



CCD COLOR CAMERA

Model CS5270B/CS5270BP

Instruction Manual

Thank you for purchasing our product.
Before using this CCD Color camera, please read through this instruction manual carefully in order to use this product correctly and safely.
After reading, keep this instruction manual handy so that you can refer to, whenever you need it.

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Safety Precautions

Before using this product, read these safety precautions carefully. Important information is shown in this Instruction Manual to protect users from bodily injuries and property damages, and to enable them to use the product safely and correctly.

Please be sure to thoroughly understand the meanings of the following signs and symbols before reading the main text that follow, and observe the instructions given herein.

[Definition of Safety Signs]



Safety Signs	Description
 WARNING	Indicates a potentially hazardous situation that may result in death or serious injury (*1) in the event of improper handling.
 CAUTION	Indicates a potentially hazardous situation that may result in light to moderate injuries (*2) or only in property damage (*3) in the event of improper handling.

Notes *1: "Serious injury" refers to cases of loss of eyesight, wounds, burns (high or low temperature), electric shock, broken bones, poisoning, etc., which leave after-effects or which require hospitalization or a long period of outpatient treatment of cure.

*2: "Light to moderate injuries" refers to injuries, burns, electric shock etc. that do not require hospitalization or long-term treatment.

*3: "Property damage" refers to cases of extensive damage involving damage to buildings, equipment, farm animals, pet animals and other belongings.

[Explanation of Safety Symbols]

Safety Symbols	Description
 PROHIBITED	This sign indicates PROHIBITION (Do not). The content of prohibition is shown by a picture or words beside the symbol.
 MANDATORY	This sign indicates MANDATORY ACTION (You are required to do). The content of action is shown by a picture or words beside the symbol.

[General Handling]

WARNING


unplug

- **Immediately cease use of the equipment in the event of abnormality or malfunction.**
If abnormal conditions are present, such as smoke, a burning smell, ingress of water or foreign matter, or if the equipment is dropped or malfunctions, fire or electric shock may result. If such abnormalities occur, disconnect the power plug from the outlet and contact your sales representative.



Do not get wet

- **Do not use the equipment in locations subject to water splashes.**
Otherwise, fire or electric shock may result.



Never pull apart

- **Do not disassemble, repair, or modify the equipment.**
Otherwise, fire or electric shock may result.
For internal repair, inspection, or cleaning, contact your sales representative.



Avoid

- **Do not place anything on the equipment.**
If metallic objects, liquid, or other foreign matter enters the equipment, fire or electric shock may result.



Avoid

- **Do not install the equipment in an unstable or inclined location or locations subject to vibration or impact.**
Otherwise, the equipment may topple over and cause personal injury.



Do not touch

- **During an electrical storm, do not touch the power cord or connection cable.**
Otherwise, an electric shock may result.



Instruction

- **Use the specified voltage.**
Use of an unspecified voltage may result in fire or electric shock.



Avoid

- **Do not be handled roughly, damaged, fabricated, bent forcefully, pulled, twisted, bundled, placed under heavy objects or heated the power cord, connection cable.**
Otherwise, fire or electric shock may result.

[General Handling]

 **CAUTION**



Instruction

● Observe the following when installing the equipment:

- Do not cover the equipment with a cloth, etc.
- Do not place the equipment in a narrow location where heat is likely to accumulate. Otherwise, heat will accumulate inside the equipment, possibly resulting in a fire.



Avoid

- Do not place the equipment in locations subject to high moisture, oil fumes, steam, or dust.**
-
- Otherwise, fire or electric shock may result.



Avoid

- Do not install the equipment in locations exposed to direct sunlight or humidity.**
-
- Otherwise, the internal temperature of the equipment will rise, which may cause a fire.



Instruction

● Use only specified DC power cables and connection cables.

Otherwise, fire or electric shock may result.



Instruction

● When performing connection, turn off power.When connecting the power cable or connection cable, turn off the equipment power.
Otherwise, fire or electric shock may result.

