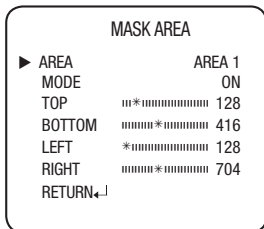
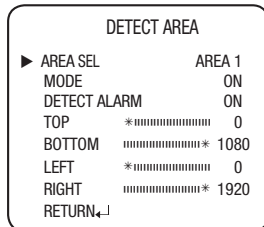
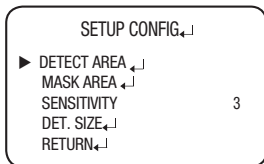
Smart zoom is operated in connection with MOTION DETECTION. When the SMART ZOOM function is 'ON' while the MOTION DETECTION mode is 'ON', the zoom goes to the TARGET ZOOM

SMART ZOOM SETUP	
▶ START ZOOM	x1
TARGET ZOOM	x5
DWELL TIME	5 SEC
RETURN	←↓

position once motion is detected. Once the zoom action is finished and 'DWELL TIME' has passed, the zoom returns to the 'START ZOOM' position.

- START ZOOM : By moving the Function Setup Switch in the 'START ZOOM' item to select the zoom position from 1x to 32x to be returned after the 'SMART ZOOM' action is over.
- TARGET ZOOM : Use the Function Setup Switch in the 'TARGET ZOOM' item to select the zoom position from 1x to 32x to be used during MOTION DETECTION.

- DWELL TIME : Use the left or right button in the 'DWELL TIME' item to select a time between 5 and 60 seconds for the dwell time before the zoom is returned to the 'START ZOOM' position.
(5,7,10,15,20,30,40,60 sec)
- SETUP CONFIG
 - DETECT AREA : Defines the Motion Detection area.
 - AREA SEL: You can select up to 4 areas.
 - MODE : Determines whether to use the area selected in the AREA.
 - DETECT ALARM : Determines whether to use the detect alarm selected in the AREA.
 - TOP / BOTTOM / LEFT / RIGHT : Adjust the size and position of the selected area.
 - RETURN : Select this to save the DETECT AREA menu settings and return to the SETUP CONFIG menu.
 - MASK AREA : Specify a detection exception area to mask. Select a mask area number and specify the size and position.
 - AREA : You can select up to 4 areas.
 - MODE : Determines whether to use the area selected in the AREA.
 - TOP/ BOTTOM/LEFT/ RIGHT : Adjust the size and position of the selected area.
 - SENSITIVITY : Set the sensitivity of the motion detection. When you adjust the lower level, the more sensitive.
 - DET. SIZE : Selects an object size to detect on the screen. When you adjust higher levels, the more larger size.
 - RETURN : Return to the INTELLIGENCE menu.



camera operation



- Tips on Using the Motion Detection Feature
 - The feature may not function properly under flickering light conditions.
 - The camera interprets sudden changes in lighting and subsequent change in brightness of an object as motion.
 - With the feature enabled, other algorithms may require additional time to operate.
 - This system does not guarantee prevention of fire or theft. The manufacturer shall not be held responsible for any accident or damage incurred.

FOCUS

1. Press the FUNCTION SETUP SWITCH to access the main setup menu and then position the indicator over FOCUS using the FUNCTION SETUP SWITCH.

2. Press the FUNCTION SETUP SWITCH.

- **MODE** : You can select the most suitable zoom mode. Move the arrow indicator to 'MODE' using FUNCTION SETUP SWITCH.

- ONE-PUSH :

Focus is automatically adjusted just once, after zoom position is changed. Select 'ONE PUSH' and the FUNCTION SETUP SWITCH to confirm. Increase or decrease optical zoom (ZOOM) or digital zoom (D-ZOOM) positions using the FUNCTION SETUP SWITCH while verifying the changes on screen. Press the FUNCTION SETUP SWITCH once the desired image quality is obtained.

