

# COMPACT COLOR CAMERAS



## DESCRIPTION

TOA's compact color cameras represent new approaches to high-performance and high-resolution cameras for CCTV applications, each camera having specific features and functions.

**Indoor type:** C-CV14-CS (lens is optional)  
C-CV14-2 (with 2X varifocal lens)  
C-CV24-2 (with 2X varifocal lens)

**Outdoor type:** C-CV44-3 (with 2X varifocal lens)

## FEATURES

- **Easy power requirements**  
TOA compact color cameras operate on 24V AC or 12V DC.
- **High-performance CCDs**  
Each camera incorporates a 1/4" CCD with a resolution of 380,000 pixels (NTSC) (PAL 440,000 pixels) resulting a high horizontal resolution that exceeds 480 lines (NTSC) (PAL 470 lines).

- **2X varifocal lens**  
To easily allow on-site adjustment for the viewing angle, each camera is fitted with a 2X manual varifocal lens having an auto iris.
- **Wide-ranging view angles**  
Optimal camera angle of view extends from 53.2 to a wide 105 degrees, enhancing coverage over a wide range for more effective monitoring (C-CV14-2 and C-CV24-2).
- **Versatile enough to handle less than perfect lighting.**  
To cope with varying lighting conditions, backlight compensation can be switched on or off as required.
- **Flicker-free for easier viewing**  
The cameras do not cause the image to deteriorate as often caused by fluorescent lighting. Annoying image flicker is eliminated for more effective monitoring.
- **Focus adjustment switch for easy focusing**  
To simplify focusing even without using the ND filter\*, an adjustment switch is provided for foolproof focusing.  
\*see rear page for more feature information.

# C-CV14-CS (Lens is optional)

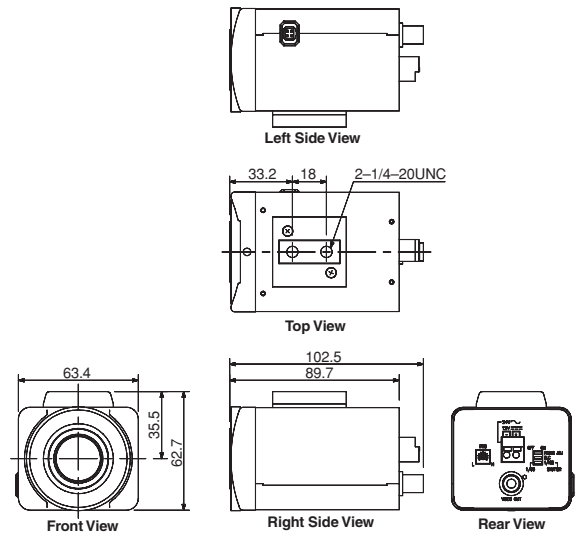
## COLOR CAMERA



Lens is optional

- Specifically designed for use in indoor applications
- Lens available separately from a range of lens options. Camera accepts any CS mounted lens.
- 24V AC or DC 12V operation
- Horizontal resolution exceeds 480 (NTSC) lines (PAL 470 lines)
- Equipped with backlight compensation function
- Flickerless operation for viewing ease
- Adjustment switch for easy focusing without using an ND filter

### APPEARANCE AND DIMENSIONAL DIAGRAM



unit: mm

#### SPECIFICATIONS (PAL)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	752 (H) × 582 (V) (440,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.625kHz, Vertical: 50Hz
Video Output	VBS 1.0V (p-p) 75Ω, BNC connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 470 lines (at center), Vertical: 410 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (F1.4, 50%)
White Balance Mode	ATW
Lens Mount	CS mount
Auto-Iris Lens Output	DC input type (4-pin connector)
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/50, 1/120), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: Surface-treated steel plate, light gray, paint Front cover: Zinc, light gray, paint
Dimensions	63.4 (W) × 62.7 (H) × 102.5 (D)mm
Weight	300g
Option	Camera mounting bracket

