



# Specifications

**STC-N63 and P63 Series Compact Color CCD Cameras**

## 1. Features

- Compact high performance color camera
  - Simple one board configuration for the base module.
  - Two board-configuration models for additional robust functions.
  - Board size: 32mm x 32mm
  - Case size: 36mm x 42.5mm x 54.5mm
- Push-To-Set White Balance function and Auto White Balance.
- Mirror Image selectable.
- User programmable DSP software.
- Both board types and case types available

## 2. Specifications

<b>Signal Format</b>	NTSC (N63) and PAL (P63)	
<b>Image Sensor</b>	1/3 inch Interline CCD	
	NTSC	: ICX408AK
	PAL	: ICX409AK
<b>Effective Picture Element</b>	NTSC	: 768(H) x 494(V)
	PAL	: 752(H) x 582(V)
<b>Chip Size</b>	NTSC	: 5.59mm(H) x 4.69mm(V)
	PAL	: 5.59mm(H) x 4.68mm(V)
<b>Unit Cell Size</b>	NTSC	: 6.35um(H) x 7.4um(V)
	PAL	: 6.50um(H) x 6.25um(V)
<b>Pixel Clock Frequency</b>	NTSC	: 14.318MHz
	PAL	: 14.187MHz
<b>Horizontal Frequency</b>	NTSC	: 15.734KHz
	PAL	: 15.625KHz
<b>Vertical Frequency</b>	NTSC	: 59.94Hz
	PAL	: 50.00Hz
<b>Scanning System</b>	2:1 Interlace	
<b>Video Output Level</b>	1.0Vp-p / 75Ω	
<b>Horizontal Resolution</b>	480TV Lines	
<b>Minimum Scene Illumination</b>	0.17 Lux with F1.2 lens	
<b>S/N Ratio</b>	More than 48dB	
<b>γ correction</b>	0.45	
<b>White Balance</b>	EL, BJ, BT: AWB (Auto White Balance) mode only L, CS, BCS: AWB and White Balance lock modes. CL, CCS, CJ, CT: AWB, White Balance lock, PWB modes.	
<b>Aperture Correction</b>	On	
<b>AGC</b>	On	
<b>Pixel Blemish Correction</b>	On	
<b>Flicker Compensation</b>	On/Off	(DIP SW selectable)
<b>Mirror Image</b>	On/Off	(DIP SW selectable)
<b>Back Light Compensation</b>	On/Off	(DIP SW selectable)
<b>Shutter Functions</b>	1/60 (NTSC) or 1/50 (PAL), Electronics Iris	(DIP SW selectable)

<b>Electronics Iris</b>	1/60-1/100,000sec (NTSC) 1/50-1/100,000sec (PAL)	
<b>External Sync. Method</b>	L, CS, BCS, BJ, BT, CJ, CT: None CL, CCS: HD/VD and VS EL: VS	
<b>DSP Communication</b>	I2C	(Requires USB adapter Jig)
<b>Auto Iris Lens Driver</b>	DC Drive	(BCS, BJ, BT Type Only)
<b>Power Input Voltage</b>	8.0 – 13.2Vdc 10.5 – 14.0Vdc	(L, CS Type) (BCS, CL, CCS, EL, BJ, BT, CJ, CT Type)
<b>Power Consumption</b>	130mA at 12Vdc 150mA at 12Vdc 180mA at 12Vdc	(L, CS Type) (BCS, EL, BJ, BT Type) (CL, CCS, CJ, CT Type)
<b>Dimensions</b>	32mm(W) x 32mm(H) 35mm(W) x 42.5mm(H) x 54.5(D)	(Board Type) (Case Type)

### 3. Product Variations

The following chart shows basic functions of all products of the series. All N63 series models are NTSC and all P63 series models are PAL models.

Model Number		Number of Board	Lens Type	Iris Lens Driver	Output Format	External Sync.	White Balance	Power Connection	
Board Type	N63	P63	No lens-	-	VBS	None	Auto, WB-Lock	-	
	N63L	P63L	Fixed Lens						
	N63CS	P63CS	CS Mount						
	N63BCS	P63BCS	2	CS Mount	DC Iris	VBS	None		Auto, WB-Lock
	N63CL	P63CL	2	Fixed Lens	-	VBS & Y/C	HD/VD or VS		Auto, WB-Lock, P.W.B
	N63CCS	P63CCS		CS Mount					
	N63EL	-	2	Fixed Lens	-	VBS	VS		Auto
Cased Type	N63BJ	P63BJ	2	CS Mount	DC Iris	VBS	None	Auto	
	N63BT	P63BT						Terminal	
	N63CJ	P63CJ	3	CS Mount	-	VBS & Y/C	None	Auto, WB-Lock, P.W.B	
	N63CT	P63CT						Terminal	

