

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.

## ■ Contents

<b>Features</b>	04
<b>Warning</b>	05
<b>Precautions</b>	06
<b>Components and Accessories</b>	08
<b>Overview</b>	09
■ Front View	09
■ Bottom View	10
■ Rear View	11
<b>Connection</b>	12
■ Connecting to Monitor	12
■ Connecting to Power	13
• DC Power Type	
• AC/DC Power Type	
■ Connecting to Connection	14
• External Control Connector	
• Motion Output Connector	
• Communication Control Connector	
• Key ExtraConnector	

<b>Operating Your Camera</b>	16
■ Menu Configuration	16
■ How to Set up the Functions	17
• White Balance (White Bal.)	18
• BACKLIGHT	20
• Motion Detection	22
• FOCUS	23
• EXPOSURE	28
• SPECIAL	33
• RESET	40
• EXIT	40
<b>Troubleshooting</b>	41
<b>Specifications</b>	43

## ■ Features

### 27x / 33x / 37x Optical Zoom

The built-in optical zoom lens is a highly durable component. It features auto focus, auto iris, and zoom functions.

- 27x Model : 27x Optical Zoom
- 33x Model : 33x Optical Zoom
- 37x Model : 37x Optical Zoom

### SSNR (Super Noise Reduction)

The high performance W-IV DSP chip dramatically reduces the gain noise in digital image processing, producing clear, sharp images in low lighting environments.

### Fine Picture Quality under Ultra Low Lighting

1/4" high density CCD allows the user to capture bright, high-quality images under ultra low lighting conditions.

### Ultra High Resolution

By adopting a double-speed 410,000 pixel Sony CCD, the camera produces clear picture quality with a horizontal resolution of 550 TV lines for colour, and 680 TV lines for B/W.

### Day & Night

The camera identifies whether it is day or night and automatically switches to the appropriate mode, depending on its environment. By day, the camera switches to colour mode in order to maintain optimal colour. At night, it switches to B/W mode so as to obtain better picture definition.

### DIS (Digital Image Stabilizer)

The DIS function compensates for any camera movement, to produce more stable pictures.

### Motion Detection

The camera detects motion and generates a screen message without an external sensor.

### RS-485 Communication Control Support

Remote OSD menu control via an RS-485 interface is supported.

### Language

The camera OSD Menu control is equipped with seven different languages, these being:  
- NTSC : Korean, English, Spanish, Japanese  
- PAL : English, French, German, Spanish, Italian, Chinese

### Miscellaneous Functions

SENS-UP, FLIP(H/V-REV), D-ZOOM, SHARPNESS, MOTION DETECTION and PRIVACY functions are provided.

## 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.**



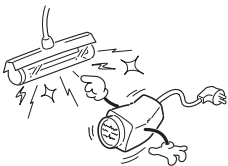
Only use the camera under conditions where temperatures are between  $-10^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ . Be especially careful to provide ventilation when operating under high temperatures.

**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.**



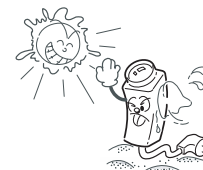
This is one of the most important parts of the camera. Be careful not to leave fingerprints on the lens cover.

**Do not drop the camera and protect it from 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 beverage on it.**



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

**Do not expose the camera to radioactivity.**



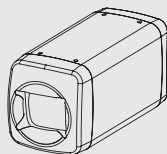
If exposed to radioactivity the CCD will fail.



### Note

- If the camera is exposed to 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.

1. ZOOM COLOUR CAMERA



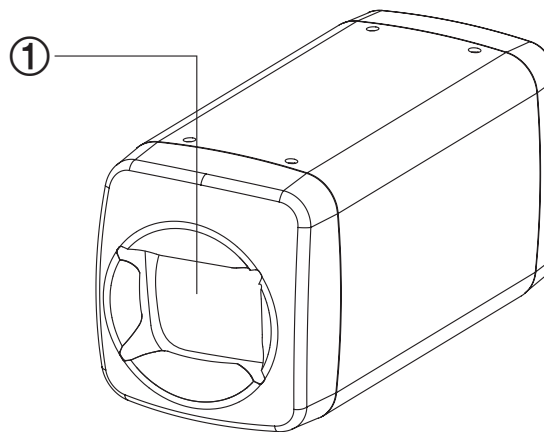
2. INSTRUCTION GUIDE



3. REMOTE CONTROLLER  
(OPTION ITEM)

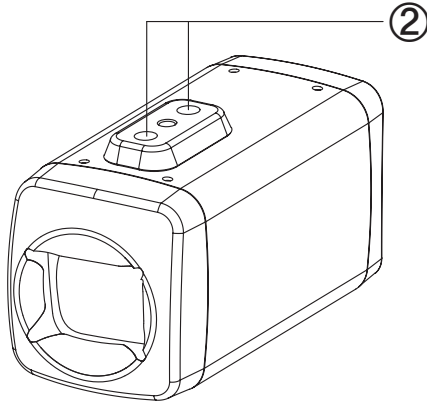


Front View



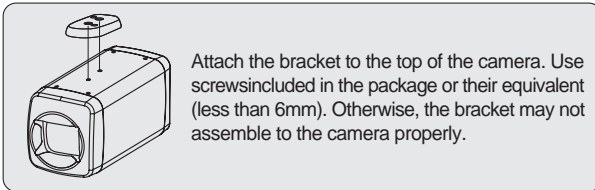
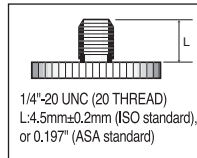
① Zoom Lens

Bottom View

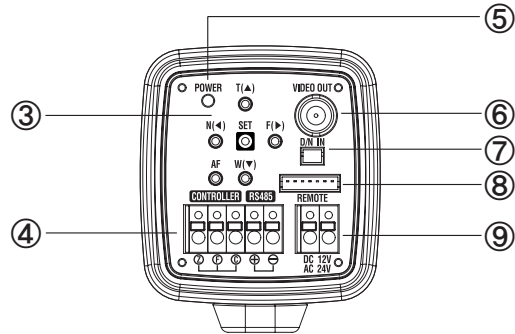


② Tripod Mounting Hole

Used to install the camera on an optional tripod. The tripod must be equipped with screws with specifications shown on the right.

