

WTV Digital Signal Processing found only
on Samsung Techwin cameras



Super DNR High Resolution Color Camera



Instruction Guide



Super DNR High Resolution Color Camera **HCD906, AHDV906, HDV906, HBV906**

Printed in KOREA



	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.		



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

Features	04
Precautions	06
Components and Accessories	08
Names and Functions of Parts	09
■ Front	09
■ Top	10
■ Rear	11
Installation	12
■ Lens	12
· Using the auto iris	
· Using a C/CS mount lens	
■ Connecting to a monitor	15
■ Connecting to power	15

How to Use the Camera	16
■ Function Menu Structure	16
■ How to Set up the Functions	17
· LENS	18
· EXPOSURE	20
· WHITE BALANCE control	22
· BACKLIGHT	23
· DNR (Digital Noise Reduction)	25
· DAY/NIGHT	26
· IMAGE ADJ	28
· SPECIAL	30
· EXIT	34
Troubleshooting	35
Specifications (AC24V / DC12V)	37
Specifications (AC230V)	38



Ultra High Resolution

By adopting a double-speed 410,000 pixel Sony CCD, the camera produces clear picture quality with a horizontal resolution of 580 TV lines for color, and 700 TV lines for B/W.

Excellent Sensitivity

Adopting a Diagonal 6mm (1/3"), highly sensitive CCD and digital signal processing technology, it can clearly distinguish the outline and color of a subject in an extremely low luminance environment. even, for example, under starlight. Since surveillance is possible in places where the light is poor, the camera is appropriate for day and night surveillance outdoors or on the outside of buildings.

DNR (Digital Noise Reduction)

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

Motion Detection

Since the camera detects motion and generates signals without any additional external sensors, you can monitor activity more efficiently by connecting the camera to an alarm device.

DIS (Digital Image Stabilizer)

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

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 color mode in order to maintain optimal color. At night, it switches to B/W mode so as to obtain better picture definition.

Video/DC Drive Lens Support

You can select Video or DC Drive Lens from the menu.

Miscellaneous Functions

SYNC (INT/LL), SENS-UP, FREEZE, FLIP (HV-REV), D-ZOOM, SHARPNESS, MOTION DETECTION and PRIVACY functions are provided.

RS-485 Communication Control Support

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

OSD

The camera control is convenient by using 7 different foreign language O.S.D.
- NTSC : Korean, English, Spanish, Japanese
- PAL : English, French, German, Spanish, Italian, Chinese

The camera requires periodic inspection.

Contact an authorised technician to carry out the inspection.

Stop using your camera when you find it malfunctioning.

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

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

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

Do not hold plug with wet hands.

It could cause an electric shock.

Do not dis-assemble the camera.

It may result in an electric shock or other hazards.

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

It may result in a fire or other hazards.

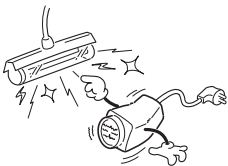
■ Precautions

Do not install the camera in extreme temperature conditions.



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

Do not install the camera under unstable lighting conditions.



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

Do not install or use the camera in an environment where the humidity is high.



It can cause the image quality to be poor.

Do not touch the front lens of the camera.



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

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



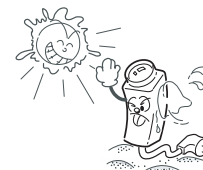
It can cause malfunctions to occur.

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



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

Never keep the camera pointed directly at strong light.



It can damage the CCD.

Do not expose the camera to radioactivity.



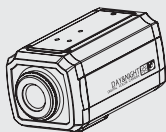
If exposed to radioactivity the CCD will fail.