- AUTO :

Select AUTO and press the FUNCTION SETUP SWITCH to confirm. Increase or decrease optical zoom (ZOOM) or digital zoom (D-ZOOM) positions using the FUNCTION SETUP SWITCH while verifying the changes on screen. Enabling D-ZOOM (ON) means that digital zoom will activate once optical zoom ends. The focus automatically adjusts when the lens zooms in and out.

FOCUS SETUP	
▶ MODE	ONE-PUSH ↕
ZOOM TRACK	AUTO TRACK
ZOOM SPEED	FAST
D-ZOOM	OFF
ZOOM POS INIT	AUTO
USER PRESET	OFF
LENS INIT	MANUAL ↕
RETURN ↕	

ZOOM/FOCUS POS SETUP	
← : NEAR	→ : FAR
↑ : TELE	↓ : WIDE

ZOOM POS SETUP	
↑ : TELE	↓ : WIDE

- MANUAL :

Select 'MANUAL' and press the FUNCTION SETUP SWITCH to confirm. Increase or decrease optical zoom (ZOOM) or digital zoom (D-ZOOM) positions moving directional buttons while verifying the changes on screen. Press the FUNCTION SETUP SWITCH once desired image quality is obtained. Focus can be manually adjusted, independent of moving zoom.

ZOOM/FOCUS POS SETUP

← : NEAR → : FAR
↑ : TELE ↓ : WIDE

● ZOOM TRACK :

Select 'ON' for the 'SMART ZOOM' item in the MOTION DETECTION menu and press FUNCTION SETUP SWITCH to change the settings for the 'SMART ZOOM' function.

Use the FUNCTION SETUP SWITCH in the 'ZOOM' item to select 'AUTOTRACK' or 'TRACK' and press FUNCTION SETUP SWITCH to activate the zoom action focus function.

- AUTO TRACK : Zooming in while deciding or adjusting the status of the focus.
- TRACK : The camera moves the focus track which is established.
- OFF : Only the zoom lens moves.

FOCUS SETUP

MODE	ONE-PUSH _↕
▶ ZOOM TRACK	AUTO TRACK
ZOOM SPEED	FAST

● ZOOM SPEED :

Configure zoom tracing speed using this feature. Position the indicator over 'ZOOM SPEED' using the FUNCTION SETUP SWITCH and then set to desired mode using the FUNCTION SETUP SWITCH.

- FAST : To move zoom fast.
- SLOW : To move zoom slowly.
- MEDIUM : To move zoom at medium speed.

FOCUS SETUP

MODE	ONE-PUSH _↕
ZOOM TRACK	AUTO TRACK
▶ ZOOM SPEED	FAST
D-ZOOM	OFF

● D-ZOOM :

Configure magnification limit from x2~x16 using this feature. Position the indicator over 'D-ZOOM' using the FUNCTION SETUP SWITCH Set 'D-ZOOM' to 'ON' and press the FUNCTION SETUP SWITCH to confirm.

- Set 'ZOOM LIMIT' to the desired level using the FUNCTION SETUP SWITCH.

D-ZOOM LIMIT SETUP

▶ LIMIT	X2
RETURN _↕	



- When the DIS is enabled, you cannot use the D-ZOOM.

camera operation

● ZOOM POS INIT :

Moves to the controlled ZOOM position when the power is turned on and the initial ZOOM position has been set.

- AUTO : If you turn the power off and on, the zoom magnification level is set to the previous level that was set before the power went off.
- MANUAL : The zoom magnification level can be set from 1x to 32x.



- The zoom position is saved after 5 seconds when you set zoom function.

FOCUS SETUP	
MODE	ONE-PUSH _{←,↓}
ZOOM TRACK	AUTO TRACK
ZOOM SPEED	FAST
D-ZOOM	OFF
▶ ZOOM POS INIT	AUTO
USER PRESET	OFF

ZOOM INIT POS SETUP	
▶ POS INIT	x1
RETURN _{←,↓}	

● USER PRESET :

Preset user-designated configurations using this feature. Position the indicator over 'USER PRESET' using the FUNCTION SETUP switch and then set to 'ON' using the FUNCTION SETUP switch. Press the FUNCTION SETUP switch to confirm.

