TOA

INSTALLATION MANUAL

COLOR CAMERA

C-CC364 NT
C-CC364 PL

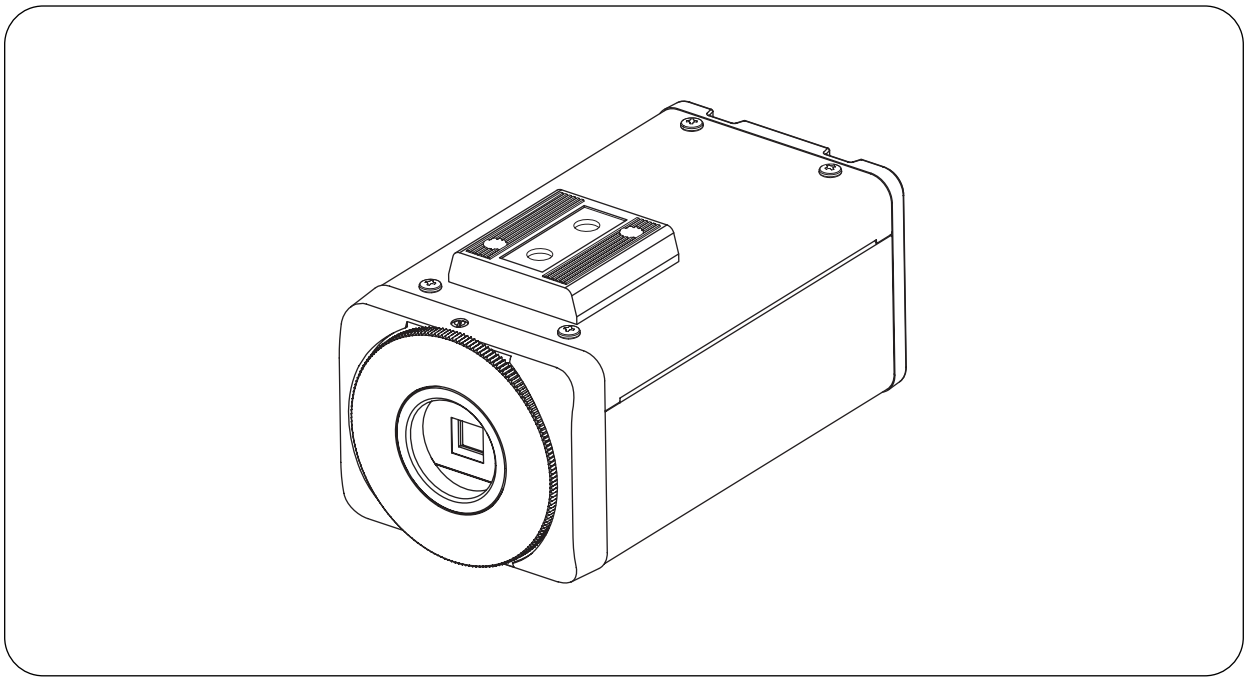


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Thank you for purchasing TOA's Color Camera. Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

TOA Corporation

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- Keep this instruction manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

⚠ **WARNING**	Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.

⚠ **WARNING**	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.

- Since the unit is designed for in-door use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury. Also, when it gets wet with rain, there is a danger of electric shock.

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  · If you detect smoke or a strange smell coming from the unit.
  · If water or any metallic object gets into the unit
  · If the unit falls, or the unit case breaks
  · If the connection cable is damaged (exposure of the core, disconnection, etc.)
  · No sound output
  · If no camera images are displayed on the monitor TV

- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest TOA dealer.

- Do not insert nor drop metallic objects or flammable materials in the unit, as this may result in fire or electric shock.

- Be sure to inspect the unit periodically for safety use. Deterioration of the installed part may cause dropping of the unit, resulting in personal injury and/or property damage. Contact your TOA dealer as to the periodical inspection.