#### SPECIFICATIONS (NTSC)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	768 (H) × 494 (V) (380,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.734kHz, Vertical: 59.94Hz
Video Output	VBS 1.0V (p-p) 75Ω, BNC connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 480 lines (at center), Vertical: 350 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (F1.4, 50%)
White Balance Mode	ATW
Lens Mount	CS mount
Auto-Iris Lens Output	DC input type (4 pin connector)
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/60, 1/100), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: Surface-treated steel plate, light gray, paint Front cover: Zinc, light gray, paint
Dimensions	63.4 (W) × 62.7 (H) × 102.5 (D)mm
Weight	300g
Option	Camera mounting bracket

# C-CV14-2

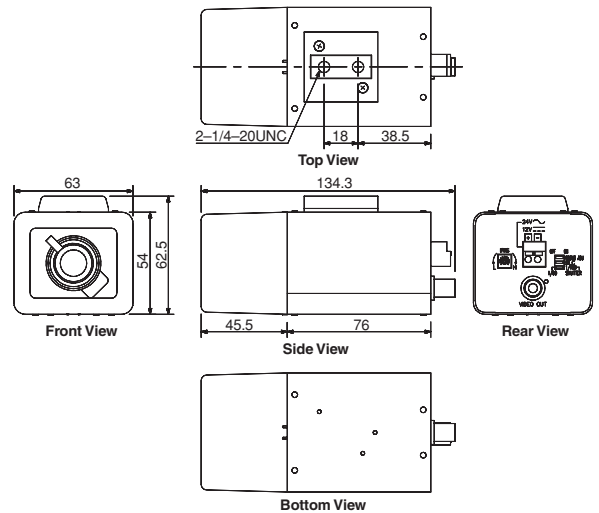
## COLOR CAMERA



Lens included

- Equipped with lens having a 53.2 – 105.1 degree horizontal viewing angle and a 39.8 – 77.4 degree vertical viewing angle
- Specifically designed for use in indoor applications
- 24V AC or DC 12V operation
- Horizontal resolution exceeds 480 (NTSC) lines (PAL 470 lines)
- Equipped with backlight compensation function
- Flickerless operation for viewing ease
- Adjustment switch for easy focusing without using an ND filter
- Lens cover installs easily with single touch

### APPEARANCE AND DIMENSIONAL DIAGRAM



unit: mm

#### SPECIFICATIONS (PAL)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	752 (H) × 582 (V) (440,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.625kHz, Vertical: 50Hz
Video Output	VBS 1.0V (p-p) 75Ω, BNC connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 470 lines (at center), Vertical: 410 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50 IRE)
White Balance Mode	ATW
Focal Length	f = 2.0mm – 4.0mm
Maximum Aperture Ratio	1:1.4 – 1.8
Iris	Auto-iris
Angle of View	Horizontal: 105.1° – 53.2°, Vertical: 77.4° – 39.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/50, 1/120), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: Surface-treated steel plate, light gray, paint Lens cover: ABS resin, light gray
Dimensions	63 (W) × 62.5 (H) × 134.3 (D)mm
Weight	300g
Option	Camera mounting bracket

#### SPECIFICATIONS (NTSC)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	768 (H) × 494 (V) (380,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.734kHz, Vertical: 59.94Hz
Video Output	VBS 1.0V (p-p) 75Ω, BNC connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 480 lines (at center), Vertical: 350 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50 IRE)
White Balance Mode	ATW
Focal Length	f = 2.0mm – 4.0mm
Maximum Aperture Ratio	1:1.4 – 1.8
Iris	Auto-iris
Angle of View	Horizontal: 105.1° – 53.2°, Vertical: 77.4° – 39.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/60, 1/100), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: Surface-treated steel plate, light gray, paint Lens cover: ABS resin, light gray
Dimensions	63 (W) × 62.5 (H) × 134.3 (D)mm
Weight	300g
Option	Camera mounting bracket

