

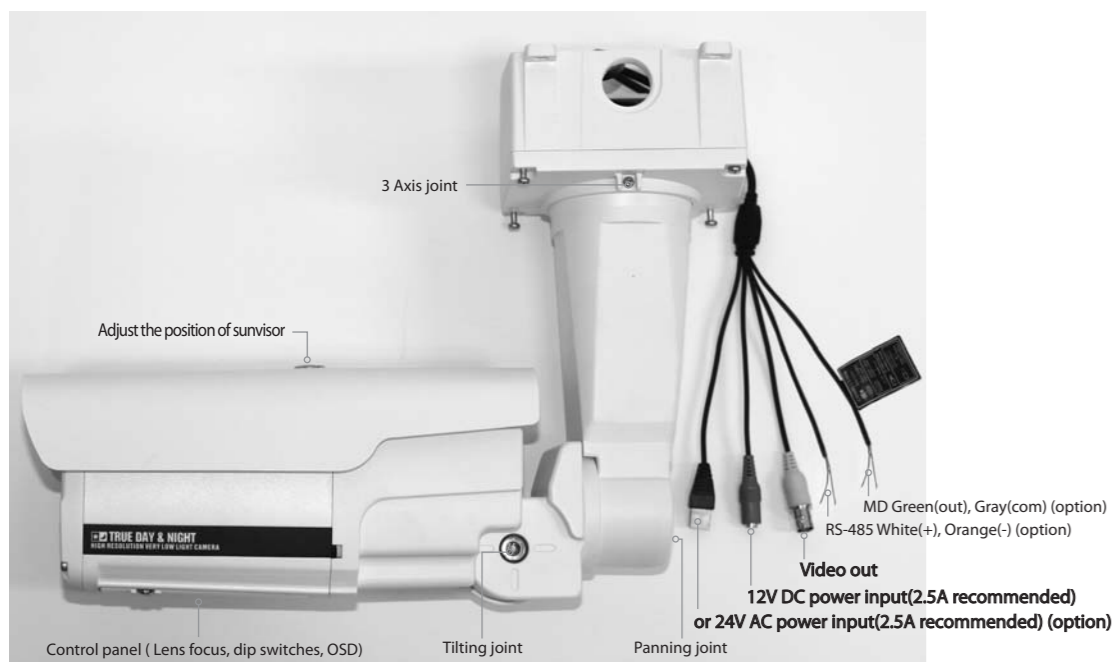
Professional CCTV CAMERA



Strong points

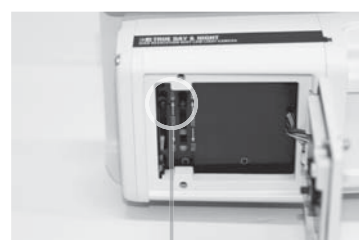
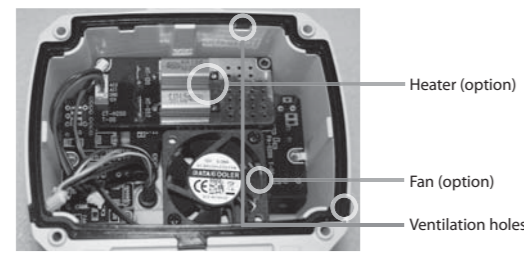
1. Best sensitivity in the world.
(0.00003 Lux F#1.4 50 IRE)
2. 700 TV line in B/W and 600 TV line in color.
3. All the functions are controlled through OSD.
4. Smart IR function.
5. Lens option : 2.8~12mm, 3.5~16mm, 9~22mm, 6~50mm, 10~100mm