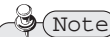


Rear View



③ Key Buttons

- Following buttons control zoom, focus, and auto focus functions.
  - W (▼) button : To widen the view. (ZOOM OUT)
  - T (▲) button : To close in on a far object. (ZOOM IN)
  - N (◀) button : To see a near object clearly.
  - F (▶) button : To see a far object clearly.
  - AF button : To activate auto focus just once.
- Pressing the 'SET' button locks the zoom control function of these buttons and prompts the main setup menu.



Note

- The zoom position is saved after 5 seconds when you set zoom function.
- Main setup menu can be navigated using these buttons.
  - SET : To access the main setup menu.
  - UP (▲) : To move the arrow indicator to up.
  - DOWN (▼) : To move the arrow indicator to down.
  - LEFT (◀) : To move the arrow indicator to left.
  - RIGHT (▶) : To move the arrow indicator to right.

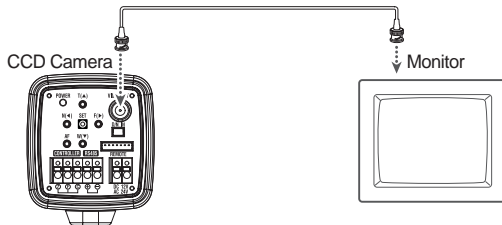
## Overview

- ④ **External Control Connector**  
Zoom and focus functions can be controlled using external signals.
- ⑤ **Power LED**  
Illuminates when power is supplied.
- ⑥ **Video Output Jack**  
Used to connect an external video monitor in jack.
- ⑦ **D/N Input Port (Short : BW, Open : Colour)**  
Switch to Day or Night Mode by connecting an external signal to this port.  
(In case of DAY/NIGHT mode setted to EXT.)
- ⑧ **Key Extra Connector**  
Connects to the remote controller(option) when you want to install remotely.
- ⑨ **Power Input Terminal**  
Power supply terminal (DC 12V, AC 24V).

## Connection

### Connecting to Monitor

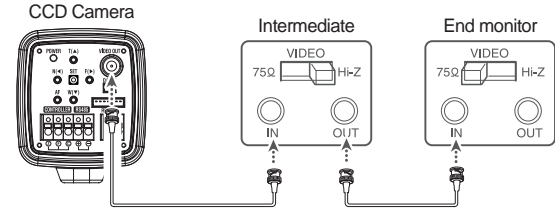
Connect Video Out Jack to the monitor's Video In jack as shown below.



- Connection methods may vary depending on the video equipment. Please refer to the model specific instruction manual.
- Connect cables with the unit powered down.

## Connection

- Set the 75Ω/ Hi-Z selection switch as shown below if you have an intermediate device.



### Connecting to Power

Each model has a different power input specification. Please check the model type and standard power requirement before connecting to power.

#### DC Power Type (DC 12V, 500mA)

Use DC 12V/500mA power source for DC12V Only Model.

Power Input Terminal

#### AC/DC Power Type

Use AC24V/500mA or DC 12V/500mA powersource for Dual Power Model.



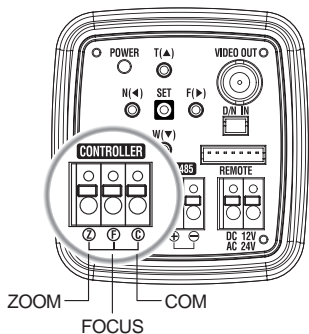
#### Note

- Connect the power once the installation is complete.
- The wire is polarized. Match '+' and '-' terminals properly.

## ■ Connection

### Connecting to Connection

#### External Control Connector



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	-

## ■ Connection

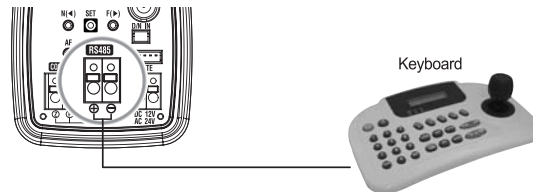
#### Communication Control Connector

The camera can be controlled by using an external controller equipped with RS-485 communications.

- To control using a DVR or keyboard controller  
Connect the RS-485 cable (TRX+, TRX-) to the connection port of the 485 control board in the DVR or controller.

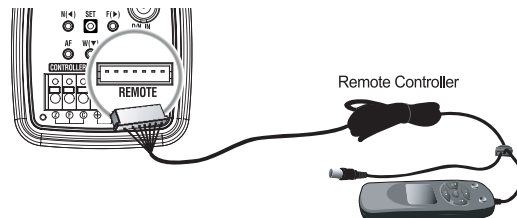
485 Control Board Connection Port	RS-485 Control Port
(+) CONNECTION TERMINAL (TRX+)	485+
(-) CONNECTION TERMINAL (TRX-)	485-

(※ Go Preset 95 : Enters into OSD menu or Set key function)



#### Key Extra Connector

Connects to the remote controller(option) when you want to install remotely.



#### Note

- Contact an authorized technician for inspection.



