

Hi-Res Mini Box CAMERA

QUICK INSTALLATION GUIDE



EL-600

Special features

Day & Night Image Conversion at 5Lux

The image is automatically converted from Color to B/W at 4-5Lux darkness.

This function maintains the picture quality at daytime Color and noiseless clear B/W image at nighttime enhancing the sensitivity and resolution up to 600TVL.

Super high resolution

With a new DSP and high performance sensor, the camera offers a supreme high resolution of 560TVL at daytime in Color image and 600TVL at nighttime in B/W image.

AWB(PUSH/ATW)

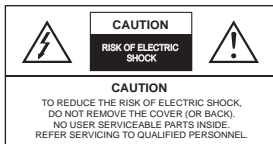
White balance control selectable by Push lock mode or ATW mode enhances the camera's image reproduction capability suitable for all environments and in variable light circumstances.

Excellent low lux sensitivity

By using a Sony Super HAD II sensor, the camera offers an extremely high sensitivity of up to 0.01 lux/F1.2

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 lighting 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.

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 out 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. The sensor 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 sensor.

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



Box Camera x 1



manual x 1



Iris Jack x 1



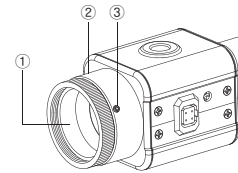
L-Wrench x 1



C-Mount Adaptor x 1

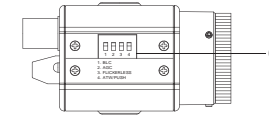
5. Name and function of each part

Front



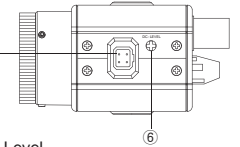
- ① CCD Protection Cover
Leave the cover in place when the lens is not installed. Take it off to fit the lens.
- ② C-Mount Adaptor
Install the C-Mount Adaptor to the front of the camera when C-Mount lens requires.
- ③ Back Focus fixing screw
Use the L-Wrench supplied in the package for locking.

Left Side



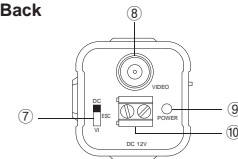
- ④ 4 way Dip Switch
Adjust functions of the camera.

Right Side



- ⑤ DC Level
- ⑥ DC/Video Jack

Back



- ⑦ Lens Selectable switch Adjust the lens mode to DC/ESC/VI according to the lens selected.
- ⑧ Video out terminal – BNC-Fe
- ⑨ Power indicator
Red LED turns ON when camera's working.
- ⑩ Power input terminal – Non-Polarity

6. Installation

6-1. Lens

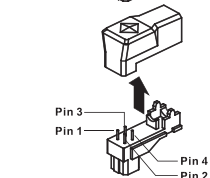
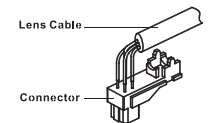
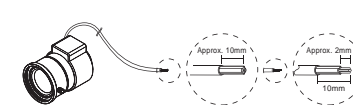
Lens is not supplied with the unit. C-Mount or CS-Mount type of lens is useable. Please select a lens that has a good F-Stop in order to get the best picture quality. Use of Auto DC iris lens is recommendable to achieve the best results for operating this product effectively.

Caution

Please make sure the surface of the lens be always clear. Clean dirt or water drops with soft cloth in order to avoid the picture blooming or reflection.

6-2. When using an Auto Iris lens(DC-Drive or Video-Drive)

- ① Please take off the sleeve outer cable of the lens by 10mm.
- ② Please take off the sleeve inner cable of the lens by 2mm.

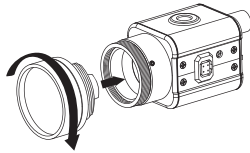


Pin No.	Lens	
	DC	VIDEO
No.1 Pin	Damping -	Red (Power)
No.2 Pin	Damping +	NC
No.3 Pin	Drive +	White (Video)
No.4 Pin	Drive -	Black (GND)

- ③ Solder the wires on the pin-connector(Iris-Jack) supplied with the lens according to the pin configuration as shown in the drawing.
- ④ Assemble the lens.
- ⑤ Connect Auto Iris jack.
- ⑥ Adjust the lens selectable switch on the back to DC or Video according to the type of lens.

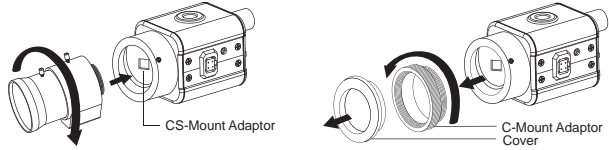
6-3. When using a C-Mount lens

- Take off the protection cover.
- Assemble C-Mount adaptor.
- C-Mount Adaptor is included in the package.
- Fix the lens by turning it clockwise.



