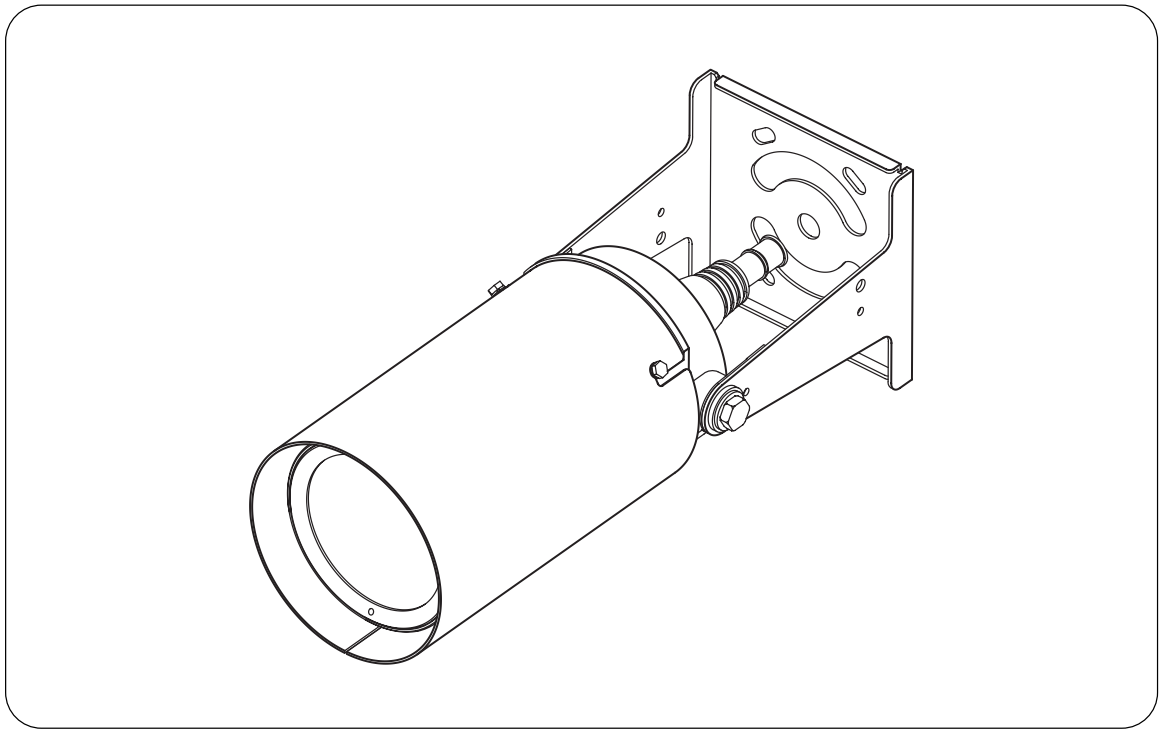
TOA

INSTRUCTION MANUAL

OUTDOOR COLOR CAMERA C-CV44-3 NTSC C-CV44-3 PAL



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

TOA Corporation

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1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section in order to ensure long, trouble-free operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before doing anything else, read this section first so you are thoroughly aware of the potential safety hazards as well as understanding the safety symbols and messages.

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

- This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- To prevent lightning strikes, install the unit at least 5 meters away from a lightning conductor yet within the protective range (angle of 45 degrees) of the lightning conductor. Lightning may cause a fire, electric shock, or 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.
- Use nuts and bolts that are appropriate for the ceiling's wall's structure and composition. Failure to do so may cause the unit to fall, resulting in material damage and possible personal injury.
- Tighten each nut and bolt securely. Ensure that the bracket has no loose joints after installation to prevent accidents that could result in personal injury.
- Have the unit periodically checked by the dealer from where it was purchased. Should the unit or its mounts corrode or structurally deteriorate, the unit could fall down, possibly resulting in personal injury.
- Should any of the following irregularities be found during use, immediately switch off the power, disconnect the power supply cord from the AC outlet and contact your TOA dealer. Do not attempt to further use the unit because a fire or electric shock may result.
    - If you detect smoke or a strange smell coming from the unit.
    - If water or a foreign object enters the unit.
    - If the unit falls or the unit case breaks.
    - If the power supply cord is damaged (exposure of core or disconnection).
    - If no image is displayed on the screen.
- Do not insert nor drop metal pieces or flammable materials into the unit's ventilation slots as this may result in fire or electric shock.

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

- Leave the unit's installation to the dealer from where the unit was purchased because the installation requires expert knowledge. Inadequate installation may cause the unit to fall, possibly resulting in personal injury.
- Do not hang from the unit, as the unit may fall, possibly resulting in personal injury.
- Avoid installing the unit in locations exposed to sea breeze or corrosive gas. The unit or its mounts may be subject to corrosion, which could cause the unit to fall, possibly resulting in personal injury.
- Do not touch the unit's sharp metal edge, as this could result in personal injury.