Instruction

● Contact your sales representative to request periodic inspection and cleaning (every approx. five years).Accumulation of dust inside the equipment may result in fire or electric shock.
For inspection and cleaning costs, contact your sales representative.

CASES FOR INDEMNITY (LIMITED WARRANTY)

We shall be exempted from taking responsibility and held harmless for damage or losses incurred by the user in the following cases.

- In the case damage or losses are caused by fire, earthquake, or other acts of God, acts by a third party, deliberate or accidental misuse by the user, or use under extreme operating conditions.
 - In the case of indirect, additional, consequential damages (loss of business interests, suspension of business activities) are incurred as result of malfunction or non-function of the equipment, we shall be exempted from responsibility for such damages.
 - In the case damage or losses are caused by failure to observe the information contained in the instructions in this instruction manual and specifications.
 - In the case damage or losses are caused by use contrary to the instructions in this instruction manual and specifications.
 - In the case damage or losses are caused by malfunction or other problems resulting from use of equipment or software that is not specified.
 - In the case damage or losses are caused by repair or modification conducted by the customer or any unauthorized third party (such as an unauthorized service representative).
 - Expenses we bear on this product shall be limited to the individual price of the product.
-

RESTRICTION FOR USE

- Should the equipment be used in the following conditions or environments, give consideration to safety measures and inform us of such usage:
 1. Use of the equipment in the conditions or environment contrary to those specified, or use outdoors.
 2. Use of the equipment in applications expected to cause potential hazard to people or property, which require special safety measures to be adopted.
 - This product can be used under diverse operating conditions. Determination of applicability of equipment or devices concerned shall be determined after analysis or testing as necessary by the designer of such equipment or devices, or personnel related to the specifications. Such designer or personnel shall assure the performance and safety of the equipment or devices.
 - This product is not designed or manufactured to be used for control of equipment directly concerned with human life (*1) or equipment relating to maintenance of public services/functions involving factors of safety (*2). Therefore, the product shall not be used for such applications.

(*1): Equipment directly concerned with human life refers to.

 - Medical equipment such as life-support systems, equipment for operating theaters.
 - Exhaust control equipment for exhaust gases such as toxic fumes or smoke.
 - Equipment mandatory to be installed by various laws and regulations such as the Fire Act or Building Standard Law
 - Equipment related to the above

(*2) :Equipment relating to maintenance of public services/functions involving factors of safety refers to.

 - Traffic control systems for air transportation, railways, roads, or marine transportation
 - Equipment for nuclear power generation
 - Equipment related to the above
-

Notes on using this product

- **Handle carefully**

Do not drop the equipment or allow it to be subject to strong impact or vibration, as such action may cause malfunctions. Further, do not damage the connection cable, since this may cause wire breakage.

- **Environmental operating conditions**

Do not use the product in locations where the ambient temperature or humidity exceeds the specifications. Otherwise, image quality may be degraded or internal components may be adversely affected. In particular, do not use the product in areas exposed to direct sunlight. Moreover, during shooting under high temperatures, vertical stripes or white spots (noise) may be produced, depending on the subject or camera conditions (such as increased gain). However, such phenomena are not malfunctions.

- **Check a combination with the lens**

Depending on the lens and lighting you use, an image is reflected as a ghost in the imaging area. However, this is not because of a fault of the camera.

In addition, depending on the lens you use, the performance of the camera may not be brought out fully due to deterioration in resolution and brightness in the peripheral area, aberration and others.

Be sure to check a combination with the camera by using the lens and lightning you actually use.

When installing a lens in the camera, make sure carefully that it is not tilted.

In addition, use a mounting screw free from defects and dirt. Otherwise, the camera may be unable to be removed.

- **Do not shoot under intense light.**

Avoid intense light such as spot lights on part of the screen because it may cause blooming or smears. If intense light falls on the screen, vertical stripes may appear on the screen, but this is not a malfunction.