- PRESET NO :
Up to 128 preset configurations are supported.
- PRESET SAVE : Save configured preset.
- PRESET CLEAR : Clear configured preset.
- RETURN : Revert to the FOCUS SETUP menu.

FOCUS SETUP	
MODE	ONE-PUSH _{←,↓}
ZOOM TRACK	AUTO TRACK
ZOOM SPEED	FAST
D-ZOOM	OFF
ZOOM POS INIT	AUTO
▶ USER PRESET	OFF
LENS INIT	MANUAL _{←,↓}

USER PRESET SETUP	
▶ PRESET NO _{←,↓}	* * * * * 1
PRESET SAVE	
PRESET CLEAR	
RETURN _{←,↓}	
PRESET NOT DEFINED	

● LENS INIT :

Use the FUNCTION SETUP switch in the 'Lens initialization' item select 'Automatic' or 'Manual' and then press the FUNCTION SETUP switch.

- AUTO : The lens can automatically be set by a pre-selected day, from 1-day to 7-days. This will start from when the time is set.
- Manual : The Lens will reset when you press the FUNCTION SETUP switch.

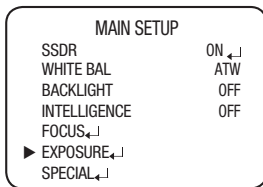
- RETURN : Save the current settings and return to the parent menu (MAIN SETUP).

LENS INIT SETUP	
▶ DAY	1
RETURN _{←,↓}	

EXPOSURE

From the Main Setup menu, select EXPOSURE and press Function Setup Switch. You can now change the exposure setting.

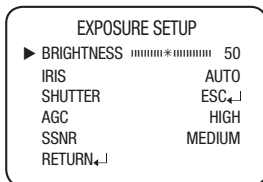
1. Press the Function Setup Switch to access the main setup menu and then position the indicator over EXPOSURE.



2. Press the Function Setup Switch button.

- **BRIGHTNESS** :

Use this feature to adjust image brightness. Position the indicator over 'BRIGHTNESS' using the Function Setup Switch. Then increase or decrease brightness level using the Function Setup Switch while verifying the changes on screen.



- **IRIS** : Set 'IRIS' to 'AUTO' or 'MANUAL'.

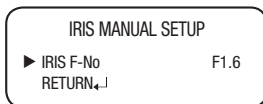
Position the indicator over 'IRIS' using the Function Setup Switch and then select the desired iris mode.

- AUTO: The iris is automatically activated upon illumination.

- MANUAL : Manual iris configuration.

Set 'IRIS' to 'MANUAL' using the Function Setup Switch and then press the Function Setup Switch.

Increase or decrease iris level using the Function Setup Switch while verifying the changes on screen.

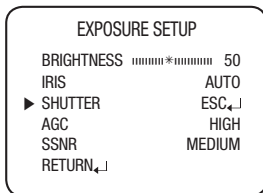


- **SHUTTER** : Control image brightness by adjusting shutter speed.

- ① Position the indicator over 'SHUTTER' using the Function Setup Switch. Then select the desired shutter mode (A.FLK, ESC).

- A.FLK (NTSC: 1/100, PAL: 1/120) : Flicker-free mode.

- ESC : Automatic shutter speed setting (optimal).



camera operation

- 2 Press the FUNCTION SETUP SWITCH to complete.



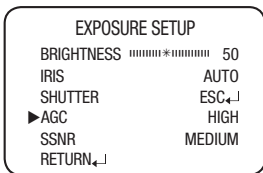
- Image may become unstable if the camera is set to 'ESC' mode and faces a strong fluorescent light.
- In case the shutter is set to Low Speed in a bright environment, saturation may occur.

