. Day & Night IR Camera Series

Digital Slow Shutter

DSS
Weatherproof IR LED
Day & Night Color Camera

COLOR VIDEO CAMERA
with DAY & NIGHT and IR LEDs

OWNER'S MANUAL

550 TVL

P/N : 3810-0102A
(Ver.0701E)   Color Video Camera Series

● Design and specifications are subject to change without notice.

SDNR Super Digital Noise Reduction

DIGITAL

. User Information

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.

Explanation of two Symbols

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "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.

THE GRAPHIC SYMBOLS WITH SUPPLEMENTAL MARKING ARE ON THE BOTTOM OF THE SYSTEM.

"WARNING-TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE UNIT 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 their own expense.
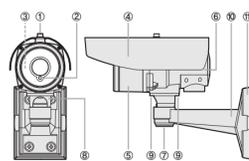
WARNING

The manufacturer could void the user's authority to operate the equipment.

CAUTION - To prevent electric shock and risk of fire hazards:
• Do NOT use power sources except for that specified.

This installation should be made by a qualified service person and should abide to all local codes.

. Contents

● Thank you for purchasing this COLOR VIDEO CAMERA.

Before operating the camera, confirm that you have the right camera model and proper power voltage.
In order to help you understand this manual, we'll introduce our model's description.

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2. Composition

⤷ Sunvisor
⤷ Bracket Supporter
⤷ Weatherproof IR LED Camera
⤷ Base Adapter
⤷ Wall Mount Bracket

⤷ L-Wrench
⤷ L-Torx Wrench
⤷ Service Monitor Cable
⤷ BNC Cable
⤷ Owner's Manual
AC PLUG
⤷ AC Adapter (Option)

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1. Precautions

■ Do not install the camera in extreme temperature conditions.
Do use the camera under conditions where temperatures are within -10℃ to 45℃. Especially be careful for ventilation under high temperature. (with heater : -30℃ ~ 50℃)

■ 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.

■ Never keep the camera face to strong light directly.
It can damage CCD.

■ Note
When this camera is installed near wireless communication devices that emits strong electromagnetic field, irregularity such as noise on the monitor may appear.

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3. Features

1. Super High Resolution
The horizontal resolution of 550 TV lines can be achieved by using a high density CCD having effective 410K pixels, which provides clean, noiseless and reliable pictures.

2. SDNR (Super Digital Noise Reduction)
By SDNR, this camera can reduce video noise, and improve the S/N ratio. By this technology, this camera can show the clear and exact image even in a gloomy place.

3. High Sensitivity (Digital Slow Shutter)
This camera can detect automatically darkness or night and support it to take a clear and bright image. As the grade of darkness, this camera can accumulate up to 32 fields.

4. IR LED
Determines whether IR LED light will be on/off at night, for use of external IR LED lamp when Day & Night mode is on
- D/N ON : uses built-in IR LED in night state.
- D/N OFF : dose not use built-in IR LED night state.

5. Digital Zoom Function
This camera can magnify its image in a distance.
On the mode of D-ZOOM, it magnifies twice(x2) than the real image.

6. Electronic Iris
Electronic iris shutter is automatically controlled at the speed of 1/60 ~ 120,000sec (NTSC models).
1/50 ~ 120,000sec (PAL models).

7. Fan / Heater
Depends on internal temperature, it operates automatically.
- Fan ON : over 45℃
- Heater ON : under 10℃

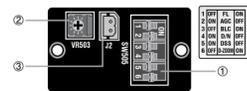## 4. Name and Function of Each Parts

③ ① ② ④ ⑤ ⑥ ⑩ ⑪

⑦ ⑧ ⑤ ⑨ ⑦ ⑧ ⑪

① **Fixing Bolt for Sunvisor:** You can unfasten the bolt in order to fix mounting bracket above.
② **Photo Sensor**
③ **IR LED (Infrared LED):** Automatically controlled according to light condition.
④ **Sunvisor:** To reduce direct sunlight and protect the camera unit from rain or snow outdoor.
⑤ **Front Body**
⑥ **Rear Body**
⑦ **Mounting Bracket Fixing Bolt:** Fix the camera main body to bracket by wrench bolt.
⑧ **Base Adapter**
⑨ **Base Adapter Fixing Bolt**
⑩ **Wall Mount Bracket**
⑪ **Bracket Supporter**

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① Function Selection Switch

■ **FL (Flickerless):** If the camera is used with 50Hz fluorescent lighting, there maybe flicker on the screen. In this case, FL switch should be set to ON position. But, FL switch should be set to OFF position if 60Hz power source is used.