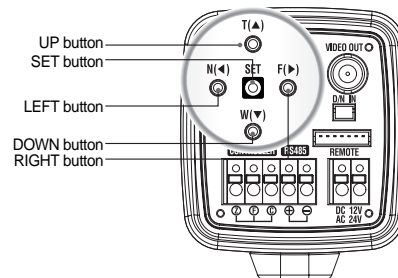
## ■ Operating Your Camera

### Menu Configuration

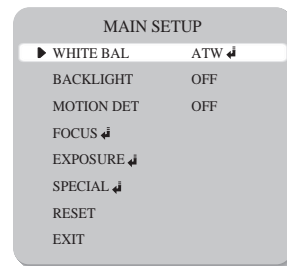
Main Setup Menu			
WHITE BAL	• ATW	• MANUAL	• AWC→SET
	• OUTDOOR	• INDOOR	
BACKLIGHT	• OFF	• BLC	• HLC
MOTION DET	• OFF	• ON	
	• MODE	• ZOOM TRK	• ZOOM SPEED
FOCUS	• D-ZOOM	• ZOOM POS INIT	• USER PRESET
	• LENS INIT	• END	
	• BRIGHTNESS	• IRIS	• SHUTTER
EXPOSURE	• AGC	• SSSNR	• SENS-UP
	• END		
	• PRIVACY	• DAY/NIGHT	• DIS
SPECIAL	• COMM ADJ	• IMAGE ADJ	• DISPLAY
	• END		
RESET			
EXIT			

### How to Set up the Functions

Use the five buttons on back of the camera.

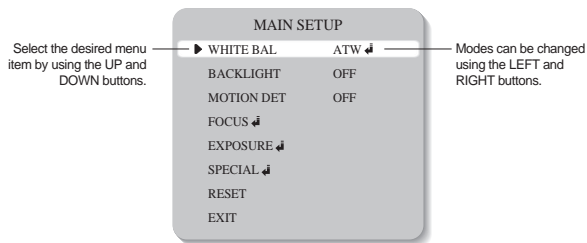


1. Press the SET button for 2 seconds.  
(Short-pressing the button activates the AUTO FOCUS).
  - Main setup menu is displayed on the monitor screen.




2. Select the desired feature using the UP or DOWN button.
  - Each pressing of the UP or DOWN button moves the indicator to the next or previous feature.
  - Move the arrow indicator to the desired feature item.

## ■ Operating Your Camera



3. Change the status of the selected feature using the LEFT or RIGHT button.
4. When completed, move the arrow indicator to 'EXIT' and press the SET button.

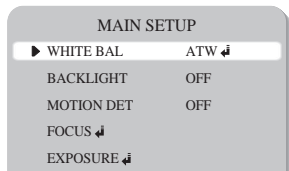
### Note

- Features marked with a  have an accessible submenu.
- Access the submenu by pressing the SET button.

## White Balance (White Bal.)

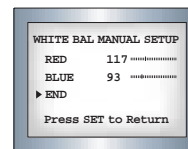
Use the White Balance function to adjust the screen colour.

1. When the SETUP menu screen is displayed, select 'White Bal.' by using the Up and Down buttons so that the arrow indicates 'White Bal.'
2. Select a desired mode using the Up and Down buttons.



※ Select one of the following 5 modes, as appropriate for your purpose.

- **ATW** : Select this when the colour temperature is between 1800°K and 10500°K
- **INDOOR** : Select this when the colour temperature is between 4500°K and 8500°K.
- **OUTDOOR** : Select this when the colour temperature is between 1800°K and 10500°K. (sodium light inclusion)
- **AWC→SET** : To find the optimal setting for the current luminance environment in this mode, set the point the camera towards a sheet of white paper and press the SET button. If the environment changes, readjust it.
- **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 SET button.



### Note

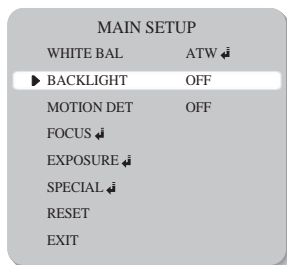
- White Balance may not work properly under the following conditions. In this case select the AWC mode.
  - ① When the colour temperature of environment surrounding the subject is out of the control range
  - ② When the ambient illumination of the subject is dim.
  - ③ If the camera is directed towards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

## ■ Operating Your Camera

### BACKLIGHT

This camera is designed so that it delivers a distinctive subject and background at the same time, even when the subject is in backlight, unlike conventional cameras. By adopting a proprietary W-IV DSP chip.

1. When the SETUP menu screen is displayed, select 'BACKLIGHT' by using the Up and Down buttons so that the arrow indicates 'BACKLIGHT'.

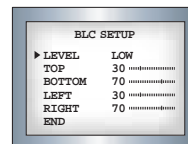


2. Select a desired mode using the Left and Right buttons depending on the camera purpose.
  - BLC : Enables a user to directly select a desired area from a picture, and to view the area more clearly.
  - HLC(High Light Compensation) : If the scene contains extremely bright light areas such as; from car headlight, the light can mask out much of the on-screen detail.

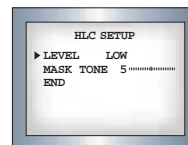
- OFF : Deactivates the BACKLIGHT function.

3. Select a desired mode using the Left and Right buttons and press the SET button.

- Select 'BLC' to adjust the area to be enhanced and enhancement level.



- Select 'HLC' to adjust the HLC MASK TONE and LEVEL.



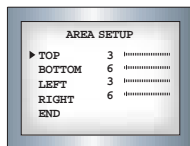
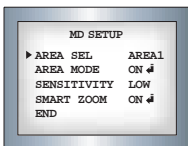
### Note

- Since the following symptoms may occur according to the ambient illumination when BLC is selected, set it to OFF.
  - ① Colour or screen changes unnaturally.
  - ② Noise appears in the bright part of the screen.
- Since the performance of the BLC function may be affected by the area of the bright part of the screen, optimize the installation angle for the best BLC performance.
- If you increase LIMIT, the screen display may be distorted.
- For high performance of BLC function, We recommend that you set IRIS to AUTO in the EXPOSURE setup.
- 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 BLC and then Smart Zoom automatically cancels BLC.
- Setting up Smart Zoom and then BLC automatically cancels Smart Zoom.