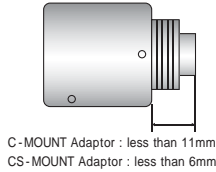
6-4. When using a CS-Mount lens

- Take off the protection cover.
- Take off the C-Mount Adaptor if any.
- Fix the lens by turning it clockwise.



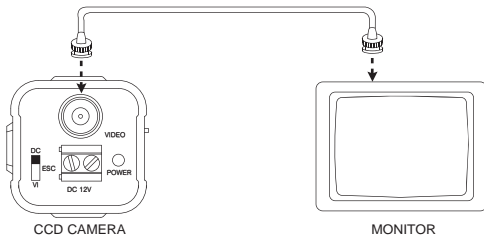
Caution

Use the lens connector shown in the following figure. If the dimensions of the connector are not correct, it may damage the camera, or the lens may not be installed firmly. If the lens is too heavy, the camera becomes unbalance and there may be problems. Use a lens to meet the camera. When adjusting the Automatic Level Control(ALC) of an auto iris lens, use Av mode if available. If you use the Pk mode, the picture brightness may change continuously.

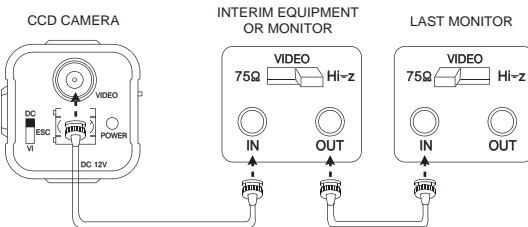


6-5. Video Monitor

- Connect the Video out jack to the Video in jack on the monitor.
- Use good quality shielded coaxial video cable to avoid noise interference.
- Connect the cable with the power turned off.

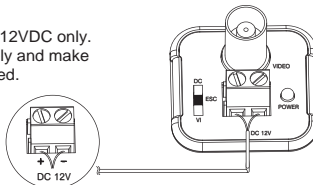


When the camera is used with multi-channel equipment or with more than 2 monitors, set impedance level switch on the interim equipment/monitors to HI-Z position and make sure the last monitor to 75Ω position.



6-6. Power

The power option of the camera is 12VDC only. Use regulated DC 12V power supply and make sure the power input is non polarized.

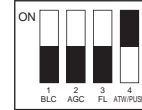


7. Function selection and Configuration of Switches

7-1. 4 way Dip Switch

Switch NO.	Function	Switch down OFF	Switch up ON
1	BLC (Back Light Compensation)	BLC OFF	BLC ON
2	AGC	Normal	Max
3	Flickerless	FL OFF	FL ON
4	ATW/PUSH	ATW Mode	PUSH Mode

<Color only>



<Day/Night>



7-2. Switch functions and adjustment

- ESC (Electronics Shutter Control)**
In this mode, Shutter Speed is controlled 1/60 ~ 1/100,000 sec.(NTSC) and 1/50 ~ 1/100,000 sec.(PAL)
- Caution**
When the S/W is positioned at the VI or DC mode, the electronic shutter will be off and will not control the picture.
- BLC (Back Light Compensation)**
Under bright lighting conditions from behind the subject, the camera will close the iris automatically and the subject gets darker. Select BLC to ON to counteract this. In normal lighting conditions, select BLC to OFF. It is set to OFF as a factory standard.
- AGC (Automatic Gain Control)**
Use this mode for dark illumination or at night. If the AGC Max. is selected the camera increases the video signals to maximum so that the picture looks brighter. At Max. mode, unnecessary noise is also increased and the picture may display noise on the screen. This is normal. It is set to AGC Nor. as a factory standard.

Note

AGC mode makes the image Color only or Day/Night. AGC on is Day/Night and AGC off Color only.

- Flickerless**
This is used only when there is a difference in frequency between the power system(50Hz) and TV system(60Hz). In this case, flicker is occurred on the monitor and set the mode to FL ON. In most countries other than Japan do not need this set up. It is set to FL Off as a factory standard.
- White Balance**
Use the White Balance to adjust the screen color. ATW(Auto Tracking White Balance) mode is generally used and is suitable for viewing a screen with one or various colors mixed on the background. Push Lock mode is suitable when the object's background is in high color temperature(Ex. Clear sky, Sunset and so on)

7-3. Lens selection

ES(Electronics Shutter Control) mode is used with fixed iris lens. In ES mode, the camera controls the electronic shutter automatically from 1/60 to 1/100,000 sec.(NTSC) or 1/50 to 1/100,000 sec.(PAL). ES mode with a fixed iris lens is suitable for indoor surveillance. Select the SW on the back to the ES position.