■ **AGC (Automatic Gain Control):** With AGC ON, the setting, camera's sensitivity is automatically increased when the level of ambient light drops. AGC function automatically controls signal gain in the range of maximum 39dB.

■ **BLC (Back Light Compensation):** This feature would be useful when camera is facing an object that has excessive light behind it. BLC prevents the center of object from too much darkness. e.g.: Video camera in the store facing the entrance doors.

■ **D/N (Day & Night ON/OFF):**This camera can switch to the COLOR mode to support the best color image in the day time and switch to the B/W mode for the clear image in the night time.

■ **DSS (Digital Slow Shutter):** This camera can detect automatically darkness or night and support it to take a clear and bright image. As the grade of darkness, this camera can accumulate up to 32 fields.

■ **D-ZOOM (Digital Zoom):** This camera can magnify its image in a distance. On the mode of D-ZOOM, it magnifies twice (x2) than the real image.

② **DC LEVEL Adjustment V.R**
Used to adjust video output level of DC driven auto iris lens or ELC mode, when the brightness control of the monitor does not operate correctly.

③ **Service Connecter (Extra Video Out Connector)**
This camera system includes a service connector that outputs extra camera video signal.
Use it at the installation site to set up the field of view and focus the camera.
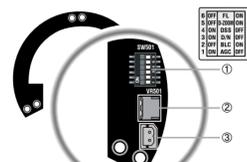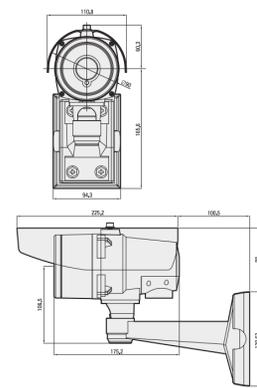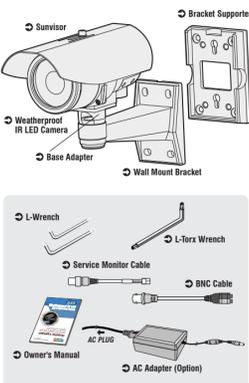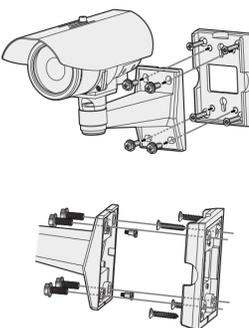

Normal IR LED Type ➡

- IR LED 56EA (850nm 15°, 30° mixed)
- Sensor 1EA (Beam spreads max. 50m)

Hybrid IR LED Type ➡

- Hybrid IR LED SEA (850nm 15°)
- Sensor 1EA (Beam spreads max. 60m)

SW501

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5. Installation

■ Connecting to Power Supply

Normal IR LED Type ➡ : AC 24V / DC 12V Power
- The wire is non-polarized.
- Use AC 24V ∿ power source or DC 12V ⎓ power source.

Hybrid IR LED Type ➡ : DC 12V Power
- The wire is polarized.
- Use DC 12V ⎓ power source.
- Note: Make sure you are using olny the supplied AC adapter.

No.	Line Color	Normal IR LED Type	Hybrid IR LED Type
#1	RED	DC12V/AC24V(H)	DC 12V
#2	ORANGE	GND/AC24V(N)	GND
#3	BLACK	GND(VIDEO)	GND(VIDEO)
#4	YELLOW	VIDEO OUT	VIDEO OUT
#5	GREEN	Not Used	Not Used
#6	BROWN	Not Used	Not Used

■ Connecting to Monitor
Cable the VIDEO out to the monitor video in jack.

Weatherproof IR LED Camera
Black #3
#4 Yellow
Monitor

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

Weatherproof IR LED Camera
Intermediate Video Receiver
End monitor

■ Camera Installation
Assembling the sunvisor and the bracket.

