# COMPACT COLOR CAMERAS

## NTSC/PAL

### C-CV14-CS




Lens is optional

### C-CV14-2



2X varifocal lens included

### C-CV24-2



2X varifocal lens included

### C-CV44-3



2X varifocal lens included

## 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 varifocal lens having an auto iris.
- **Wide-ranging view angles**
  Optimal camera angle of view extends from 53.2 to a wide 105.1 degrees, enhancing coverage over a wide range for more effective monitoring (C-CV14-2 and C-CV24-2).
- **Backlight compensation**
  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.

TOA

# C-CV14-CS (Lens is optional)

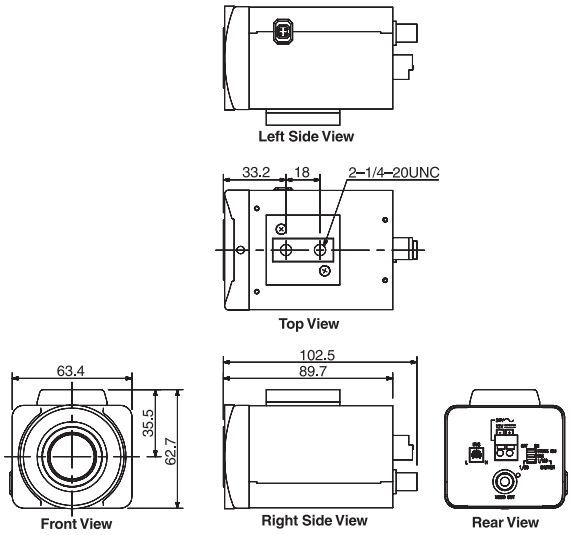
## COLOR CAMERA




**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 12V DC 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 (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 IRE) |
| 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: Surface-treated steel plate, light gray, paint<br>Front cover: Zinc, light gray, paint |
| Dimensions | 63.4 (W) × 62.7 (H) × 102.5 (D)mm |
| Weight | 300g |
| Option | Camera mounting bracket |

**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, 350mV) |
| 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: Surface-treated steel plate, light gray, paint<br>Front cover: Zinc, light gray, paint |
| Dimensions | 63.4 (W) × 62.7 (H) × 102.5 (D)mm |
| Weight | 300g |
| Option | Camera mounting bracket |

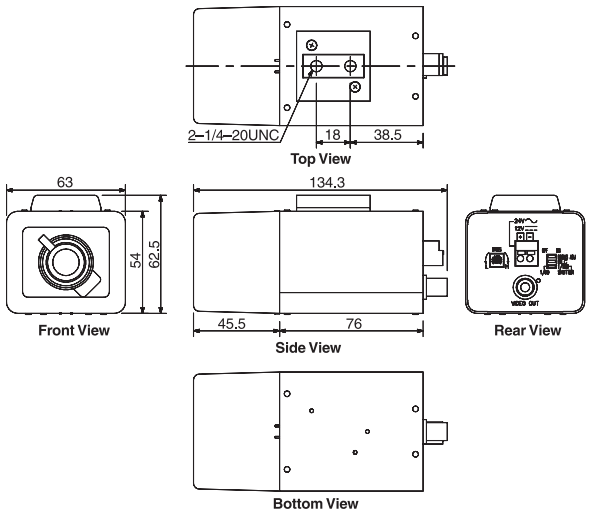
# C-CV14-2

## COLOR CAMERA



**2X varifocal 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 12V DC 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

### 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: Surface-treated steel plate, light gray, paint<br>Lens cover: ABS resin, light gray |
| Dimensions | 63 (W) × 62.5 (H) × 134.3 (D)mm |
| Weight | 300g |
| Option | Camera mounting bracket |

### 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 (350mV) |
| 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: Surface-treated steel plate, light gray, paint<br>Lens cover: ABS resin, light gray |
| Dimensions | 63 (W) × 62.5 (H) × 134.3 (D)mm |
| Weight | 300g |
| Option | Camera mounting bracket |