- **AGC (Automatic Gain Control)** adjusts the camera's gain control and the screen brightness if the camera has captured an object under low-light conditions.

- 1 Position the indicator over 'AGC' using the Function Setup Switch.

- 2 Set 'AGC' to the desired mode.

- HIGH : Wide range gain value adjustment
- LOW : Narrow range gain value adjustment
- MEDIUM : MEDIUM range gain value adjustment

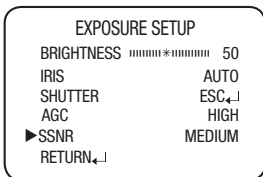


- **SSNR(Super Noise Reduction)**: On screen noise reduction.

- 1 Position the indicator over 'SSNR' using the Function Setup Switch.

- 2 Set 'SSNR' to the desired mode.

- LOW: Low noise reduction
- MEDIUM: Medium noise reduction
- HIGH: High noise reduction
- OFF: Disabled

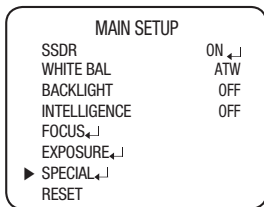


- Changing the 'AGC' setting from LOW to HIGH results in greater sensitivity, as well as on screen noise.
- Setting 'AGC' to OFF locks 'SSNR' configuration.

- **RETURN** : To revert to the main setup menu.

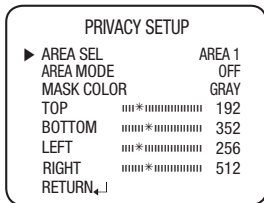
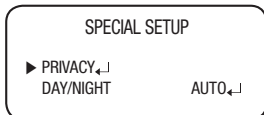
SPECIAL

1. Press the Function Setup Switch to access the main setup menu and then position the indicator over 'SPECIAL'.
2. Press the Function Setup Switch to confirm.
 - **PRIVACY** : Hide the area that you want not to be displayed on the screen.

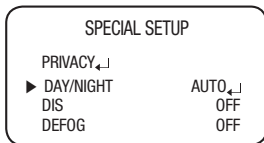


- ① When the SPECIAL menu screen is displayed, using the Function Setup Switch so that the arrow indicates 'PRIVACY'.
- ② Set up the mode using the Function Setup Switch.

- AREA : You can select up to 12 areas.
- MODE : Determines whether to use the area selected in the AREA SEL.
- MASK COLOR : Determine area color. You can select Green, Red, Blue, Black, White, Gray.
- TOP / BOTTOM / LEFT / RIGHT: Adjust the size and position of the selected area.
- RETURN : Return to the SPECIAL SETUP menu.



- **DAY/NIGHT** : You can display pictures in color or black and white.
 - ① When SPECIAL SETUP menu screen is displayed, select 'DAY/NIGHT' using the Function Setup Switch so that the arrow indicates 'DAY/NIGHT'.
 - ② Select a desired mode according to the picture display you want.



camera operation

- AUTO : The mode is switched to 'Color' in a normal environment, but switches to 'B/W' mode when ambient illumination is low. To set up the switching time or speed for AUTO mode, press the Function Setup Switch.

DAY/NIGHT AUTO SETUP	
▶ DWELL TIME	5 SEC
DURATION	SLOW
RETURN ↵	

- ▶ DWELL TIME : You can select tday/night switching delay time from.
→5,7,10,15,20,30,40, 60(sec)

- ▶ DURATION : You can select the day/night switching point.

- COLOR: The picture is always displayed in color.
- B/W : The picture is always displayed in black and white.
- EXTERN : This mode allows you to apply a desired filter to external signals.

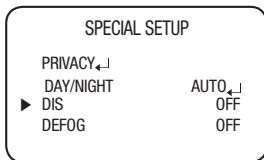


- You cannot control the DAY/NIGHT menu when AGC in the EXPOSURE menu is 'OFF'. At this time, the exchange between DAY mode and NIGHT mode operates as like selecting 'COLOR' mode.
- The OSD key does not work for 3 seconds when switching to Color or B/W, to ensure stable camera operation.
- The camera may focus less well under infrared illumination than under normal illumination.
- The brightness of illumination is changeable by installed environment.