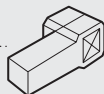
Note

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

**1. Ultra High Resolution
Color CCD Camera**



2. Auto Iris Lens Connector Plug



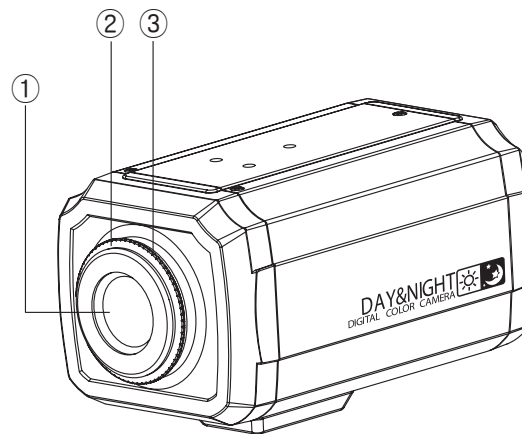
3. C-Mount Adapter



4. Instruction Manual



Front View



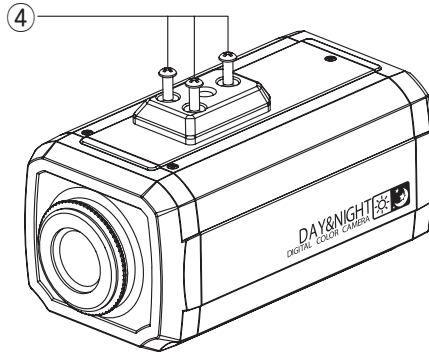
① **Lens protection cap**
Cover the lens when not in use.

② **CS-Mount lens adaptor**
Attach the CS-Mount lens here.

③ **Back Focus clamp screw**
Loosen the clamp screw with a screwdriver before adjusting the Back Focal length.

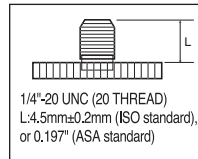
Overview

Top

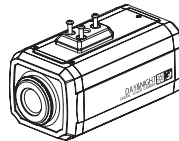


4 Mounting Bracket

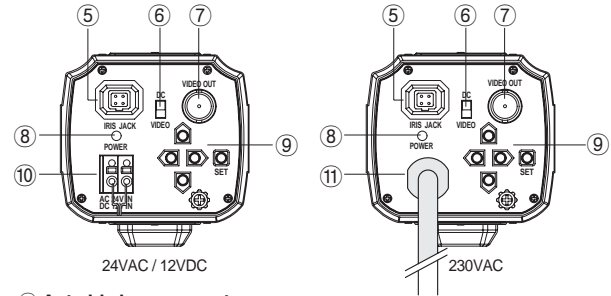
Use the screw holes provided when fixing the camera onto a mounting bracket. Use the clamp screw as shown in the picture.



※ The mounting bracket can be attached to either the bottom or the top of the camera.
Be careful not to tighten the screws more than 5mm into the body, otherwise serious damage can occur.



Rear



- 5 **Auto iris lens connector**
Connection terminal for an auto iris lens.
- 6 **Auto iris lens selection switch**
Used to change between DC or Video depending upon the type of auto iris in use.
- 7 **Video output terminal**
Sends video signals and connects to the video input terminal of the monitor.
- 8 **Power lamp**
Lights up when the correct power is supplied to the camera.
- 9 **Setting button**
 - **SET button** : Used for the menu display. This button can be used to confirm settings after changing the value of the selected function or current conditions.
 - **UP & DOWN buttons** : Used for selecting items by moving the cursor up or down on the menu screen.
 - **LEFT & RIGHT buttons** : Used when changing item values, by moving the cursor to the left or right on the menu screen.
- 10 **Power input terminal**
Low voltage power connection.
- 11 **AC Power Cord**
Accept AC90~240V-50Hz/60Hz

Overview

Lens

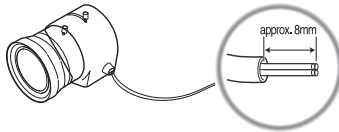
The camera is supplied without a lens. Lenses, such as auto iris, CS-Mount and C-Mount, can be used.

Note

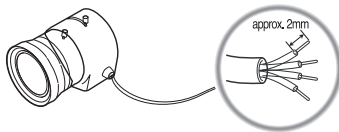
- Using a DC auto iris lens is recommended to achieve the best possible results from the camera.
- Please keep the lens clean.
- Foreign objects or fingerprints on the lens will result in inferior image quality, especially in low light level conditions.

