

High Resolution Day/Night Color Dome Camera

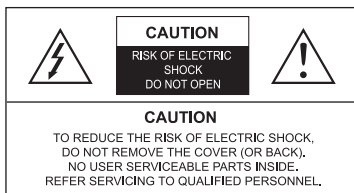
INSTRUCTION MANUAL



• **EL720**

Dear Customers!

By selecting this product, you have decided to use a professional device that guarantees highest quality and reliability. We would like to thank you very much for your confidence and kindly ask you to read the following instructions carefully before installation and operation in order to take full advantage of all quality features regarding this product.



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. 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 the fire hazards

- Do NOT use power source other than that 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.

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1. Precautions

- Please read the manual carefully before the installation in order to make use the camera to be set up correctly and to have the best picture quality.
- Please keep the manual in good condition for your future reference and service application.
- Installation and services should only be carried out by an authorized personnel according to local safety regulations.
- If any liquid or solid matter gets into the housing, immediately disconnect the camera from power supply and have it checked by your authorized dealer before reusing.
- Avoid installing the camera at extremely hot or cold places.
- If you are not a certified person, never try to dismantle the camera. To avoid electric shock, never remove the screws or covers. There are no parts inside that need maintenance by the user. All maintenance should be carried by qualified personnel.
- Avoid installing the camera at a place of high humidity.
- Avoid installing the camera at the place exposed to gas or oil.
- Keep the top glass of the lens always clean in order to obtain the best picture quality all the time. Be careful not to be stained by fingerprint.
- Don't face the camera directly toward sunlight or sunlight reflecting area. CCD may go defective at this condition.
- Please give a special attention to keep the unit from dangerous drop or external shock during the process of transportation or handling.
- Never try to touch the camera in wet hand. It may cause an electric shock.
- Do not expose the camera to radioactivity. It causes a serious damage on the CCD.

Note for 12VDC Power type camera user

Make sure to use a regulated 12VDC power source.
Check the power with the power tester to make sure if the power supply gives an exact 12VDC regulation. Even sometimes UL marked power supply unit generates unstable power causing the camera to burn in many cases.

2. Limitation of liability

This publication is provided "AS IS" without warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for any particular purpose, or noninfringement of the third party's right. This publication could include technical inaccuracies or typographical errors. Changes are added to the information herein, at any time, for the improvements of this publication and/or the corresponding product(s).

3. Disclaimer of warranty

In no event shall seller be liable to any party or any person, except for replacement or reasonable maintenance of the product, for the cases, including but not limited to below :

- (1) Any damage and loss, including without limitation, direct or indirect, special, consequential or exemplary, arising out of or relating to the product;
- (2) Personal injury or any damage caused by inappropriate use or negligent operation of the user;
- (3) unauthorized disassemble, repair or modification of the product by the user;
- (4) Inconvenience or any loss arising when images are not displayed, due to any reason or cause including any failure or problem of the product;
- (5) Any problem, consequential inconvenience, or loss or damage, arising out of the system combined by the devices of third party.
- (6) Any claim or action for damages, brought by any person or organization being photogenic subject, due to violation of privacy with the result of that surveillance—camera's picture, including saved data, for some reason, becomes public or is used for the purpose other than surveillance.

4. Package



High Resolution Day/Night
Color Dome Camera 1EA



Instruction manual
1EA



Mounting screws
2EA



Plastic anchor
2EA

5. Special features of the model

* Extremely high resolution 540TV Lines

This camera offers an extremely high resolution of 540TVL at daytime in Color image and 570TVL at nighttime in B/W image.

* Auto IRIS (DC iris lens)

This automatic function optimizes the amount of light reaching to a CCD by driving the lens that has a mechanical shutter control built-in.

* True Day & Night

The image converts automatically from Color to B/W at 4~5Lux darkness. This function maintains the picture quality at daytime true Color and noiseless clear B/W image at nighttime enhancing the sensitivity and resolution up to 570TVL.

* Privacy Function

The privacy function enables you to select and record only chosen area among 4 areas.