NTSC 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

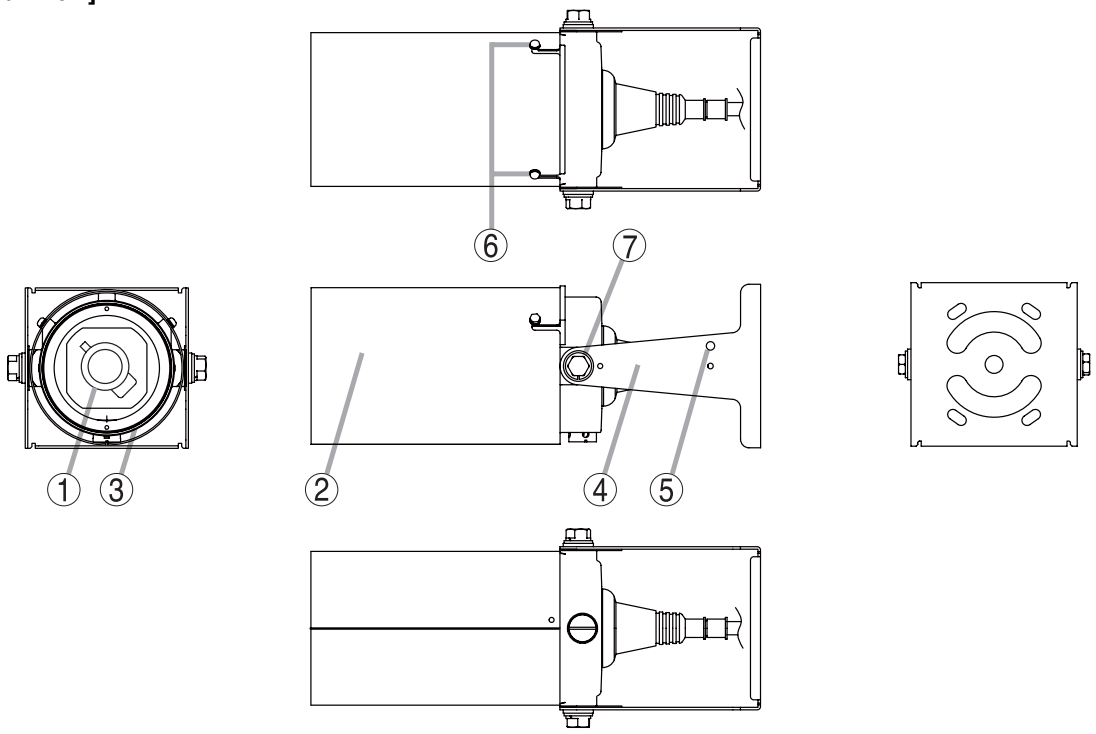
The TOA C-CV44-3 is an outdoor-use high-resolution camera equipped with a 1/4" CCD. Its water-resistant design permits it to be mounted to outdoor walls or ceilings with no need to protect it from rain and the elements. Because the camera angle can be freely moved, a wide range of subjects can be monitored, regardless of installation location. The C-CV44-3 is designed to operate on 24 V AC or 12 V DC, which are supplied by an external power supply unit. Since its 2X vari-focal, auto-iris lens is built inside the camera, its angle of view can be manually adjusted.

3. HANDLING PRECAUTIONS

- Do not direct the camera lens to the sun, strong lighting, or reflected light. If strong light enters the lens, this may cause the CCD's internal color filter to deteriorate, leading to image discoloration.
- Avoid jarring or striking the camera, as the camera may fail.
- Install the camera in locations where the temperature range does not exceed –10°C to +50°C, and no dew condensation is formed.
- To clean, wipe with a soft, dry cloth. Never use benzene, thinner or chemically-treated towel to avoid damage to the camera's finish.
- To clean the lens, use a camera blower or lightly wipe with lens cleaning paper.
- Picture quality may suffer if camera cables are wired close to other electrical equipment, such as fluorescent lamps. In such cases, reroute the wiring.
- Monitor screen pictures may become distorted or roll if the camera is used in locations influenced by strong electrical or magnetic fields from television transmission antennas, motors or transformers. In such cases, install the cables inside sheet steel cable conduit.
- 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

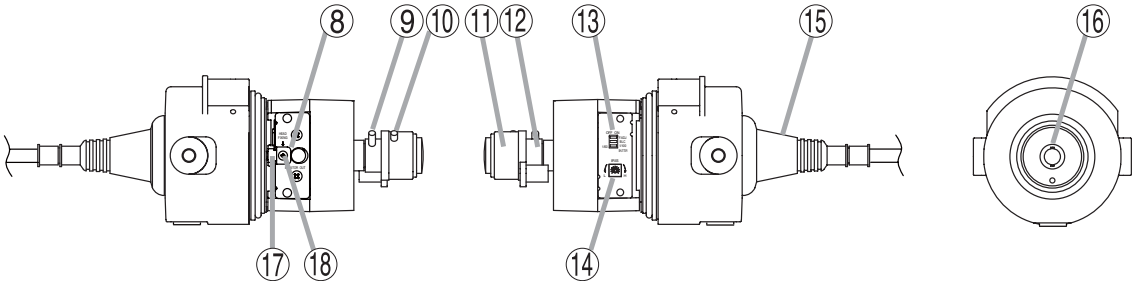
4. NOMENCLATURE

[External View]



[Figure showing the camera from which the sunshade, front cover, and mounting bracket have been removed]