Using the auto iris

1. Strip back about 8mm of the outer sheath of the auto iris lens cable.



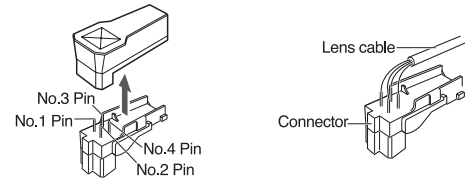
2. Strip off about 2mm of the insulation of wires inside the lens cable.



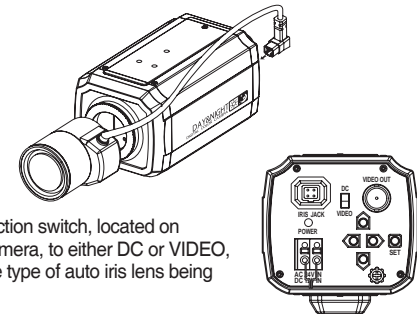
Installation Procedures

3. Remove the cover of the auto iris lens connection plug and solder the wires to the connector pins inside the plug, as shown below.

Pin No.	LENS	
	DC	VIDEO
No.1 Pin	Damping Coil-	Red (power)
No.2 Pin	Damping Coil+	NC
No.3 Pin	Drive+	White (video signal)
No.4 Pin	Dreve-	Black (GND)



4. Replace the auto iris lens connection plug cover. Remove the lens protection cap and then attach the auto iris lens to the camera by screwing it in clockwise.
5. Insert the connection plug connected to the auto iris lens cable into the auto lens connector jack, which is located on the rear of the camera.

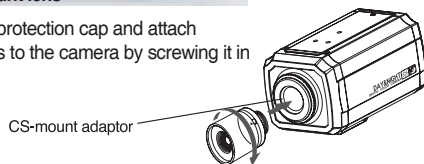


6. Set the lens selection switch, located on the rear of the camera, to either DC or VIDEO, depending on the type of auto iris lens being used.

■ Installation Procedures

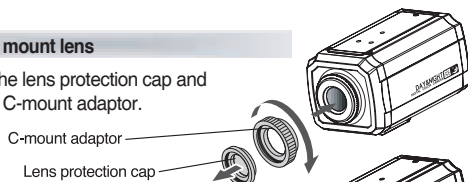
Using a CS mount lens

Remove the lens protection cap and attach the CS-Mount lens to the camera by screwing it in clockwise.

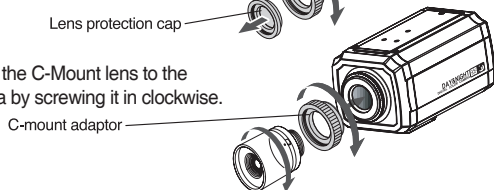


Using a C mount lens

1. Remove the lens protection cap and attach the C-mount adaptor.

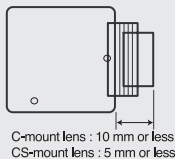


2. Attach the C-Mount lens to the camera by screwing it in clockwise.



Note

- Use the specified lens connection parts as shown in the picture below. Using of the wrong sized parts may cause damage to the inside of the camera or result in poor fitting.
- Using a lens which is too heavy affects the balance of the camera and may cause a malfunction. Please use a lens that weighs less than 450g.
- Select Av mode, if possible, when adjusting the automatic light control (ALC) of an auto lens. Use of PK mode may cause hunting.



C-mount lens : 10 mm or less
CS-mount lens : 5 mm or less

■ Connecting to a monitor

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

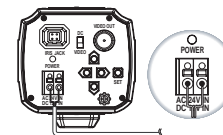


- The connection method varies depending on the type of monitor and accessories. Please refer to the monitor user manual.
- Turn off the power when connecting.

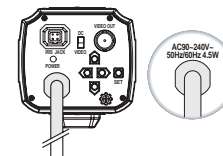
■ Connecting to power

Check the standard power requirement before connecting to power.