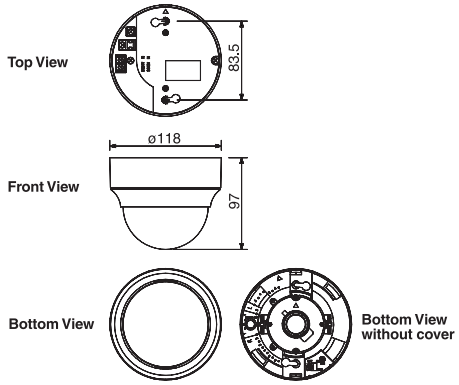
# C-CV24-2

## COLOR DOME CAMERA



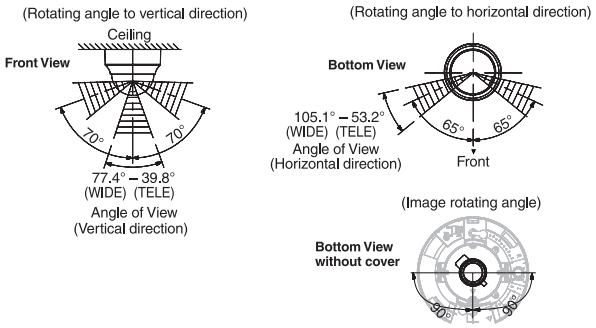

- Equipped with lens having a 53.2 – 105.1 degree horizontal viewing angle and a 39.8 – 77.4 degree vertical viewing angle
- Specifically designed for use in indoor applications
- 24V AC or 12V DC operation
- Horizontal resolution exceeds 480 (NTSC) lines (PAL 470 lines)
- Equipped with backlight compensation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

## APPEARANCE AND DIMENSIONAL DIAGRAM




unit: mm

## CAMERA ANGLE SETTING RANGE




### 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: ABS resin, light gray<br>Dome cover: Acrylic resin |
| Dimensions | ø118 (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 (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 (350mV) |
| 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 dew condensation produced) |
| Applications | Indoor use |
| Finish | Case: ABS resin, light gray<br>Dome cover: Acrylic resin |
| Dimensions | ø118 (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.

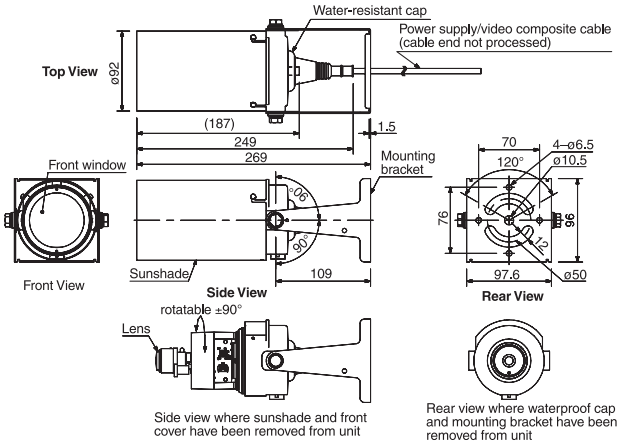
# C-CV44-3

## OUTDOOR COLOR CAMERA



**2X varifocal lens included**

## 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 12V DC 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
- Full camera positioning in 3 axes makes it easy to achieve the optimal camera position

### SPECIFICATIONS (NTSC)

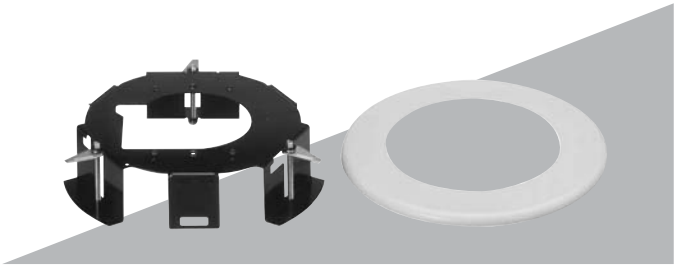
| | |
|---|---|
| Power Source | 24V AC, 50/60Hz or 12V DC |
| Power Consumption | 2W |
| Image Device | 1/4 type IT-CCD |
| Number of Effective Pixels | 768 (H) × 494 (V) (380,000 pixels) |
| Scanning System | 2:1 interlace |
| Scanning Frequency | Horizontal: 15.734kHz, Vertical: 59.94Hz |
| Monitor Output | VBS 1.0V (p-p) 75Ω, RCA pin jack |
| Video Output | VBS 1.0V (p-p) 75Ω, 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 dew condensation produced) |
| Finish | Front cover, rear cover, sunshade: Aluminum, light gray, paint<br>Mounting bracket: Stainless steel, light gray, paint |
| Dimensions | ø92 × 249 (D)mm (excluding mounting bracket) |
| Weight | 1.1kg |
| Accessories | Mounting bracket × 1, Cord with water-resistant cap (2m) × 1,<br>Bracket mounting bolt (with washer), Insulating spacer × 2 |

### 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, 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 (350mV) |
| 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 dew condensation produced) |
| Finish | Front cover, rear cover, sunshade: Aluminum, light gray, paint<br>Mounting bracket: Stainless steel, light gray, paint |
| Dimensions | ø92 × 249 (D)mm (excluding mounting bracket) |
| Weight | 1.1kg |
| Accessories | Mounting bracket × 1, Cord with water-resistant cap (2m) × 1,<br>Bracket mounting bolt (with washer), Insulating spacer × 2 |