[Figure showing the camera from which the water-resistant cap has been removed]



(1) Vari-focal lens

(2) Sunshade

(3) Front cover

(4) Mounting bracket (standard accessory)

(5) Security wire entry hole

(6) Sunshade fixing screw

(7) Camera mounting bolt (standard accessory)

(8) Monitor output terminal (RCA pin jack)

(9) Zoom ring fixing screw

(10) Focus ring fixing screw

(11) Focus ring

(12) Zoom ring

(13) Mode setting switch

(14) Iris control

(15) Cable with water-resistant cap (standard accessory)

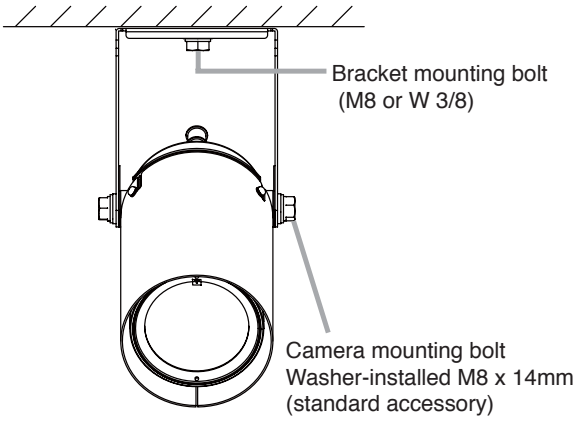
(16) Camera input/output terminal

(17) Camera head fixing plate

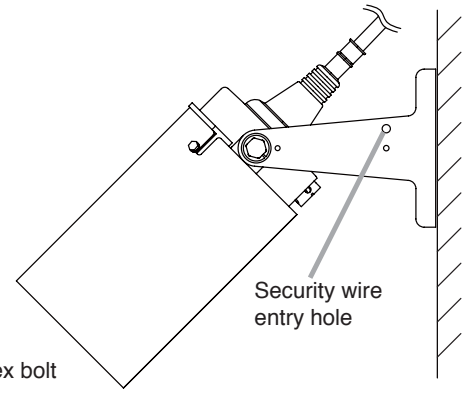
(18) Camera head fixing screw

5. INSTALLATION AND CONNECTIONS

[Ceiling mounting example]



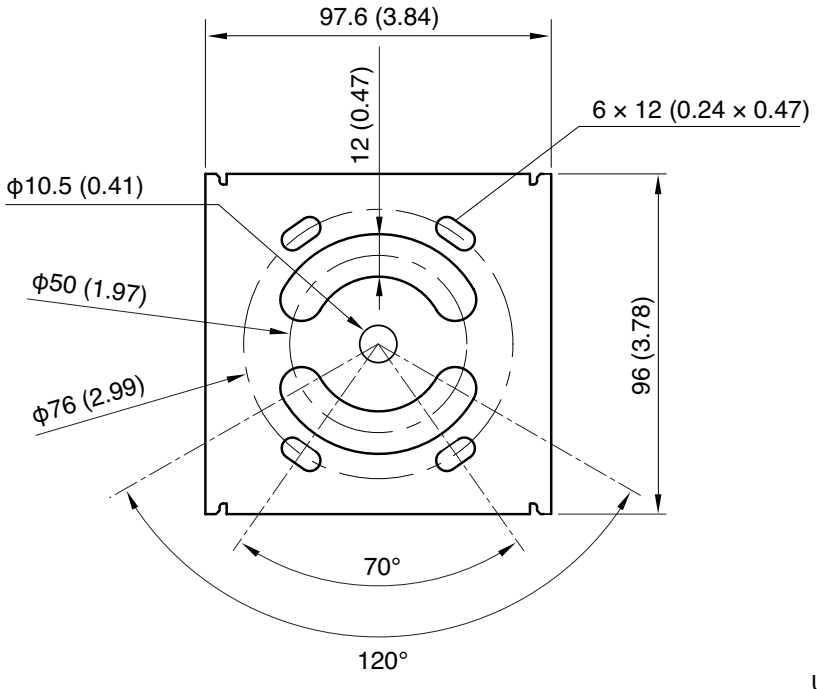
[Wall mounting example]



⚠ 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.

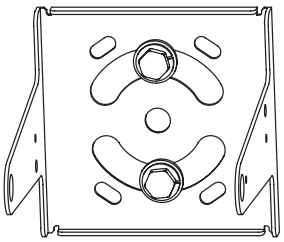
Note: Attach the security wire as required. Carefully check to confirm the cable length, cable diameter, and hook strength, since the shock produced by a camera dropping is very high.

1. Confirm the mounting bracket's installation location, and determine its mounting direction and position. Three mounting methods are possible, depending on the installation location.



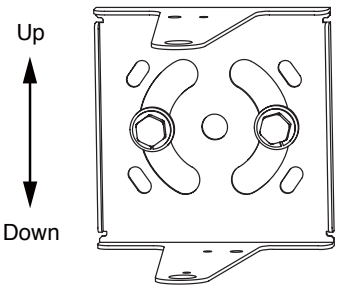
Unit: mm (inch)

[Mounting Example 1] Ceilings or walls



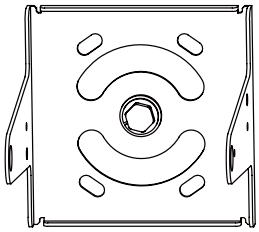
[Mounting Example 2] Walls

Use this method when the camera orientation cannot be sufficiently adjusted in Mounting Example 1.