⚠ **CAUTION**	Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

- Leave the installation of the unit to your TOA dealer because the installation requires expert experience and skills. If the unit falls, this could cause personal injuries.

- Do not hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

NT version complies with Part 15 of the FCC Rules.

Note
This equipment has been tested and found to comply with the 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.

Modifications
Any modifications made to this device that are not approved by TOA Corporation may void the authority granted to the user by the FCC to operate this equipment.

Underwriters Laboratories Inc. (UL) has not tested the performance or reliability of the security aspects of this product. UL has only tested for fire, shock or casualties as outlined in UL's Standard(s) for Safety. UL Certification does not cover the performance or reliability of the security hardware and security operating software. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY RELATED FUNCTIONS OF THIS PRODUCT.

2. GENERAL DESCRIPTION

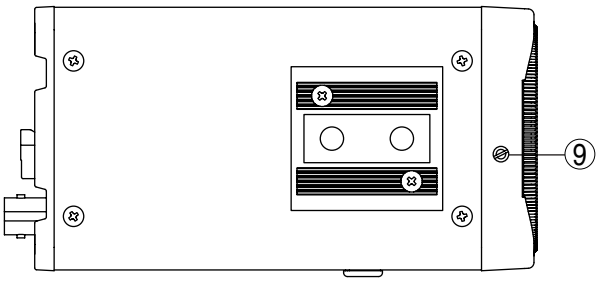
This high-sensitivity color camera automatically switches from color to black-and-white mode under poor lighting conditions to improve sensitivity. The 64 X electronic sensitivity enhancer and wide dynamic circuitry combine to ensure clear surveillance in dark locations or in backlit conditions. With the menu key, camera's function can be set, and color and brightness can be adjusted. Also they can be remotely controlled in combination with the Remote Control Interface.

3. HANDLING PRECAUTIONS

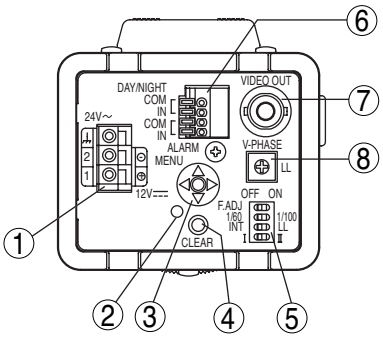
- Do not direct the camera lens to the sun or strong lighting or light reflection.
- Do not give the camera a great shocks or vibration, as this will damage the camera.
- It is recommended that the camera be always used in locations where the ambient temperature ranges from –10°C to +50°C and humidity levels of less than 90% to ensure that no condensation is formed.
- To clean, wipe with a dry soft cloth. Never use benzene, thinner or chemically processed towel as the unit's plastic or other parts may be deformed or discolored.
- When dust has settled on the unit's lens, lightly clean using a commercial camera blower or cleaning paper.
- Installing the camera cables in close proximity to fluorescent lamps or other electrical appliances can downgrade the picture quality. In such cases, change the wiring.
- If there is a strong electric or magnetic field near the camera, such as television transmission antennas, motors or transformers, this may distort or roll the monitor picture. In such cases, run the entire wiring route through metal conduit tubing.
- Use the external power supply unit of the following rating when the camera is operated on 12 V DC.
  12 V DC, over 1.0 A
- If the Day/ Night mode is used, the subject may go out of focus when the display is switched between color and B&W modes. In such cases, use a lens designed for visible light up to the near-infrared region.

