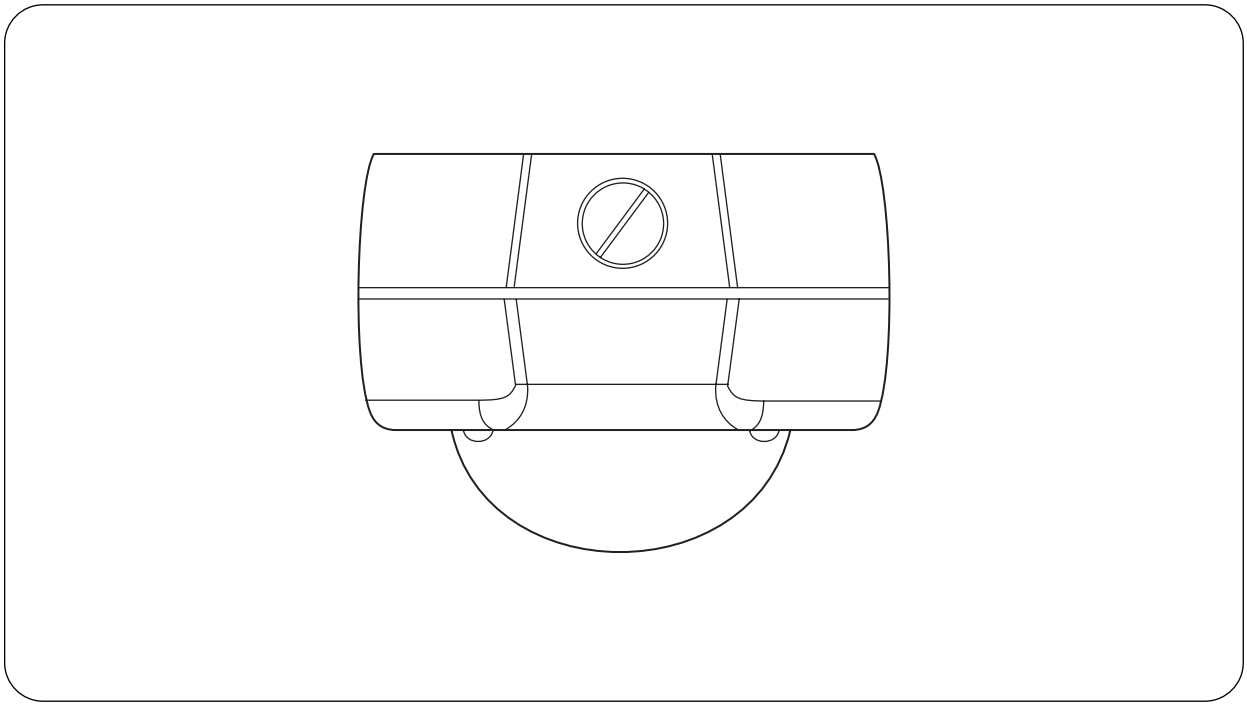
TOA

OPERATING INSTRUCTIONS

VANDAL PROOF DOME CAMERA

Q-CV24VP-3
Q-CV24VP-4



Thank you for purchasing Vandal Proof Dome Camera. Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

TOA Corporation

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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.

- Use the unit only with the voltage specified on the unit. Using a voltage other than that which is specified may result in fire or electric shock.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Failure to do so may result in the unit falling down and causing 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 and causing personal injury.

- 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.)
  - · 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.

FCC INFORMATION

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.

2. HANDLING PRECAUTIONS

- Do not point the camera toward the sun or other strong lighting or reflected light.
- 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.
- Do not install the camera in locations where solvents or chemicals are used, as exposure to such chemicals could damage the dome cover finish.

3. UNPACKING

Unpack carefully. This is an electromechanical device and should be handled carefully. Check to ensure that the following items are included:
- Integrated camera/ housing unit.
- Hardware kit containing two (2) 6-32 x 3/4-inch mounting screws and special Allen wrench.