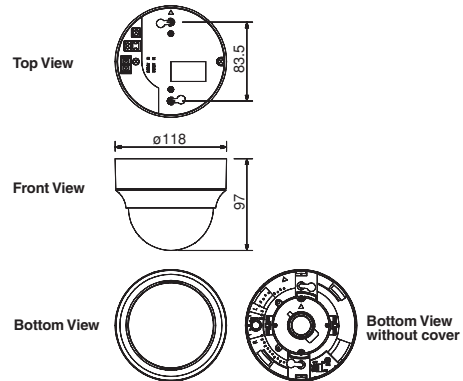
# C-CV24-2

# COLOR DOME CAMERA



Lens included

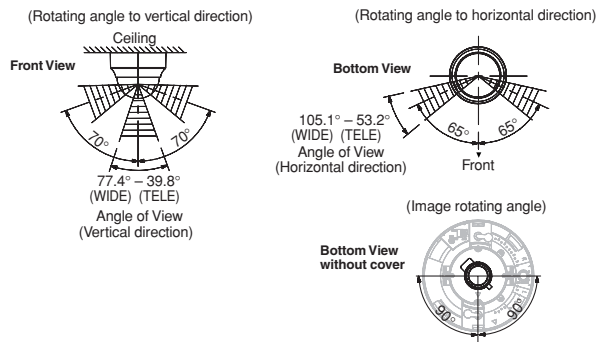
## APPEARANCE AND DIMENSIONAL DIAGRAM



unit: mm

- Equipped with lens having a 53.2 – 105.1 degree horizontal viewing angle and a 39.8 – 77.4 degree vertical viewing angle
- Specifically designed for use in indoor applications
- 24V AC or DC 12V operation
- Horizontal resolution exceeds 480 (NTSC) lines (PAL 470 lines)
- Equipped with backlight compensation function
- Flickerless operation for viewing ease
- Adjustment switch for easy focusing without using an ND filter
- Wide camera lens angle setting

## CAMERA ANGLE SETTING RANGE



### SPECIFICATIONS (PAL)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	752 (H) × 582 (V) (440,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.625kHz, Vertical: 50Hz
Monitor Output	VBS 1.0V (p-p) 75Ω, RCA pin jack
Video Output	VBS 1.0V (p-p) 75Ω, M3 screw terminal
Synchronizing System	Internal synchronization
Resolution	Horizontal: 470 lines (at center), Vertical: 410 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50%)
White Balance Mode	ATW
Focal Length	f = 2.0mm – 4.0mm
Maximum Aperture Ratio	1:1.4 – 1.8
Iris	Auto-iris
Angle of View	Horizontal: 105.1° – 53.2°, Vertical: 77.4° – 39.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/50, 1/200), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: ABS resin, light gray Dome cover: Acrylic resin
Dimensions	∅118 (W) × 97 (H)mm
Weight	370g
Option	Ceiling mounting bracket

Note: No camera mounting screws are supplied.  
For mounting, use screws of 4 x 25mm or longer.

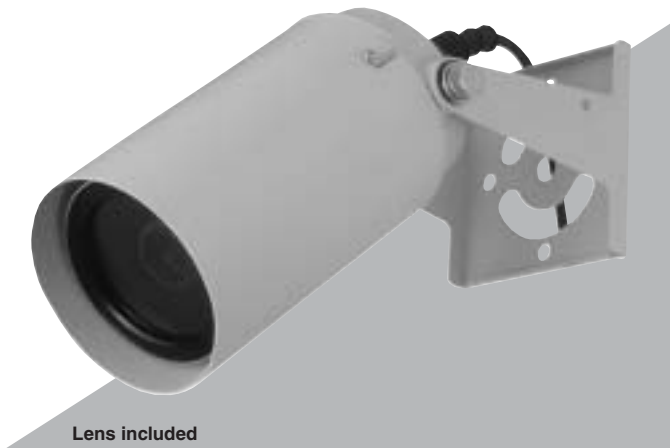
### SPECIFICATIONS (NTSC)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	768 (H) × 494 (V) (380,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.734kHz, Vertical: 59.94Hz
Monitor Output	VBS 1.0V (p-p) 75Ω, RCA pin jack
Video Output	VBS 1.0V (p-p) 75Ω, M3 screw terminal
Synchronizing System	Internal synchronization
Resolution	Horizontal: 480 lines (at center), Vertical: 350 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50 IRE)
White Balance Mode	ATW
Focal Length	f = 2.0mm – 4.0mm
Maximum Aperture Ratio	1:1.4 – 1.8
Iris	Auto-iris
Angle of View	Horizontal: 105.1° – 53.2°, Vertical: 77.4° – 39.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/60, 1/100), Iris control
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Applications	Indoor use
Finish	Case: ABS resin, light gray Dome cover: Acrylic resin
Dimensions	∅118 (W) × 97 (H)mm
Weight	370g
Option	Ceiling mounting bracket