4. NOMENCLATURE

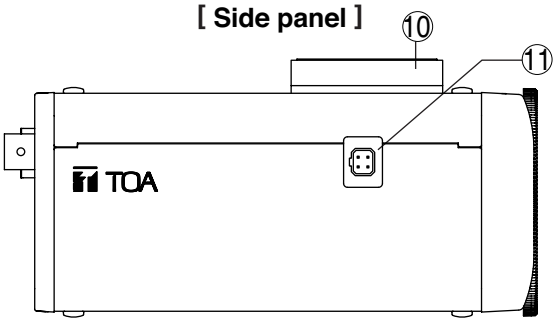
[Top panel]



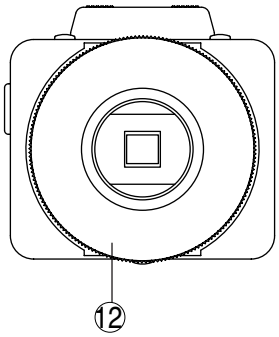
[Rear panel]



[Side panel]



[Front panel]



(1) Power input terminal (24 VAC, 12 VDC)

(2) Power indication lamp

(3) Menu key

(4) Clear key

(5) Mode switch

(6) Day/Night input / Alarm input terminals

(7) Video output terminal (BNC)

(8) Phase control (V-PHASE)

(9) Back focal length adjusting ring-fixing screw

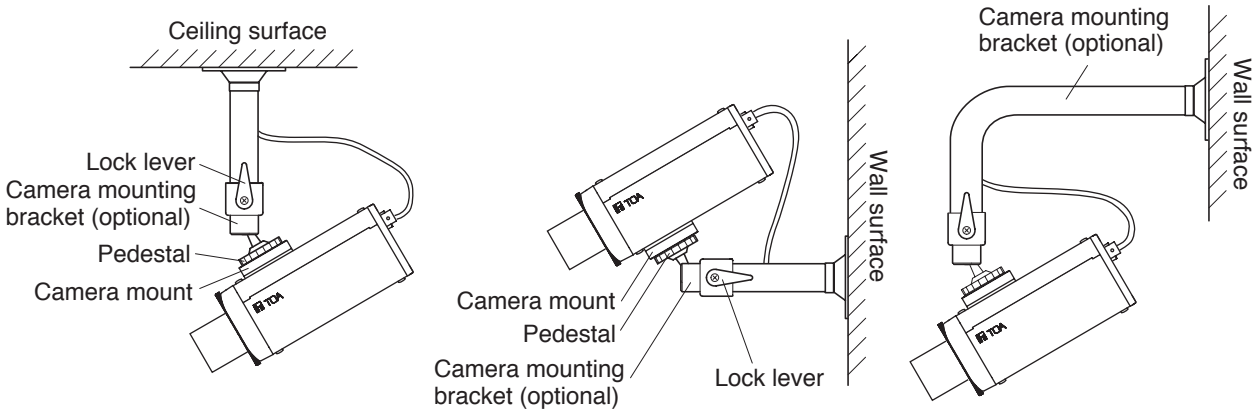
(10) Camera mount

(11) Lens connector

(12) Back focal length adjusting ring

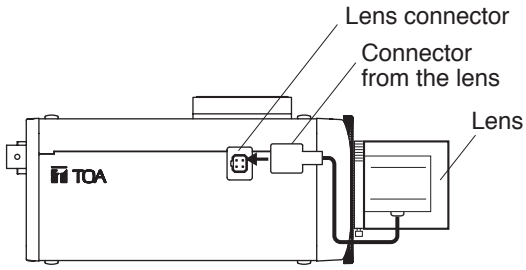
5. INSTALLATION

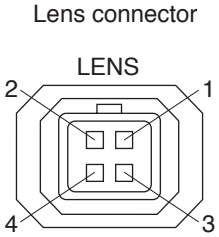
[Ceiling Mounting Example] **[Wall Mounting Example]**



⚠ WARNING Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.

1. Attach the lens to the camera.
   - Tighten the lens fully onto a camera's lens mount to secure it.
   - Insert the connector from the lens into the lens connector.