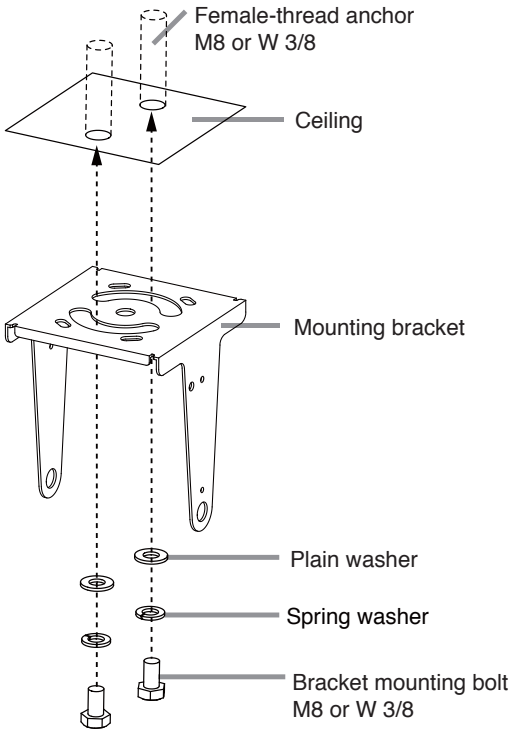
[Mounting Example 3] Ceilings or walls

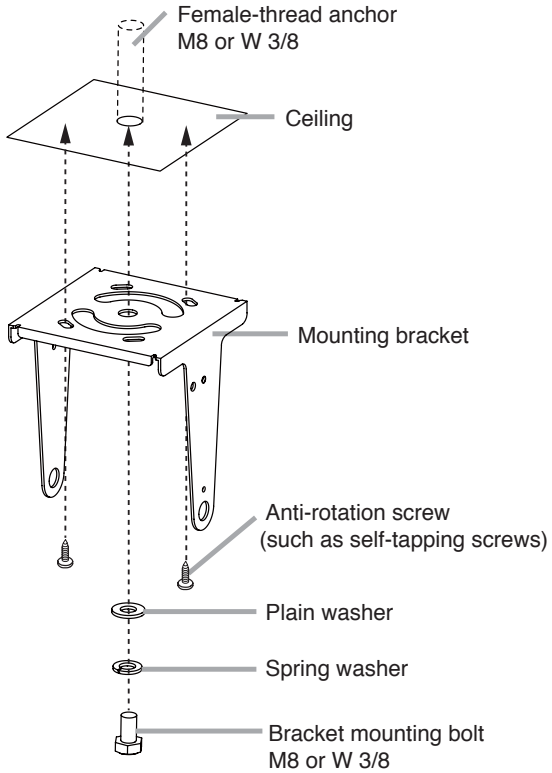
Use this method when the camera angle does not need to be adjusted after camera installation is completed.



Note: If the bracket is only fixed at one place using the bracket mounting bolt, the bracket could rotate or the bolt could become loose. To prevent this, be sure to securely fix the bracket at two more places using self-tapping screws or other anti-rotation type screws.

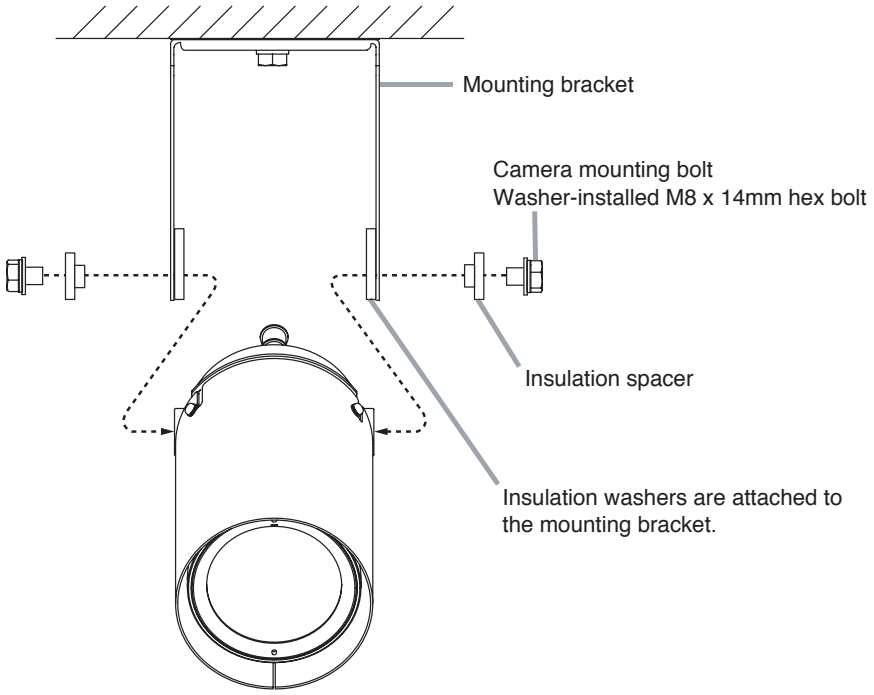
2. Install female-thread anchors in the ceiling or wall and mount the camera mounting bracket.