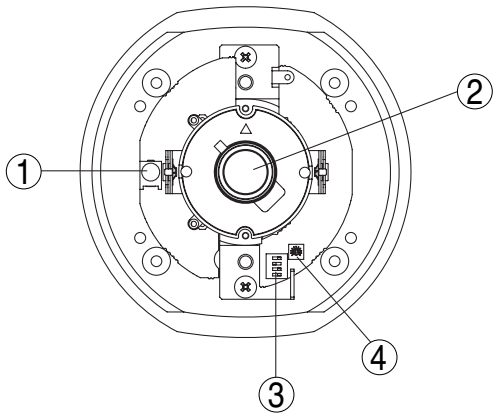
4. DESCRIPTION & SPECIFICATIONS

These cameras are small, high security surveillance domes containing 1/4-inch CCD cameras with vari-focal lenses.The unit mounts easily to a single gang electrical box or directly to a wall or ceiling. The units come ready to use and backlight compensation controls to ensure the highest quality image and performance.

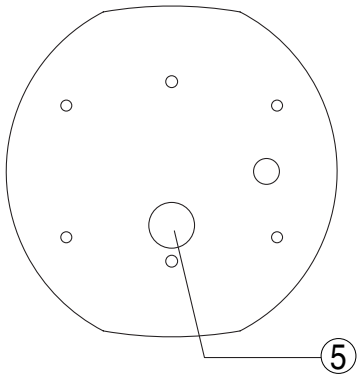
Construction/ Finish: Polycarbonate Dome on cast aluminum housing.

5. NOMENCLATURE

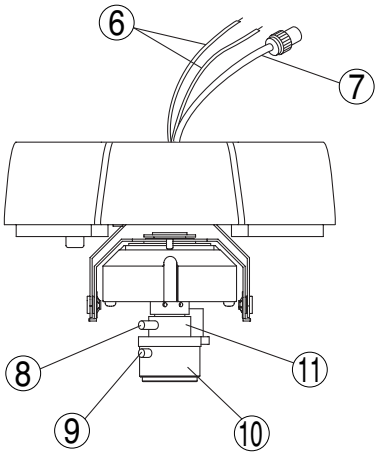
[Bottom view]



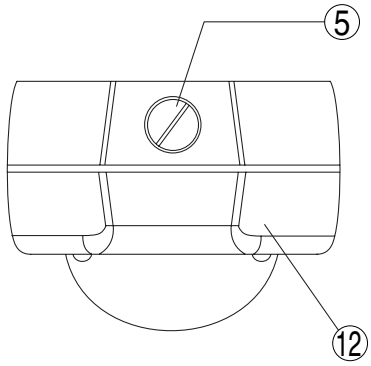
[Top view]



[Side view]



[Side view of the camera with a dome cover]



(1) Monitor output terminal (RCA pin jack)

(2) Vari-focal lens

(3) Mode setting switch

(4) Iris control

(5) Threaded for 3/4-inch Conduit (2 places)

(6) Power input cable (24 V AC or 12 V DC)

(7) Video output cable

(8) Zoom ring fixing screw

(9) Focus ring fixing screw

(10) Focus ring

(11) Zoom ring

(12) Dome cover assembly

6. COVER REMOVAL & REPLACEMENT

1. Using the special Allen wrench provided, remove the 4 tamper resistant screws located on the cover. The screws are captive and will remain with the cover. Refer to **Figure 1**.
2. Lift the housing off the base to make required camera adjustments.
3. Replace the cover and tighten the retaining screws securely.

