



B&W CCD CAMERA

INSTRUCTION MANUAL BW-4302 SERIES



[SALES NETWORK]

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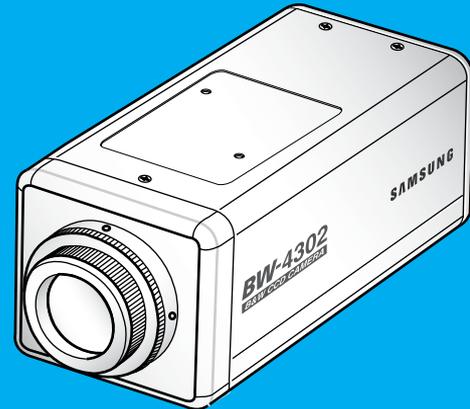
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SAMSUNG CCD CAMERA

*Thank you for purchasing a SAMSUNG CCD CAMERA.
Before operating the camera, confirm the camera model and
proper input power voltage. In order that you can understand this
manual thoroughly, we'll introduce our model description.*

■ BW-4302 Series

- EIA models
BW-4302EA
- CCIR models
BW-4302CA
BW-4302CH

■ Model Description

BW-4302 x x
| |
power source
signal system

- Signal System
E → EIA Model
C → CCIR Model
- Power Source
A → AC 24V ~
D → DC 12V ~
H → High Voltage (CCIR Model: AC 230V~)

	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 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.

WARNING- TO PREVENT RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS CAMERA TO RAIN OR MOISTURE.

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 fire hazards:

- ◆ Do NOT use other than specified power source.
- ◆ 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.

Features

Contents

Automatic Backlight Compensation

The backlight compensation technology allows the camera to find the best picture conditions in any environment and automatically gives a necessary light level compensation, so that you can always obtain the clear picture, the finest detail and perfect light contrast.

High Resolution

The horizontal resolution of 570 TV lines can be achieved by using a high density CCD having effective 410,000 pixels, which provides clean, noiseless and reliable pictures.

Electronic Iris

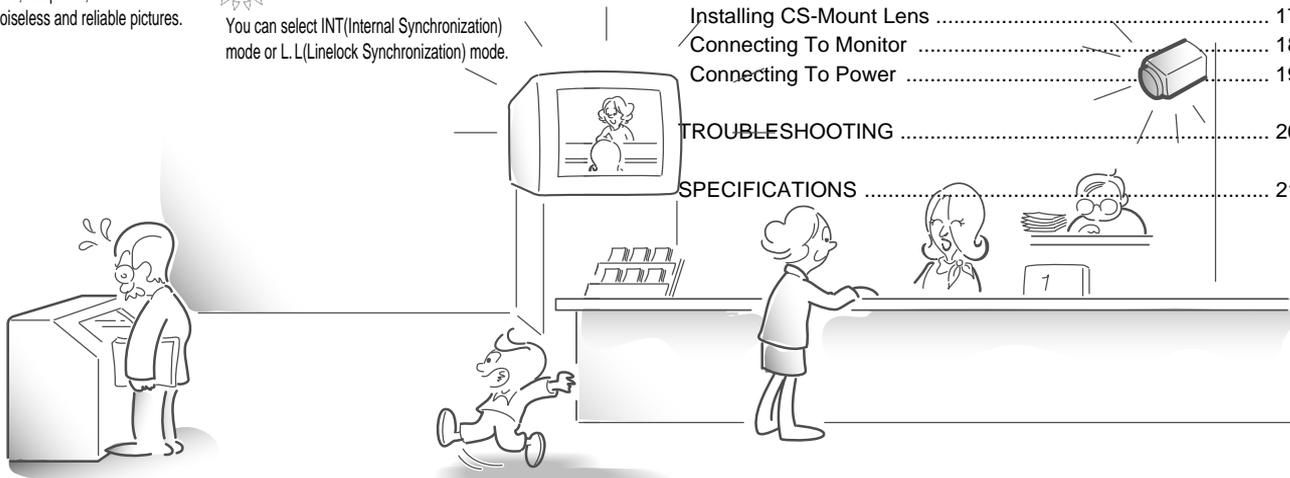
Electronic iris shutter is automatically controlled at the speed of
1/60 ~1/100,000sec (EIA models),
1/50 ~1/100,000sec (CCIR models).

Video/DC Selection Switch

The camera accepts 2 types of auto Iris lenses (DC type/Video type) and is set with Video/DC selection switch.

SYNC. System

You can select INT (Internal Synchronization) mode or L. L. (Line Lock Synchronization) mode.



