



Analog Camera User Manual

FISHEYE

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Safety information

WARNING

•To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

•To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

WARNING

1. Be sure to use only the standard adapter that is specified in the specification sheet.

Using any other adapter could cause fire, electrical shock, or damage to the product.

2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.

3. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.

4. Securely plug the power cord into the power receptacle. insecure connection may cause fire.

5. When installing the camera, fasten it securely and firmly. The fall of camera may cause personal injury.

Safety information

6. Do not place conductive objects (e.g. screwdrivers, coins, metal parts, etc.) or containers filled with water on top of the camera. doing so may cause personal injury due to fire, electric shock, or falling objects.
7. Do not install the unit in humid, dusty, or sooty locations. doing so may cause fire or electric shock.
8. If any unusual smells or smoke come from the unit, stop using the product. in such case, immediately disconnect the power source and contact the service center. continued use in such a condition may cause fire or electric shock.
9. If this product fails to operate normally, contact the nearest service center. never disassemble or modify this product in any way. (It is not liable for problems caused by unauthorized modifications or attempted repair.)
10. When cleaning, do not spray water directly onto parts of the product. doing so may cause fire or electric shock.

CAUTION

1. Do not drop objects on the product or apply strong shock to it. Keep away from a location subject to excessive vibration or magnetic interference.
2. Do not install in a location subject to high temperature (over 55°C), low temperature (below -30°C), or high humidity. Doing so may cause fire or electric shock.
3. If you want to relocate the already installed product, be sure to turn off the power and then move or reinstall it.
4. Remove the power plug from the outlet when there is a lightning. Neglecting to do so may cause fire or damage to the product.
5. Keep out of direct sunlight and heat radiation sources. It may cause fire.
6. Install it in a place with good ventilation.
7. Avoid aiming the camera directly towards extremely bright objects such as sun, as this may damage the CMOS image sensor.
8. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
9. The Mains plug is used as a disconnect device and shall stay readily operable at any time
10. Do not expose the camera to radioactivity. Radioactivity exposure may damage the CMOS.

Important safety instructions

1. Read these instructions.
 2. Keep these instructions.
 3. Heed all warnings.
 4. Follow all instructions.
 5. Do not use this apparatus near water.
 6. Clean only with dry cloth.
 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
 8. Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
 9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
 10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
 11. Only use attachments/accessories specified by the manufacturer.
 12. Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
 13. Unplug this apparatus when a card is used. Use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
 14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
 15. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" and rated from 24 Vac (50/60 Hz) min.0.37 A or 12 Vdc, min.0.32A.
 16. If you use excessive force when installing the product, the camera may be damaged and malfunction.
- If you forcibly install the product using non-compliant tools, the product may be damaged.



17. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table.

This may cause damage to the product.

18. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance.

Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.

19. If you install/disassemble the product in a manner that has not been recommended, the production functions/performance may not be guaranteed.

Install the product by referring to "Installation & connection" in the user manual.

20. Installing or using the product in water can cause serious damage to the product.

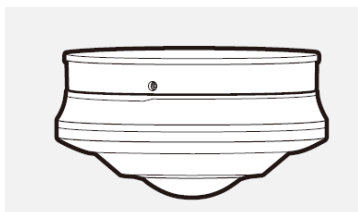


Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus

Overview

WHAT'S INCLUDED

Please check if your camera and accessories are all included in the product package.
(As for each sales country, accessories are not the same.)