## 4. DIP Switch Operation

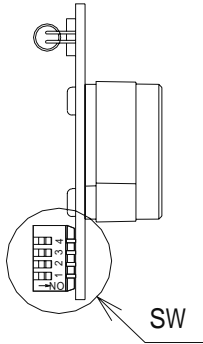


Figure 4-1 Basic Board Type

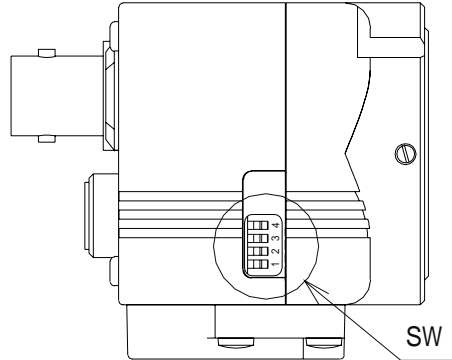
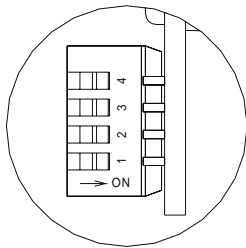


Figure 4-2 Cased Type Camera

There are 4 DIP switches located on the camera (See the figure 4-1 and 4-2). Figure 4-3 shows the function of each DIP switch.



	OFF Position	ON Position
(4)	Back Light Compensation : OFF	Back Light Compensation : ON
(3)	Flicker Compensation : OFF	Flicker Compensation : ON
(2)	Electronic Iris [1/60(1/50) to 1/100,000]	Fixed Shutter [1/60(NTSC), 1/50(PAL)]
(1)	Normal Image	Mirror Image

Figure 4-3 Table of the DIP switch functions

## 5. White Balance Operations

This series of cameras has very powerful and convenient White Balance mode switching function. These are set by switches (cased version) or by shorting wires from the main wiring connector.

### a. EL, BJ and BT types

Only AWB (Auto White Balance) mode is available and the camera operates in AWB mode all the time.

### b. L, CS and BCS types

White Balance Mode is controlled by shorting or opening “WB-Lock” and “GND” wires (See figure 6-1 and 6-2).

As long as “WB-Lock” and “GND” wires are opened, the camera will operate in AWB mode continuously. Then the White Balance will be locked when these wires are shorted together. As long as the wires are continuously shorted, the White Balance is locked until the power is turned off.

(Notes)

1. If the camera power is turned off while the white balance is fixed (“WB-Lock” (Pin-7) and “GND” (Pin-8) are shorted), the camera does not retain the white balance value.
2. If “WB-Lock” (Pin-7) and “GND” (Pin-8) are shorted and the camera power is turned on, the camera will operate in the auto white mode for a few seconds and will then fix and retain the white value.

### c. CL and CCS type

Like CS and BCS type, White Balance Mode is controlled by shorting or opening “WB-Lock” and “GND” wires (See figure 6-4).

As long as “WB-Lock” and “GND” wires are opened, the camera operates in AWB mode continuously. Then the White Balance will be locked when these wires are shorted together. After this, as long as the wires are continuously shorted the White Balance is continuously locked until power is turned off.

While “WB-Lock” and “GND” wires are shorted together (this means the camera is in WB lock mode), if you short “P.W.B” to “GND” wire, the camera goes back to AWB while these two wires are shorted together. Then the White Balance will be locked again when “P.W.B.” wire is opened from “GND”. We call this function “Push to set White Balance”.

(Notes)

1. If the camera power is turned off while the white balance is fixed (“WB-Lock” (Pin-7) and “GND” (Pin-8) are shorted), the camera does not retain the white balance value.
2. If “WB-Lock” (Pin-7) and “GND” (Pin-8) are shorted and the camera power is turned on, the camera will operate in the auto white mode for a few seconds and then will fix and retain the white value.

### d. CJ and CT type

White Balance operation is exactly same as CS and BCS types. However, in the case of CJ and CT types, the wire connections of “WB-Lock” and “P.W.B.” mentioned above are provided as “WB” (White Balance Mode) switch and “PUSH” (Push to Set White) switch respectively (See figure 6-5).

By setting “WB” switch to AUTO, the camera continuously operate in AWB (Auto White Balance) mode and “PUSH” switch operation is ignored. However as soon as “WB” switch is turned to up side (“PUSH” switch side), White Balance is locked at the state of that moment. In this “WB” switch position, “PUSH” switch is pushed and held, the camera will go back to AWB mode only during the “PUSH” switch is held in. This operation is called “Push to Set White Balance” and the typical application of this mode is the following;

- Provide white surface (i.e. white paper) and aim the camera toward the white surface. Make certain the white surface covers entire viewing area of the camera.
- Use the light source you are going to use for the camera operation.
- Turn the “WB” switch upward (“PUSH” switch side).
- Push and hold “PUSH” switch until the screen becomes as desired white and then release it.
- Use the camera to capture the images from the objects.

(Notes)

1. If the camera power is turned off while the “WB” switch is turned to up side (“PUSH” switch side), the camera does not retain the white balance value.
2. If the “WB” switch is turned to up side (“PUSH” switch side), and the camera power is turned on, the camera will operate in the auto white mode for a few seconds and then will fix and retain the white value.