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Precautions

Do not install the camera in extreme temperature conditions.



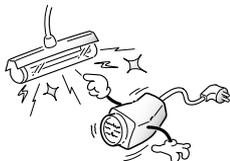
Do use the camera under conditions where temperatures are within -10 C to 50 C. Especially be careful for ventilation under high temperature.

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



It can cause the image quality to be poor.

Do not install the camera under unstable lighting conditions.



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

Never use the camera close to a gas or oil leak.



It can cause malfunctions to occur.

Do not disassemble the camera.



There are no user-serviceable parts inside it.

Do not drop the camera or subject them to physical shocks.



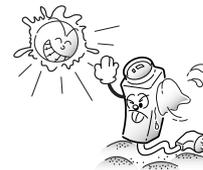
It can cause malfunctions to occur.

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 face to strong light directly.



It can damage the CCD.

Do not touch the front glass of the camera.

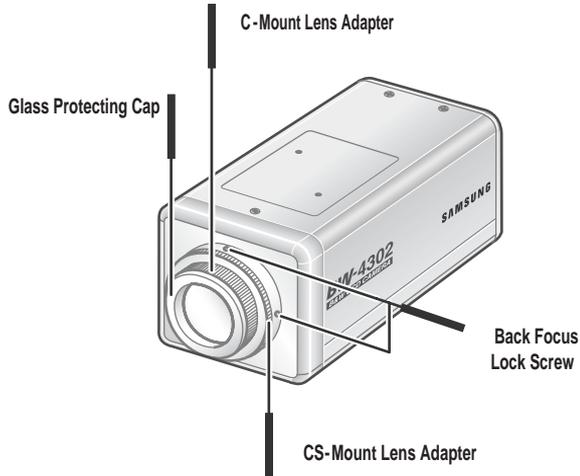


It is one of the most important parts of camera. Be careful not to be stained by fingerprint.

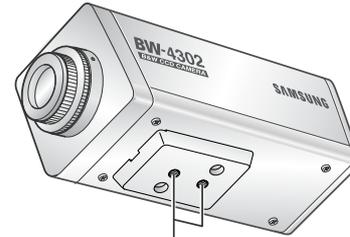
Notes:

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

Front



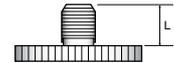
Bottom



Tripod Mounting Hold

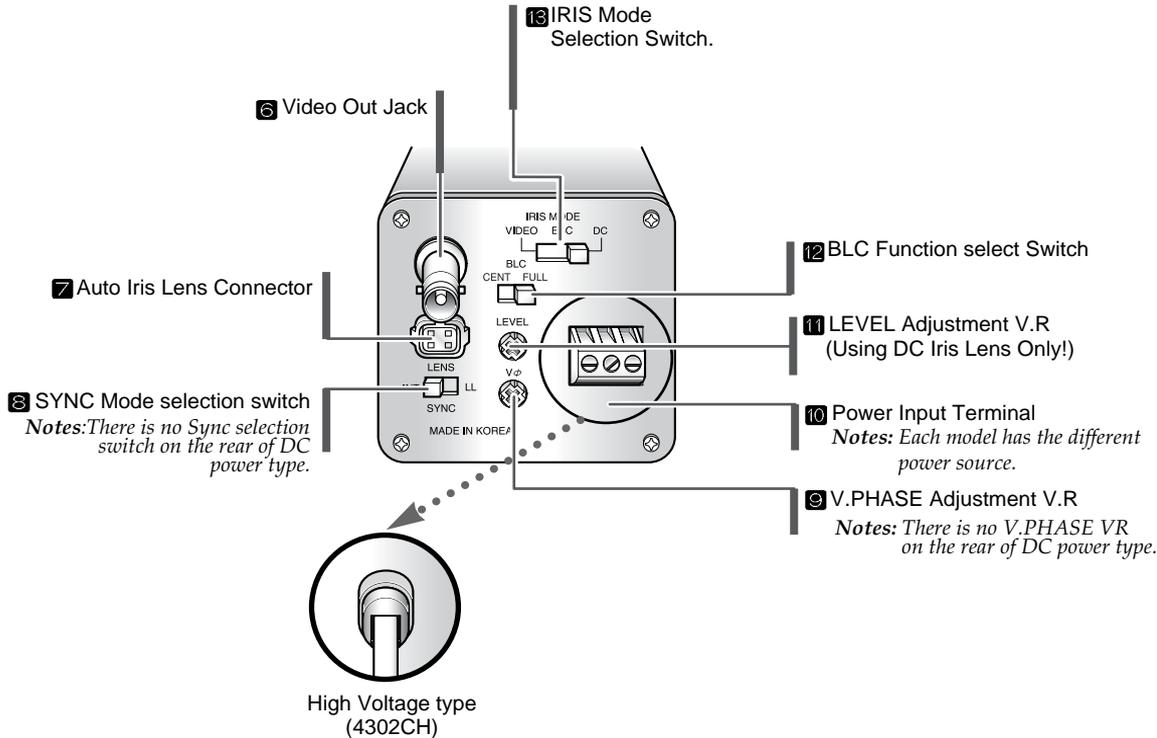
Used to install the camera on an optional tripod. The tripod must be equipped with the screw specified as shown below