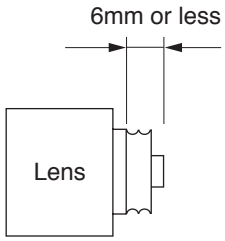




Lens connector pin No.	Video input type	DC input type
1	Power +9 V	Damping coil ⊖
2	——	Damping coil ⊕
3	Video signal	Driving coil ⊕
4	GND	Driving coil ⊖

Notes

- To avoid damaging the internal sections of the camera's lens mount, be sure that the lens flange is 6 mm or less thick as illustrated on the right.
- C-mount lenses must be used in conjunction with the Lens Mounting Adapter CF-5 (optional).



2. Mount the optional Camera Mounting Bracket to the ceiling or wall.
   The bracket must be fixed securely using an electrical box and screws supplied with the bracket. When securing, be sure to run the coaxial cable through the hole in the bracket.

3. Rotating the bracket's pedestal, fully insert it into the threaded hole in the camera mount.

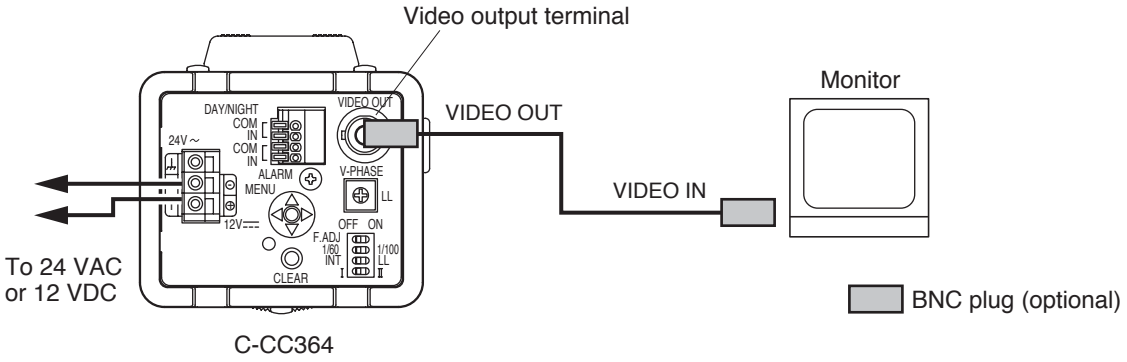
Note
The mount can be attached on either the top or bottom panel of the camera, Change the position depending on the installation site. (factory default: The mount is attached on the top panel.)

4. Run the coaxial cable.

5. Determine the camera direction and fix it.
   Set the camera's direction, then fix the camera by rotating the lock lever on the Camera Mounting Bracket.

6. CONNECTIONS

Connect the unit's video output terminal to the monitor’s Video IN.



7. ADJUSTMENT

1. After camera's connection completion, switch the power "ON" to supply power to the camera.

2. Connect the Video output terminal to the monitor so that the picture may be displayed on the monitor.

3. Select the lens type on the Camera menu screen. (factory default: DC)
   Select the lens for the best possible picture reproduction. (refer to set up manual)

Lens type	Camera Menu
DC input type, Automatic aperture control lens	DC
Video input type, Automatic aperture control lens	Video
Manual-iris or fixed iris lens	Manual

• When using the flickering-reduction function outdoors or under the fluorescent lighting, select the auto-iris lens. When the manual-iris lens is selected, the flickering-reduction function cannot be used.

4. Set the Flickering-reduction switch of the mode switch to "ON" position if bothered by flickering.
   Flickering of the picture may interfere with the view under fluorescent lamps in the area where electrical frequency is 50Hz (NT) or 60Hz (PL). In such cases, set the Flickering-reduction switch to "ON" position, and the image free from flickering can be obtained.

   Note
   Setting the Flickering-reduction switch to "ON" makes the sensitivity lower than when set to "OFF." Set to the "OFF" position when flicker is not annoying or when the camera is used in locations with poor lighting conditions.

5. Determine the camera orientation.
   Loosen the lock lever on the Camera Mounting Bracket, set the camera to the desired direction, then securely fix the camera by rotating the lock lever on the bracket.