## 6. Connector Pin Assignment

### a) "L" and "CS" type connector pin assignment

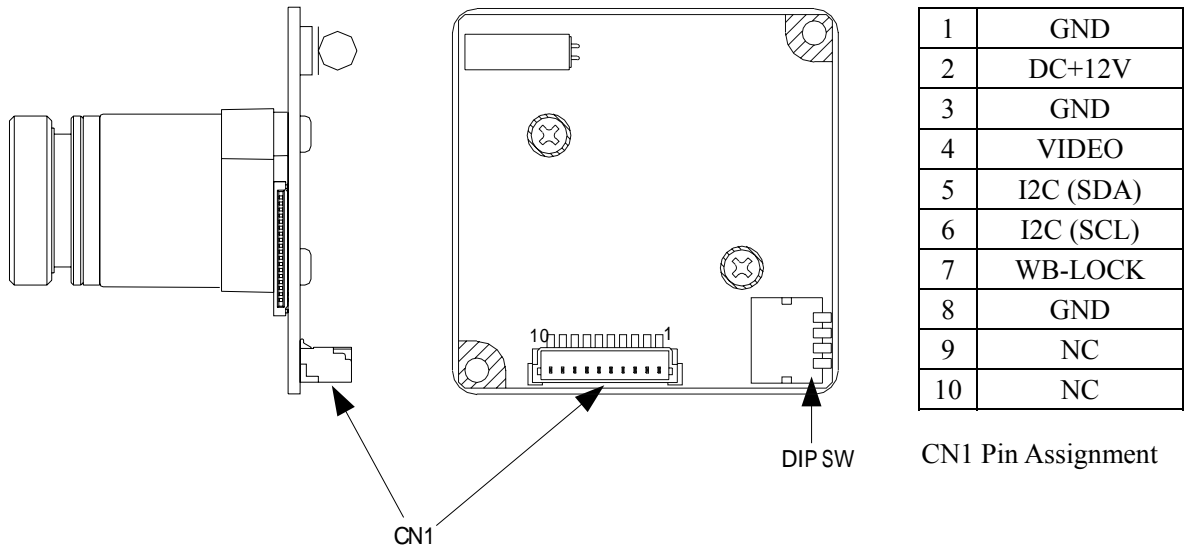


Figure 6-1: "L" and "CS" type connector pin assignment

### b) "BCS" type connector pin assignment

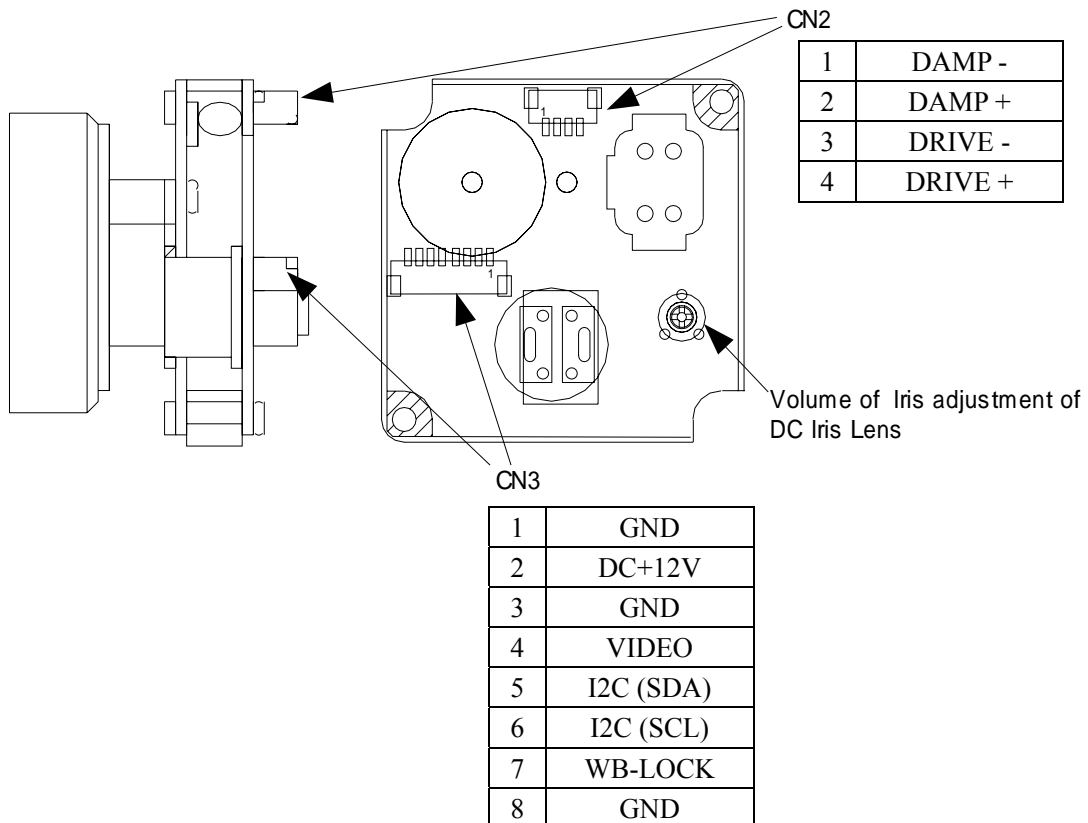


Figure 6-2: "BCS" type connector pin assignment