* Excellent sensitivity

By using a Sony Super HAD, the camera offers an excellent sensitivity of 0.3lux/F1.2 (0.1Lux BW).

* DNR

With a new Dynamic Noise Reduction technology used for this camera, 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 dramatically improved, resulting in a clear and sharp image display even in the dark.

* SENS-UP (0.3Lux~ 0.0002 Lux at 128x~2x Fields)

Sens-up helps maintain a bright, clear screen image by automatically detecting changes in the level of light in low light level conditions. Sensitivity can be dramatically improved up to 0.0002 Lux by adjusting the fields to 128 x /max.

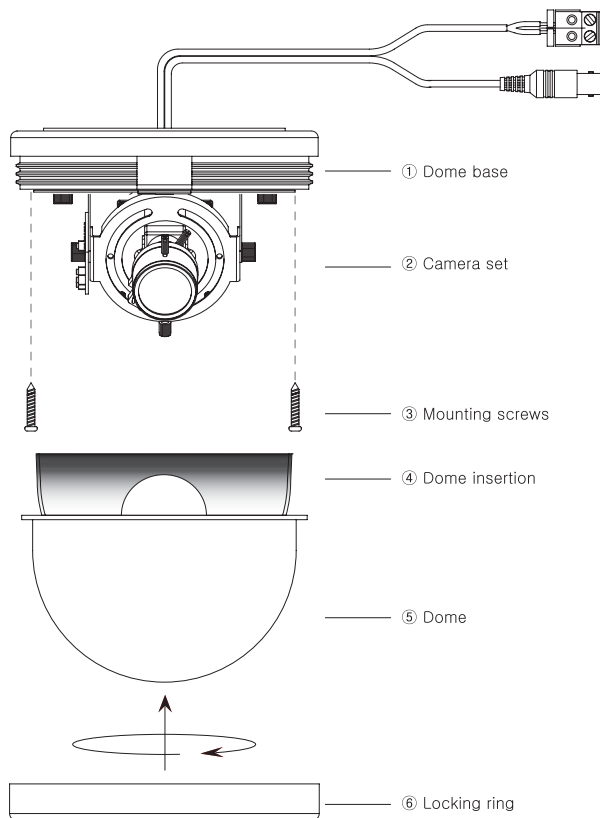
* Additional functions

Mirror on/off, Sharpness adjustment and Sync (Int/LL) selection functions are built-in.

* Easy to use OSD (On Screen Display) menu

A variety of beautiful functions built-in are all easily controlled by selecting text displayed on the monitor.

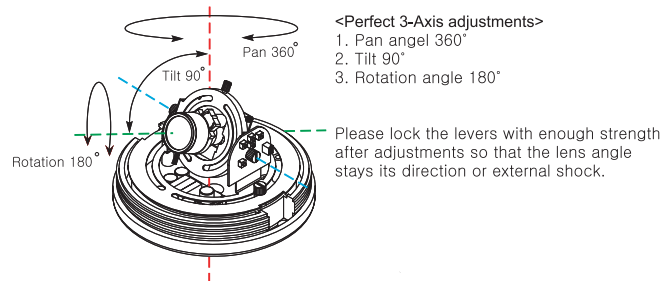
6. Assembly overview



7. Installation

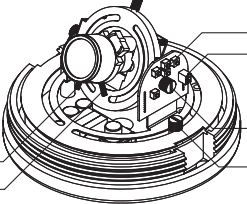
- Installation and services should only be carried out by an authorized personnel according to local safety regulations.
- Should liquid or solid matter gets into the housing, disconnect the camera immediately from the power source and have it checked by your authorized dealer before reusing it.
- Keep an adequate distance from direct heat sources.
- Avoid installing the camera at a place of high humidity.
- Avoid installing the camera at a place exposed to gas or oil.
- Keep the top glass of the lens always clear in order to obtain the best picture quality all the time. Be careful not to stain the lens by fingerprints.
- Do not point the camera toward artificial lightings, the sun, the sky or to the direction of a window. The best picture quality will be achieved if both camera and lighting point to the area you want to record.
- Do not expose the camera to radioactivity. It causes a serious damage on the CCD.
- Do not put objects inside the unit. Make sure that no metal objects or flammable substances get into the camera. It could cause fire, short-circuits or damages.
- Install the camera away from electric or magnetic fields.