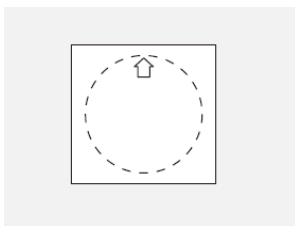


Camera

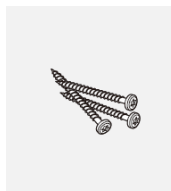


Analog Camera
User Manual

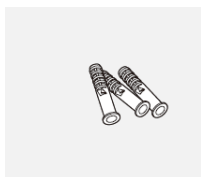
Quick Manual



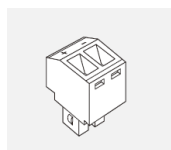
Template



Tapping Screw



Anchor

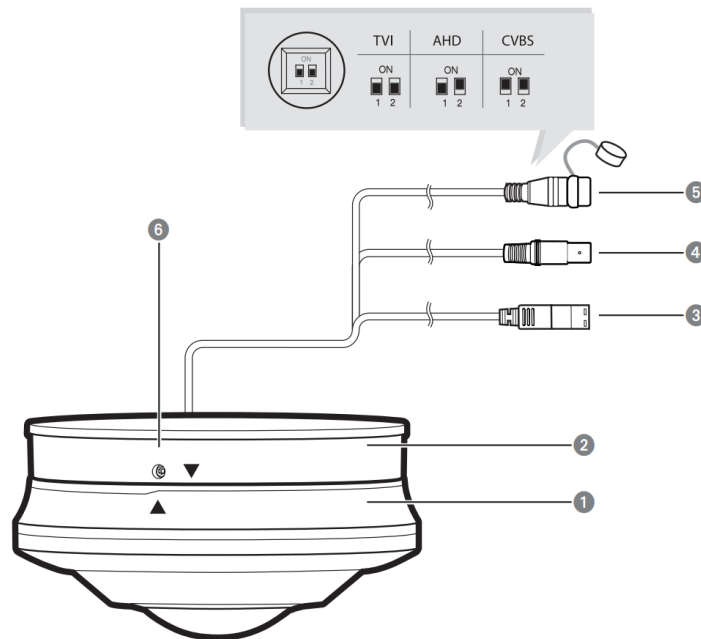


Power Terminal Block

Overview

AT A GLANCE

Appearance



- 1 Camera
- 2 Mounting plate : Used when mounting a camera.
- 3 Power Input Connector (Dual (24VA C & 12VDC))
- 4 Video Output Jack : Print video in configured video format.
- 5 Video configuration switch: the video format you want (TVI/AHD/CVBS).
- 6 Screw hole: used for separating or assembling camera and board.

Installation

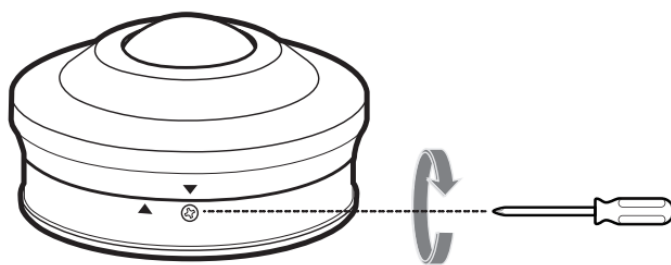
BEFORE INSTALLATION

Ensure you read out the following instructions before installing the camera:

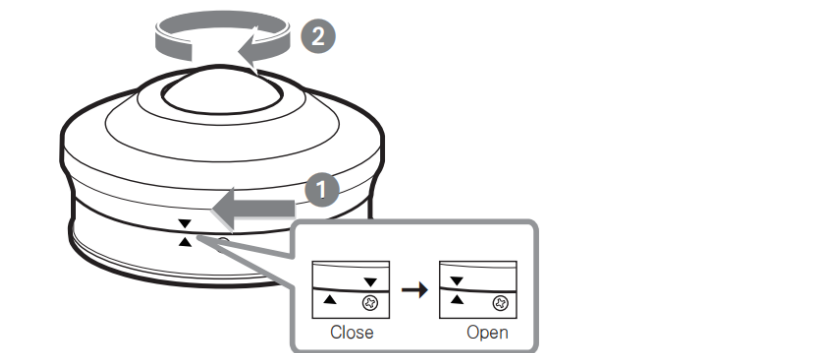
- You have to check whether the location (ceiling or wall) can bear five times the weight of your camera.
- Don't let the cable to be caught in improper place or the electric line cover to be damaged. Otherwise it may cause a breakdown or fire.
- Before installing your camera, you have to adjust the front direction.
- When installing your camera, don't allow any person to approach the installation site.