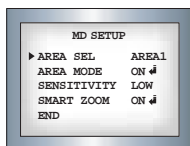
## ■ Operating Your Camera

### Motion Detection

This product has a feature that allows you to observe movements of objects in 8 different areas on the screen, and the words 'MOTION DETECTED' appear on the screen when movement is detected; hence a single individual can conduct supervision efficiently. The camera detects an object's movement by sensing disparity of outline, and level of brightness and colour.



- Please press the SETUP button.
- OFF: MOTION DETECTION mode is cancelled.
- ON: Any motion in the selected areas is observed.
- AREA SEL : You can select the area you wish to observe from the 8 area.
- AREA MODE : Determines whether to use the MD area selected in SENSITIVITY
- SENSITIVITY : You can select up to 8 MD areas. When SENSITIVITY number is high, motion detection sensitivity is increased to recognize even small movement



- 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 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 : Use the left or right button in the 'START ZOOM' item to select the zoom position from 1x to 27x / 33x / 37x to be returned after the 'SMART ZOOM' action is over.
- TARGET ZOOM : Use the left or right button in the 'TARGET ZOOM' item to select the zoom position from 1x to 27x / 33x / 37x 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)

- TOP, BOTTOM, LEFT,RIGHT : You can adjust the size of the area

#### Note

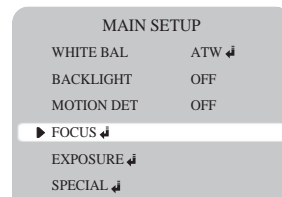
##### Tips on Using the Motion Detection Feature

- 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 than usual.

#### Note

- This system does not guarantee prevention of fire or theft. The manufacturer shall not be held responsible for any accident or damage incurred.

### FOCUS

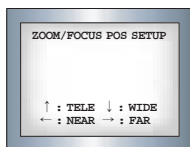
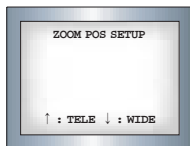


## ■ Operating Your Camera

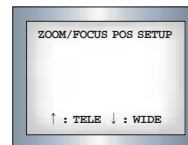
1. Press the SET button to access the main setup menu and then position the indicator over FOCUS using the UP or DOWN button.
2. Press the SET button.
  - **MODE** : You can select the most suitable zoom mode. Move the arrow indicator to 'MODE' using UP or DOWN button.

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

- **AUTO** : Select AUTO and press the SET button to confirm. Increase or decrease optical zoom (ZOOM) or digital zoom (D-ZOOM) positions using the UP or DOWN button while verifying the changes on screen. Enabling D-ZOOM (ON) means that digital zoom will activate once optical zoom ends. Focus is automatically adjusted with moving zoom.
- **ONE PUSH** : Focus is automatically adjusted just once, after zoom position is changed. Select 'ONE PUSH' and press the SET button to confirm. Increase or decrease optical zoom (ZOOM) or digital zoom (D-ZOOM) positions using the directional buttons while verifying the changes on screen. Press the SET button once desired image quality is obtained.



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



- **ZOOM TRK** : Select 'ON' for the 'SMART ZOOM' item in the MOTION DETECTION menu and press SET button to change the settings for the 'SMART ZOOM' function.

- Use the left or right button in the 'ZOOM' item to select 'AUTOTRACK' or 'TRACK' and press SET button to activate the zoom action focus function.
- **AUTOTRACK**: Zooming in while deciding or adjusting the status of the focus.
  - **TRACK**: Zooming in with no relevance to the focus.
  - **OFF**: Only the zoom lens moves.

FOCUS SETUP	
MODE	ONE-PUSH ↓
▶ ZOOM TRK	AUTO TRACK

- **ZOOM SPEED** : Configure zoom tracing speed using this feature. Position the indicator over 'ZOOM SPEED' using the UP or DOWN button and then set to desired mode using the LEFT or RIGHT button.

FOCUS SETUP	
MODE	ONE-PUSH ↓
ZOOM TRK	AUTO TRACK
▶ ZOOM SPEED	FAST

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



### Note

- The 'ZOOM SPEED' mode cannot be used if 'MODE' is set to 'AUTO' and 'ZOOM TRK' is 'ON'.

## ■ Operating Your Camera

- **D-ZOOM** : Configure magnification limit from x2~x12 using this feature. Position the indicator over 'D-ZOOM' using the UP or DOWN button. Set 'D-ZOOM' to 'ON' and press the SET button to confirm.

FOCUS SETUP	
MODE	ONE-PUSH ↓
ZOOM TRK	AUTO TRACK
ZOOM SPEED	FAST
▶ D-ZOOM	OFF
ZOOM POS INIT	AUTO

- Set 'ZOOM LIMIT' to the desired level using the LEFT or RIGHT button.

D-ZOOM LIMIT SETUP	
▶ LIMIT	X2
END	

### Note

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

- **ZOOM POS INIT** : Moves to the controlled ZOOM position when the power turned on and is a function of the initial ZOOM position control.

FOCUS SETUP	
MODE	ONE-PUSH ↓
ZOOM TRK	AUTO TRACK
ZOOM SPEED	FAST
D-ZOOM	OFF
▶ ZOOM POS INIT	AUTO
USER PRESET	OFF

- **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 27x/33x/37x.

### Note

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

### ● USER PRESET

- Press t user-designated configurations using this feature. Position the indicator over 'USER PRESET' using the UP or DOWN button and then set to 'ON' using the LEFT or RIGHT button. Press the SET button to confirm.