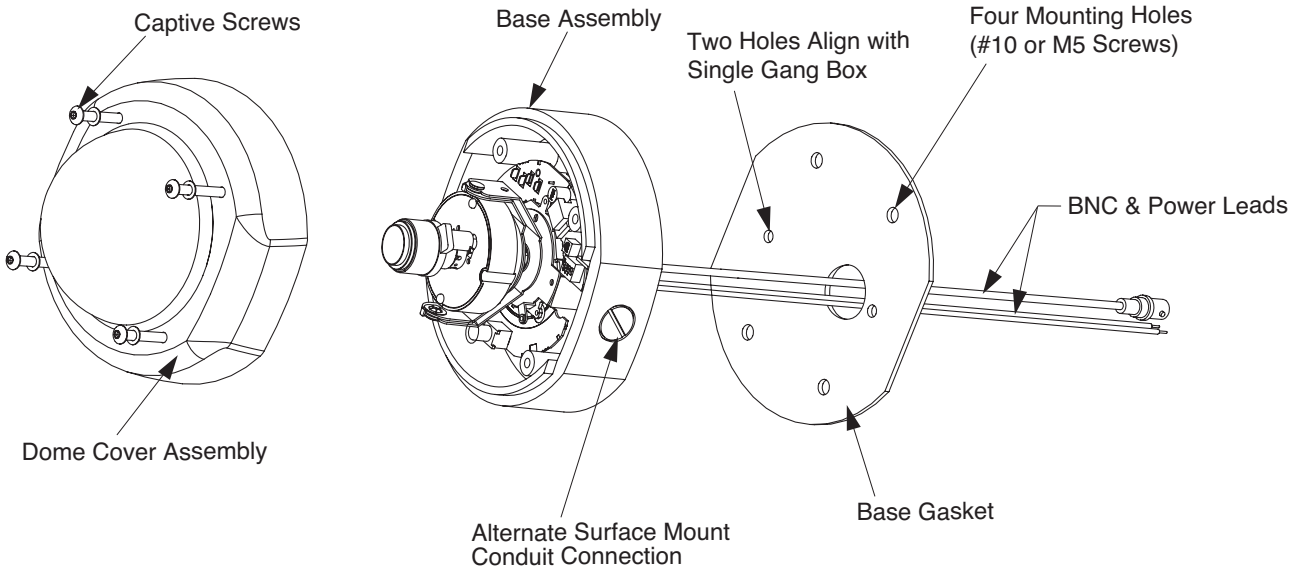


Figure 1

7. INSTALLATION

Notes

- Installations should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.
- Do not touch any component other than the pc board, the lens or the DIP SW, as this will damage the camera.

7.1. Connecting Low Voltage Power & Video Signal

The wiring harness has a BNC connector to accept video coax and two stripped leads to accept the low voltage power. For mounting to a single gang electrical box, run power and video lines through a knockout into the box (not provided). When mounting directly to a wall or ceiling,run power and video lines to the desired location using 3/4-inch conduit.

Note

Before proceeding to disconnect the power at its source, be sure that the unit is of the proper voltage type for the line power.

7.1.1. Connecting Low Voltage Power

Connect the line and neutral wires.

1. 12 VDC Applications: Connect the 12 volt plus wire to the red lead.
   Connect the neutral/ common wire to the black lead.

2. 24 VAC Applications: Camera operation is not affected by the polarity of the 24 VAC wires. However, in multiple camera systems, consistent wiring configurations will help maintain roll-free switching.

7.1.2. Connecting Video Cable

Route and connect video cable to BNC connector.

7.2. Mounting

Refer to **Figure 1**.

1. Using the rubber base gasket as a template, mark the mounting hole locations on the mounting surface. The unit is intended to be mounted with four #10 screws or four M5 screws (not supplied) through the four outer holes in the base casting. To attach the unit to a single electrical box, use the two #6-32 screws supplied.

2. Install the appropriate anchors or threaded fasteners**.**

3. Install a 3/4-inch threaded service conduit coupling into the back conduit hole, using pipe sealant on the threads. If conduit is to enter from the side, use a 2-mm Allen wrench to loosen the set screw from the conduit hole plug. Remove the plug and reinstall it in the conduit hole on the back of the unit.

4. If mounting this unit outdoors, apply a generous bead of silicone sealant around the back of the base casting, surrounding all holes. Apply the rubber base gasket to the back of the base casting and apply another generous bead of sealant to the outer edge around the exposed surface of the gasket.