7-1. Overview of 3 directional adjustment



7. Installation

7-2. Name and function of each part

- 
1. Rotation locking lever
2. Zoom lever
3. Focus lever
4. OSD Key
5. Extra Video output
6. Tilt locking lever
4. Pan locking lever
1. Rotation locking lever
Loose it by turning it lefthandwise to adjust the camera angle to Rotation axis. Lock it by turning it righthandwise after adjustment.
2. Zoom lever
Loose it by turning it lefthandwise to adjust the Zoom in/out. Lock it by turning it righthandwise after adjustment.
3. Focus lever
Loose it by turning it lefthandwise to adjust the Focus. Lock it by turning it righthandwise after adjustment.
4. OSD Key
Please refer to the page 15~27 in this manual for the use of OSD buttons.
5. Extra video output
Use this terminal with the supplied Short video cable hooked up. Use it only for checking the picture quality and function adjustments. Remove the short cable after adjustments.
6. Tilt locking lever
Loose it by turning it lefthandwise to adjust the camera angle to Vertical axis. Lock it by turning it righthandwise after adjustment.
7. Pan locking lever
Loose it by turning it lefthandwise to adjust the camera angle to Horizontal axis. Lock it by turning it righthandwise after adjustment.

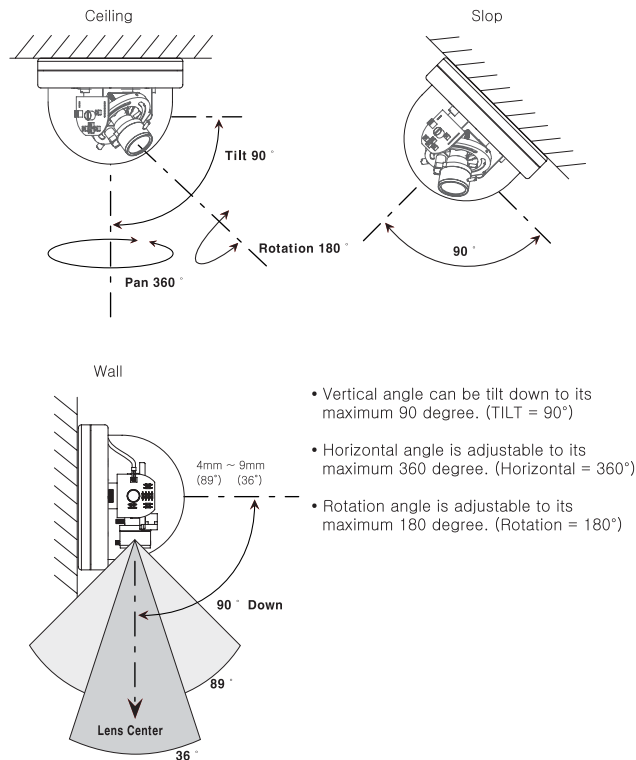
Caution

- Please make sure that the surface of the lens and the dome cover always stay clean.
- When these parts are contaminated, clean them very carefully with soft cloth. Even a small scratch on these parts results in the picture blooming or reflection.

7. Installation

7-3. Mounting applications

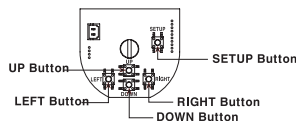
This unit provides an efficient way of mechanical adjustment of the camera angle from any location. Especially, noticeable points are Vertical angle that can be tilt down to 90 degree and the Rotation adjustment that can correct the image to be always upright status when the dome camera is installed on the wall or on the slope.



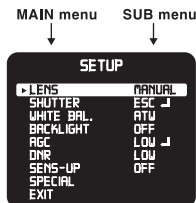
8. Functions and operation

8-2. Setting up the menu

Use the 5 buttons located on the side of the camera.