Dual Power Type
(AC 24V/DC 12V, AC 24V Class2)
DC Power Type (DC 12V, 500mA)



AC90~240V-50Hz/60Hz 4.5W



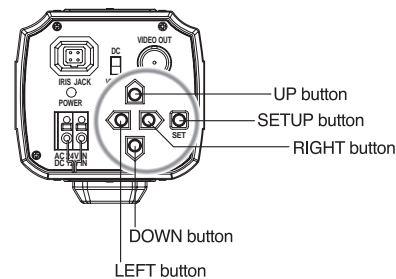
How to Use the Camera

Function Menu Structure

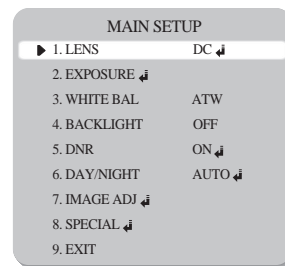
	Setup Menu
LENS	• DC • VIDEO • MANUAL
EXPOSURE	• SHUTTER • AGC • SENS-UP • RETURN
WHITE BALANCE	• ATW • MANUAL • AWC SET • OUTDOOR • INDOOR
BACKLIGHT	• OFF • BLC • HLC
DNR	• ON • OFF
DAY/NIGHT	• COLOR • B/W • AUTO • EXTERN
IMAGE ADJUSTMENT (IMAGE ADJ.)	• FREEZ • V-REV • H-REV • D-ZOOM • SHARPNESS • RETURN
SPECIAL	• CAMTITLE • SYNC • MOTION DET • PRIVACY • DIS • COMM ADJ • LANGUAGE • RESET • RETURN
EXIT	

How to Set up the Functions

You can set up functions using the 5 buttons on the rear of the camera.

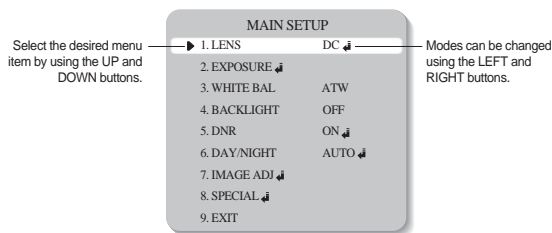


1. Press the SET button.
 - Main setup menu is displayed on the monitor screen.



2. Select a desired function using the Up and Down buttons.
 - Place the cursor over a desired item.

How to Use the Camera



- Set up a selected item by using the Left and Right buttons.
- To finish the setting, select 'EXIT' and press the SET button.

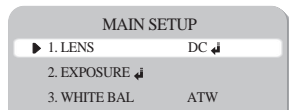
Note

- An item with the icon also has sub menus. To select a sub menu, select an item with the icon and press the SET button.
- An item with the - - - icon is unavailable due to function settings.

LENS

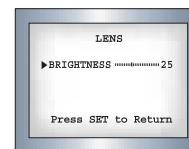
Using this function, you can control screen brightness.

- When the SETUP menu screen is displayed, select LENS by using the Up and Down buttons so that the arrow indicates LENS .
- Select the connected lens type by using the Left and Right buttons.



DC/Video : Select Auto Iris Lens

- When DC is selected, you can control screen brightness. The range of brightness control is between 1 and 70 (40 in case of WDR mode). Adjust the brightness appropriately for optimal screen brightness.



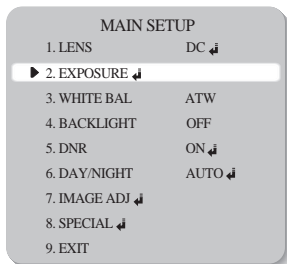
Note

- Some lenses may not work properly, depending on the setting of the BRIGHTNESS LEVEL.
- When Using a Video-Type Auto Iris Lens
 - Adjust the ALC adjustment terminal on the lens appropriately. In general, set it to AV (Average).
 - It may not work properly depending on the installed lens. Set the Level VR of the lens to the optimal value.
 - Set AGC / SENS-UP to OFF and adjust the Lens VR to an appropriate brightness.
 - Adjust the Lens VR, adjust the BRIGHTNESS, and then check if the screen brightness changes properly. Otherwise, adjust the Lens VR again.

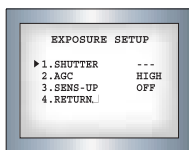
Manual : Select Manual Lens

How to Use the Camera

EXPOSURE



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



- SHUTTER : You can select either auto or manual shutter.
 - A.FLK : Select this when you experience picture flicker, which can happen when there is a clash with the frequency of the installed lighting.
 - ESC : Select this to control the shutter speed automatically. If ESC is selected, the shutter speed is automatically controlled depending on the ambient illumination of the subject.
 - MANUAL : You can control shutter speed manually.