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

- **PRESET NO** : Up to 128 preset configuratons are supported.

USER PRESET SETUP	
▶ PRESET NO ↓ 1	.....
PRESET SAVE	
PRESET CLEAR	
END	
Press SET to Return	

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

- **PRESET SAVE** : Save configured preset.
- **PRESET CLEAR** : Clear configured preset.

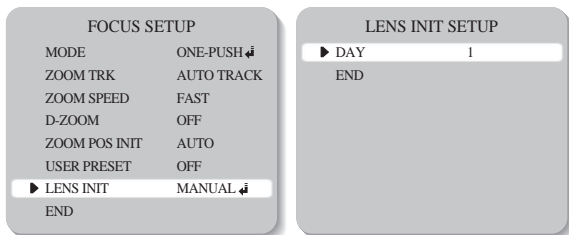
USER PRESET SETUP	
PRESET NO 1	.....
▶ PRESET SAVE	
PRESET CLEAR	
END	
Press SET to Return	

USER PRESET SETUP	
PRESET NO 1	.....
PRESET SAVE	
▶ PRESET CLEAR	
END	
Press SET to Return	

- **END** : Revert to the FOCUS SETUP menu.

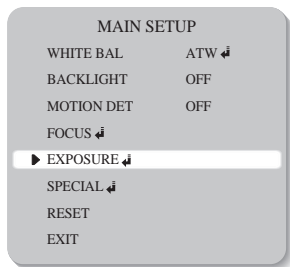
## ■ Operating Your Camera

- **LENS INIT** : Use the left or right button in the 'Lens initialization' item to select 'Automatic' or 'Manual' and press the SET button to set up the initialization of the lens.
- **AUTO** : The lens is initialized by setting the date. reset time can be set from 1 day to 7 days and the lens resets every 24 hours from the set time.
- **Manual** : The Lens will reset when you press the SET button.



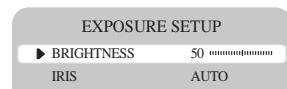
- **END** : To revert to the main setup menu.

## EXPOSURE

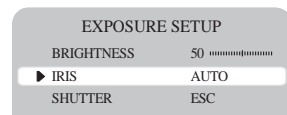


1. Press the SET button to access the main setup menu and then position the indicator over 'EXPOSURE' using the UP or DOWN button.
2. Press the SET button to confirm.

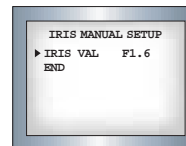
- **BRIGHTNESS** :  
Use this feature to adjust image brightness. Position the indicator over 'BRIGHTNESS' using the UP or DOWN button. Then increase or decrease brightness level using the LEFT or RIGHT button while verifying the changes on screen. Set END once desired level is obtained.



- **IRIS** : Set 'IRIS' to 'AUTO' or 'MANUAL'. Position the indicator over 'IRIS' using the UP or DOWN button and then select the desired iris mode using the LEFT or RIGHT button.



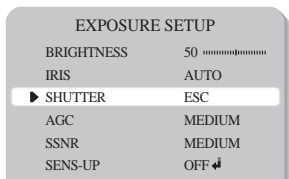
- **AUTO** : The iris is automatically activated upon illumination.
- **MANUAL** : Manual iris configuration. Set 'IRIS' to 'MANUAL' using the LEFT or RIGHT button and then press the SET button. Increase or decrease iris level using the LEFT or RIGHT button while verifying the changes on screen.



## ■ Operating Your Camera

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

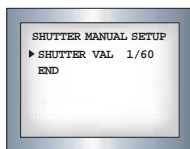
- ① Position the indicator over 'SHUTTER' using the UP or DOWN button. Then select the desired shutter mode (A.FLK, ESC, MANUAL) using the LEFT or RIGHT button.



- A.FLK (NTSC: 1/100, PAL: 1/120) : Flicker-free mode
- ESC : Automatic shutter speed setting (optimal).  
Auto operation is possible only when the IRIS is set to MANUAL.
- MANUAL : Manual shutter speed setting

- ② If you choose 'MANUAL', select the optimal shutter speed.

- In MANUAL mode, the optimal shutter speed needs to be designated. Select from 1/60 to 1/120,000 (NTSC) or from 1/50 to 1/120,000 (PAL). \* 'Sens-Up' mode can be configured manually (2x to 256x).



- Verify changes made to the shutter speed by referencing to changes in on screen brightness.

- ③ Press the SET button to complete.

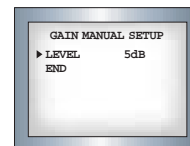
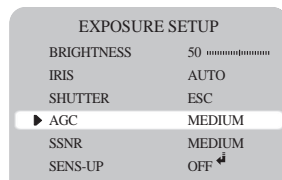


### Note

- Image may become unstable if the camera is set to 'ESC' mode and faces a strong fluorescent light.
- Under 'ESC' mode, the brightness can be adjusted using the LEFT or RIGHT button.

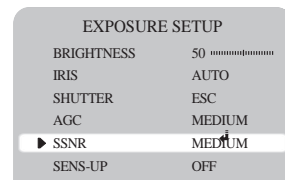
- **AGC (Auto Gain Control)** : For brighter images.

- ① Position the indicator over 'AGC' using the UP or DOWN button.
- ② Set 'AGC' to the desired mode using the LEFT or RIGHT button.
  - HIGH : Wide range gain value adjustment
  - MEDIUM : MEDIUM range gain value adjustment
  - LOW : Narrow range gain value adjustment
  - MANUAL : Selecting gain value range. (5dB ~ 41dB)
  - OFF : Disabled



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

- ① Position the indicator over 'SSNR' using the UP or DOWN button.
- ② Set 'SSNR' to the desired mode using the LEFT or RIGHT button.
  - LOW : Low noise reduction
  - MEDIUM : Medium noise reduction
  - HIGH : High noise reduction
  - OFF : Disabled





## ■ Operating Your Camera

### Note

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

● **SENS-UP** : This feature ensures clear images at night or under low lighting conditions.