Configuration



SPECIFICATION

MODEL	NTSC	PAL
Main Chip Set	X-GEN II . Digital WDR (Double scan CCD option)	
Image Sensor	1/3 Inch, Sony CCD (ICX638 BK / ICX639 BK)	
Effective Pixels	768 (H) X 494 (V)	752 (H) X 582 (V)
Video System	NTSCV System	PALTV System
Scanning System	525 Lines 2:1 Interlace	625 Lines 2:1 Interlace
Scanning Frequency	15.734 [KHz] / 59.94 [Hz]	15.625 [KHz] / 50 [Hz]
Shutter Speed	1/60 ~ 1/120,000 sec	1/50 ~ 1/120,000 sec
Sync System	Internal Sync	
H-Resolution	600TV line for color, 700TV line for B/W	
S/N Ratio	52 [dB] / AGC Off	
Min. illumination	0.00003 Lux (F1.4 / 50 IRE / LED off)	
Gamma	0.45 Approx	
CCD Level Control	ALC (auto iris lens control)	
Gain Control	Low / Hi / Off (Selectable)	
Sense-up	Auto / Fixed / Off (Selectable limit: x2 ~ x512)	
DNR	Off / On (1 ~ 32 Level Adjustable)	
Privacy	Off / On (12 Zone)	
Mirror	Off / On (H - Rev / V - Rev)	
Sharpness	Off / On (Level Adjustable)	
White Balance	ATW / AWC / Manual / Outdoor (1800 K ~ 10,500 K) Indoor (4500 K ~ 8,500 K)	
C.Video Output	VBS 1.0 Vp-p / 75ohm	
Input Voltage	Video: 0.7Vp-p / Sync: 0.3Vp-p / Burst: 0.3Vp-p DC 12[V] +/- 10% / AC 24V	
Current	Camera only : max 150[mA] (at 12VDC) LED / FAN / HEATER on : max 1.5[A] (at 12VDC)	
Operating Temp'	-20 °C ~ +50 °C (when heater used, -40 °C)	
LENS	IR Filter Change DC Auto Iris Lens (2.8mm ~ 12mm)	
IR LED	850 nm - 100pcs of IR LEDs (except 80pcs for 10~100mm)	
Dimensions	105 (W) X 110 (H) X 230 (D) mm	
Weight	Net: 3Kg / Gross: 3.5Kg	
Outside Control	Far - Near control lever Tele - Wide control lever	
Option	Color → B/W change Lux selection LED Beam Low/Hi Select DIP SW OSD Control Tact Switch Extra video wafer	
Recommendation	IR Filter Change-DC Auto Iris Lens (3.5mm~16mm, 9.0mm~22mm, 6mm~50mm, 10~100mm) Cooling Fan / HEATER (2.5A needed)	
	Regulated DC 12V-2.5[A] or AC 24V-2.5[A] Power Supply	



Quick installation

01 Open the box and check the contents



1. Junction box base / 2. Wrench / 3. Extra video cable / 4. Junction box joint screw
5. Anchor 4 ea / 6. Screw 4 ea / 7. Cab 2 ea / 8. Camera / 9. Manual