1. Press the SETUP button to access the SETUP mode.
 - The SETUP menu is displayed on the monitor.
2. Please select any function you wish to activate by using the UP/DOWN buttons.
 - The arrow can be moved up or down by using the UP/DOWN buttons. Position the arrow to point to the function you wish to operate.



3. Change the status of the selected feature using the LEFT/RIGHT buttons.
 - When the LEFT or RIGHT button is pressed, available values and modes are displayed in order. Please keep pressing the button until you get to the mode you wish to operate.
4. When completed, move the arrow indicator to 'EXIT' and press the SETUP button to finish the setting.

NOTE

- If appears at the mode you wish to operate, it means that there is a sub-menu which can be selected by pressing the SETUP button.
- If appears at the mode item, it means that there is no mode available to be selected.

8. Functions and operation

8-3. LENS (selection)

This function is used to select the lens and to adjust the SETUP suitable to the type of lens.

◆ When DC lens is used.

1. Press the SETUP button.
2. The LENS on the menu will automatically display <DC> in the sub-menu. If this sub-menu shows <MANUAL>, please press the sub-menu and it will be converted to <DC>.
3. DC Level volume control
Brightness level of the screen at <DC> mode is adjustable.
 - Select SHUTTER menu and move the cursor to sub-menu <DC>.
 - Press SETUP button and then the BRIGHTNESS CONTROL menu is on.
 - Adjust the level by using the LEFT/RIGHT buttons.



4. Press the SETUP button to finish the control.

NOTE

At DC mode, the SHUTTER is fixed at 1/60 sec (NTSC), 1/50 sec (PAL), and the submenu at the SHUTTER mode will be in <blank>.

◆ When MANUAL lens is used.

1. When Manual lens is used, the menu is automatically converted to <MANUAL> mode.
2. Press the SETUP button and select <MANUAL> on the LENS mode.
3. Then the sub-menu on the SHUTTER menu is converted to <ESC> mode.
4. Brightness control
Brightness level of the screen at <ESC> mode is adjustable.
 - Select the SHUTTER menu and move the cursor to sub-menu <ESC>.
 - Press the SETUP button and then the BRIGHTNESS CONTROL menu is on.
 - Adjust the level by using the LEFT/RIGHT buttons.



5. Press the SETUP button to finish the control.

8. Functions and operation

8-4. SHUTTER (Condition and Speed control)

Auto or manual control can be selected.

- Move the arrow to point to 'SHUTTER' by using the UP/DOWN buttons.
- Please select the shutter mode by pressing the LEFT or RIGHT buttons.

FLK : Please select FLK mode when flickering occurs on the screen, due to an imbalance between illumination and frequency.

ESC : The shutter speed is controlled automatically according to the brightness of the screen.

Manual : The shutter speed is controlled manually.

- Please select 'MANUAL' mode if you wish to adjust the shutter manually.
 - You can select speed from '1/60' to '1/120,000 sec' (NTSC), '1/50' to '1/120,000 sec' (PAL).
 - Please use this function only when the light level of the surveillance area is fixed all the time.
 - It is useful when there is used with a special lighting in the surveillance area.
- Please press the SETUP button when all of the settings are complete.



NOTE

- When selecting DC lens, the shutter speed is fixed at 1/60 sec (NTSC), 1/50 sec (PAL).
- While using the internal synchronous system, if the shutter setting is on 'ESC' and the camera is directly facing a bright fluorescent light, the image on the screen can be adversely affected. Careful choice of the camera's location is required at the installation.
- When 'MANUAL' mode is on, the SENS UP function does not operate.

8. Functions and operation

8-5. White balance control

This is useful when the cameras are installed in different artificial lighting conditions where a standard White Balance condition is not suitable for all.

1. Please position the arrow to point to 'WHITE BAL' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT or RIGHT buttons.
3. Please select one of the 3 modes below.



ATW (Auto Tracking White Balance)

: This mode can be used within the color temperature range 1,800°K~10,500°K (eg, fluorescent light, outdoor, sodium vapor lamp or tunnels).