# C-BC20U

## FLUSH CEILING MOUNTING BRACKET

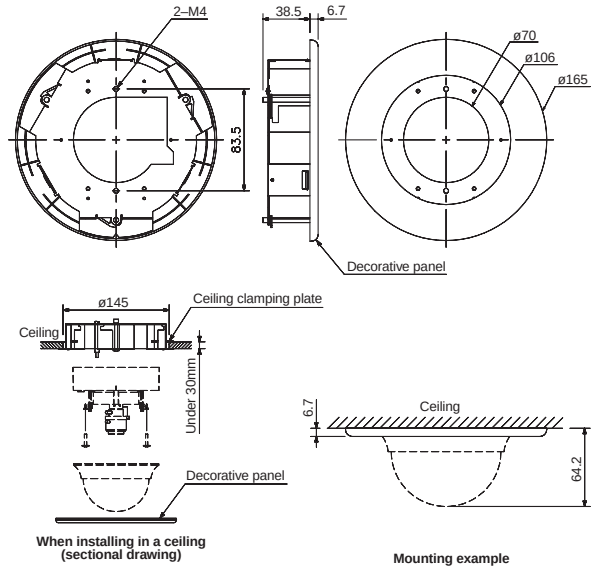


The C-BC20U Bracket permits TOA's Dome Camera to be installed in a celling with only dome cover of the Dome Camera exposed. The unit also permits the Dome Camera to be installed in a location where the Dome Camera cannot be mounted in a ceiling with screw due to brittle ceiling materials.

**SPECIFICATIONS**

| | |
|---|---|
| Mountable Board | Under 30mm in thickness |
| Finish | Decorative panel: ABS resin light gray<br>Mounting bracket: Steel plate, black, paint |
| Mounting Hole | ø145mm |
| Dimensions | ø165 × 45.2mm |
| Weight | 170g |
| Accessory | Camera mounting screw: Binding head screw M4X15 × 2,<br>Decorative panel × 1 |
| Applicable Camera (option) | C-CV24-2 |

## APPEARANCE AND DIMENSIONAL DIAGRAM

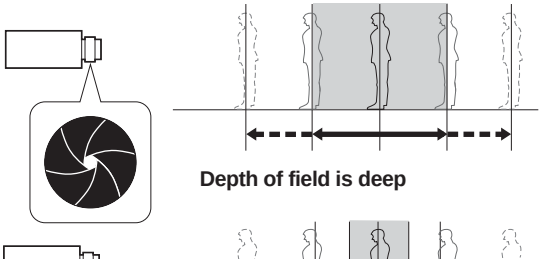



unit: mm

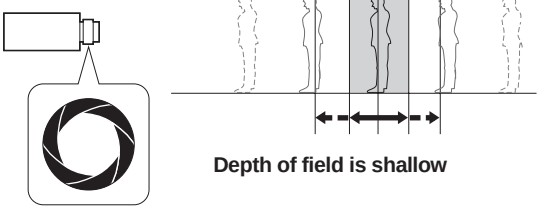
# *Focus Adjustment without the ND filter

### Iris and field of depth

When adjusting focus, an important aspect is depth of field, actually the depth of the focus. The term depth is used is 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.



**Depth of field is deep**



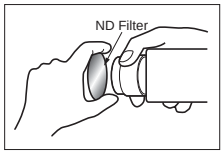
**Depth of field is shallow**

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 set during the day go off at night?

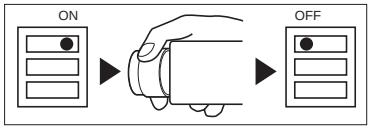
That's because focus has not been precisely set.
Shooting with an auto-iris lens, the amount of light during the day makes the lens iris opening stay small. This results in a deep depth of field. But as day turns to night, the lens iris opens to get more light, the depth of field is reduced and the focus goes off. To adjust the focus, it is necessary to open the lens iris and reduce the depth of field. When using an auto-iris lens, the ND filter must be used to approximate nighttime light conditions so that the lens iris stays open and depth of field is reduced before adjusting the focus.

* Neutral Density (ND) Filter:
A filter which reduces light coming through the camera lens without any effect on the light's color temperature.




### Adjustment switch makes focusing simple.

TOA Compact Cameras do not require an ND filter for adjusting focus. By just setting the focus adjustment switch on the camera to ON, the lens iris opens and a shallow depth of field is maintained. To achieve perfect focus simply and easily, just set the adjustment switch ON, adjust focus and then set the switch OFF.




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

Specifications are subject to change without notice.
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