c) “BJ” and “BT” type connector pin assignment

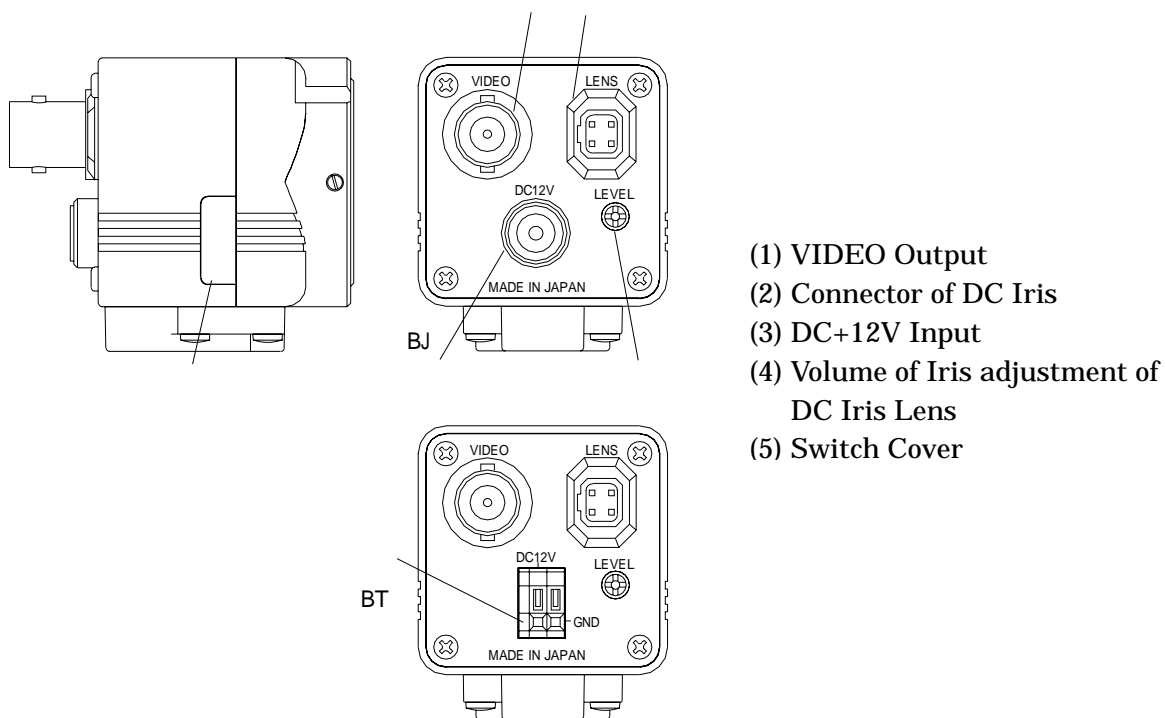


Figure 6-3: “BJ” and “BT” type connector pin assignment

d) “CL” and “CCS” type connector pin assignment

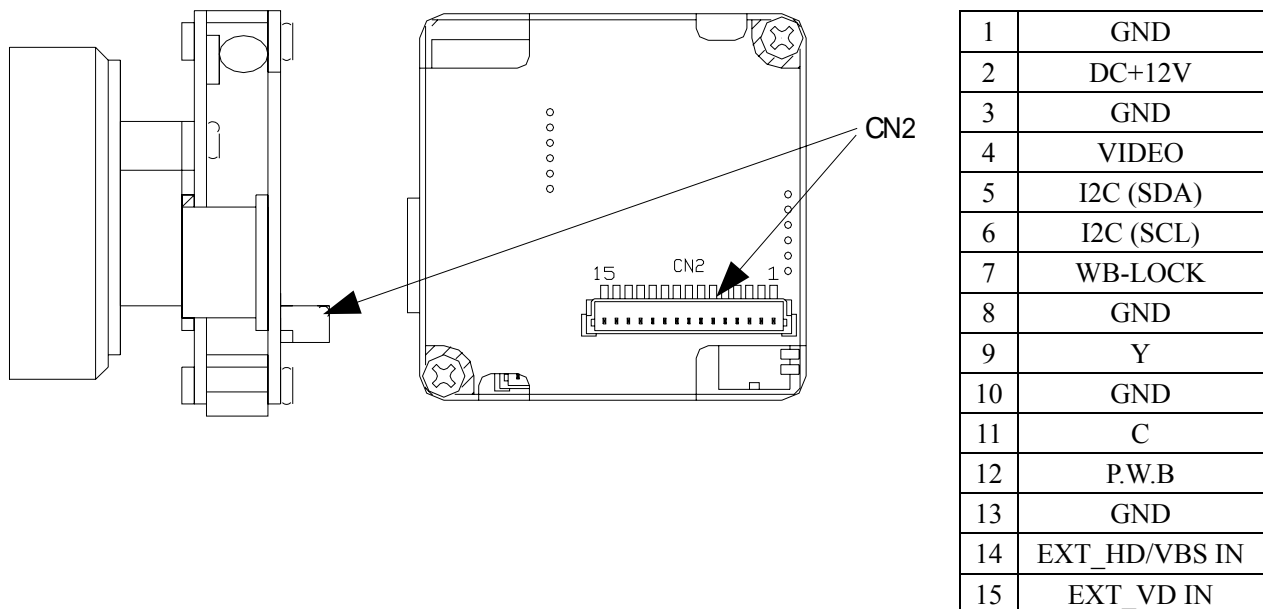
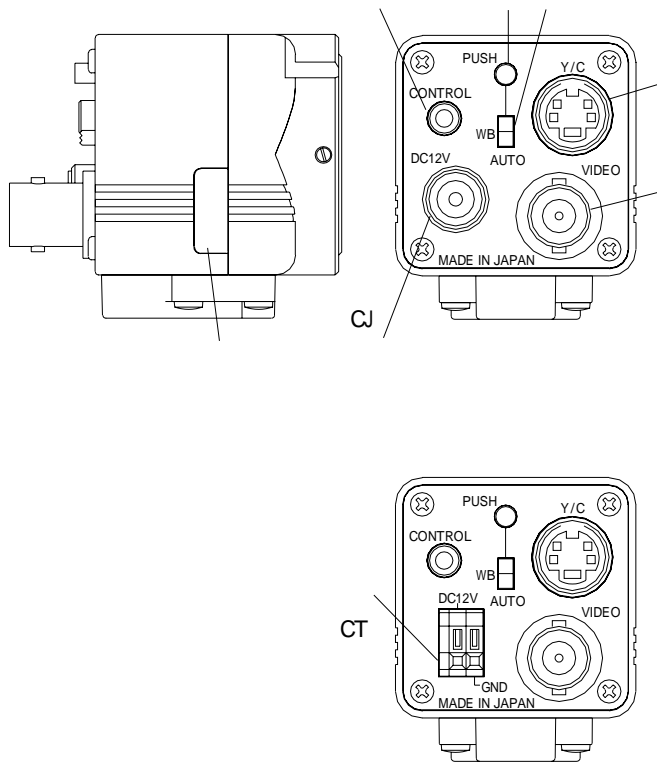