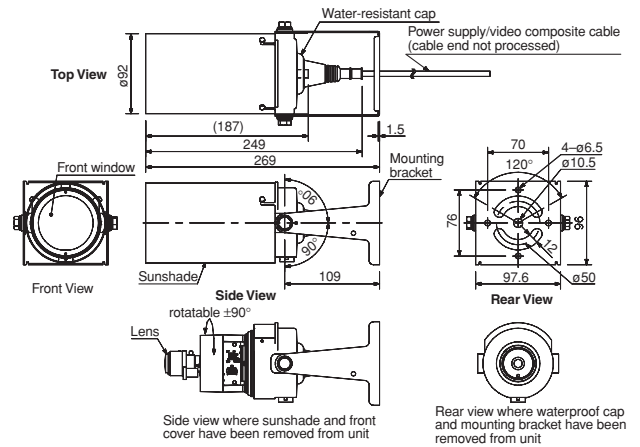
Note: No camera mounting screws are supplied.  
For mounting, use screws of 4 x 25mm or longer.

# C-CV44-3

## OUTDOOR COLOR CAMERA



### APPEARANCE AND DIMENSIONAL DIAGRAM



unit: mm

- Equipped with lens having a 36 – 71.9 degree horizontal viewing angle and a 26.8 – 52 degree vertical viewing angle
- Specifically designed to withstand outdoor use with a water-resistant and dust-resistant construction (IP-66)
- 24V AC or DC 12V operation
- Horizontal resolution exceeds 480 (NTSC) lines (PAL 470 lines)
- Equipped with backlight compensation function
- Flickerless operation for viewing ease
- Adjustment switch for easy focusing without using an ND filter

#### SPECIFICATIONS (PAL)

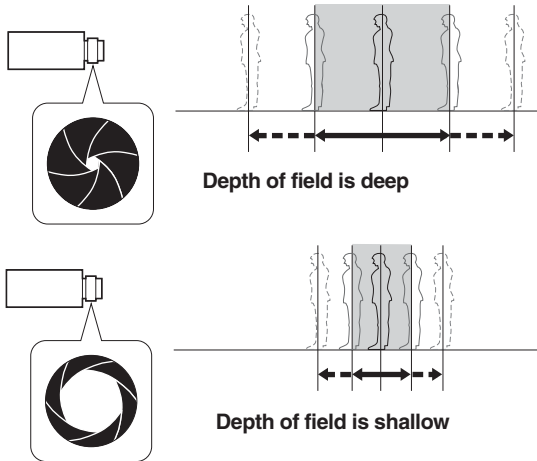
Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	752 (H) $\times$ 582 (V) (440,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.625kHz, Vertical: 50Hz
Monitor Output	VBS 1.0V (p-p) 75 $\Omega$ , RCA pin jack
Video Output	VBS 1.0V (p-p) 75 $\Omega$ , water-resistant connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 470 lines (at center), Vertical: 410 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50%)
White Balance Mode	ATW
Focal Length	f = 3.0mm – 6.0mm
Maximum Aperture Ratio	1:1.2 – 1.5
Iris	Auto-iris
Angle of View	Horizontal: 71.9° – 36°, Vertical: 52° – 26.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/50, 1/120), Iris control
Water Resistance	Equivalent to IP-66
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Finish	Front cover, rear cover, sunshade: Aluminum, light gray, paint Mounting bracket: Stainless steel, light gray, paint
Dimensions	$\phi 92 \times 249$ (D)mm (excluding mounting bracket)
Weight	1.1kg
Accessories	Mounting bracket $\times$ 1, Cord with water-resistant cap (2m) $\times$ 1, Bracket mounting bolt (with washer), Insulating spacer $\times$ 2