5. Place the unit into position on the wall or ceiling. Install the mounting screws securely. If sealant is used, make sure that the sealant between the wall or ceiling and the gasket forms a complete seal. Add more sealant if needed. Make all final service connections and secure the conduit.

8. ADJUSTMENT

Note
Do not touch any component other than the pc board, the lens or the DIP SW, as this will damage the camera.

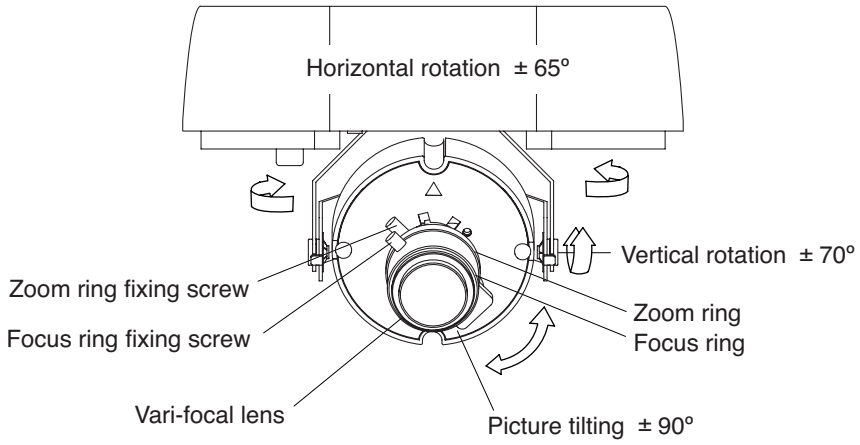
1. Switch on the camera power after completing camera connections.Power is supplied to the camera.

2. Normally, set the Shutter speed switch to OFF position.Flickering of the picture may interfere with the view under fluorescent lamp in the area with power frequency of 50 Hz. In such cases, set the switch to ON position, and the image free from flickering can be obtained.

   Note
   If the Shutter speed switch of the Mode setting 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.

3. Connect the monitor to the Monitor output terminal to permit a picture to be viewed on the monitor.

4. Adjust the camera angle.
   Camera angle can be adjusted for up to 130º(± 65º) for horizontal rotation, for up to 140º(± 70º) for vertical rotation, and for up to 180º(± 90º) for picture tilting.



5. Adjust the angle of view with the Zoom ring and adjust the focus with the Focus ring for the best possible picture reproduction. After lens adjustment completion, tighten both the Zoom ring fixing screw and the Focus ring fixing screw.

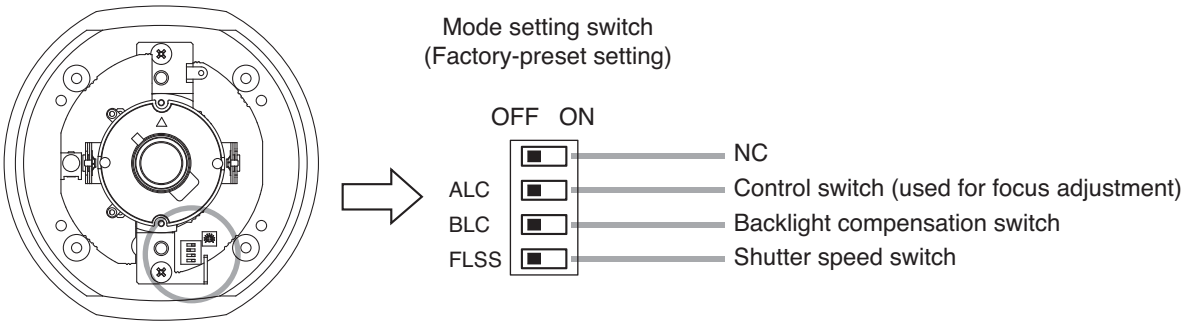
   Notes
   - Since the Iris control is factory-preset to an optimum position for general use, avoid tampering with it in normal conditions. Turning the control unnecessarily could cause reduced picture quality or equipment failure. When the Iris control needs to be readjusted to match a specific subject, first set both the Control switch and the Backlight compensation 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 Control switch of the Mode setting switch to the ON position. Be sure to switch it back to the OFF position after completing lens adjustment.