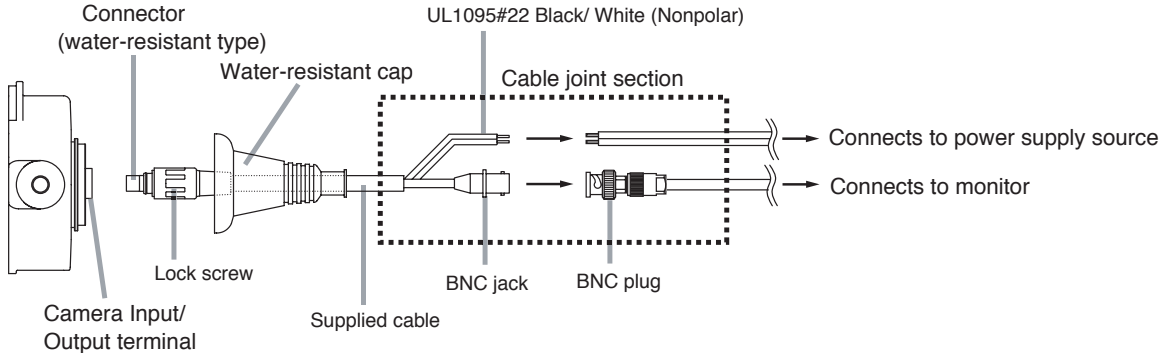
3. Attach the camera to the mounting bracket.
   Use the supplied insulation spacers, camera mounting bolts (washer-installed M8 x 14mm hex bolt) to attach.

Note: Because the induced voltage and noise may be generated at the camera mounts, depending on the installation environment, be sure to use insulation spacers and washers when attaching. Also, never remove the insulation washers attached to the mounting bracket.



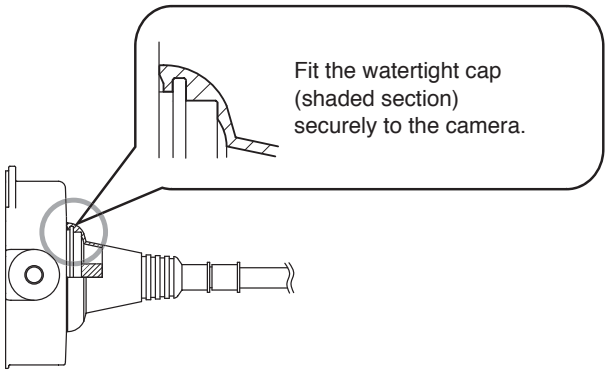
4. Connect the connector.
   Connect the connector of the supplied cable with the water-resistant cap to the camera's Input/Output terminal, then tighten the connector's lock screw.

Notes
- Be sure to fully insert the connector to prevent rainwater from getting in the Camera.
- Wrap the self-adhesive type butyl rubber tape round cable joints to prevent rainwater from entering.

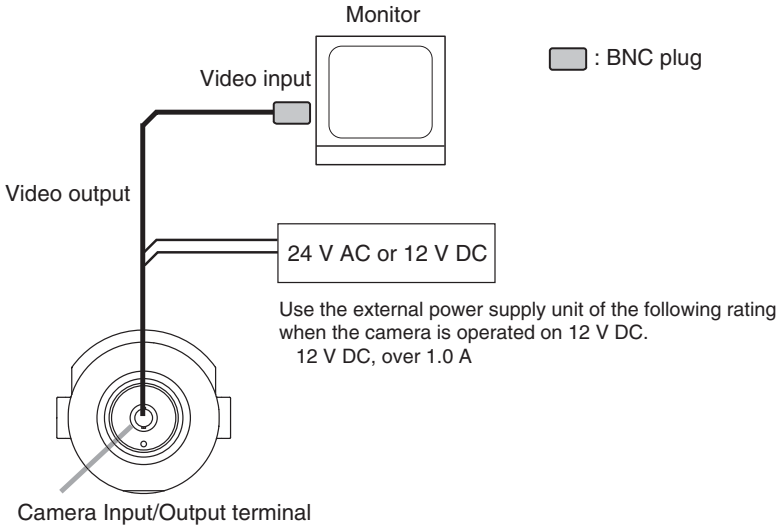


5. Mount the water-resistant cap to the camera.

Note: If there is a gap between the water-resistant cap and the mounting surface, water can get in and expose the connector to corrosion. To avoid equipment failures, check to be sure that the water-resistant cap is attached correctly.



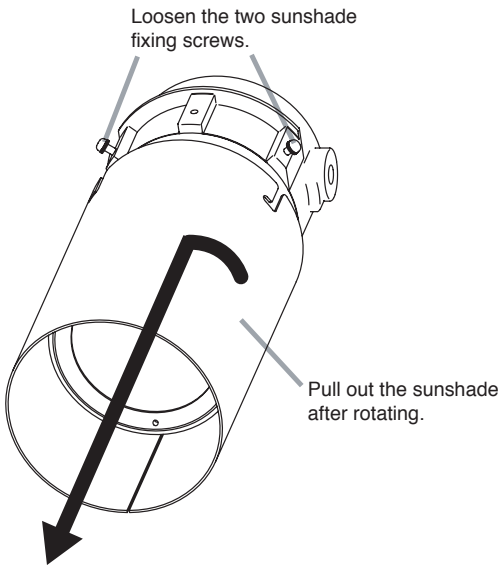
6. Connect the camera to the monitor and power supply source.
   Refer to the following figure to make connections.