6. Adjust the angle of view with the zoom ring and focus on with the focal ring to get the best possible picture reproduction.

• When focusing

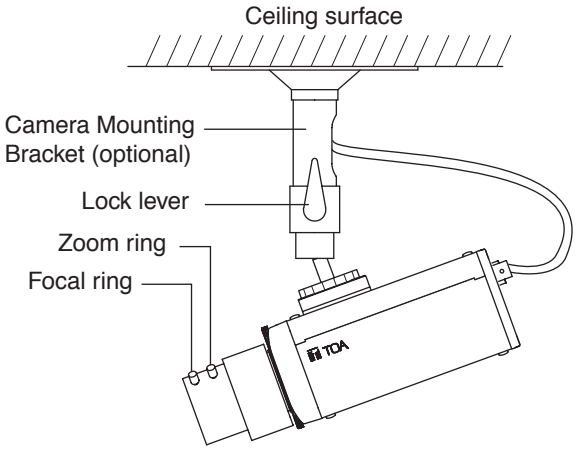
The object that was brought into focus in bright locations could be out of focus in dark conditions. In such cases, focus the lens after turning the Focus adjustment switch of mode switch to "ON" position.

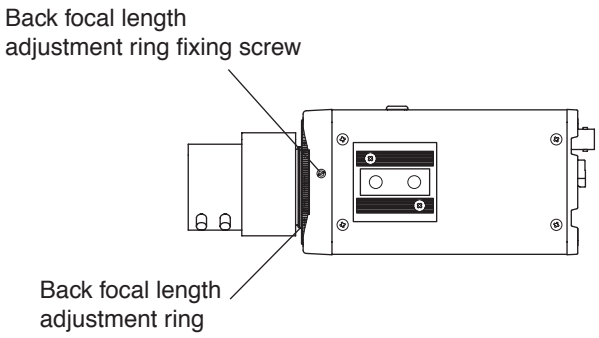
Note: After focus adjustment completion, turn the switch to "OFF" position.

• Adjusting back focal length

When the distance to an object is shorter than the lens' shortest focusing distance, if the object is out of focus, adjust the camera with the below procedures.

1. Attach a lens to the camera.
2. Loosen the back focal length adjustment ring fixing screw.
3. Rotating the back focal length adjustment ring, adjust it to the optimum position.
4. Retighten the back focal length adjustment ring fixing screw.





7. Adjust the iris level

• When using the DC input type lens

Adjust the iris level on the Camera menu screen's "IRIS" item.

• When using the Video input type lens

Adjust the iris with the Level control of the lens.
Peak or Average control can be performed on the Camera menu screen. Set the ALC volume of lens to "AVERAGE" position. Using with "PEAK" position may cause a malfunction.

7-1 Check to confirm that Camera menu setting items are selected as follows.
Lens selection: "DC" or "Video" (factory default: DC)
Backlight compensation: "OFF" (factory default: OFF)

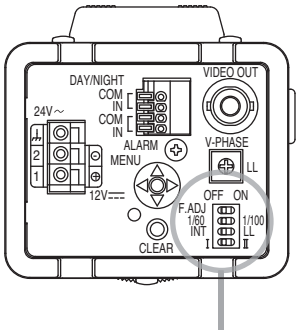
7-2 Moving the bar toward "HIGH" side makes the image brighter, and moving it toward "LOW" side makes the image darker.

7-3 Set backlight compensation of a Camera menu screen according to the object condition.

8. ABOUT THE MODE SWITCH

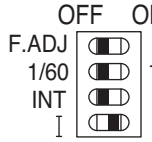
Set each switch to the position that provides the best picture reproduction.