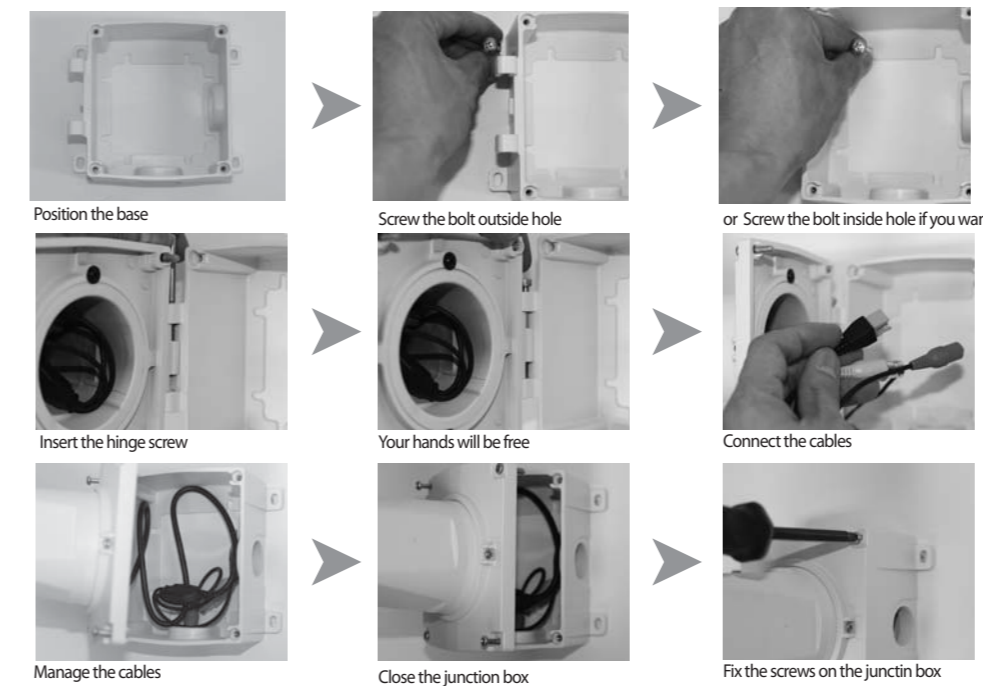
02 Installation



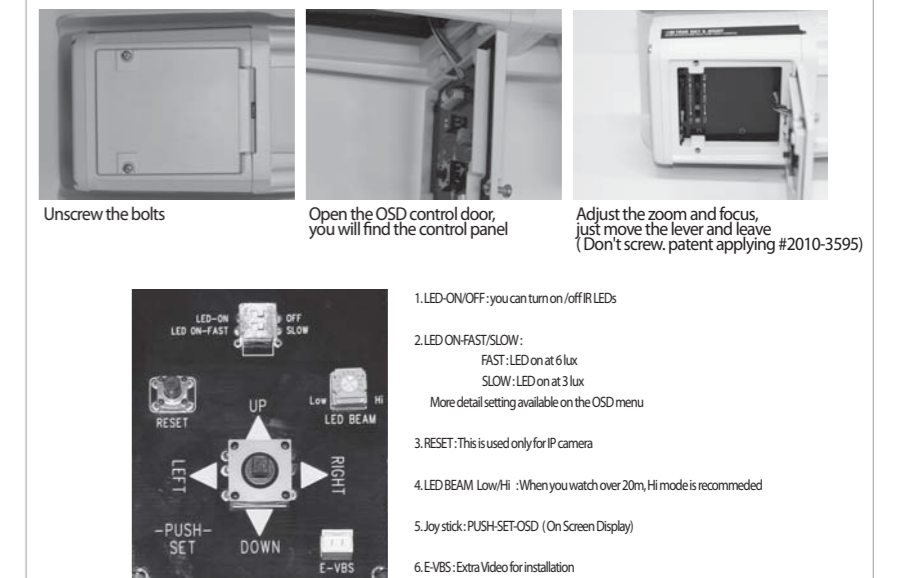
Ceiling mount available

Wall mount available

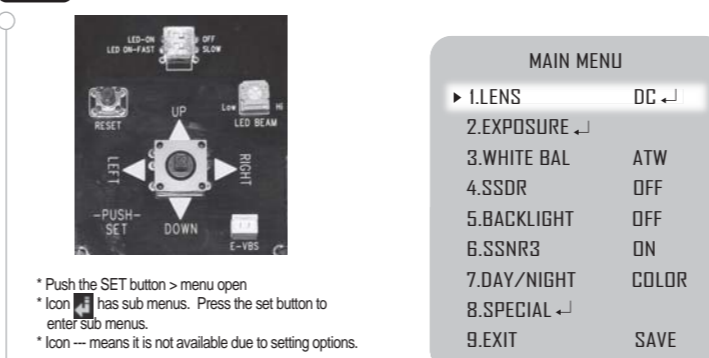
03 Installing steps



04 Adjusting the control menu



05 Menu setting



- * Push the SET button > menu open
- * Icon has sub menus. Press the set button to enter sub menus.
- * Icon --- means it is not available due to setting options.