AWC (Auto White Balance control)

: Please press the SETUP button while the camera is directed at a piece of white paper to obtain the optimum state under current illumination. If the environment including the light source is changed, you have to adjust the white balance again.

MANUAL

: This manual adjustment mode makes finer adjustment possible. Please select ATW or AWC first. Please change to manual adjustment mode and press the SETUP button. Please set the appropriate color temperature, and then increase or decrease the red and blue color values while monitoring the color changes on the object.



NOTE

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

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

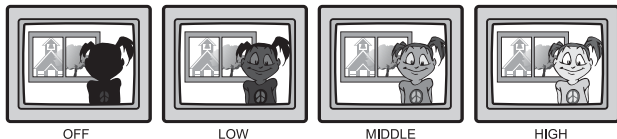
8. Functions and operation

8-6. BACKLIGHT (Backlight Compensation)

This function is useful when there is a strong backlight behind the object.

1. Please position the arrow to point to 'BACKLIGHT' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT and RIGHT buttons.

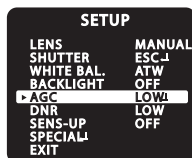
HIGH : The gain increases from 0 dB up to 42dB
MIDDLE : The gain increases from 0 dB up to 30dB
LOW : The gain increases from 0 dB up to 18dB
OFF : BLC function does not operate.



8-7. AGC (Auto Gain Control)

1. Please position the arrow to point to 'AGC' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT and RIGHT buttons.
As the level of gain increases, the screen gets brighter and the level of noise increases.

HIGH : The gain increases from 6dB up to 42dB
MIDDLE : The gain increases from 6dB up to 30dB
LOW : The gain increases from 6dB up to 18dB
OFF : The gain is fixed at 6dB.



9. How to operate key functions

8-8. DNR (Dynamic Noise Reduction)

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

1. Please position the arrow to point to 'DNR' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT and RIGHT buttons.

OFF : There is no reduction in noise level.
LOW : There is a small reduction in noise level with almost no ghost image.
MIDDLE : The most effective mode. There is a sufficient reduction in noise.
HIGH : The noise is greatly reduced while ghost images are increasing.



NOTE

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

8-9. SENS UP (Low illuminance)

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

1. Please position the arrow to point to 'SENS UP' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT and RIGHT buttons.

AUTO : Low light level auto mode.
OFF : The function does not operate.



NOTE

- When the SHUTTER is in the MANUAL mode, SENS UP does not operate.
- When the AGC is turned off, SENS UP does not operate.

3. Please press the SET UP button when all the settings are completed.

8. Functions and operation

NOTE

- The maximum storage magnification in low light level movement situations can be adjusted by pressing the SET UP button in 'AUTO' mode. (x2~x128)
- As the magnification increases, the screen gets brighter, however the ghost images also increases.
- If storage magnification is increased while SENS UP is operating, it may cause noise, and spots may appear, however this is normal.

8-10. SPECIAL

1. Please position the arrow to point to 'SPECIAL' on the SETUP menu by using the UP and DOWN buttons.
2. Please select the mode you wish to operate by pressing the LEFT or RIGHT button.

A. CAMERA ID

When you enter a CAMERA ID, the camera ID appears on the monitor.

- 1) Please position the arrow to point to 'CAMERA ID' by using the UP or DOWN button.
- 2) Please select 'ON' by pressing the LEFT and RIGHT buttons.



NOTE

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

- 3) Please press the SETUP button to complete 'ON'.
- 4) Up to 15 letters are offered for the ID.
 - ① Please move the cursor to the letter to choose by using the UP and DOWN button.
 - ② Select an ID from A, B, ~Y, Z, a, b, ~y, z, 0, 1, ~ 8, 9 by using the UP, DOWN, LEFT and RIGHT buttons.
 - ③ Lock in the letters by using the SETUP button.
 - When the letter is locked in, the cursor moves to the next space.
 - ④ Please repeat the above to input ID.