- DIS : The DIS mode can compensate for vibration of the camera.

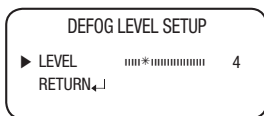


- When DIS is operating, D-ZOOM does not operate.



- DEFOG: You can use the defog mode to allow the camera to automatically detect the fog density of the screen and display a clear image despite smog, fog or general poor visibility.

- AUTO : Adjust the level automatically.
- Manual : Depending on the defog level set by the user, adjust the clarity of image.
- OFF : Released state

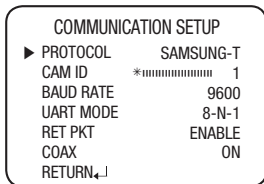


- COMM ADJ (Communication Adjustment) :

This function sets up the camera communication status when controlling the camera through an external controlled device.

- 1 When the SPECIAL menu screen is displayed, using the UP or DOWN button so that the arrow indicates 'COMM ADJ'.
- 2 Set up the mode moving the Function Setup Switch.

- Protocol : Select the communication PROTOCOL. (SAMSUNG-T, SAMSUNG-E, Pelco-P, Pelco-D, Vicon, Panasonic, Bosch, Honeywell, AD.)
- CAM ID : Determines the camera's identification number (between 0 and 255).



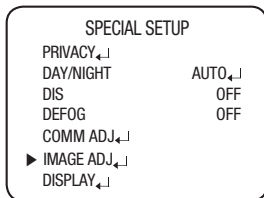
- BAUD RATE : You can select 2400/4800/9600/19200/38400/57600/115200 bps.
- UART MODE : You can select NONE, EVEN or ODD for the parity bits.
- RET PKT : You can choose whether to send an ACK signal when the communication control command is issued to the camera.

camera operation

- COAX : You can select whether to use COAX communication.
Coaxial communication is not available in CVBS mode.

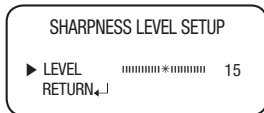
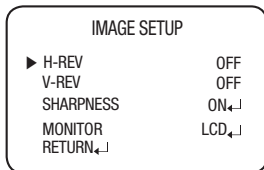
- **IMAGE ADJ** : Includes image quality or special function factors.

- 1 When the SETUP menu screen is displayed, select 'IMAGE ADJ.' using the Function Setup Switch so that the arrow indicates 'IMAGE ADJ.'



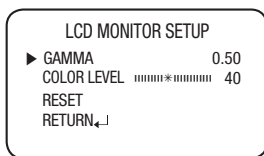
- 2 Select a desired mode using the Function Setup Switch.

- H-REV : You can flip the picture horizontally on the screen.
- V-REV : You can flip the picture vertically on the screen.
- SHARPNESS : As you increase this value, the picture outline becomes stronger and clearer.



- MONITOR : Please change the settings value of video appropriate to your monitor.

- ▶ LCD: Please select this menu item when using an LCD monitor.
- ▶ USER : Please use this menu item when using a monitor other than standard ones. You can change the gamma and color level in the sub menus.



- RETURN : Return to the SPECIAL menu.

- **DISPLAY:** Use this feature to designate a name for the camera, which will display on the monitor screen.

- CAM TITLE

- 1 Press the Function Setup Switch to display the main setup menu and move the arrow indicator to 'CAM TITLE' using the Function Setup Switch.
- 2 Set 'CAM TITLE' to 'ON' using the Function Setup Switch.



- If the CAM TITLE feature is set to 'OFF', the name will not be displayed on the monitor

- 3 Press the Function Setup Switch.
- 4 Use the Function Setup Switch to move to a desired letter and select the letter by pressing the Function Setup Switch. Repeat this to enter multiple letters. You can enter up to 15 letters.