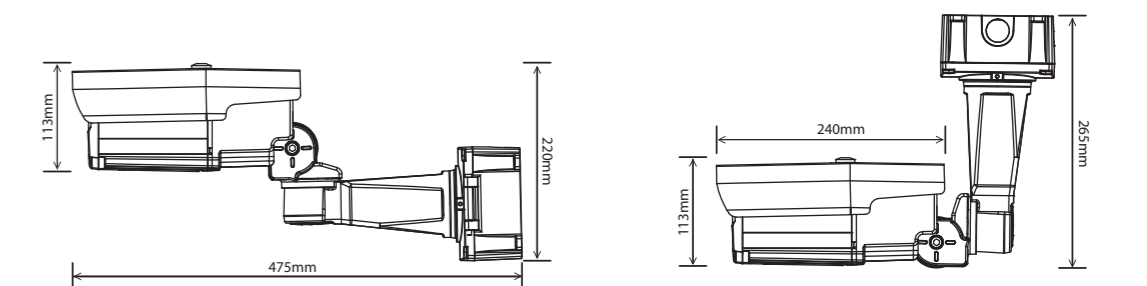
1. Up and Down : Move Cursor
2. Left and Right : Value
3. Left and Right > Push > Menu > Value
4. END : Push > Previous

Menu Configuration

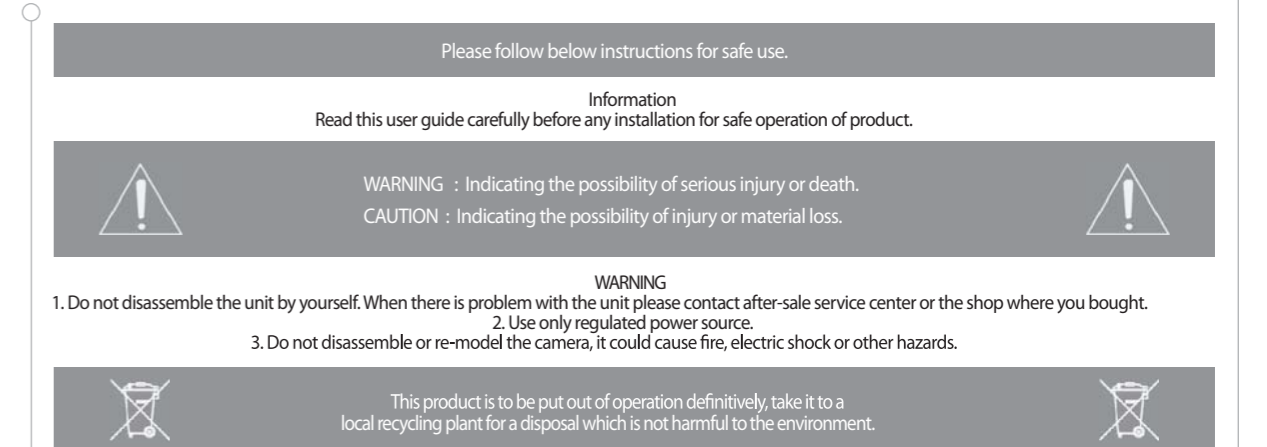
MAIN MENU	
LENS	DC · VIDEO · MANUAL
EXPOSURE	BRIGHTNESS · SHUTTER · AGC · SENS-UP · RETURN
WHITE BALANCE	ATW · OUTDOOR · INDOOR · MANUAL · AWC · SET
SSDR	OFF · ON
BACKLIGHT	OFF · BLC · HLC
SSNR3	OFF · ON
DAY/NIGHT	COLOR · B/W · AUTO
SPECIAL	IMAGE ADJ · MONITOR · CAM TITLE · SYNC
	MOTION DET · PRIVACY · DIS · LANGUAGE · RETURN
EXIT	SAVE · NOT SAVE · RESET

- * This operating instruction has been written out as standard by F/W Version 1.0.
- * More details on the back page.

06 Dimension



07 Caution



Made in Korea

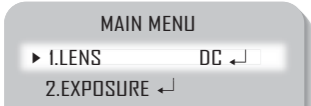
Menu details

LENS

If lens included, it is only DC type.

Using this function, you can control the 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
You can adjust the minimum shutter and maximum value of ESC shutter mode when DC Lens mode is selected.
- Manual : Select Manual Lens

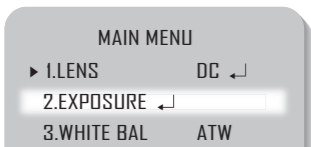
3. Each Lens mode has sub menu items as listed below.