- **Occurrence of moiré**

If you shoot thin stripe patterns, moiré patterns (interference fringes) may appear. This is not a malfunction.

- **Occurrence of noise on the screen**

If an intense magnetic or electromagnetic field is generated near the camera or connection cable, noise may be generated on the screen. If this occurs, move the camera or the cable.

- **Handling of the protective cap**

If the camera is not in use, attach the lens cap to the camera to protect the image pickup surface.

- **If the equipment is not to be used for a long duration**

Turn off power to the camera for safety.

- **Maintenance**

Turn off power to the equipment and wipe it with a dry cloth.

If it becomes severely contaminated, gently wipe the affected areas with a soft cloth dampened with diluted neutral detergent. Never use alcohol, benzene, thinner, or other chemicals because such chemicals may damage or discolor the paint and indications.

If the image pickup surface becomes dusty, contaminated, or scratched, consult your sales representative.

- **Disposal**

When disposing of the camera, it may be necessary to disassemble it into separate parts, in accordance with the laws and regulations of your country and/or municipality concerning environmental contamination.

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 communication.

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.

1. Overview

The CS5270B/CS5270BP is a one-piece type (*) CCD color camera with a ultra-compact & light-weight body.

[*One-piece type : One integrated body made up of the camera head & the camera control unit]

2. Features

- (1) The camera is driven by DC+12V.
- (2) The ultra-compact & light-weight body is best suited for observation and other applications.
- (3) Just with one push of this button, the camera will adjust its white-balance.

3. Configuration

- (1) Camera body 1
- (2) Accessories
 - Instruction Manual (Japanese)..... 1

4. Optional parts

- (1) Power cable
- (2) Camera mounting kit
- (3) Camera adapter

Model name: CPRC5260D-**

Model name: CPT8420

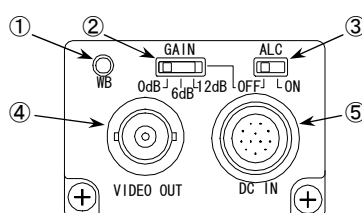
Model name: CA5260

Notes on optional parts and compliance with safety standard conditions:

We assure the compliance of this camera with the safety standard when it is used in combination with the optional parts listed above.

If you use the camera in combination with parts other than specified by our company, you are responsible for finally confirming the compliance with the safety standard by using the entire machine/equipment.

5. Name of Each Parts



①WB

Just with one push of this button, the camera will adjust its white-balance when a subject's color temperature shifts. AWB is performed during WB button push, and held (=HOLD) when the button is released.

②GAIN

This is the fixed GAIN selection switch.(Enabled only under ALC OFF)

③ALC

This is the ALC(Automatic Light Control) selection switch. With ALC ON, the camera can capture optimal images despite the changes in the ambient lighting condition, or high-illumination subjects.

④VIDEO OUT

This is the output connector for composite video signals. Connect this with the video monitor.

⑤DC IN

This is the connector for power supply, video output, and adjustment signals. Connect this with the power supplier or the video monitor.

Compatible connector — HR10A-10P-12S (Manufactured by HIROSE ELECTRIC)

Table 1 : Pin Assignment

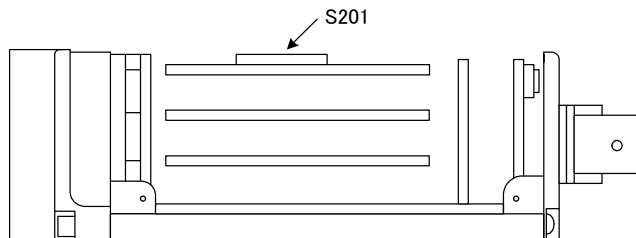
Pin number	Signal name
1	GND
2	+12V
3	GND
4	VIDEO OUT
5	GND
6	SI (Adjustment signal)
7	PC(Adjustment signal)
8	C.OUT
9	SO(Adjustment signal)
10	Y.OUT
11	+12V
12	GND