1/4 -20 UNC (20 THREAD)
L : 4.5mm ± 0.2 mm (ISO standard),
or 0.197 (ASA standard)



You can remove and install this bracket on the top of the camera.
You must use the supplied screw or the equivalent (within 5mm). If not, it can cause malfunction and damage inside the camera.

Back



Accessories



IRIS lens plug



L-Wrench



Instruction Manual

1 Glass Protecting Cap

Be sure to cap the lens mount when the lens is not mounted. Pull out the cap to remove.

2 C-Mount Lens Adapter

Used to mount a C-mount lens. Remove it to mount a CS-mount lens. Turn counterclockwise to remove.

3 CS-Mount Lens Adapter

Used to mount a CS-mount lens. C-mount lenses can be used when the C-mount adapter is attached, and CS-mount lenses can be used when it is removed.

4 Back Focus Lock Screw

Used to readjust backfocus of the camera. There are two backfocus lock screws. These must be loosened before the camera may be back focused. Loosen lock screw using the L-wrench to turn the CS-mount lens adapter, and tighten the lock screw after adjustment.

5 Tripod Mounting Hole

This screw hole is used to install the camera on a mount. The camera can be installed on a tripod or other camera mount either from the top or the bottom by using the 1/4" - 20UNC threaded holes in the camera. For details, see page 11.

6 Video Out Jack

Connect to the video input connector of monitor. This jack outputs a composite video signal. Use a coaxial cable for connection.

7 Auto Iris Lens Connector

Used to connect auto iris lens plug. Be sure to use video-drive auto iris lens that operates on DC 12V and requires 40 mA or less. For details, see page 18.

8 SYNC Mode Selection Switch

Used to choose INT or LL mode.

※ SYNC (Synchronization) Mode

INT(Internal) mode : The camera may be operated independently with its internal crystal control.

LL(Linelock) mode : It synchronizes the video signal between cameras using the frequency of the AC power supply without external synchronous generator.

Notes : ● *The LL mode can be used in the areas of 60Hz(EIA models) and 50Hz(CCIR models).*

● *There is no SYNC selection switch on the rear of DC power type.*

9 V. PHASE Adjustment V. R

If camera is to be used in the LL mode, the vertical phase may require adjustment to synchronize the vertical phase of the camera with other camera in the system.

Make this adjustment when the vertical phase of the camera does not match with other cameras or systems. For correct adjustment, use a multi-channel oscilloscope. The V_{ϕ} adjustment has been set at 180 degrees and can be readjusted in the range of 0 to 270 degrees.

Notes : ● *This adjustment is necessary only when line lock sync operation is performed.*

● *There is no V. PHASE V.R on the rear of the DC power type.*

10 Power Input Terminal

Used to connect AC/DC power source. For details, see page 23.

Notes : *Each model has the different power source, you must confirm appropriate power source of your camera.*

11 Level Adjustment V. R (Using DC Iris Lens Only!)

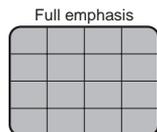
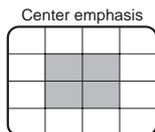
Used to adjust video output level. When the brightness control of the monitor does not operate correctly, you can get the optimum picture by controlling the Video output level of camera.

Monitor picture	Adjustment direction
To make it brighter	Turn clockwise
To make it darker	Turn counterclockwise

Notes : This function is activated when being in the ESC mode.

12 BLC(Backlight Compensation) Function CENTER/FULL Switch

This switch improves an image that is darkened because of backlighting. This Function be possible only when the camera have a manual lens. When the lighting source is in the rear of object, the object might be seen some darkness. If you want to see object clearly, turn this switch Center or Full the following diagram:



13 IRIS Mode Selection Switch

Used to choose DC/VIDEO or ESC mode according to the type of your lens.