- Brightness (DC, Manual) : Adjusts the video brightness.
- Level (VIDEO) : Adjusts the level of video iris signals; the higher the level is, the brighter the video looks.
- FOCUS ADJ. : To adjust the DC and VIDEO lens focus correctly, you must activate the Focus Settings mode under each lens menu. Activate the Focus Settings mode, adjust the lens focus, and then deactivate the settings mode. (The VIDEO lens requires an extra step: go to the sub menu of the Focus Settings mode and change the shutter speed to adjust the lens brightness.)
- IRIS SPEED (DC) : Adjusts the Iris control speed of the DC lens. If the control speed is too slow or fast, please use this menu to adjust the speed.

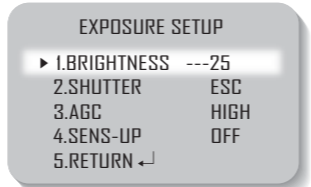
Notes

- When using VIDEO lens, adjust the lens VR explained below first and set the focus using 'FOCUS ADJ.' menu.
- If color rolling occurs when using a DC lens, set Shutter to A.FLK.
- 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 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.

EXPOSURE



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



- SHUTTER : You can select either auto or manual shutter.
 - : Shutter speed is fixed at 1/60sec(1/50sec).
 - 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. (1/60 ~ 1/120,000)

Notes

- When you use a DC lens, set the shutter mode to A.FLK if color rolling occurs.
- 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.
- 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 5.3dB to 32dB. - HIGH : Allows automatic gain control from 5.3dB to 37dB.
 - 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.

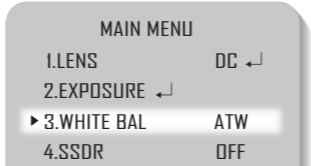
Notes

- If you press the SET button in 'AUTO' mode, You can adjust brightness by increasing or decreasing the shutter speed. (x2 ~ x512)
- 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.

White Balance (White Bal.)

Use the White Balance function to adjust the screen color.

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



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

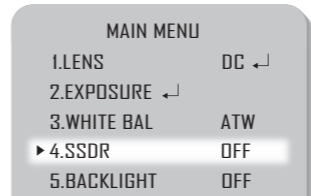
- ATW : Select this when the color temperature is between 1,700°K and 11,000°K.
- OUTDOOR : Select this when the color temperature is between 1,700°K and 11,000°K. (sodium light inclusion)
- INDOOR : Select this when the color temperature is between 4,500°K and 8,500°K.
- MANUAL : Select this to fine-tune 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.
- AWC→SET : To find the optimal luminance level for the current environment, point the camera towards a sheet of white paper and press the Function Setup switch. If the environment changes, readjust it.

Notes

- White Balance may not work properly under the following conditions. In this case select the AWC mode.
 - When the color temperature of the environment surrounding the subject is out of the control range (e.g. clear sky or sunset).
 - When the ambient illumination of the subject is dim.
 - 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.

SSDR (Super Dynamic Range)

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



- When the SETUP menu screen is displayed, select 'SSDR' by using the Up and Down buttons so that the arrow indicates 'SSDR'.
- Use the Left/Right buttons to change the SSDR level in the sub menu according to the contrast between bright and dark areas.



BLC ON



BLC OFF

BACKLIGHT

- Unlike conventional cameras, this camera is designed so that it delivers a distinctive subject and background at the same time, even when the subject is in backlight, by adopting a proprietary X-GEN II chip.
- When the SETUP menu screen is displayed, select 'BACKLIGHT' by using the Up and Down buttons so that the arrow indicates 'BACKLIGHT'.

Notes

- You cannot set the SSNR to 'ON' or 'OFF' when the AGC mode of the EXPOSURE menu is 'OFF'.
- When adjusting the noise reduction level in the SSNR mode, remember that the higher the level set, the more the noise level will be reduced, as will the brightness of the image.

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. You can turn on or off the burst signal on B/W mode.
- 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 for AUTO mode, press the SET button. You can turn on or off the burst signal on B/W mode.