6. Control of internal dip switches

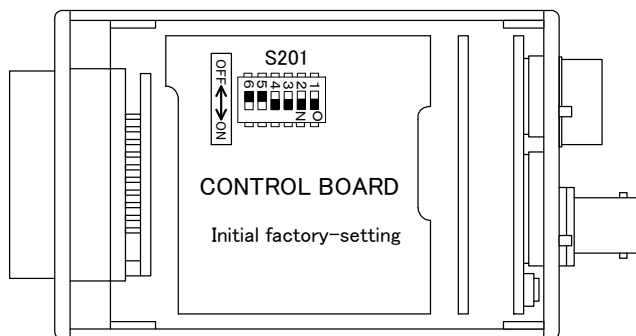
(1)The inner structure

The inner structure of this camera is shown as follows.

- The side-view of a CS5270B/CS5270BP without the cabinet



- The top-view of a CS5270B/CS5270BP without the cabinet



(2)Setting of inner selection switches

With the S201 switch on the CONTROL board, ALC mode setting is available.

***The initial factory setting :**

Table 2 Setting of Inner Selection Switches

Inner Selection Switch		Enabled Condition	ON	OFF
	1	Under ALC OFF	Shutter speed setting SW (Refer to <i>table 3</i>)	
	2			
	3			
	4	Under ALC ON	Flicker-less ON	Flicker-less OFF
	5	Always	Fix ON	
	6		Fix ON($\gamma = 0.45$)	

- Under S201-4 ON (=Flicker-less ON) — CS5270B : Shutter speed 1/100(s) —
CS5270BP : Shutter speed 1/120(s)
- With S201-4 ON, fluorescent light flicker is reduced. (Under rear-panel SW ALC ON only)
- S201-5 & 6 should be set ON constantly.