◆ USING AUTO IRIS LENS

You can choose DC or VIDEO mode according to the type of the lens. In this case, electronic shutter is fixed in "1/60" sec(EIA models), "1/50"sec(CCIR models).

◆ MANUAL LENS

When manual lens is mounted, two modes are available. In VIDEO or DC mode, electronic shutter is fixed in "1/60" sec(EIA models), "1/50" sec(CCIR models). In ESC mode, electronic shutter is automatically controls the shutter speed from "1/60" to "1/100,000" sec(EIA models), "1/50" to "1/100,000" sec(CCIR models).

Notes : ESC (Electronic Shutter Control)mode : Electronically controls optimal shutter speed.

Lens

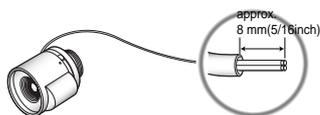
Lens is not supplied with this camera. Purchase a lens suitable for your environment. This camera accepts auto iris lens, both C- and CS-mount lens.

Notes:

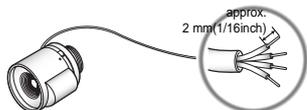
- If the lens is stained with fingerprint or something, the image quality might be poor.
- It is recommended to use a high quality lens to improve the image quality under low illumination.

Installing Auto Iris Lens

1. Peel the end of lens cable outer cover approximately 8mm. (5/16inch)

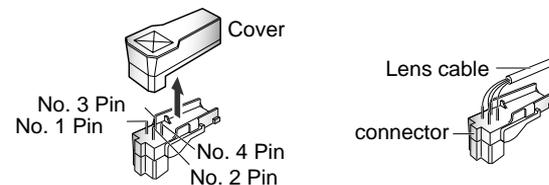


2. Peel the end of the cable inner cover approximately 2mm. (1/16inch)

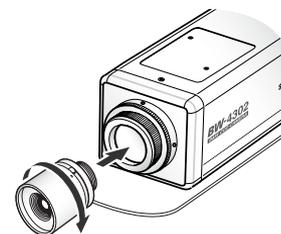


3. Remove the cover from the connector pin supplied, and solder the lens cable to the connector pin as shown below.

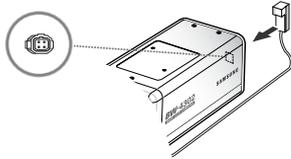
- Video type :
 - No. 1 Pin --- Red (Power source, DC 12V, 40mA MAX)
 - No. 2 Pin --- N.C
 - No. 3 Pin --- White (Video signal)
 - No. 4 Pin --- Black (GND)
- DC type:
 - No. 1 Pin --- Damping -
 - No. 2 Pin --- Damping +
 - No. 3 Pin --- Drive +
 - No. 4 Pin --- Drive -



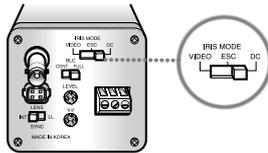
4. Remove the protecting cap, and attach the lens into the camera by turning clockwise.



5. Connect the lens plug to the auto iris connector on the rear of the camera.

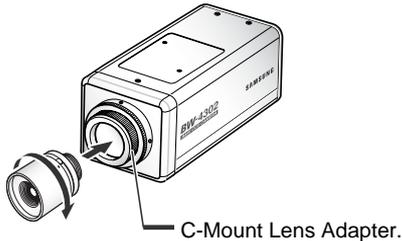


6. Set the IRIS Mode selection switch to Video according to the type of the lens.



Installing C-Mount lens

After removing the protecting cap, attach the lens into the camera by turning clockwise.

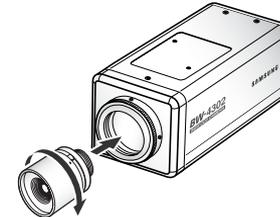


Installing CS-Mount lens

1. Remove the protecting cap and C-mount adapter.

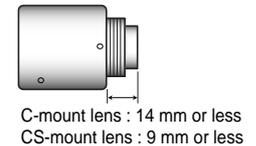


2. Attach the lens into the camera by turning clockwise.



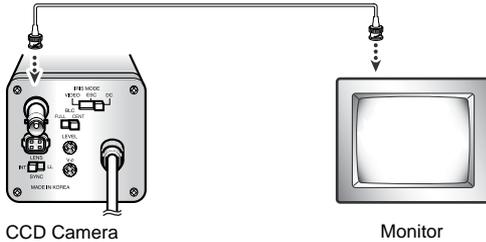
Notes:

- Use the lens under the specification aside.
- Otherwise the lens can damage the camera or abnormal fixing may be resulted in.
- A heavy lens may disturb the balance with the camera and possibly results in damage. Don't use more than 450g lens.
- It is recommended to set the lens ALC mode to Av mode (Average). Pk mode can be occurred hunting.