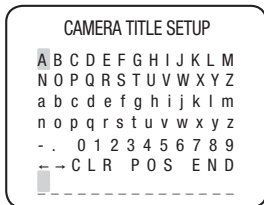
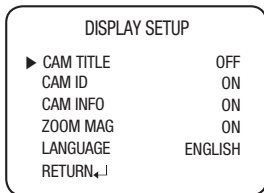


- **Correcting Mistakes**
Move the cursor to 'CLR' and press the Function Setup Switch to clear the entire entry. To modify one character, use LEFT or RIGHT to position the cursor above the character to be modified and click the Function Setup Switch after selecting the character to enter.

- 5 Enter a title, move the cursor to 'POS' and press the Function Setup Switch. The entered title appears on the screen. Select the position to display the title on the screen by moving the Function Setup Switch and press the Function Setup Switch. When the position is determined, select END.



- CAM ID : Displays camera ID on top left corner of the screen.
- CAM INFO : Displays camera information on screen.
- ZOOM MAG : Use this feature to display the current zoom magnification level on screen. Position the indicator over 'ZOOM MAG' using the Function Setup Switch. Then set to ON using the Function Setup Switch.



camera operation

- LANGUAGE : You can select the menu language according to your requirements.
- RETURN : Select this to save the SPECIAL menu settings and return to the SPECIAL menu.

RESET

Resets the camera settings to the factory defaults. Communication, Language and Monitor settings are not initialized.

EXIT

To finish setup menu.

TROUBLESHOOTING

If you have trouble operating your camera, refer to the following table.

If the guidelines do not enable you to solve the problem, contact an authorized technician.

PROBLEM	SOLUTION
Nothing appears on the screen.	<ul style="list-style-type: none">▶ Ensure that your camera is supplied with rated power as appropriate.▶ Check that you have properly connected VIDEO cable to the camera VIDEO output jack.
The image on the screen is dim.	<ul style="list-style-type: none">▶ If the lens is dusty, wipe it out with a clean cloth or brush.▶ Set the monitor to proper condition.▶ If the camera is exposed to too strong light, change the camera position.
The image on the screen is dark.	<ul style="list-style-type: none">▶ Adjust the contrast feature of the monitor.▶ If you have an intermediate device, set the 75Ω / Hi-z properly.
The camera is not working properly, and the surface of the camera is hot.	<ul style="list-style-type: none">▶ Check that you have properly connected the camera to an appropriate power source.
The Motion Detection function does not work.	<ul style="list-style-type: none">▶ Check that MOTION DET of INTELLIGENCE menu is 'OFF'.
Color is not correct.	<ul style="list-style-type: none">▶ Check the setting of WHITE BAL SETUP menu .
The screen flickers continually.	<ul style="list-style-type: none">▶ Check that direction of camera turns toward the Sun.
When coaxial communication is not available:	<ul style="list-style-type: none">▶ Make sure that the camera and monitor are installed within the recommended distance.▶ Use the video amplifier equivalent to coaxitron if the recommended installation distance is exceeded.