Note

- To produce better results with A.FLK, do not use it in conjunction with the WDR mode of the BACKLIGHT menu.
- When the SHUTTER is set to ESC after selecting the Internal Synchronization Type, the picture may become unstable if the camera faces a bright fluorescent light. Therefore, take care when choosing the installation position.
- ESC and MANUAL modes are only available together when the lens is set to MANUAL.
- When the SHUTTER is set to MANUAL or A.FLK mode, SENS-UP will be disabled.

● AGC (AUTO GAIN CONTROL):

- The higher the gain level, the brighter the screen - but the higher the noise.
- OFF : Deactivates the AGC function.
- LOW : Allows automatic gain control from 0 to 24dB.
- HIGH : Allows automatic gain control from 0 to 42dB.

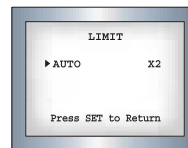
● SENS-UP :

When it is night or dark, the camera automatically detects the light level and maintains a clear picture if this mode is activated.

- OFF : Deactivates the SENS-UP function.
- AUTO : Activates the SENS-UP function.

● RETURN :

Select this to save the changes in the EXPOSURE menu and return to the SETUP menu.



Note

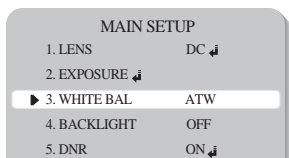
- If you press the SET button in 'AUTO' mode, You can adjust brightness by increasing or decreasing the shutter speed. (X2~X256)
- Note that the higher the zoom level, the brighter the screen, but the more likely it is that an after-image will appear.
- Although Noise, Spots, and Whitish symptoms may occur in SENS-UP operation when the zoom level is increased, this is normal.

How to Use the Camera

White Balance (White Bal.)

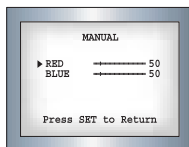
Use the White Balance function to adjust the screen color.

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 color temperature is between 1800°K and 10500°K
- **INDOOR** : Select this when the color temperature is between 4500°K and 8500°K
- **OUTDOOR** : Select this when the color 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.



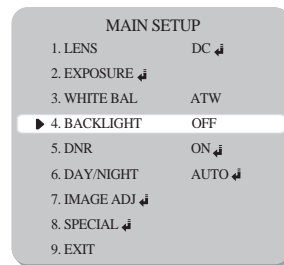
Note

- White Balance may not work properly under the following conditions. In this case select the AWC mode.
 - ① When the color temperature of 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

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 SV-IV DSP chip.

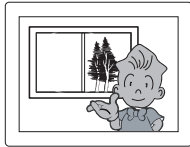
1. When the SETUP menu screen is displayed, select 'BACKLIGHT' by using the Up and Down buttons so that the arrow indicates BACKLIGHT.



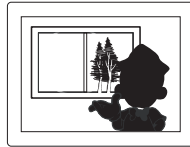
2. Select a desired mode using the Left and Right buttons depending on the camera purpose.

How to Use the Camera

- BLC : Enables a user to directly select a desired area from a picture, and to view the area more clearly.



BLC ON



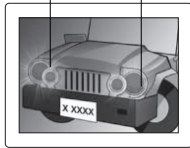
BLC OFF

- HLC (High Light Compensation) :

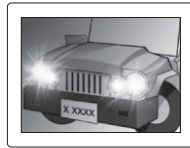
If there is a high light installed in a limited environment such as an apartment parking garage or gas station entrance, removing the high light makes it possible to view car license plates efficiently.

- DAY : In normal daylight conditions, the HLC is not activated.
- NIGHT : If a high light that is larger than a certain size is present on the screen, remove the high light to see license plates clearly.

HLC MASKING AREA



HLC ON

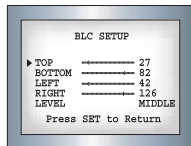


HLC OFF

- OFF : Not being used

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.
- HLC : Enable a user to select a mask color of high light area from a picture.