8. Functions and operation

NOTE

If a wrong name has been input

- If you press the SETUP button after moving the cursor to CLR, all the letters will be erased.
- If you want to correct a letter, please move the cursor to the arrow at the bottom left of the screen and press the SETUP button.
- Please position the cursor above the letter you wish to correct, and then move the cursor onto the letter you wish to choose and press the SETUP button.



- 5) When a name has been chosen, please select a position for the name to display.

- ① Please move the cursor onto 'POS' and then press the SETUP button.



- ② The name will appear at the top left hand corner.
- ③ Please find the position you wish to display the name by using the 4 directional buttons, and then press the SETUP button.

- 6) Please select 'END' and then press the SETUP button to complete ID input.

B. COLOR (Day&Night mode selection)

AUTO : This camera has a function which automatically changes to the appropriate mode for daytime or nighttime. The picture displays a Color image in day, and it converts to BW mode at night.



ON : It is fixed to Color mode and the image is not changeable to BW for night.

NOTE

- When the AGC is OFF, COLOR does not operate.
- When an infrared light is used, there may be a problem with focusing.

8. Functions and operation

C. SYNC

Two SYNCHRONIZATION modes are available INTERNAL and LINELOCK mode, it synchronizes the video signal between cameras without a synchronous generator. The line-lock synchronization is only used in the areas of 60Hz (NTSC)/ 50Hz(PAL).

INT : Internal synchronization

LL : External Line-lock synchronization

- If you choose 'LL', you can adjust the desired phase.
Press the SETUP button.
- You can adjust the desired phase from 0 to 359.
* LL (24VAC)



NOTE

- When the power frequency is 50Hz, you cannot use the line-lock mode (NTSC model).
- When the power frequency is 60Hz, you cannot use the line-lock mode (PAL model).
- 'SYNC' mode is fixed to 'INT' in DC input power.

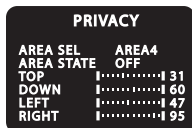
D. PRIVACY

This mode conceals the areas you do not wish to show on the screen.

OFF : Cancels the PRIVACY mode.

ON : Operates the PRIVACY mode.

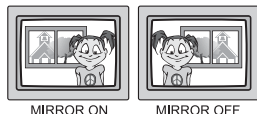
- Please press the SETUP button.
- Please select the area you do not wish to appear from the 4 areas in AREA SEL mode.
- Please select ON mode for the chosen area.
- Please adjust the size of the area to be concealed by using the UP, DOWN, LEFT and RIGHT buttons.



E. MIRROR

ON : Sets a horizontal image inversion.

OFF : Cancels the inversion.



F. SHARPNESS

The outline of video image become clearer and more distinctive as the level of SHARPNESS increases. If the level goes up excessively, however, it may affect the video and generate noise.

- Please press the SETUP button.
- The available range of level is 0-15.



8. Functions and operation

G. RESET

Returns to the default set by the manufacturer.

H. RETURN

1. Save the SPECIAL menu (by pressing the SETUP Button)
2. SPECIAL menu will appear. Then move the cursor to RETURN by using UP/DOWN buttons and press the SETUP button.
3. SET UP menu will appear.

I. EXIT

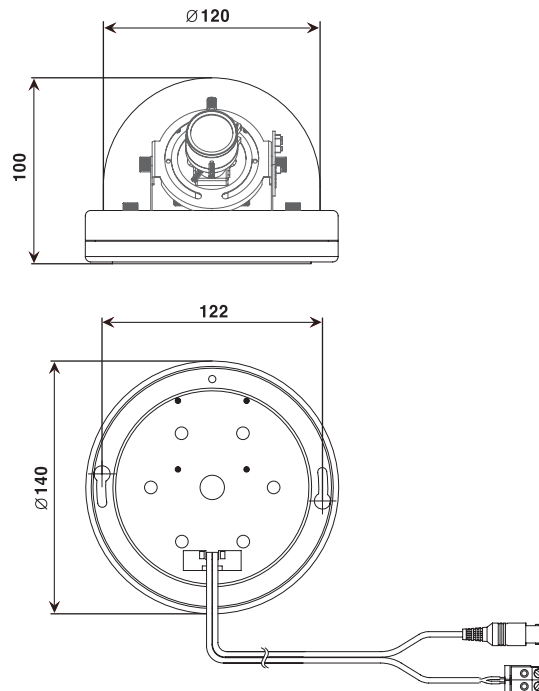
Save all setting menus by pressing the SETUP button and then exits by pressing EXIT button.