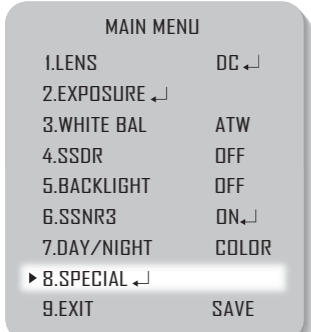
- DWELL TIME : You can select the duration time about changing the day/night mode. → 5s, 7s, 10s, 15s, 20s, 30s, 40, 60s

Notes

- 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.
- When AGC in the EXPOSURE menu is 'OFF', 'AUTO' mode operates as like selecting 'COLOR' mode and 'AUTO' mode can not be selected.

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.

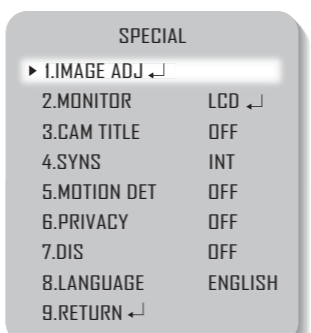


IMAGE ADJ. :

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



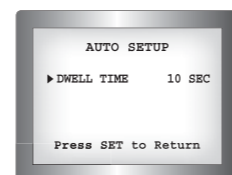
- V-REV : You can flip the picture vertically on the screen.
- H-REV : You can flip the picture horizontally on the screen.
- D-ZOOM : You can use a digital zoom of x1~x16.
- FONT COLOR : You can change the OSD font color. (White, Yellow, Green, Red, Blue)
- SHARPNESS : As you increase this value, the 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.

Notes

- When the V-REV or H-REV mode is enabled, the text on the screen does not flip.
- If you increase the SHARPNESS level too high, the picture may become distorted or noise may appear.

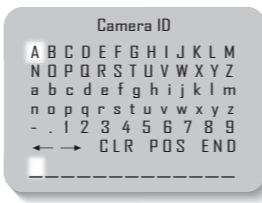
Monitor :

- Please change the settings value of video appropriate to your monitor.
- LCD : Please select this menu item when using an LCD monitor.
- CRT : Please select this menu item when using a CRT monitor.
- USER : Please use this menu item when using a monitor other than standard ones. You can change the gamma, PED level, and color gain in the sub menus.



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.
- 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.



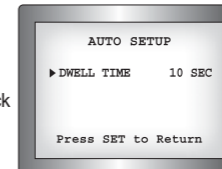
- Enter a title, move the cursor to 'POS' and press the SET button. The entered title appears on the screen. Select the position to display the title on the screen by using the 4 direction buttons and press the SET button. When the position is determined, select 'END' and press the SET button to return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



Notes

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

- 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 - LL : Power Synchronization Type, Line-lock
 - Press the Function Setup switch.
 - You can select a desired phase from 0 to 359 when select 'phase'.

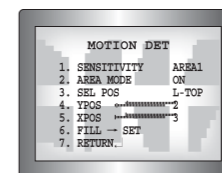


Notes

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

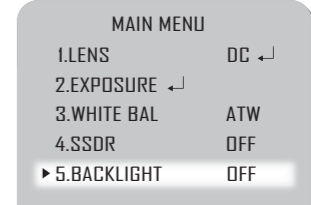
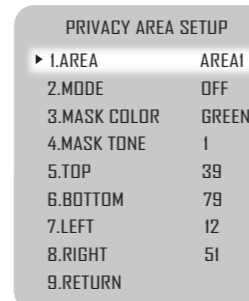
- MOTION DET (Option)
This product has a feature that allows you to observe movement of objects in 8 different areas on the screen, and the words 'MOTION DETECTED' appear on the screen when movement is detected. you can monitor activity more efficient.

- When the SPECIAL menu screen is displayed, press the Up and Down buttons so that the arrow indicates 'MOTION DET'.
- 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, green, yellow, magenta and red.
 - RETURN : Select this to save the MOTION DET menu settings and return to the SPECIAL menu.



PRIVACY : Mask an area you want to hide on the screen.