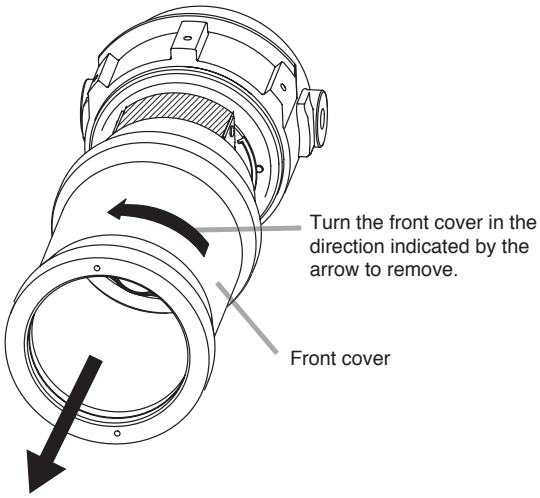
6. ADJUSTMENT

1. Detach the sunshade and front cover after completing camera mounting and connections.

[Removing the sunshade]



[Removing the front cover]



2. Connect the Monitor output terminal to the monitor.

Note: The camera will not operate, even if this terminal is connected to the camera drive.

3. Switch on the power to the camera, permitting a picture to be viewed on the monitor.

4. Set the Mode setting switch for the best possible picture reproduction, depending on the installation conditions.

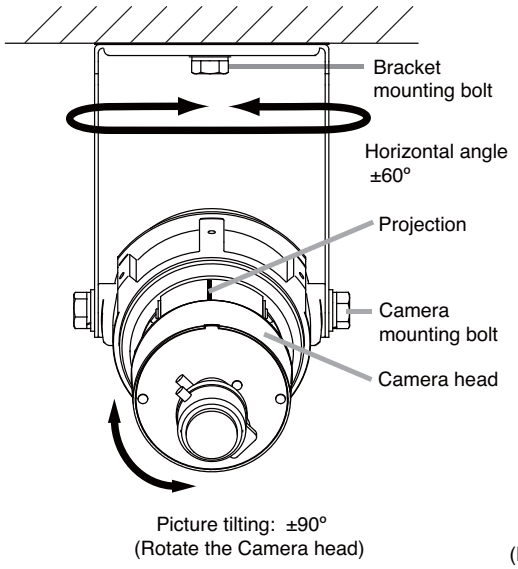
- Set the Shutter speed switch to the ON position when light flicker is an annoyance.
- Set the Backlight compensation switch to the ON position when a subject appears blacked-out.

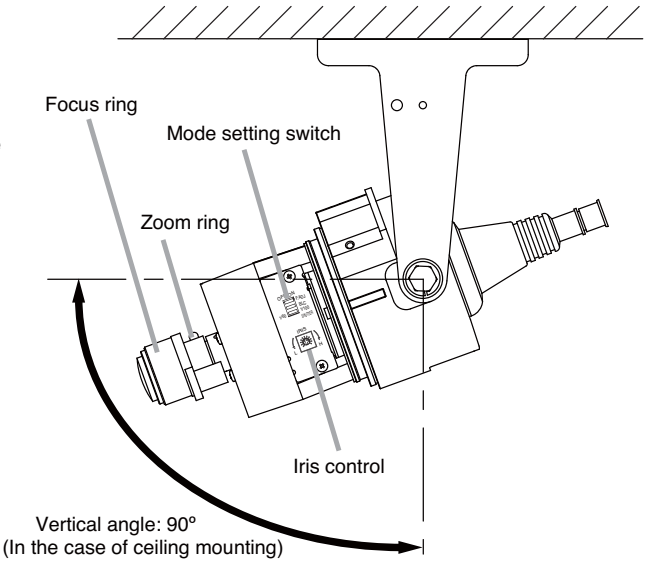
For more information on these switches, refer to p. 13; “About the Mode Switch.”

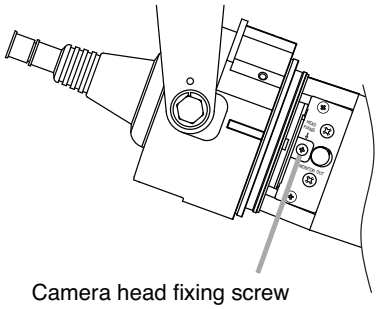
5. Adjust the camera angle.

- The camera angle can be adjusted by loosening both the bracket and camera mounting bolts.
- Adjust the inclination of image so that the projection of the camera faces upward by loosening a camera head fixing screw and turning the camera head. After adjustment completion, retighten the camera head fixing screw.

Note: Horizontal camera angles cannot be adjusted in the Example 3 installation described on p. 7.







6. Adjust the angle of view with the Zoom ring and adjust the focus with the Focus ring for the best possible picture reproduction.