Figure 6-4: “CL” and “CCS” type connector pin assignment

e) “CJ” and “CT” type connector pin assignment

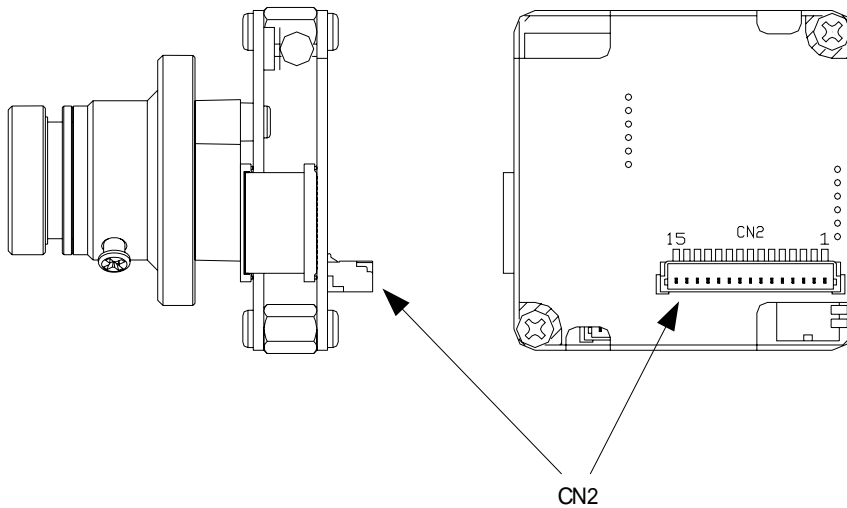


- VIDEO Output
- Y/C Output
- White Balance Auto/Lock select Switch
- Push Switch of Push to set White Balance
- PC Communications Terminal (I2C)
- DC+12V Input
- Switch Cover

(Note)  
To achieve DSP set up communication, USB adapter, sold separately, is required.