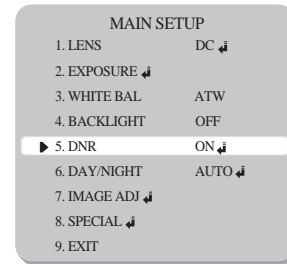
Note

- Because there can be a difference in the effectiveness of HLC according to the amount of light area in the screen, optimize the installation angle for the best HLC performance.
- In a dark environment, the HLC is only activated when a high light that is larger than a certain area is present.
- The HLC is not activated in light or overly dark conditions.

DNR

This function reduces the background noise in a low luminance environment.

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

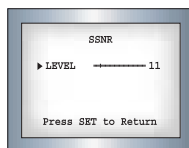


2. Select a desired mode using the Left and Right buttons.

- OFF : Deactivates DNR. Noise is not reduced.
- ON : Activates DNR so that noise is reduced.

How to Use the Camera

- Set the DNR mode to 'ON' and press the SET button. Then you can adjust the noise reduction level.



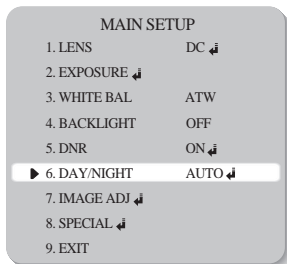
Note

- You cannot set the DNR to 'ON' or 'OFF' when the AGC mode of the EXPOSURE menu is 'OFF'.
- When adjusting the noise reduction level of the DNR mode, remember that the higher the level set, the more the noise level will be reduced but that after image may also occur.

DAY/NIGHT

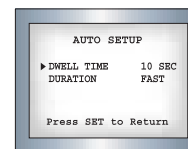
You can display pictures in color or black and white.

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



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

- COLOR** : The picture is always displayed in color.
- B/W** : The picture is always displayed in black and white.
- 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 SET button.



- EXTERN** : This mode allows you to apply a desired filter to external signals.

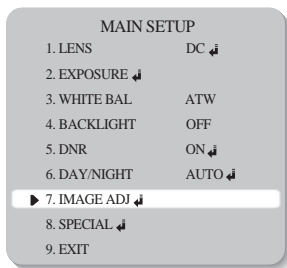
Note

- When using a Video Auto Iris Lens, if you set the lens level to low, automatic switching between Color 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 '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.
- 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.

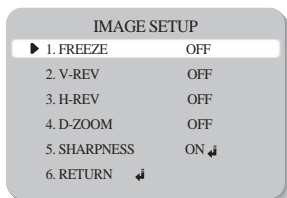
How to Use the Camera

IMAGE ADJ.

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.

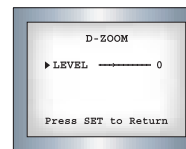


2. Select a desired mode using the Up and Down buttons.

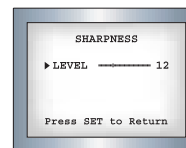


- FREEZE : You can view still or moving pictures.
- V-REV : You can flip the picture vertically on the screen.
- H-REV : You can flip the picture horizontally on the screen.

- D-ZOOM : You can use a digital zoom of x1~x10.



- SHARPNESS : As you increase this value, the picture outline becomes stronger and clearer. Adjust this value appropriately depending on the sharpness of the picture.



- RETURN : Select this to save the settings for the IMAGE ADJ. menu and to return to the SETUP menu.

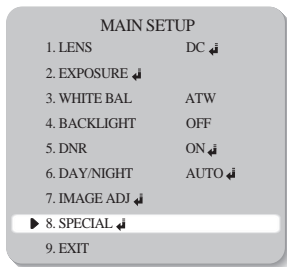
Note

- When H-REV or V-REV is selected, any text in the picture also will be flipped horizontally or vertically.
- If you increase the SHARPNESS level too high, the picture may become distorted or noise may appear.

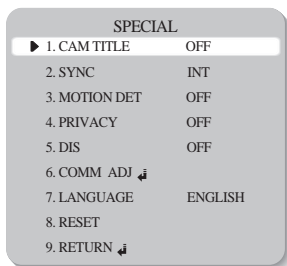
How to Use the Camera

SPECIAL

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



- Select a desired mode using the Up and Down buttons.