Notes

- Since the Iris control (for sensitivity adjustment) is factory-preset to an optimum position for general use, avoid tampering with it in normal conditions. Turning the control unnecessarily could cause reduced picture quality or equipment failure. When the Iris control needs to be readjusted to match a specific subject, first set both the Adjustment switch and the Backlight Correction switch of the Mode setting switch to the OFF position, then adjust the control to an optimum level. After adjustment, place a hand over the lens for several seconds and then release to check the lens for correct iris operation.

- If the focus is adjusted for a subject under good lighting conditions, the subject may go out of focus when conditions become dark. To avoid this, adjust the lens focus after setting the Adjustment switch of the Mode setting switch to the ON position. Be sure to switch it back to the OFF position after completing lens adjustment.

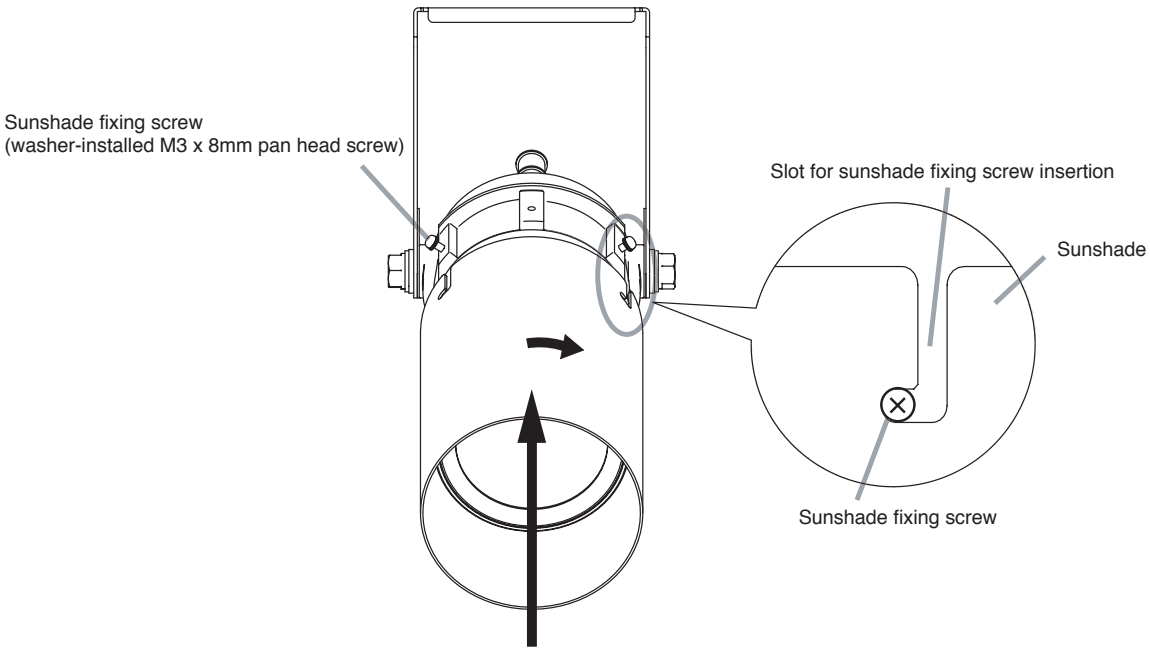
7. After completing all necessary adjustments, disconnect the RCA pin jack connected to the Monitor output terminal in Step 2.

8. Tighten both the bracket and camera mounting bolts, then mount the front cover.

Note: If the front cover is not securely fastened, its water-resistant properties will be compromised, possibly resulting in equipment failure.

9. Insert the sunshade from the front of the camera, as shown in the figure below, and secure it using the sunshade fixing screw (2 places).

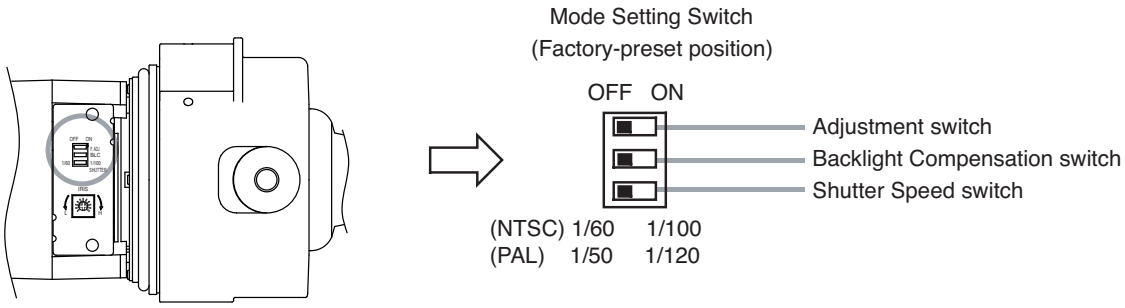
[Ceiling mounting example]



After inserting, rotate the sunshade clockwise until it stops (as shown in the figure), then secure with the sunshade fixing screws.

7. ABOUT THE MODE SETTING SWITCH

Set the Mode Setting switch for the best possible picture reproduction depending on installation conditions.