[C-CC364]



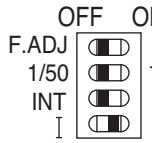
Mode switch

[NT Version] Mode switch (factory default)



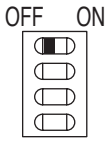
— Focus adjustment switch
— Flickering-reduction switch
— Synchronization switch
— Synchronization position switch

[PL Version] Mode switch (factory default)

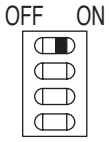


— Focus adjustment switch
— Flickering-reduction switch
— Synchronization switch
— Synchronization position switch

- **Focus adjustment switch**
  Set this switch when adjusting the focus of a lens. (This setting provides the same effect as when using an ND filter.)



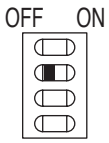
Normal:
After focus adjustment completion, turn the switch to "OFF" position. Normally, use this mode.



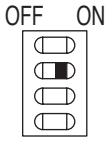
Adjustment (At the time of Adjustment):
Set the switch when focusing the lens. The object that was brought into focus in bright locations could be out of focus in dark conditions. In such cases, turn the Focus adjustment switch to "ON" position only when adjusting focus.

Note
When the Focus adjustment switch is set to the "ON" position, the color of the screen may change periodically if the camera is used under fluorescent lighting. Further, the screen may flicker in areas where the electrical frequency is 50Hz.

- **Flickering-reduction switch**
  Set the switch when flicker is annoying.



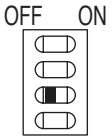
Normal:
Normally, use this mode.



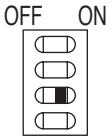
Flickering-reduction:
Flickering of the picture may interfere with the view under fluorescent lamps in the area where the electrical frequency is 50 Hz (NT) or 60 Hz (PL). In such cases, set the Flickering-reduction switch to "ON" position, and the image free from flickering can be obtained.

Note
Setting the Flickering-reduction switch to "ON" makes the sensitivity lower than when set to "OFF." Set to the "OFF" position when flicker is not annoying or when the camera is used in locations with poor lighting conditions.

- **Synchronization switch**
  One of the following methods can be selected: internal locking (switch position: "INT"), line locking ("LL" position), and vertical external synchronization.
  Connecting the camera to the equipment with vertical external synchronization automatically switches the camera mode to vertical external synchronization.



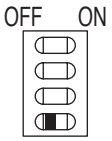
INT: When synchronization is not required such as using only one camera, set the switch to this position.



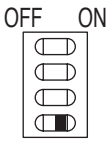
LL: When synchronizing one camera or more with the line locking method, set the switch to this position.
When switching the screens with a sequential switcher, the pictures may be distorted depending on the distance to the power source or camera installation conditions. In such cases, turn the phase control to avoid the picture distortion.

Notes
- You cannot use the line locking in the area where the electrical frequency is 50 Hz (NT) or 60 Hz (PL).
- You cannot use the line locking when driving the camera on 12 VDC.

- **Synchronization position switch**
  Set the switch when connecting the Remote Control Interface or the System Controller.



I : Unused.



II : When using with the Remote Control Interface or the System Controller, set the switch to this position.

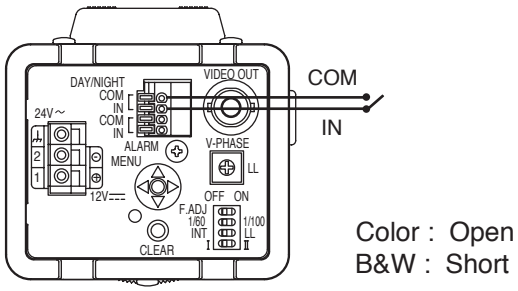
Note
With the Menu key or Clear key, camera's functions like color and iris can be adjusted.
More details, refer to setup manual.

9. ABOUT THE DAY/ NIGHT INPUT TERMINAL

Shorting (making) the Day/ Night input terminal forcibly switches the display to B&W mode, which increases the camera's sensitivity. It is also possible to switch between color and B&W modes on the Camera menu screen. (Refer to the setup manual when switching the color/ B&W mode on the Camera menu screen.)