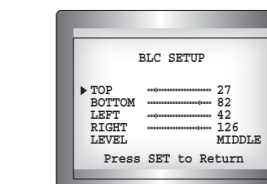
- When the SPECIAL menu screen is displayed, press the Up and Down buttons so that the arrow indicates 'PRIVACY'.
- Set up the mode using the 4 direction buttons.
 - AREA SEL : You can select up to 12 PRIVACY areas.
 - MODE : Determines whether to use the area selected in the AREA SEL.
 - MASK COLOR : Determine area color. You can select Green, Red, Blue, Black, White, Gray.
 - MASK TONE : Adjust the brightness of MASK COLOR.
 - TOP/BOTTOM/LEFT/RIGHT : Adjust the size and position of the selected area.
 - RETURN : Select this to save the PRIVACY menu settings and return to the SPECIAL menu.



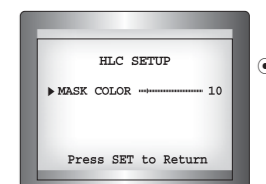
- Select a desired mode using the Left and Right buttons depending on the camera purpose.

- BLC : Enables a user to select a desired area on a picture and view that 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.
 - LEVEL : Adjust level of the HLC function.
 - LIMIT : Enable to change the operating condition.
 - MASK COLOR/TONE : Change the color / brightness of the masking area. (Black, Red, Blue, Cyan, Magenta)
 - TOP/BOTTOM/LEFT/RIGHT : Adjust the area to be enhanced.
 - OFF : Not being used

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



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

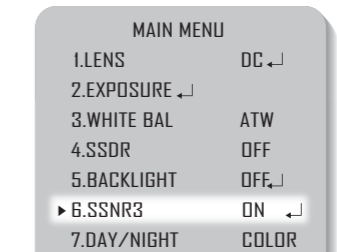


- HLC : Enable the user to change the level, limit, mask color/ tone and area.

Notes

- 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.
- When dark, the HLC is only activated when a bright light exceeding a specific size. in NIGHT ONLY mode.
- The HLC is not activated in day light or when bright light is not present at night. in NIGHT ONLY mode.

SSNR3



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

- When the SETUP menu screen is displayed, select 'SSNR' by using the Up and Down buttons so that the arrow indicates 'SSNR'.
- Select a desired mode using the Left and Right buttons.
 - OFF : Deactivates SSNR. Noise is not reduced.
 - ON : Activates SSNR so that noise is reduced.
- Set the SSNR mode to 'ON' and press the SET button. Then you can adjust the noise reduction level.

- DIS (Digital Image Stabilizer)
This function mitigates any picture movement due to external factors such as wind.

Notes

- As the DIS function uses the digital zoom the camera's resolution will decrease.
- DIS doesn't operate when background illumination is too low.
- DIS doesn't operate when object pattern is monotonous like sky or white wall.

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

EXIT

- Select a desired EXIT mode using the Left and Right buttons depending on the camera purpose.
- SAVE : Save the current settings and exit the MAIN SETUP menu.
- NOT SAVE : Do not save the current settings and exit the MAIN SETUP menu.
- RESET : Resets the camera settings to the factory defaults. Language and Monitor settings are not initialized.

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.

- Nothing appears on the screen.
 - Check that the power cord and line connection between the camera and monitor are fixed properly.
 - Check the type of lens.
 - Check that the lens type is VIDEO lens or DC lens.
 - When lens included, it is only DC type.
- The image on the screen is dim.
 - 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.
 - Adjust the contrast feature of the monitor.
 - If you have an intermediate device, set the 75Ω / Hi-z properly.
- The camera is not working properly, and the surface of the camera is hot.
 - Check that you have properly connected the camera to an appropriate power source.
- The SENS-UP function does not work.
 - Check that AGC of EXPOSURE SETUP menu is 'OFF'.
 - Check that SHUTTER of EXPOSURE SETUP menu is 'A.FLK' or 'MANUAL'.
- The Motion Detection function does not work.
 - Check that MOTION DET of SPECIAL SETUP menu is 'OFF'.
- Color is not correct.
 - Check the setting of WHITE BAL SETUP menu.
- The screen flickers continually.
 - Check that direction of camera turns toward the Sun.
- When coaxial communication is not available:
 - Make sure that the camera and monitor are installed within the recommended distance.
 - Use the video amplifier equivalent to coaxitron if the recommended installation distance is exceeded.