Figure 6-5: “CJ” and “CT” type connector pin assignment

f) “EL” type connector pin assignment



1	GND
2	DC+12V
3	GND
4	VIDEO
5	I2C (SDA)
6	I2C (SCL)
7	NC
8	GND
9	NC
10	GND
11	NC
12	NC
13	GND
14	VBS IN
15	NC

Figure 6-6: “EL” type connector pin assignment

## 7. Dimensions

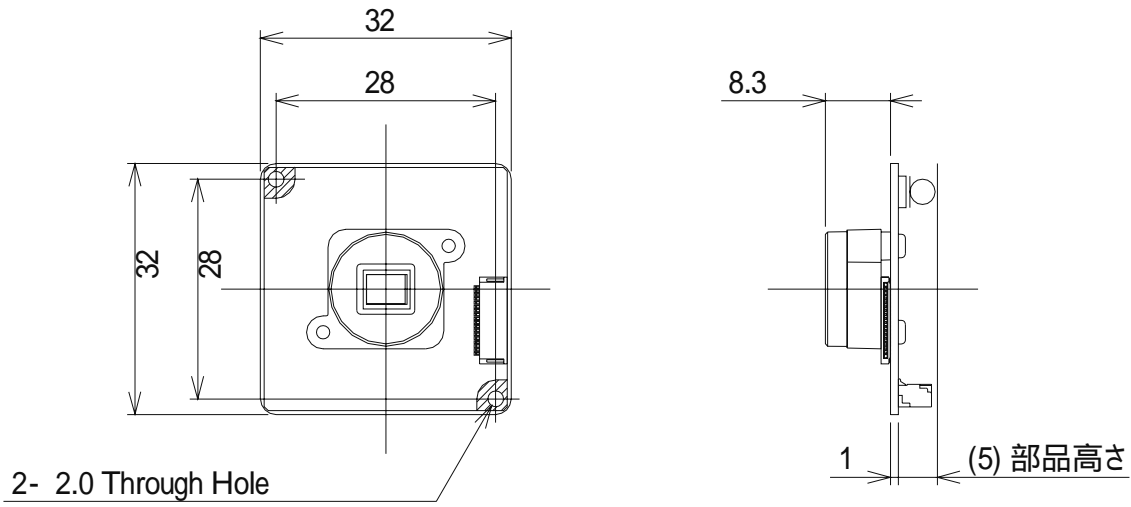


Figure 6-1: STC-N63, STC-P63

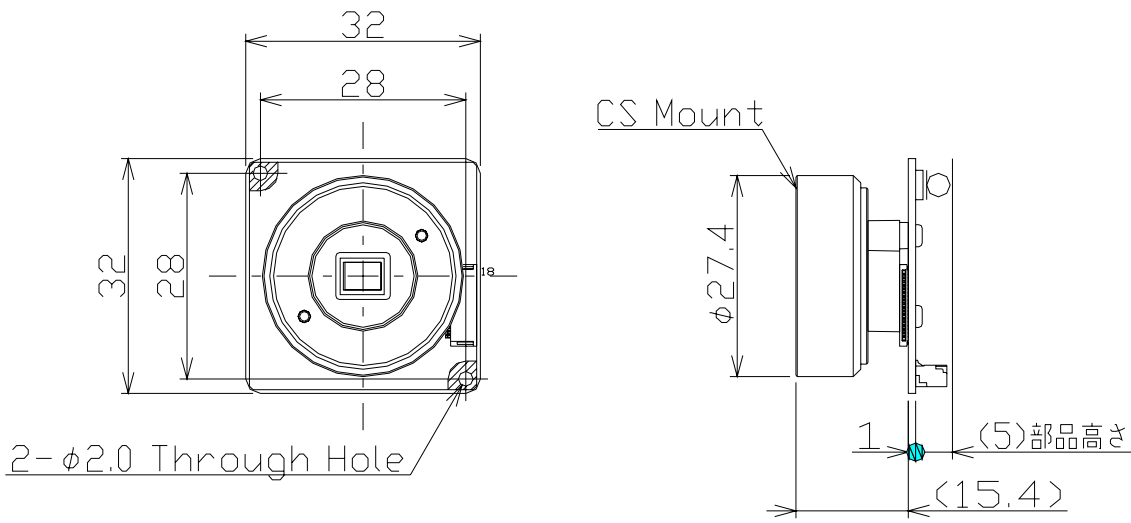
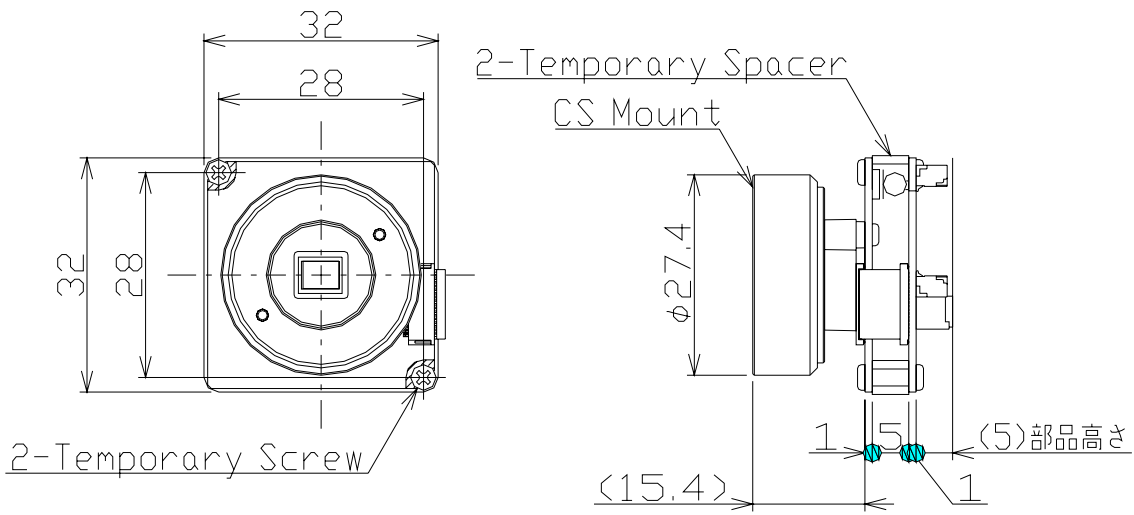
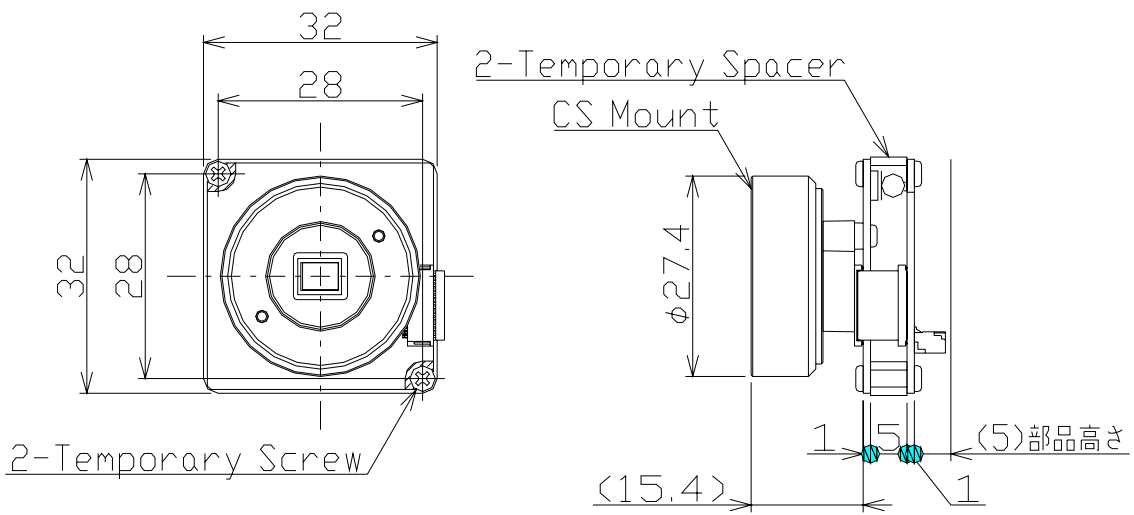