Note
When "NORMAL," "MOTION," or "COLOR" modes are selected on the menu, the display may repeat switching between color and B&W under an infrared phototransmitter. In such cases, use the Day/ Night input terminal to interlock the infrared phototransmitter's power supply and B&W switching.

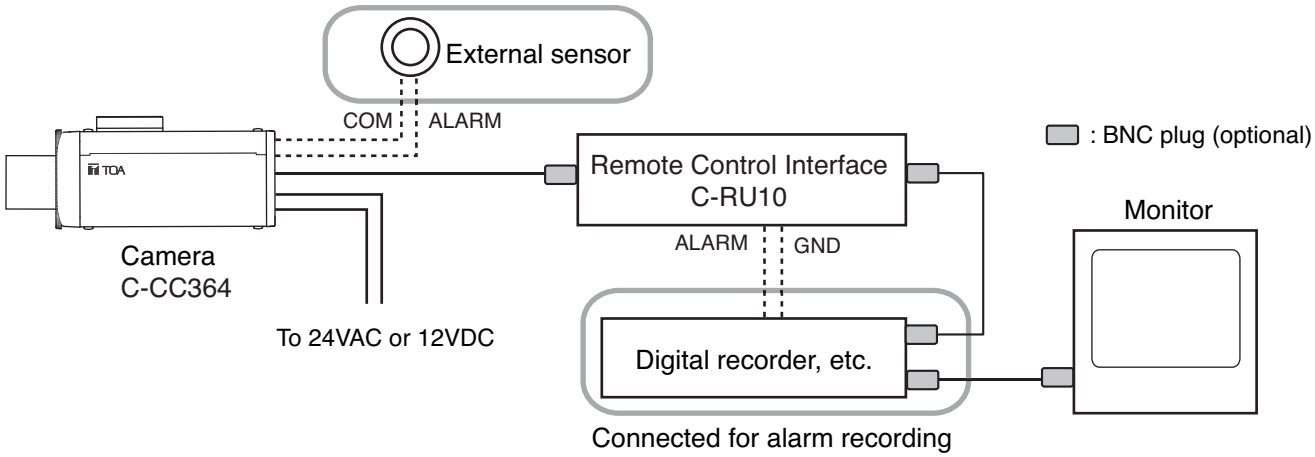
Infrared phototransmitter power "ON" : B&W mode (short)
Infrared phototransmitter power "OFF" : Color mode (open)



10. ABOUT THE ALARM INPUT TERMINAL

Connect this terminal to external triggers, such as door switches and infrared sensors. When a signal is received from the sensor, the alarm signal is superimposed and transmitted to the Remote Control Interface over the coaxial cable.

[Alarm Connection Example]



The C-CC364 camera is also equipped with a motion detection alarm function in addition to its external alarm function. If motion is detected, the motion detection alarm function superimposes and transmits the alarm signal to the Remote Control Interface over the coaxial cable. For details, refer to the setup manual.

Note: The alarm function cannot be used if the Remote Control Interface is not connected.

11. TROUBLESHOOTING

Symptom	Possible cause	Remedy
No picture is displayed on the monitor TV.	Monitor TV's power is not switched ON.	Switch on the main power.
	Cables are not correctly connected.	Connect the cables correctly.
	BNC plug is not correctly soldered.	Solder the plug correctly.
Camera image is not clear.	Image black level of the monitor is not correctly adjusted.	Adjust correctly.
Coarse noise appears when the object becomes dark at night.	Check the AGC level on the camera menu.	Increase the noise level if such course noise is annoying.
Afterimage appears when the subject becomes dark at night.	Check the power of the slow shutter on the camera menu.	Decrease the power of the slow shutter if the afterimage is annoying.
Display frequently changes between color and B&W modes.	Infrared phototransmitter is in use.	Take one of the following three steps. • Using the Day/ Night terminal, forcibly switch the camera to B&W mode as soon as the infrared phototransmitter lights. (refer to p. 10.) • Enter the Camera menu screen and set the "Day/ Night" setting to ON while the infrared phototransmitter is on. • Change the infrared phototransmitter's angle to reduce the amount of infrared light affecting the camera.
	Check camera menu settings if: (1) AGC is set to a low level. (2) The slow shutter is set to low power. (3) The Day/ Night "NORMAL" level is set to the "FAST" position.	Recheck AGC, slow shutter and Day/ Night settings on the camera menu. (1) Increase the AGC level. (2) Increase the slow shutter power. (3) Adjust the Day/ Night "NORMAL" level to the "SLOW" side.