9. Troubleshooting

If there are problems in operating, please refer to the checklist below. If the problem persists, please contact the agent where this product is purchased.

Problems	Troubleshooting
Nothing appears on the screen.	Please check the power connection. Please check the video signal line connection Please check and make sure that the auto iris lens setting is set to DC (Video) when using Video (DC) lens.
The video image is not clear.	Please check if the lens is clean. Please clean the lens with a soft cloth or brush. Please check and adjust contrast feature of the monitor Please check if the camera is exposed directly toward a bright light, sunlight, or sun light reflecting area. Please move the camera's position in this case. Please readjust the back focus of the camera.
The screen is dark.	Please check and adjust contrast feature of the monitor If there is any interim equipment, set the 75Ω position properly and check the terminals. Please check if the auto iris lens being used and adjust the brightness level.
The camera's surface is too hot and black strips appear on the screen.	Please check if the power supply is regulated and is within the standard requirement of the product.
Colors are not quite right.	Please check the <white balance> setting.
The screen is flickering.	Please check if the camera is facing directly into sunlight or fluorescent light. Please check if the auto iris lens is being used. Please check the connection of the lens connector cable.
L/L mode isn't able to be selected.	Please check if you connected your camera to DC power source. Connect it to AC Power source.
COLOR mode is not working.	Please check if the AGC menu is set to the 'OFF' position.
SENS-UP function is not working.	Please check if the AGC menu is set to the 'OFF' position Please check if the SHUTTER menu is set to MANUAL mode.
Picture is too bright at day.	Check if BLC mode is ON in normal backlight condition. Check if DC Level is set too high. Adjust the DC level to proper brightness.

10. Dimension (mm)



11. Specification

ITEM		EL720-12	EL720-24
Power Source		DC12V	DCV12/AC24 Dual Power
CCD		140mA	12V(200mA)/24V(110mA)
	Sensor	1/3 inch, Sony Super HAD CCD	
	Total Pixels	NTSC : 811(H) X 508(V)	PAL : 795(H) X 596(V)
	Effective Pixels	768(H) X 494(V)	752(H) X 582(V)
Sync	Scanning system	2:1 Interface	
	Synchronization	Internal	Internal / Line Lock
	Frequency	NTSC : Horizontal : 15.743KHz Vertical : 59.94Hz PAL : Horizontal : 15.625KHz Vertical : 50Hz	
Electrical	Resolution	540 TV Lines	
	S/N Ratio	50dB (AGC Off)	
	Video Output	CVBS : 1.0Vp-p/75Ω	
	Min. Illumination	0.3Lux/F1.2 (50IRE, AGC High, DNR High) 0.0002 Lux (Sens-up x128 Max.)	
	Electronic Shutter speed	AUTO/MANUAL (1/60 ~ 1/120,000 NTSC, 1/50 ~ 1/120,000 PAL)	
	OSD	Built-In	
	Backlight Compensation	Low, Middle, High, Off Selectable	
	Gain Control	Low, Middle, High, Off Selectable	
	DNR	Low, Middle, High, Off Selectable	
	Color	AUTO(Day& Night)/ ON(Color only)	
	SYNC	INT/LL Selectable	
	PRIVACY	ON/OFF(4 Zone)	
	MIRROR	ON/OFF	
	SHARPNESS	ON/OFF(Level Adjustable)	
Operation Temperature/Humidity		-10°C to + 50°C / 30% to 80% RH	
Storage Temperature/Humidity		-20°C to + 60°C / 20% to 90% RH	
Dimension		120(Dia) X 56(V)	
Weight (Approx.)		220g	250g

Specifications are subject to change without prior notice for improvement

MEMO