7.1. Adjustment Switch

Set this switch when adjusting the lens focus. (Provides the same effect as when using the ND filter.)

OFF ON



Standard position :

Set to OFF after lens adjustment completion. Set to this position during normal use.

OFF ON



Adjustment position (during adjustment) :

Use this position when focusing the lens. If the focus is adjusted for a subject under good lighting conditions, the subject may go out of focus when conditions become dark. Set the Adjustment switch to ON only when performing focus adjustment.

Note: The color of the screen may periodically vary under fluorescent lighting when the Adjustment switch is set to ON.

7.2. Backlight Compensation Switch

Set this switch so that the subject is not displayed in black when backlit.

OFF ON



Standard position :

Set to this position during normal use. Backlight Compensation function does not operate when the switch is set to this position.

OFF ON



Backlight Compensation position (when backlit) :

This position prevents images from being displayed in black when the image is backlit.

7.3. Shutter Speed Switch

Set this switch to the ON position when annoying screen image flicker is detected.

OFF ON



Standard position :

Set to this position during normal use.

Shutter Speed position :

OFF ON



Annoying screen flicker may result under fluorescent lighting in areas operating with a power frequency of 50 Hz (NTSC) or 60 Hz (PAL). In such cases, set the Shutter Speed switch to the ON position to permit a flicker-free picture to be viewed.

Note: If the Shutter Speed switch is set to the ON position, sensitivity is reduced compared to operation in the OFF position. When using the camera in a dark location, or where light flicker is not an annoyance, set the switch to the OFF position.

8. IF YOU THINK THERE IS A FAILURE: (TROUBLESHOOTING)

Symptom	Possible Cause	Remedy
Camera images are not displayed on the monitor.	Cables are not correctly connected.	Connect correctly.
	The BNC plug is not correctly soldered.	Solder correctly.
Pictures are not clear.	Lens is not properly focused.	Adjust the lens.
	Lens is dirty.	Wipe the lens.
	Monitor's image black level is not correctly adjusted.	Adjust correctly by following the instructions in the instruction manual for the monitor.
Subject under dark lighting conditions goes out of focus.	If the focus is adjusted for a subject under good lighting conditions, the subject may go out of focus when conditions become dark. (Influence of the depth of field)	Set the Adjustment switch of the Mode setting switch to the ON position, then focus the lens again. (Refer to Step 6 on p. 11.) Be sure to shift the Adjustment switch back to the OFF position after adjustment completion.
Pictures are too bright.	The position of the Iris control has been changed from the factory-preset position.	Set the Iris control to an optimum position. (Refer to Step 6 on p. 11.)
Pictures are curved.	Lens view angle is set to wide angle ("W" side).	The C-CV44-3 camera employs the wide angle lens. Pictures become curved when the view angle is set to the W side, but this is not a failure.
The color of the picture periodically varies.	The Adjustment switch is set to the ON position.	Shift the Adjustment switch of the Mode setting switch back to the OFF position.
Noise appears on the screen.	Camera cables are wired close to other electrical equipment, such as fluorescent lamps.	Reroute the wiring.
	Insulation spacers are not installed.	Install the supplied insulation spacers correctly. (Refer to Step 3 on p. 8.)

9. SPECIFICATIONS

Model No.	C-CV44-3 (NTSC)	C-CV44-3 (PAL)
Power Source	24 V AC, 50/60 Hz, or 12 V DC	
Power Consumption	2 W	
Image Device	1/4" IT-CCD	
Number 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	15.734 kHz (H), 59.94 Hz (V)	15.625 kHz (H), 50 Hz (V)
Monitor Output	VBS1.0 V(p-p), 75 Ω, RCA pin jack	
Video Output	VBS1.0 V(p-p), 75 Ω, water-resistant connector	
Synchronizing System	Internal synchronization	
Resolution	H: 480 lines (center), V: 350 lines	H: 470 lines (center), V: 410 lines
S/N Ratio	48 dB	
Minimum Illumination	3 lx (50 IRE)	3 lx (350 mV)
White Balance Mode	ATW	
Focal Length	f=3.0 mm – 6.0 mm	
Maximum Aperture Ratio	1:1.2 – 1.5	
Iris	Automatic iris	
Angle of View	71.9º– 36º(H), 52º– 26.8º(V)	
Control Switch	ON/OFF (for focus adjustment)	
Other Functions	Backlight compensation, shutter speed, iris adjustment	
Shutter Speed	1/60,1/100	1/50,1/120
Water Resistance	Equivalent to IP66	
Operating Temperature	– 10ºC to + 50ºC (14°F to 122°F)	
Operating Humidity	Under 90% RH (no dew condensation)	
Finish	Front cover,rear cover,sunshade : Aluminum, light gray, paint Mounting bracket : Stainless steel, light gray, paint	
Dimensions	ø92 x 236 (D) mm (ø3.62 x 9.29 (D) inch)	
Weight	1.1 kg (2.43 lb)	

The specifications of this camera are subject to change without notice.

• **Accessories**

Mounting bracket 1
Cable with water-resistant cap (2 m) 1
Camera mounting bolt 2
(washer-installed M8 x 14mm stainless steel hex bolt)
Insulation spacer..... 2

TOA Corporation

URL: http://www.toa.jp/

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