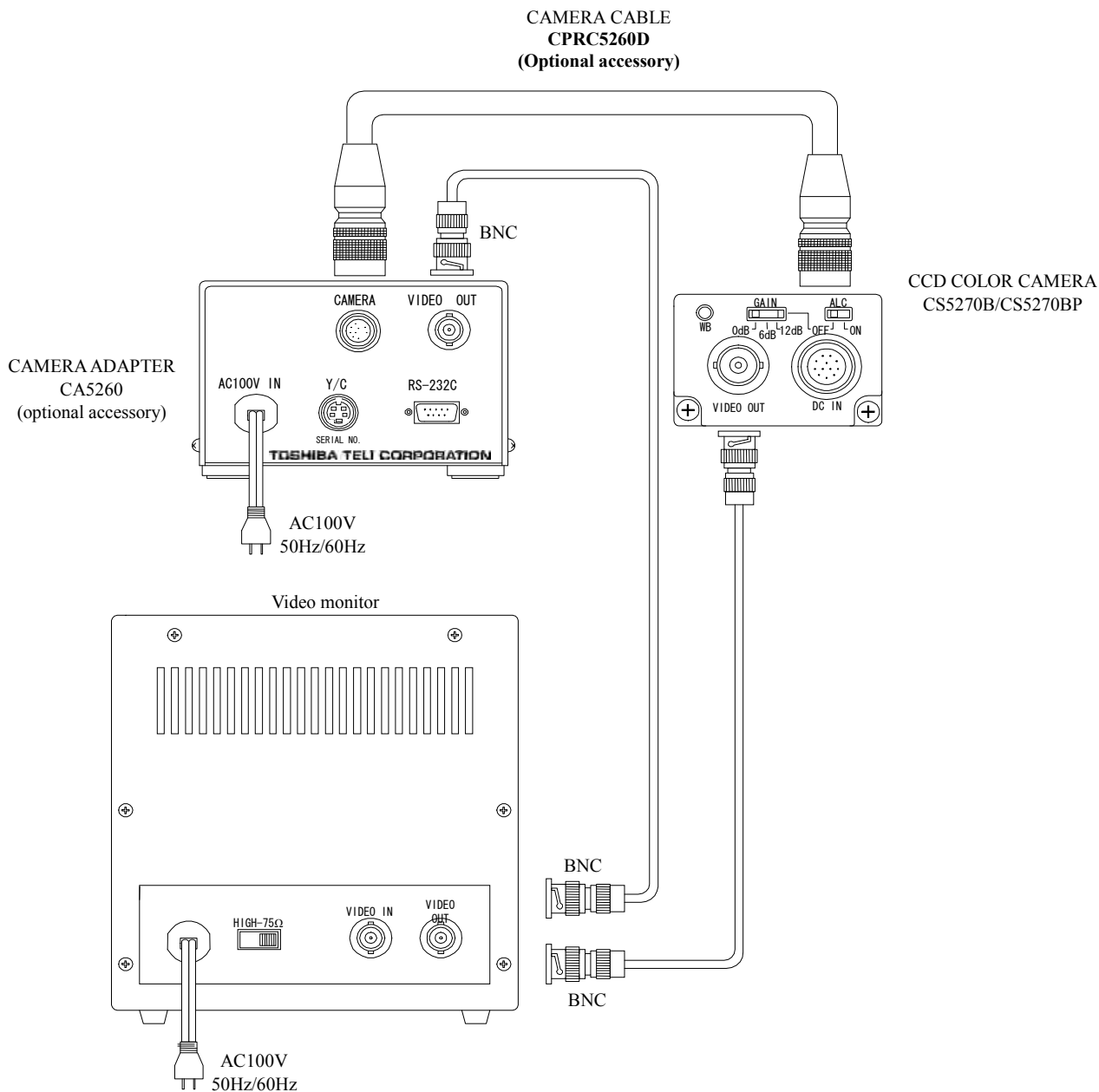
Table 3 Shutter Speed Setting

Shutter speed (s)		S201		
CS5270B	CS5270BP	1	2	3
1/60	1/50	OFF	OFF	OFF
1/100	1/120	ON	OFF	OFF
1/250	1/250	OFF	ON	OFF
1/500	1/500	ON	ON	OFF
1/1000	1/1000	OFF	OFF	ON
1/2000	1/2000	ON	OFF	ON
1/4000	1/4000	OFF	ON	ON
1/10000	1/10000	ON	ON	ON

7. Connection(recommendation)

Connect this camera as shown in the figure below.

(The figure below shows an example of connection. For details, contact our sales representative.)



8. How to set up your camera

- (1) Connect the camera, video monitor, and the power supply onto each other.
- (2) Set the power switch of video monitor ON.
- (3) Supply power to the camera.
- (4) After confirming that images appear on the video monitor, adjust the lens aperture to obtain optimal illumination.
- (5) While monitoring images on the video monitor, adjust the focus of lens to obtain the sharpest images.
- (6) Shoot at any white subject, and then push WB button on the rear panel to adjust white-balance.
- (7) Depending on the shooting environment, select ON/OFF of ALC mode via inner switch and rear switch. Refer to section 4,5 of this manual for information on to how to make settings.