#### SPECIFICATIONS (NTSC)

Power Source	24V AC, 50/60Hz or 12V DC
Power Consumption	2W
Image Device	1/4 type IT-CCD
Number of Effective Pixels	768 (H) $\times$ 494 (V) (380,000 pixels)
Scanning System	2:1 interlace
Scanning Frequency	Horizontal: 15.734kHz, Vertical: 59.94Hz
Monitor Output	VBS 1.0V (p-p) 75 $\Omega$ , RCA pin jack
Video Output	VBS 1.0V (p-p) 75 $\Omega$ , water-resistant connector
Synchronizing System	Internal synchronization
Resolution	Horizontal: 480 lines (at center), Vertical: 350 lines (at center)
S/N Ratio	48dB
Minimum Illumination	3 lx (50 IRE)
White Balance Mode	ATW
Focal Length	f = 3.0mm – 6.0mm
Maximum Aperture Ratio	1:1.2 – 1.5
Iris	Auto-iris
Angle of View	Horizontal: 71.9° – 36°, Vertical: 52° – 26.8°
Control Switch	ON/OFF (used for focus adjustment)
Other Function	Backlight compensation, Shutter speed (1/60, 1/100), Iris control
Water Resistance	Equivalent to IP-66
Operating Temperature	-10°C to +50°C
Operating Humidity	Under 90% RH (no due condensation produced)
Finish	Front cover, rear cover, sunshade: Aluminum, light gray, paint Mounting bracket: Stainless steel, light gray, paint
Dimensions	$\phi 92 \times 249$ (D)mm (excluding mounting bracket)
Weight	1.1kg
Accessories	Mounting bracket $\times$ 1, Cord with water-resistant cap (2m) $\times$ 1, Bracket mounting bolt (with washer), Insulating spacer $\times$ 2

## \*Focus and the ND filter

When adjusting focus, an important aspect is depth of field, actually the depth of the focus. The term depth is used because we can describe it as being deep or shallow. If the in-focus area goes well into (long distance) the subject field is referred to as being deep. If the background area is not in focus but the subject field is in sharp focus, the field is referred to as being shallow.

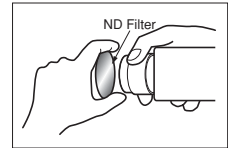


The depth of field will change depending on the focal length of the lens, the iris of the lens and the shooting distance. And in surveillance cameras, the lens iris has an effect on focusing. As the diagram makes clear, the wider the lens iris opening size, the shallower will be the depth of field.

### Why will correct focus for daytime shooting result in an out-of-focus image when shooting at night.

If a camera having an auto iris lens is used, the lens iris opening size remains small during daylight hours. Setting the correct focus at this time is performed with a deep depth of field. As day turns to night, the lens iris opening size increases to gain more light, and the image goes out of the perfect focus it was in.

Because surveillance cameras are in operation during the day as well as at night, the lens iris must be kept open. The ND filter is designed specifically for this situation. The ND filter reduces light coming into the lens to prevent the lens iris opening size from getting smaller during the day. The camera's focus must be adjusted with the ND filter mounted in front of the lens during the daylight to ensure the lens iris opening size remains wide.



### TOA adjustment switch makes focusing simple.

Because adjusting focus with the ND filter mounted is inconvenient, TOA has incorporated a switch on the compact camera can simply be switched on or off. By making the lens iris size wide even during the day, providing easy focusing to maintain perfect focus.