- CAM TITLE : If you enter a title, the title will appear on the monitor.

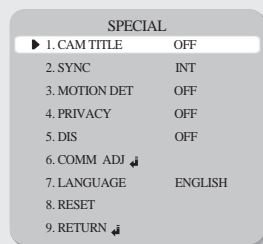
- If the SPECIAL menu screen is displayed, use the Up and Down buttons so that the arrow indicates 'CAM TITLE'.

- Set it to 'ON' by using the Left and Right buttons.

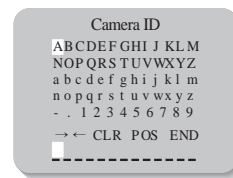


Note

- When the CAM TITLE menu is 'OFF', no title will be displayed on the monitor screen even if you enter one.



- Press the SET button.



- Use the 4 direction buttons to move to a desired letter and select the letter by pressing the SET button. Repeat this to enter multiple letters. You can enter up to 15 letters.



Note

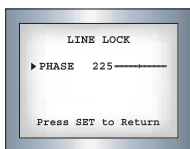
- If you move the cursor to CLR and press the SET button, all the letters are deleted. To edit a letter, change the cursor to the bottom left arrow and press the SET button. Move the cursor over the letter to be edited, move the cursor to the letter to be inserted and then press the SET button.

■ How to Use the Camera

- 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 'END' and press the SET button to return to the SPECIAL menu.



- **SYNC** : In areas where the supply is at 60Hz, you can synchronize the output phase of multiple cameras using the power synchronization function (Line-Lock) without using a synchronization signal generator.



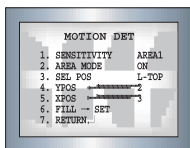
- INT : Internal Synchronization Type
- L/L : Power Synchronization Type, Line-lock
- Press the SET button.
- You can select a desired phase between 0 and 359.

Note

- When using AC power at 60Hz frequency, you can use the L/L type synchronization.
- When the power is DC 12V, the SYNC. menu is fixed to the 'INT' mode.

- **MOTION DET**:

If you connect an alarm device to this camera, you can monitor activity more efficiently, because a signal is generated by the camera whenever motion is detected. The motion detection signal is output through the MD OUT port.

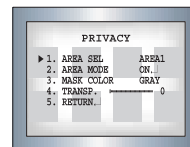


- ① When the SPECIAL menu screen is displayed, press the Up and Down buttons so that the arrow indicates MOTION DET .
- ② Set up the mode using the 4 direction buttons.
 - SENSITIVITY : You can select up to 8 MD areas. When SENSITIVITY number is high, motion detection sensitivity is increased to recognize even small movement.
 - AREA MODE : Determines whether to use the MD area selected in SENSITIVITY.
 - SEL POS : Determines which of the 4 vertices of each MD area is to be used.
 - YPOS : Determines the coordinate of the vertical axis for SEL POS.
 - XPOS : Determines the coordinate of the horizontal axis for SEL POS.
 - FILL→ SET : Fills in a selected MD area. The color of filling is sequentially selected as brown, orange, blue, cyan, yellowish green, yellow and red.
 - RETURN : Select this to save the MOTION DET menu settings and return to the SPECIAL menu.

Note

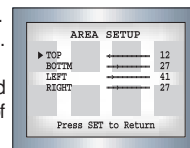
- MD areas show only MOTION DET menu. Therefore, MD areas don't display on the monitor screen.

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



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



How to Use the Camera

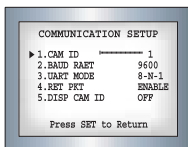
- MASK COLOR : Determine area color. You can select Gray, Green, Red, Blue, Black, White.
- TRANSP : Determine the transparency of selected area as controlling number from 0 to 3.
- RETURN : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.

● DIS (Digital Image Stabilizer) :

This function mitigates any picture movement due to external factors such as wind.

● 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).
- BAUD RATE : You can select 2400/4800/9600/19200/38400/57600 bps.
- UART MODE : You can select NONE, EVEN or ODD for the parity bits.
- RET PKT : Determines whether to send a command back to the controller device when a communication control command is sent to the camera.
- DISP CAM ID : Display camera title on top left corner of the screen.