specifications

SPECIFICATIONS

HCZ-6320	
VIDEO	
Imaging Device	1/2.8" 2.38M CMOS
Total Pixels	1952(H) x 1116(V), 2.18M
Effective Pixels	1944(H) x 1104(V), 2.14M
Scanning System	Progressive
Min. Illumination	Color : 0.2 Lux (1/30sec, F1.6, 30IRE), 0.003 Lux(2sec, F1.6, 30IRE) B/W : 0.01 Lux (1/30sec, F1.6, 30IRE), 0.0001 Lux(2sec, F1.6, 30IRE)
S / N Ratio	50dB
Video Output	AHD : 1080p, BNC CVBS : SD, DIP connector type
Lens Type	
Focal Length (Zoom Ratio)	4.44 ~ 142.6mm(Optical 32X)
Max. Aperture Ratio	F1.6 (Wide) / F4.4 (Tele)
Angular Field of View	H : 62.8°(Wide) ~ 2.23°(Tele) / V : 36.80°(Wide) ~ 1.26°(Tele)
Min. Object Distance	Wide 1.5m ,Tele 2m
Focus Control	Auto / Manual / One Push
Lens Type	DC Auto Iris
Mount Type	Board-in type
OPERATIONAL	
Camera Title	Off / On (Displayed up to 15 characters)
Day & Night	Auto (ICR) / External / Color / B/W
Backlight Compensation	Off / BLC / HLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR(Off / On)
Digital Noise Reduction	SSNRlll (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Off/Auto/Manual
Motion Detection	Off / On (4ea Rectangle zone)
Privacy Masking	Off / On (12 Zones of Rectangle zone)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium

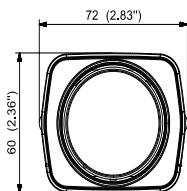
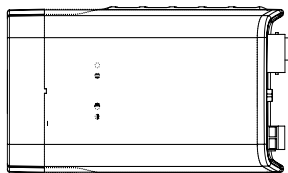
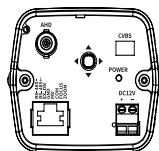
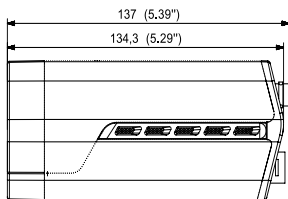
HCZ-6320	
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/33,000sec)
Digital Zoom	16x
Flip / Mirror	Off / On
Intelligent Video Analytics	Detection / Tracking / Fixed Moved / Tampering
Remote Control I/F	RS-485, Coaxial
Protocol	RS-485: Samsung-T/E, Pelco-D/P, Panasonic, Bosch, AD, Vicon, Honeywell Coaxial : ACP (AHD Coax Protocol)
Video Transmission Distance	500m(5C2V Coaxial Cable)
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C (+14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-10°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Electrical	
Input Voltage	DC12V
Power Consumption	Max. 6W
Mechanical	
Color / Material	Dark Gray / Metal
Dimension (WxHxD)	72.0x60.0x137.0mm
Weight	476g

※ The specification for this product may change without prior notice for product improvement.

specifications

DIMENSIONS

Unit : mm (Inches)



MEMO

SAMSUNG-T Protocol Command Description

SAMSUNG-T PROTOCOL COMMAND DESCRIPTION

Command Name		Byte1	Byte2	Byte3
	Command Packet	STX	CAM ID	HOST ADDR
	Return Packet	STX	CAM ID	HOST ADDR
	Checksum	CHECKSUM CALCULATION : UNARY OPERATION OF SUMMATION EX) CHECKSUM = ~(BYTE2+BYTE3+... +BYTE8+ BYTE9);		
Reset	Function	Reset all data to factory default value.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
Focus Far	Function	Move focus lens to far direction.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
Focus Near	Function	Move focus lens to near direction.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
Zoom Wide	Function	Move zoom lens to wide direction.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
Zoom Tele	Function			
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
ZOOM Direct	Function			
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
	Parameter	P1,P2: OPTICAL ZOOM = 0000h ~ 07DDh P3 : DIGITAL ZOOM = ((256*10)/Ratio)-1 EX) D-ZOOM 1.1x : P3 = E7h = ((256*10)/11)-1, Ratio 11 means 2 D-ZOOM 2.0x : P3 = 7Fh = ((256*10)/20)-1, Ratio 20 means 2		
AF Stop	Function	Stop zoom & focus lens moving.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
One push AF	Function	Unconditionally execute auto focus.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR

Byte4 Byte5	Byte 6	Byte7	Byte8	Byte9	Byte10	Byte11
CAMMAND	DATA3	DATA4	DATA5	DATA6	ETX	CHECKSUM
CAMMAND	DATA3	DATA4	DATA5	DATA6	ETX	CHECKSUM

FROM BYTE2 TO BYTE9.