- ① Position the indicator over 'SENS-UP' using the UP or DOWN button.
- ② Set 'SENS-UP' to the desired mode using the LEFT or RIGHT button.
  - **AUTO** : Select this mode for use in night time or under low lighting conditions.
  - **OFF** : Disabled

EXPOSURE SETUP	
BRIGHTNESS	50
IRIS	AUTO
SHUTTER	ESC
AGC	MEDIUM
SSNR	MEDIUM
▶ SENS-UP	OFF

### Note

- Once 'AUTO' mode is set, the user can configure Sens-Up limit by increasing /decreasing the shutter speed (e.g. : X2,X4..... X32,X64,X128,X256).
- Enabling Sens-Up increases camera sensitivity and may result in additional noise and/or other phenomenons. This is normal.

## SPECIAL

MAIN SETUP	
WHITE BAL	ATW
BACKLIGHT	OFF
MOTION DET	OFF
FOCUS	
EXPOSURE	
▶ SPECIAL	
RESET	

1. Press the SET button to access the main setup menu and then position the indicator over 'SPECIAL' using the UP or DOWN button.
2. Press the SET button to confirm.

● **PRIVACY** : Hide an area you want to hide on the screen.

SPECIAL SETUP	
PRIVACY	OFF
▶ DAY/NIGHT	AUTO
DIS	OFF

① When the SPECIAL menu screen is displayed, press the Up and Down buttons so that the arrow indicates 'PRIVACY'.

② Set up the mode using the 4 direction buttons.

• **AREA SEL** : You can select up to 8 MD areas.

• **AREA MODE** : Determines whether to use the area selected in the AREA SEL, and the size and position of the area.

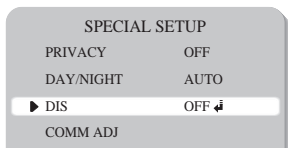
• **MASK COLOUR** : Determine area colour. You can select Gray, Green, Red, Blue, Black, White.

PRIVACY SETUP	
▶ AREA SEL	AREA1
AREA MODE	CN
MASK COLOR	GRAY
MASK TONE	0
END	

AREA SETUP	
▶ TOP	45
BOTTOM	110
LEFT	20
RIGHT	20
END	70

## ■ Operating Your Camera

- MASK TONE : Determine the transparency of selected area as controlling number from 0 to 3.
- END : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.
- DAY/NIGHT : You can display pictures in colour or black and white.



① When the SETUP menu screen is displayed, select 'DAY/NIGHT' by using the Up and Down buttons so that the arrow indicates 'DAY/NIGHT'.

② Select a desired mode using the Left and Right buttons according to the picture display you want.

- COLOUR : The picture is always displayed in colour.

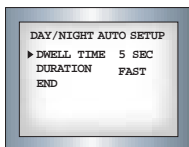
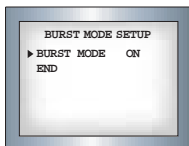
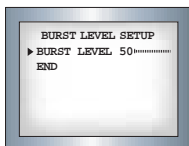
- B/W : The picture is always displayed in black and white.

- AUTO : The mode is switched to 'Colour' 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 SET button.

- DWELL TIME : You can select the duration time about changing the day/night mode. → 5,7,10,15,20,30,40, 60(sec)

- DURATION : You can select brightness of illumination about changing the day/night mode.

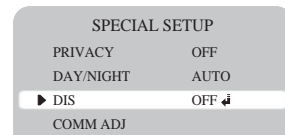
	Colour → B/W	B/W → Colour
Fast	2.5 lux	4 lux
Slow	0.8 lux	6 lux



### Note

- When using a Video Auto Iris Lens, if you set the lens level to low, automatic switching between Colour and Black & White may not occur.
- 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 'COLOUR' mode.
- The OSD key does not work for 3 seconds when switching to Colour or B/W, to ensure stable camera operation.
- The camera may focus less well under infrared illumination than under normal illumination.
- Since the camera may not focus as well under infrared illumination at night as it does under normal illumination, install an Extra-low Dispersion Lens to obtain sharp pictures.
- The brightness of illumination is changeable by installed environment.

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



### Note

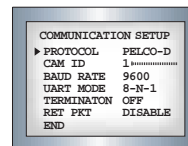
- When DIS is operating, D-ZOOM does not operate.

- COMM ADJ (Communication Adjustment) : This function sets up the camera communication status when controlling the camera through an external control device.

① When the SPECIAL menu screen is displayed, press the Up and Down buttons so that the arrow indicates 'COMM ADJ'.

② Set up the mode using the 4 direction buttons.

- CAM ID : Determines the camera's identification number (between 0 and 255).



## ■ Operating Your Camera

- Protocol : Select the communication PROTOCOL.  
(PELCO-D/PELCO-P)
- 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.
- TERMINATION : Function that sets the resistance at the end of  
RS-485 communications.

### ※ Setting Termination Resistance.

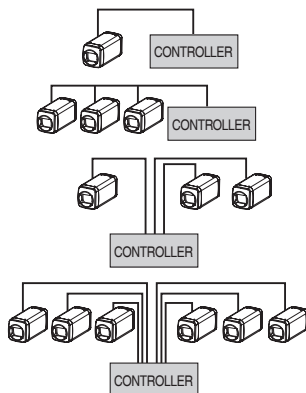
In order to prevent signal reduction, the termination resistance of the 2 end units, which are the distant paths for camera and controller to be connected on the RS485 interface, should be connected.