9. Specifications

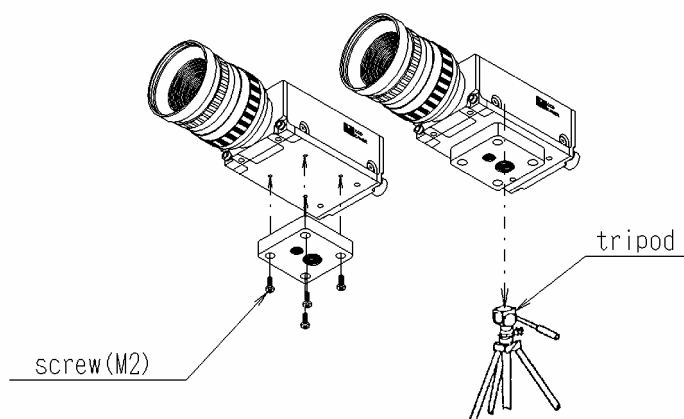
1	Model	CS5270B	CS5270BP
2	TV system	NTSC	PAL
3	Image sensor	Interline CCD	
	①Total pixels	811(H) × 508(V)	795(H) × 596(V)
	②Active pixels	768(H) × 494(V)	752(H) × 582(V)
	③Pixel size	8.4 μm(H) × 9.8 μm(V)	8.6 μm(H) × 8.3 μm(V)
	④Scanning area	6.45(H) × 4.84(V)mm	6.47(H) × 4.84(V)mm
	⑤Color filter	Corrective mosaic filter (Ye, Cy, Mg, G)	
⑥CCD integration	Field integration (Field-electrical-charge-storage)		
4	Scanning system	2:1 interlace	
5	Sync system	Internal	
6	Aspect ratio	4:3	
7	Scanning lines	525 lines	625 lines
8	Scanning frequency	15.734kHz(H), 59.94Hz(V)	15.625kHz(H), 50Hz(V)
9	Sensitivity	1000 lx (F8, 3000K)	
10	Minimum subject illumination	4 lx (F1.4, ALC ON, Output level: Approx. 50%)	5 lx (F1.4, ALC ON, Output level: Approx. 50%)
11	Video output	VIDEO VBS : 1.0 V(p-p)/75 Ω terminal, Positive Y/C VS: 1.0 V(p-p)/75 Ω terminal, Positive CHROMA: 0.286 V(p-p)/75 Ω terminal	
12	Resolution	470 TV lines(H), 350 TV lines(V)	470 TV lines(H), 420 TV lines(V)
13	S/N ratio	46dB(p-p)/rms	
14	γ correction	0.45(Fixed)	
15	Gain	ALC ON/OFF selectable (Initial: ALC OFF, 0dB) Corrective range under ON mode : 0dB~60dB Corrective range under OFF mode : Selectable among 12dB, 6dB, 0dB	
16	Electronic shutter	ALC ON/OFF selectable (Initial: ALC = OFF 1/60(s) fixed) Corrective range under ON mode : 0dB~60dB Under OFF mode: Refer to <i>table 3</i> 「Shutter Speed Setting」	
17	White balance	AUTO/HOLD one-push selectable Corrective range under AUTO mode : 2800K~6500K	
18	Power source	DC+12V ± 10% (Ripple voltage : Less than 20mV(p-p))	
19	Power consumption	Approximately 230mA (DC+12V)	
20	Ambient condition	Temperature: 0°C ~ 40°C Humidity: 30% ~ 85% (No condensation)	
21	Lens mount	C mount lens	
22	Weight	Approx. 160g	

10. How to mount your camera

There are several alternative ways to fix the camera. Choose your method among the following options.

(1) Option 1 : Using a camera tripod fixing kit

Use an optional tripod fixing kit to fix the camera onto the tripod. Use attached screws to affix tripod-mounting hardware to your camera. (See the diagrammatic sketch shown below)



(2) Option 2 : Using the mounting holes (Camera flange)