6. Attach the dome cover assembly to the camera after completing all necessary adjustments.

9. ABOUT THE MODE SETTING SWITCH

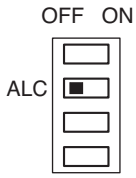
Note
Do not touch any component other than the pc board, the lens or the DIP SW, as this will damage the camera.

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

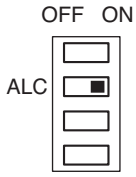


9.1. Control Switch

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



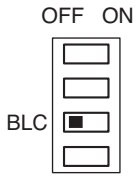
Standard position :
Set to OFF after lens adjustment completion. Set to this position during normal use.



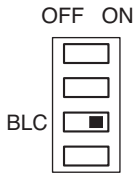
Adjustment position (during adjustment) :
Use this position when focusing the lens. If the focus is adjusted for a subject under good lighting conditions, the subject may go out of focus when conditions become dark. Set the Control switch to ON only when performing focus adjustment.
Note: The color of the screen may periodically vary under fluorescent lighting when the Control switch is set to ON.

9.2. Backlight Compensation Switch

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



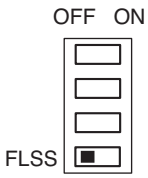
Standard position :
Set to this position during normal use. Backlight compensation function does not operate when the switch is set to this position.



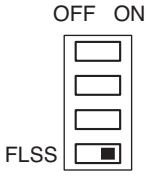
Backlight compensation position (when backlit) :
This position prevents images from being displayed in black when the image is backlit.

9.3. Shutter Speed Switch

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



Standard position :
Set to this position during normal use.



Shutter speed position :
Annoying screen flicker may result under fluorescent lighting in areas operating with a power frequency of 50 Hz. 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.

10. SPECIFICATIONS

Model No.	Q-CV24VP-3	Q-CV24VP-4
Power Source	24 V AC, 50/60 Hz, or 12 V DC	
Power Consumption	2 W	
Image Device	1/4 type IT-CCD	
Number of Effective Pixels	768 (H) x 494 (V), 380,000 pixels	
Scanning System	2:1 interlace	
Scanning Frequency	Horizontal: 15.734 kHz, Vertical: 59.94 Hz (V)	
Monitor Output	VBS1.0 V(p-p), 75 Ω, RCA pin jack	
Video Output	VBS1.0 V(p-p), 75 Ω, BNC−R jack	
Synchronizing System	Internal synchronization	
Resolution	Horizontal: 480 lines (at center), Vertical: 350 lines (at center)	
S/N Ratio	48 dB	
Minimum Illumination	4 lx (50 IRE), 2 lx (20 IRE)	5 lx (50 IRE), 2.5 lx (20 IRE)
White Balance Mode	ATW	
Focal Length	f=2.8 mm – 5.8 mm	f=4.0 mm – 9.0 mm
Maximum Aperture Ratio	1:1.4 – 1.8	1:1.6 – 2.4
Iris	Auto-iris	
Angle of View	H: 76.7º– 38.3º, V: 56.8º– 28.7º	H: 51.6º– 23.6º, V: 38.2º– 17.8º
Control Switch	ON/ OFF (used for focus adjustment)	
Other Functions	Backlight compensation, Shutter speed (1/60, 1/100), iris control	
Operating Temperature	– 10ºC to + 50ºC	
Operating Humidity	Under 90% RH (no condensation)	
Applications	Indoors and outdoors	
Dust/ Water Protection	IP65	
Finish	Case : Cast aluminum, white Dome Cover : Polycarbonate resin	
Dimensions	153.5 (w) x 121.4 (h) x 153.5 (d) mm	
Weight	1.5 kg	

• **Accessories**

6 - 32 x 3/4-inch mounting screw 2
Special Allen wrench 1
Base gasket 1

TOA Corporation

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