SPECIFICATIONS

Model No.	C-CC364 NT	C-CC364 PL
Power Source	24 V AC, 50/ 60 Hz or 12 V DC	
Power Consumption	4 W	
Image Sensor	1/ 3 type IT-CCD	
No. of Effective Pixels	768 (H) x 494 (V) (380,000 Pixels)	752 (H) x 582 (V) (440,000 Pixels)
Scanning System	2:1 interlace	
Scanning Frequency (H/ V)	15,734 kHz / 59.94 Hz	15,625 kHz / 50.00 Hz
Video Output	VBS 1.0 V(p-p), 75 Ω, BNC	
Synchronizing System	Internal, Line Locking (phase adjustable)	
Resolution	Horizontal: 500 lines (at center) Vertical: 350 lines (at center)	Horizontal: 500 lines (at center) Vertical: 410 lines (at center)
S/ N Ratio	50dB(AGC:OFF)	
Minimum Required Illumination	0.5 lx (50 IRE), 0.1 lx (20 IRE) (F1.0) (Sensitivity up: OFF) (color mode) 0.01 lx (F1.0) (Sensitivity up: ON) (B&W mode, incandescent lamp)	0.5 lx (350 mV), 0.1 lx (140 mV) (F1.0) (Sensitivity up: OFF) (color mode) 0.01 lx (F1.0) (Sensitivity up: ON) (B&W mode, incandescent lamp)
Automatic Electric Shutter Range	1:2000 (F1.4 – 63)	
Dynamic Range	46 dB (Wide Dynamic: ON)	
Backlight Compensation	Wide Dynamic/ ON/ OFF	
Shutter Speed	1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000	1/50, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
AGC	Auto/ Fixed/ OFF	
Sensitivity Up	Off, 2, 4, 6, 8, 10, 16, 24, 32, 64 times	
White Balance Mode	ATW/ AWB/ MANUAL	
Character Display	Up to 16 characters (alphanumeric)	
Other functions	Privacy masking, Electronic Zoom (2x) Horizontal/ Vertical reverse, Synchronization position switch (DIP switch), Flickering-reduction (DIP switch), Focus adjustment switch (DIP switch), Chroma Level: Normal/ Manual (MIN-MAX), Enhancer: Normal/ Manual (soft-sharp)	
Alarm Input	1 channel, no-voltage make contact input, open voltage: 10 V DC, short-circuit current: Under 5 mA, loop resistance: Under 200 Ω (alarm output from Remote Control Interface), screwless connector, Motion detector (alarm output from Remote Control Interface)	
Color/ B&W Switching input	1 channel, no-voltage make contact input, open voltage: 10 V DC, short-circuit current: Under 5 mA, loop resistance: Under 200 Ω, screwless connector	
Lens Mount	CS mount	
Auto Iris Lens Output	DC input type/ VIDEO input type (4-p connector)	
Operating Temperature	–10°C to +50°C	
Operating Humidity	Under 90 % RH (No condensation is formed.)	
Application	Indoor use	
Finish	Case: Surface-treated steel plate, sand gray	
Dimensions	69.5 (W) x 65.1 (H) x 137.1 (D) mm	
Weight	450 g	

Note: Specification and appearance are subject to change without notice.

TOA Corporation

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