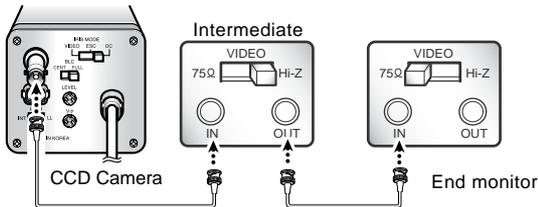


Connecting to Monitor

Connect the VIDEO out jack to the monitor video in jack.



- As a connecting method varies according to instruments, refer to the manual supplied with the instrument.
- Connect the cable after power is turned off.
- Set the 75 Ω /Hi-Z selection switch as shown below if you have intermediate device.



Connecting to Power

Each model has the different power source and the operation characteristics.
Make sure the power is supplied to the appropriate power terminals on the camera. Connect the power as referred on the following figures.



AC24V, 60Hz : BW-4302EA
AC24V, 50Hz : BW-4302CA



AC230V ~, 50Hz : BW-4302CH

Notes:

- Be sure to connect power cord after you finish installation.
- Check whether the frequency of power is 60Hz to use the linelock(LL) mode in EIA models.
- Check whether the frequency of power is 50Hz to use the linelock(LL) mode in CCIR models.

Troubleshooting

If you have trouble operating your camera, refer to the following. 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 made properly. • Check that the VIDEO/ESC selection switch on the rear of the camera set to a proper position according to the type of your lens.
The image on the screen is dim.	<ul style="list-style-type: none"> • Check if the lens are stained. If dirty, clean the lens with soft, clean cloth.
The camera is not work properly, and the surface of the camera case is hot.	<ul style="list-style-type: none"> • Check that you have connected the camera to a proper power. <ul style="list-style-type: none"> – AC 24V, 60Hz : BW-4302EA – AC 24V ~, 50Hz : BW-4302CA – AC 230V ~, 50Hz : BW-4302CH
The contrast on the screen is too weak.	<ul style="list-style-type: none"> • Adjust the contrast feature of the monitor. If the camera is exposed under too strong light, change the camera position.
The image on the screen flickers.	<ul style="list-style-type: none"> • Does the camera face to directly to the sun or fluorescent lighting? Change the camera position.
The image on the screen is distorted.	<ul style="list-style-type: none"> • Check that you have used 50Hz (CCIR models) and 60Hz (EIA models) in linelock (L.L) mode. If the power frequency is out of 50Hz (CCIR models) /60Hz (EIA models), the linelock(L.L) synchronization mode cannot be used. Use the Synchronization Mode to INT mode.

Specifications

ITEM	BW-4302EA	BW-4302CA	BW-4302CH
POWER SOURCE	AC24V, 60Hz	AC24V, 50Hz	AC230V, 50Hz
POWER CONSUMPTION	4W	4W	4W
SYNC. SYSTEM	INT/Linelock selectable (Phase: 0~270° Power frequency: 60Hz only)	INT/Linelock selectable (Phase: 0~270° Power frequency: 50Hz only)	
PICK-UP DEVICE	768(H) x 582(V)1/3" BW CCD	752(H) x 582(V)1/3" BW CCD	
SCANNING SYSTEM	2:1 Interlace 525Lines	2:1 Interlace 625Lines	
MINIMUM ILLUMINATION	0.05 Lux at F1.2		
RESOLUTION	≥570(H)TV Lines		
VIDEO OUTPUT	1.0 Vp-p EIA Comp.	1.0 Vp-p CCIR Comp.	
Backlight Compensation	Center/Full Selectable		
IRIS MODE	VIDEO/ESC/DC Selectable		
ELECTRONIC IRIS	1/60~1/100,000 Sec		
LENS	C/CS MOUNT Changeable		
GAMMA CORRECTION	0.45		
AGC	Built-in 28dB		
APERTURE CORRECTION	Built-in		
S/N RATIO	≥50dB		
AMBIENT TEMPERATURE	-10℃ ~ +50℃ (14°F ~ 122°F)		
DIMENSION	55(W) x 57(H) x 136(L)mm(Without Lens)		
WEIGHT	440g(Without Lens)	450g(Without Lens)	500g(Without Lens)
ACCESSORY	IRIS JACK, MANUAL, L-WRENCH		