As the termination resistance is built in the camera, whether to make the termination resistance valid or invalid is selected with the TERMINATION. See the connection diagram for determining to which device the termination resistance will be connected to.

Set up the termination resistance in the dark products.

The installation distance of the product for the termination resistance setting should be less than 1.2 Km.

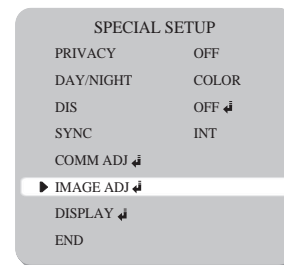
(Maximum cable length is 1.2 Km according to the RS-485 standards.)



### Note

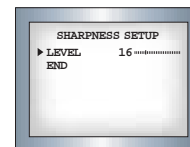
- If Camera is controlled by the Vicon Controller, function button may not work properly.

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



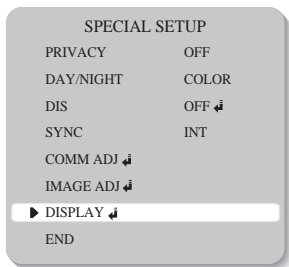
- ① When the SETUP menu screen is displayed, select 'IMAGE ADJ.' by using the Up and Down buttons so that the arrow indicates 'IMAGE ADJ.'
- ② Select a desired mode using the Up and Down buttons.

- 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.



## ■ Operating Your Camera

- COLOUR : Adjusting this value affects the chroma level only; the burst level is unaffected.
- END : evert back to the USER PRESET menu.
- DISPLAY : Use this feature to designate a name for the camera, which will display on the monitor screen

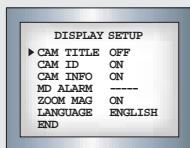


### ● CAM TITLE

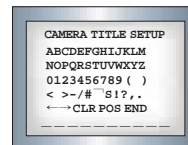
- ① Press the SET button to display the main setup menu and move the arrow indicator to 'CAM TITLE' using the UP or DOWN button.
- ② Set 'CAM TITLE' to 'ON' using the LEFT or RIGHT button.

#### Note

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



- ③ Press SET button.



- ④ You can enter up to 20 characters.
  - a. Move the cursor to the character entry field using the LEFT or RIGHT button.
  - b. Use UP, DOWN, LEFT and RIGHT buttons to select a desired character.
  - c. Press the SET button to confirm selection of the blinking character. The character is then saved, and the cursor in the entry field moves to the next position.
  - d. Repeat steps a through c until the desired name has been entered.

#### Note

- Correcting Mistakes  
Move the cursor th 'CLR' and press the SET button 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 SET button after selecting the character to enter.

- ⑤ Enter a title, move the cursor to 'POS' and press the SET button. The entered title appears on the screen. Select the position to display the title on the screen by using the 4 direction buttons and press the SET button. When the position is determined, select.



- CAM ID : Displays camera ID on top left corner of the screen.
- CAM INFO : Displays camera information on screen.
- MOTION ALARM : You can toggle the use of the camera alarm.
- ZOOM MAG : Use th is feature to display the current zoom magnification level on screen. Position the indicator over 'ZOOM MAG' using the UP or Down button. Then set to ON using the LEFT or RIGHT button.

## ■ Operating Your Camera

- **LANGUAGE** : You can select the menu language according to your requirements (Korean, ESPANOL, FRANCAIS, ITALIANO, DEUTSCH, ENGLISH, Japanese, Chinese, PORTUGUESE)
- **END** : Select this to save the SPECIAL menu settings and return to the SPECIAL menu.

### RESET

To reset your camera to factory default condition.

### 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
<b>Nothing appears on the screen.</b>	<ul style="list-style-type: none"><li>• Check the power connections.</li><li>• Check the VIDEO signal line connection.</li></ul>
<b>The image on the screen is dim.</b>	<ul style="list-style-type: none"><li>• Make sure the lens is clean. Clean the lens with a soft clean lint free cloth.</li><li>• Adjust the monitor contrast &amp; brightness controls.</li><li>• Re-position the camera if necessary.</li></ul>
<b>The image on the screen is dark.</b>	<ul style="list-style-type: none"><li>• Adjust the contrast control of the monitor.</li><li>• If you have an intermediate device, set the 75Ω/ Hi-z properly.</li></ul>
<b>The camera is not working properly, and the surface of the camera is hot.</b>	<ul style="list-style-type: none"><li>• Check that an appropriate power source is connected to the camera.</li></ul>
<b>The DAY/NIGHT menu does not work.</b>	<ul style="list-style-type: none"><li>• Check that AGC in the EXPOSURE menu is set to 'OFF'.</li></ul>
<b>The SENS-UP function does not work.</b>	<ul style="list-style-type: none"><li>• Check that AGC in the EXPOSURE menu is not set to 'OFF'.</li><li>• Check that SHUTTER in the EXPOSURE menu is not set to 'A.FLK' or 'MANUAL'.</li></ul>