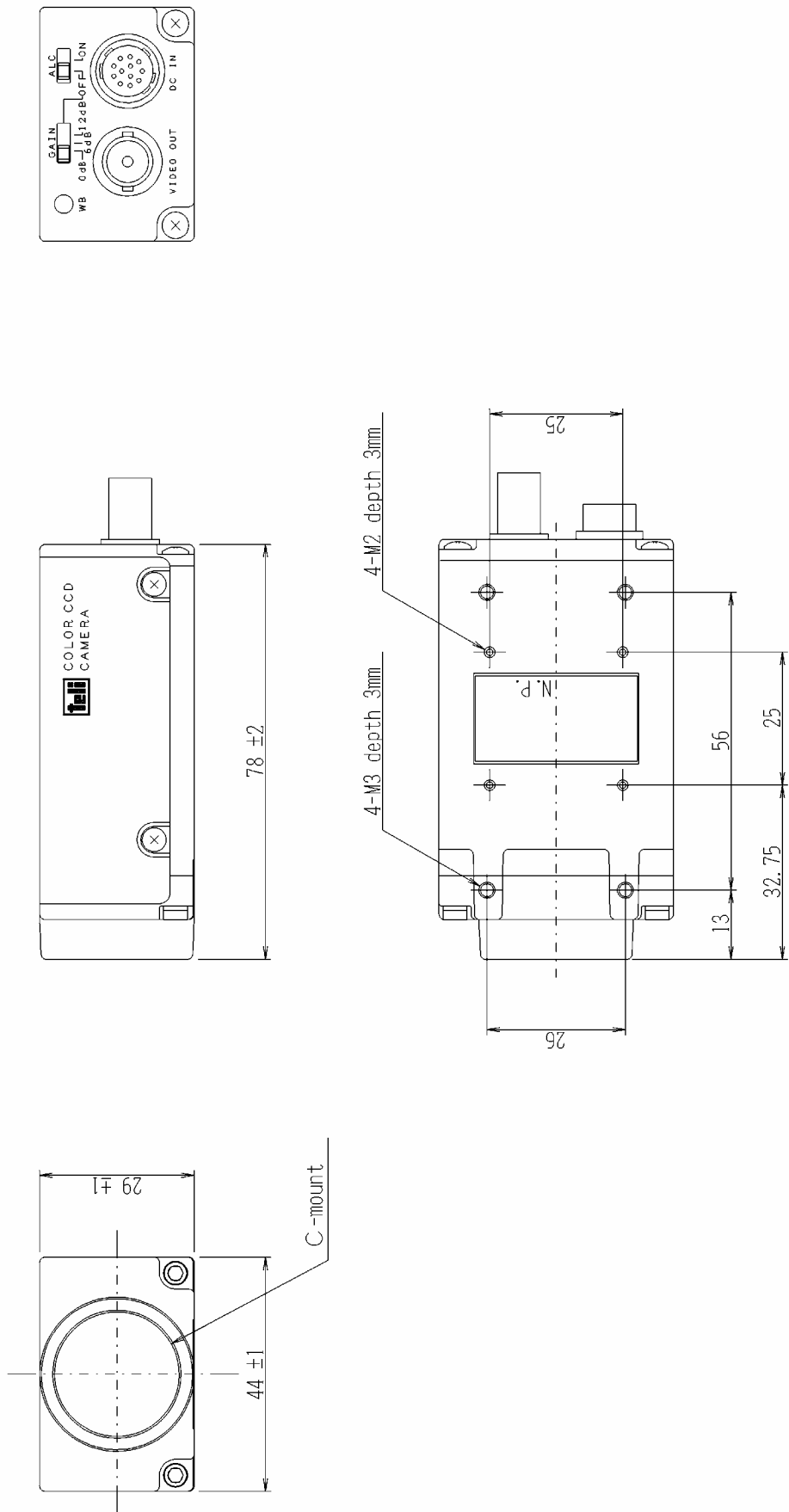
Put M3 screws through these holes (4 place) to fix the camera. Be sure to use screws which are shorter than 3mm.

(3) Option 3 : Using the mounting holes (Bottom side)

Put M2 screws through these holes (4 place) to fix the camera. Be sure to use screws which are shorter than 3mm. Longer screws may damage the inner circuit board.

*When fixing the camera using these camera-mounting-holes, it is recommended that you use both of the method (option 2 & 3) to ensure stable fixing.

11. Outline Drawing





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Distributor

- This product must be classified for disposal according to the laws of each country and municipal laws.
 - Information contained in this document is subject to change without prior notice.
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