Hex Scoket Bolt (1EA)

Base Adapter Fixing Bolt (4EA)

Mounting Bracket Fixing Bolt (1EA)

■ Camera Installation
Assembling the bracket supporter

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6. Troubleshooting

If you have trouble operating your camera, refer to the following table. If the guidelines do not enable you to solve the problem, contact an authorized technician.

Problem	Solutions
Nothing appears on the screen.	• Check that the power cord and line connection between the camera and monitor are fixed properly. • Check that you have properly connected VIDEO cable to the camera VIDEO output jack.
The image on the screen is dim.	• 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. • Adjust the lens' focus properly.
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. (refer to page 12) • Adjust DC Level, VR Level properly. (refer to page 10)
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. (refer to page 11)
The image on the screen flickers.	• Is the camera facing to direct sunlight or fluorescent lighting? Change the camera position.

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7. Specifications - Normal IR LED Type

Model	Super High Resolution	
Signal System	NTSC	PAL
CCD Pick-up Element	2:1 Interalce Transfer 1/3 Inch Super HAD CCD	
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω	
Sync. System	Internal Sync	
Luminance S/N Ratio	More than 50dB (AGC OFF)	
Resolution	550 TV lines	
Sensitivity (F1.2)	0.3 Lux(Color), 0.008 Lux(DSS 32 FLD), 0 Lux(IR LED ON)	
Lens	DC Iris Vari-focal Lens (f=3.8~9.5mm F1.2)	
Electronic Shutter	1/60 ~ 120,000 Sec.	1/50 ~ 120,000 Sec.
White Balance	AWB	
Auto Gain Control	On / Off Selectable	
Back Light Compensation	On / Off Selectable	
Day & Night	On / Off Selectable	
Flickerless	On / Off Selectable	
IR LED & Sensor	IR LED 56EA (850nm 15°, 30° mixed), Sensor 1EA (Beam spreads max. 50m)	
Digital Slow Shutter	Max. 32 FLD (On/Off)	
D-ZOOM	2 x (On/Off)	
Digital Noise Reduction	Auto	
Operating Temperature	-10℃ ~ +45℃ / -30℃ ~ +50℃ (with Fan & Heater)	
Storage Temperature	-20℃ ~ +65℃	
Power Consumption	AC 24V (20V~28V) or DC 12V (11V~15V) Max. 20W (AC 24V) / 15W (DC 12V)	
Dimensions (WxHxD)	110.8 x 218.6 x 325.7 mm	
Weight	Approx. 1.6g	

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7. Specifications - Hybrid IR LED Type

Model	Super High Resolution	
Signal System	NTSC	PAL
CCD Pick-up Element	2:1 Interalce Transfer 1/3 Inch Super HAD CCD	
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω	
Sync. System	Internal Sync	
Luminance S/N Ratio	More than 50dB (AGC OFF)	
Resolution	550 TV lines	
Sensitivity (F1.2)	0.3 Lux(Color), 0.008 Lux(DSS 32 FLD), 0 Lux(IR LED ON)	
Lens	DC Iris Vari-focal Lens (f=7.5~50mm F1.3)	
Electronic Shutter	1/60 ~ 120,000 Sec.	1/50 ~ 120,000 Sec.
White Balance	AWB	
Auto Gain Control	On / Off Selectable	
Back Light Compensation	On / Off Selectable	
Day & Night	On / Off Selectable	
Flickerless	On / Off Selectable	
IR LED & Sensor	Hybrid IR LED 9EA (850nm 15°), Sensor 1EA (Beam spreads max. 60m)	
Digital Slow Shutter	Max. 32 FLD (On/Off)	
D-ZOOM	2 x (On/Off)	
Digital Noise Reduction	Auto	
Operating Temperature	-10℃ ~ +45℃ / -30℃ ~ +50℃ (with Fan & Heater)	
Storage Temperature	-20℃ ~ +65℃	
Power Consumption	DC 12V (11V~15V) Max. 18W (1.5A / DC 12V)	
Dimensions (WxHxD)	110.8 x 218.6 x 325.7 mm	
Weight	Approx. 1.6g	

. Dimensions(mm)

. Memo

Weatherproof IR LED
Day & Night Color Camera