## Troubleshooting

Problem	Solution																
<b>The Motion Detection function does not work.</b>	<ul style="list-style-type: none"> <li>Check that MOTION DET in the SPECIAL SETUP is not set to 'OFF'.</li> </ul>																
<b>Colour is not correct.</b>	<ul style="list-style-type: none"> <li>Check the WHITE BAL settings in the SETUP menu.</li> </ul>																
<b>The screen flickers continually.</b>	<ul style="list-style-type: none"> <li>Check that the camera isn't facing toward a bright light source, such as the sun.</li> </ul>																
<b>RS-485 communication fails.</b>	<ul style="list-style-type: none"> <li>Check the polarity between the RS-485 Control Port and the RS-485 cable. <table border="1" data-bbox="352 490 715 546"> <thead> <tr> <th>485 Control Board Connection Port</th> <th>RS-485 Control Port</th> </tr> </thead> <tbody> <tr> <td>(+) CONNECTION TERMINAL (TRX+)</td> <td>485+</td> </tr> <tr> <td>(-) CONNECTION TERMINAL (TRX-)</td> <td>485-</td> </tr> </tbody> </table> </li> <li>Check the RS-485 Communication default settings. <p>* RS-485 Communication default settings are:</p> <table border="1" data-bbox="352 639 715 678"> <thead> <tr> <th>Item</th> <th>Camera ID</th> <th>BAUD RATE</th> <th>UART MODE</th> <th>RET PKT</th> </tr> </thead> <tbody> <tr> <td>Initial value</td> <td>1</td> <td>9600</td> <td>8-NONE-1</td> <td>ENABLE</td> </tr> </tbody> </table> </li> </ul>	485 Control Board Connection Port	RS-485 Control Port	(+) CONNECTION TERMINAL (TRX+)	485+	(-) CONNECTION TERMINAL (TRX-)	485-	Item	Camera ID	BAUD RATE	UART MODE	RET PKT	Initial value	1	9600	8-NONE-1	ENABLE
485 Control Board Connection Port	RS-485 Control Port																
(+) CONNECTION TERMINAL (TRX+)	485+																
(-) CONNECTION TERMINAL (TRX-)	485-																
Item	Camera ID	BAUD RATE	UART MODE	RET PKT													
Initial value	1	9600	8-NONE-1	ENABLE													

## Specifications

ITEM	NTSC	PAL
<b>Power Consumption</b>	DC12V Only (Max.420mA) AC24V / DC12V (Max.333mA / Max.500mA)	
<b>C</b>	1/4 Inch, Super HAD colour CCD	
<b>D</b>	<b>Total Pixels</b>	811(H) x 508(V)   795(H) x 596(V)
	<b>Effective Pixels</b>	768(H) x 494(V)   752(H) x 582(V)
<b>O</b>	<b>Optics</b>	
	27x Model : f=3.5 to 94.5mm (F 1.6 to 2.9) 33x Model : f=3.5 to 115.5mm (F 1.6 to 3.6) 37x Model : f=3.5 to 129.5.0mm (F 1.6 to 3.9)	
<b>P</b>	<b>Min. Focus Distance</b>	
	1500mm	
<b>T</b>	<b>D. ZOOM</b>	
	OFF/ON (Limit 12x)	
<b>S</b>	<b>Angle Field of view</b>	
	H : Appr. 55.5°(Wide) to 1.59°(Tele) V : Appr. 42.5°(Wide) to 1.19°(Tele)	
<b>N</b>	<b>Scanning System</b>	
	2:1 Interlace	
<b>C</b>	<b>Synchronisation</b>	
	Internal	
<b>R</b>	<b>Frequency</b>	
	H: 15.734KHz / V: 59.94Hz	H: 15.625KHz / V: 50.00Hz
<b>E</b>	<b>Resolution</b>	
	550 TV Lines(Min.) : Colour / 680 TV Lines(Min.) : B/W	
<b>L</b>	<b>Min. Illumination</b>	
	0.4 Lux/F1.6(50IRE) : Colour / 0.02 Lux/F1.6(50IRE) : B/W	
<b>E</b>	<b>S/N (Y signal)</b>	
	50 dB	
<b>C</b>	<b>Video Output</b>	
	CVBS (1.0Vp-p/75Ω)	
<b>T</b>	<b>Focus</b>	
	AUTO/MANUAL/ONE-PUSH	
<b>R</b>	<b>Zoom Movement Speed</b>	
	2.5 Sec	
<b>I</b>	<b>IRIS Control</b>	
	AUTO/MANUAL	
<b>C</b>	<b>Lens Initialise</b>	
	Built-In	
<b>R</b>	<b>Camera Title</b>	
	ON/OFF	
<b>I</b>	<b>Camera ID</b>	
	255EA	
<b>C</b>	<b>Day &amp; Night</b>	
	AUTO/COLOUR/BW/EXT	
<b>A</b>	<b>Gain Control</b>	
	LOW/MEDIUM/HIGH/MANUAL/OFF	
<b>R</b>	<b>White Balance</b>	
	ATW/AWC/MANUAL/INDOOR/OUTDOOR	
<b>I</b>	<b>Back Light</b>	
	BLC/HLC/OFF	
<b>C</b>	<b>Shutter Speed</b>	
	AUTO/MANUAL/A.FLK	
<b>A</b>	<b>O.S.D</b>	
	KOREAN,ESPAÑOL,FRANCAIS,ITALIANO,DEUTSCH,ENGLISH, JAPANESE, CHINESE, PORTUGUESE : total 9 languages	
	<b>Motion Detection</b>	
	ON/OFF	
	<b>Control Output</b>	
	RS-485 (2400/4800/9600/19200/38400/57600/115200bps)	
	<b>SSNR</b>	
	LOW/MEDIUM/HIGH/OFF	
	<b>Privacy Function</b>	
	ON/OFF (8 Zones)	
	<b>FLIP</b>	
	ON/OFF	
	<b>MIRROR</b>	
	ON/OFF	
	<b>DIS</b>	
	ON/OFF	
	<b>PRESET</b>	
	128 Positions	
	<b>PROTOCOL</b>	
	STW, PELCO-D, PELCO-P, SEC, PANASONIC, VICON, AD, HONEYWELL, BOSCH	
	<b>Operating Temperature/Humidity</b>	-10°C to +50°C / 20% to 80% RH
	<b>Storage Temperature/Humidity</b>	-20°C to +60°C / 20% to 95% RH
	<b>Weight</b>	Approx. 610g

■ MEMO

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# High Sensitivity Day&Night Power Zoom Camera

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Instruction Guide

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High Sensitivity Day&Night Power Zoom Camera

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