Figure 6-2: STC-N63CS, STC-P63CS



**Figure 6-3: STC-N63BCS, STC-P63BCS**



**Figure 6-4: STC-N63CCS, STC-P63CCS**

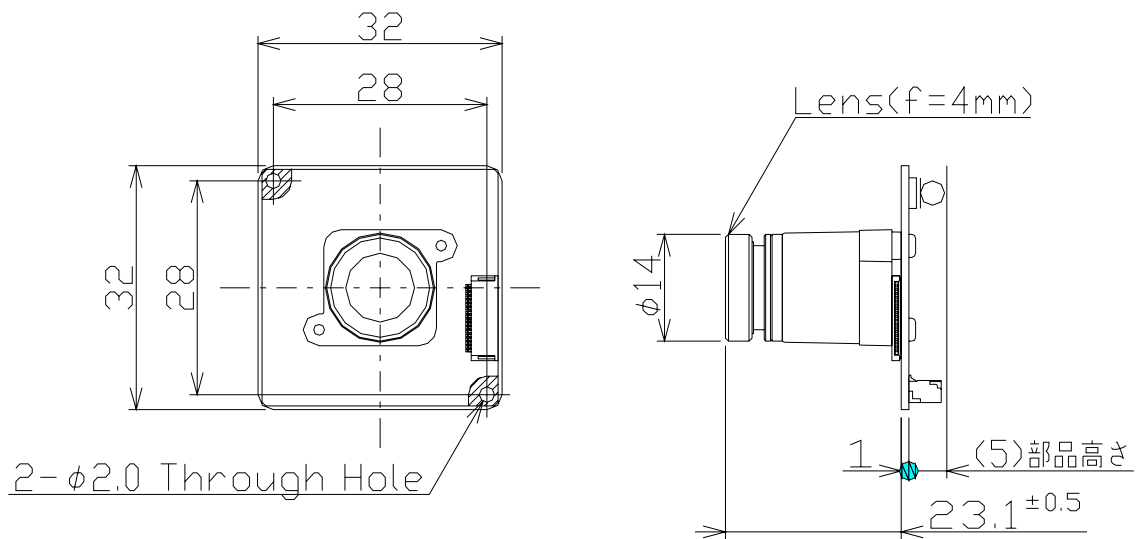


Figure 6-5: STC-N63L4, STC-P63L4

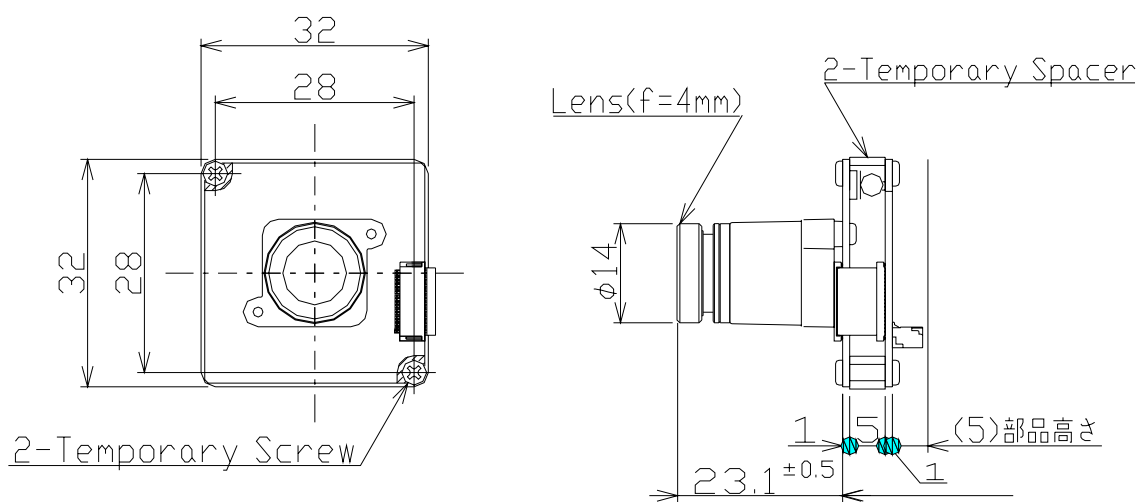
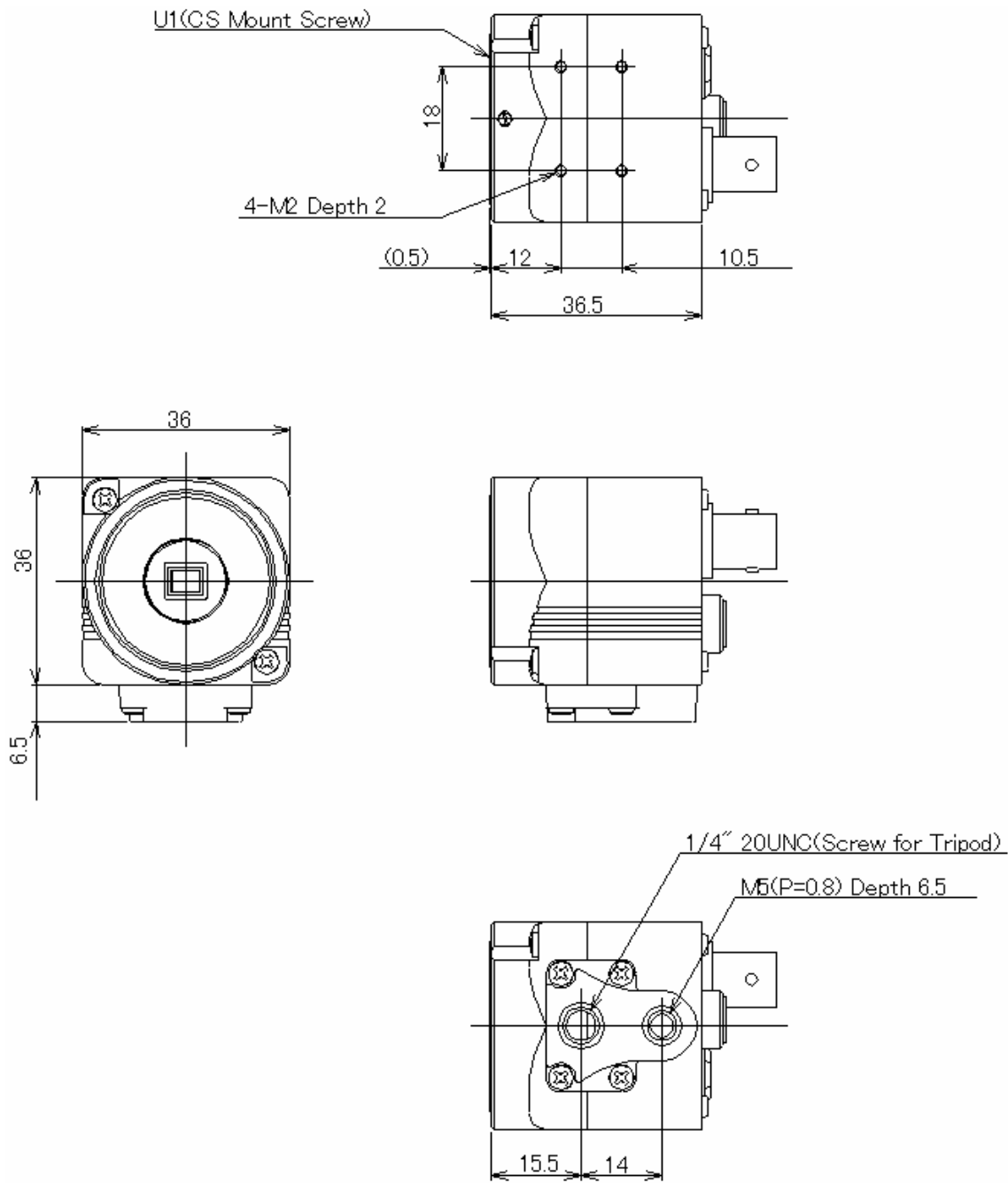


Figure 6-6: STC-N63CL4, STC-P63CL4



**Figure 6-7: STC-N63BJ, STC-P63BJ**