● LANGUAGE : You can select the menu language according to your requirements.

● RESET : Resets the camera settings to the factory defaults.

● RETURN : Select this to save the SPECIAL menu settings and return to the SPECIAL menu.

EXIT

Press the SET button in the EXIT menu to save the current settings and exit the SET 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"> • Check that the power cord and line connection between the camera and monitor are fixed properly. • 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"> • Is lens stained with dirt? Clean your lens with soft, clean cloth. • 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 75 / 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 DAY/NIGHT menu does not work.	<ul style="list-style-type: none"> • Check that AGC of EXPOSURE SETUP menu is 'OFF'.
The SENS-UP function does not work.	<ul style="list-style-type: none"> • Check that AGC of EXPOSURE SETUP menu is 'OFF'. • Check that SHUTTER of EXPOSURE SETUP menu is 'A.FLK' or 'MANUAL'.

■ Troubleshooting

Problem	Solution																
The Motion Detection function does not work.	<ul style="list-style-type: none"> Check that MOTION DEF of SPECIAL SETUP 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. 																
RS-485 communication fails.	<ul style="list-style-type: none"> Check the polarity between RS-485 Control Port and RS-485 cable. <table border="1" data-bbox="354 487 718 543"> <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> Check the RS-485 Communication establishment initial value <p>* RS-485 Communication establishment initial value</p> <table border="1" data-bbox="354 644 718 680"> <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> 	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 (AC24V / DC12V) ■

		NTSC	PAL
POWER	Input Voltage	AC24V / DC12V	
	Power Consumption	4.0W	
CCD	Size	Diagonal 6mm (1/3") Sony DS CCD	
	Total Pixels	811(H) x 508(V)	795(H) x 596(V)
	Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
	Scanning System	2:1 Interlace	
Sync	Synchronisation	Internal / Line Lock	
	Frequency	Horizontal : 15.734 KHz, Vertical:59.94 Hz	Horizontal : 15.625 KHz, Vertical:50.00 Hz
O.S.D		Korean, English, Japanese, Spanish	English, French, Germany, Spanish, Italy, Chinese
E L E C T R I C A L	Back-light Comp.	OFF/BLC/HLC	
	Resolution	Color : 580 TV Lines †	B/W : 700 TV Lines †
	S/N (Y signal)	52 dB (AGC Off, Weight ON)	
	Min. Illumination	0.15Lux(40IRE Color), 0.0006Lux(40IRE Sense-upX256) at F1.2	
	White Balance	ATW / AWC / Manual / Outdoor / Indoor (1800°K ~10,500°K)	
	Electronic Shutter Speed	1/60 ~ 1/120,000 sec	1/50 ~ 1/120,000 sec
	Sens-up	AUTO / OFF (Selectable x2 - x256)	
	Gain Control	LOW / HIGH / OFF	
	DNR	ON / OFF (1-32 Level)	
	Motion Detection	ON / OFF (8 Zone, ALARM Output)	
	PRIVACY	ON/OFF (8 Zones)	
	V-REV	ON / OFF	
	H-REV	ON / OFF	
	FREEZE	ON / OFF	
	SHARPNESS	ON/OFF (Level Adjustable)	
	IRIS Control	DC / Video	
	Day & Night	COLOR / Black& White/AUTO/EXT	
	DIS	ON / OFF	
	Digital Zoom	ON / OFF (x10)	
	Blemish Compensation	256 point (Even 128 Point, Odd 128 Point)	
Communication	RS-485 (2400, 4800, 9600, 19200, 38400, 57600 bps selectable) (STW Protocol, Pelco-D Protocol available)		
Lens Mount	CS Mount (Easy Focus type) (C Mount is mountable by using adaptor)		
Back Focus Adjustment	Manual		
Operating temperature / Humidity	-10°C to + 50°C / 30% to 80% RH		
Storing Temperature / Humidity	-20°C to + 60°C / 20% to 90% RH		
Dimension	70.2(W) × 68.1(H) × 100.5(D)mm		
Weight	Approx. 320g		