000Fh	00h	00h	00h	00h	AFh	CHECK SUM
000Fh	00h	00h	00h	00h	AFh	CHECK SUM

0100h	00h	00h	00h	00h	AFh	CHECK SUM
0100h	00h	00h	00h	00h	AFh	CHECK SUM

0200h	00h	00h	00h	00h	AFh	CHECK SUM
0200h	00h	00h	00h	00h	AFh	CHECK SUM

0040h	00h	00h	00h	00h	AFh	CHECK SUM
0040h	00h	00h	00h	00h	AFh	CHECK SUM

0020h	00h	00h	00h	00h	AFh	CHECK SUM
0020h	00h	00h	00h	00h	AFh	CHECK SUM

00FFh	P1	P2	P3	00h	AFh	CHECK SUM
00FFh	P1	P2	P3	00h	AFh	CHECK SUM

1.1x.

2.0x.

0000h	00h	00h	00h	00h	AFh	CHECK SUM
0000h	00h	00h	00h	00h	AFh	CHECK SUM

0045h	00h	00h	00h	00h	AFh	CHECK SUM
0045h	00h	00h	00h	00h	AFh	CHECK SUM

SAMSUNG-T Protocol Command Description

User Preset Save	Function	Save current user preset configuration information.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
	Parameter	P1:00h(USER PRESET 1) ~ 80h(USER PRESET 128)		
User Preset Exec.	Function	Execute selected user preset.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
	Parameter	P1:00h(USER PRESET 1) ~ 80h(USER PRESET 128)		
User Preset Clear	Function	Clear selected user preset.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
	Parameter	P1:00h(USER PRESET 1) ~ 80h(USER PRESET 128)		
OSD Menu On/Off	Function	Display OSD menu on the screen. Clear OSD menu and save current menu setup.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
	Parameter	P1 : 00h = ON 01h = OFF		
OSD Menu Up	Function	Move OSD arrow to up.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
OSD Menu Down	Function	Move OSD arrow to down.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
OSD Menu Left	Function	Move OSD arrow to left.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
OSD Menu Right	Function	Move OSD arrow to right.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
OSD Menu Set	Function	Move to inside menu		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR
OSD Menu ESC	Function	Move to upper menu.		
	Command Packet	A0h	CAM ID	HOST ADDR
	Return Packet	A0h	CAM ID	HOST ADDR

0003h	P1	00h	00h	00h	Afh	CHECK SUM
0003h	P1	00h	00h	00h	Afh	CHECK SUM

0007h	P1	00h	00h	00h	Afh	CHECK SUM
0007h	P1	00h	00h	00h	Afh	CHECK SUM

0005h	P1	00h	00h	00h	Afh	CHECK SUM
0005h	P1	00h	00h	00h	Afh	CHECK SUM

00B1h	P1	00h	00h	00h	Afh	CHECK SUM
00B1h	P1	00h	00h	00h	Afh	CHECK SUM

0008h	00h	00h	00h	00h	AFh	CHECK SUM
0008h	00h	00h	00h	00h	AFh	CHECK SUM

0010h	00h	00h	00h	00h	AFh	CHECK SUM
0010h	00h	00h	00h	00h	AFh	CHECK SUM

0004h	00h	00h	00h	00h	AFh	CHECK SUM
0004h	00h	00h	00h	00h	AFh	CHECK SUM

0002h	00h	00h	00h	00h	AFh	CHECK SUM
0002h	00h	00h	00h	00h	AFh	CHECK SUM

0100h	00h	00h	00h	00h	AFh	CHECK SUM
0100h	00h	00h	00h	00h	AFh	CHECK SUM

0200h	00h	00h	00h	00h	AFh	CHECK SUM
0200h	00h	00h	00h	00h	AFh	CHECK SUM

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