For outdoor use, ES mode is not sufficient. In this case an Auto Iris lens of either Video Driven type or DC Driven type is recommended. Move the SW to VI position for the Video Iris lens or DC position for DC Iris lens. When VI or DC mode is selected, the electronic shutter speed is fixed to 1/60 sec.(NTSC) or 1/50 sec.(PAL).

When using Auto DC Iris lens, DC Level control on the right side of the camera plays a role in controlling Video output level. To make the image bright, turn the pot clockwise and vice versa.

Caution

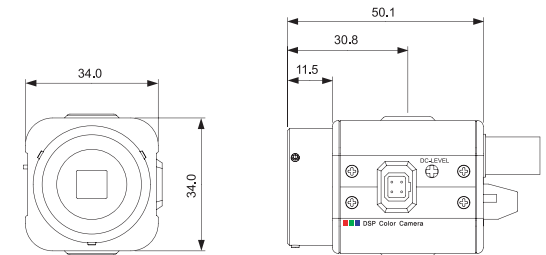
When using Fixed Iris lens for indoor surveillance, there may be improper color on the screen under the specific lighting conditions. In order to eliminate this improper color, Auto Iris lens is recommended and Iris mode should be positioned to VI or DC.

8. Troubleshooting

Before sending the camera out for repair, check the items below. If the problem persists after checking these items, contact your service center.

Problems	Troubleshooting
Nothing appears on the screen.	<ul style="list-style-type: none"> Please check the power connection. Please check the video signal line connection.
The video image is not clear.	<ul style="list-style-type: none"> Please check if the lens or the outer glass is clean. Dirt or fingerprints on the lens can affect the image blooming or reflection. Gently wipe any dirt fingerprints off the lens or the glass with a soft cloth. 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.
The screen is dark.	<ul style="list-style-type: none"> Please check and adjust contrast feature of the monitor. If there is any interim equipment, set the HI-z position properly and check the terminals. Please check if the power supply is within the specification. When the cable connection requires a long distance, there may need a higher power supply or an additional power/video amplification.
The camera's surface is too hot and black stripes appear on the screen.	<ul style="list-style-type: none"> Please check if the power supply is regulated and is within the standard requirement of the product.
The screen is flickering.	<ul style="list-style-type: none"> Please check if the camera is facing directly toward sunlight or fluorescent light.

9. Dimension (mm)



10. Specification

Model	EL-600								
Image sensor	Ex-view HAD CCD								
Effective Pixels	NTSC : 768(H) x 494(V), PAL : 752(H) x 582(V)								
H.Resolution	560TVL(Day)/600TVL(Night)								
Synchronizing system	Internal								
Scanning system	NTSC 525 Lines PAL625 Lines 2:1 Interlaced								
Video output	1.0Vp-p Composite, 75 Ohms								
S/N Ratio	More than 50dB (AGC OFF)								
Min. Illumination	0.01Lux/F1.2								
Shutter speed	NTSC : 1/60~1/100,000sec PAL : 1/50~1/100,000sec								
White balance	ATW/Push Lock selectable(Standard 2,100°K ~ 9,100°K)								
Gain control	AUTO. 0dB ~ 34dB								
Smear Effect	0.05%								
Power source	DC12V (Tolerance : 10V ~ 20V)								
Operation current	130mA								
Lens mount	C-Mount(17.5mm Frange back), CS-Mount(12.5mm Frange back) & Fine focus ± 1.0mm								
Iris mode	Video / ESC / DC								
Operating Temperature	14°F ~ 122°F (-10°C ~ +50°C)								
Humidity	Within 90% RH								
Measurement (mm)	34(W) X 34(H) X 50(D)								
Weight(Approx.g)	200								
DIP Switch Function	<table border="1"> <tbody> <tr> <td>BLC</td> <td>ON / OFF</td> </tr> <tr> <td>AGC</td> <td>Nor. / Max.</td> </tr> <tr> <td>FLICKERLESS</td> <td>1.0 / 0.45 (ON / OFF)</td> </tr> <tr> <td>WB</td> <td>ATW / Push Lock</td> </tr> </tbody> </table>	BLC	ON / OFF	AGC	Nor. / Max.	FLICKERLESS	1.0 / 0.45 (ON / OFF)	WB	ATW / Push Lock
BLC	ON / OFF								
AGC	Nor. / Max.								
FLICKERLESS	1.0 / 0.45 (ON / OFF)								
WB	ATW / Push Lock								

* Specifications are subject to change without prior notice for improvement.