DISASSEMBLING

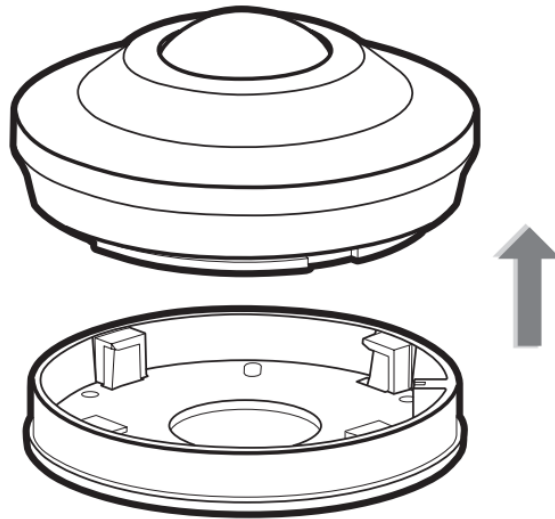
1. Please use cross screws to loosen side screws.



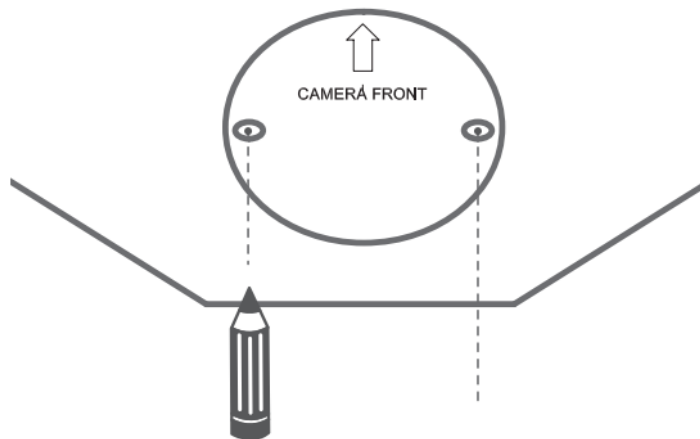
2. The direction of the camera to the clock, separate Mounting plate.



INSTALLATION

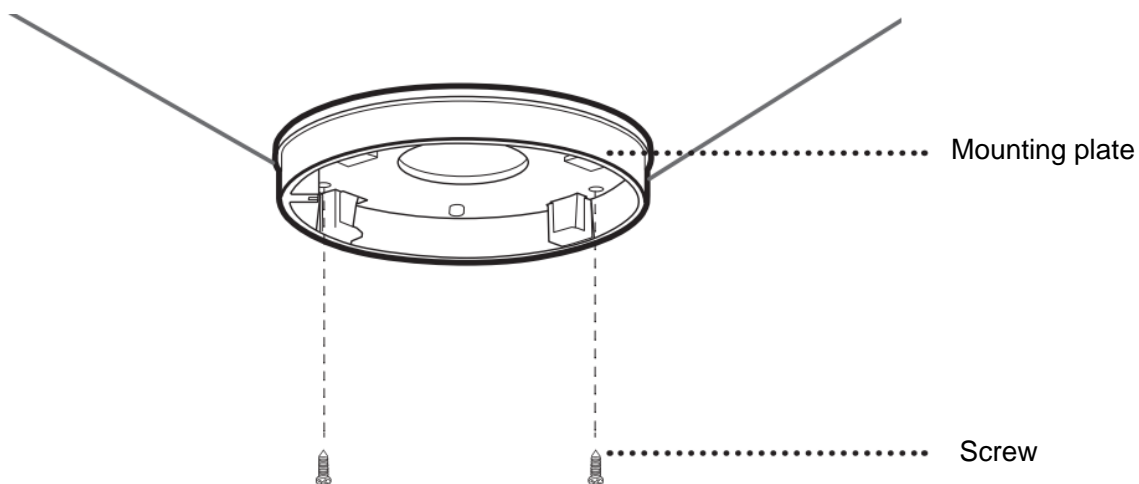


1. Attach the installation template to the selected area and punch 3 holes as shown in the figure.

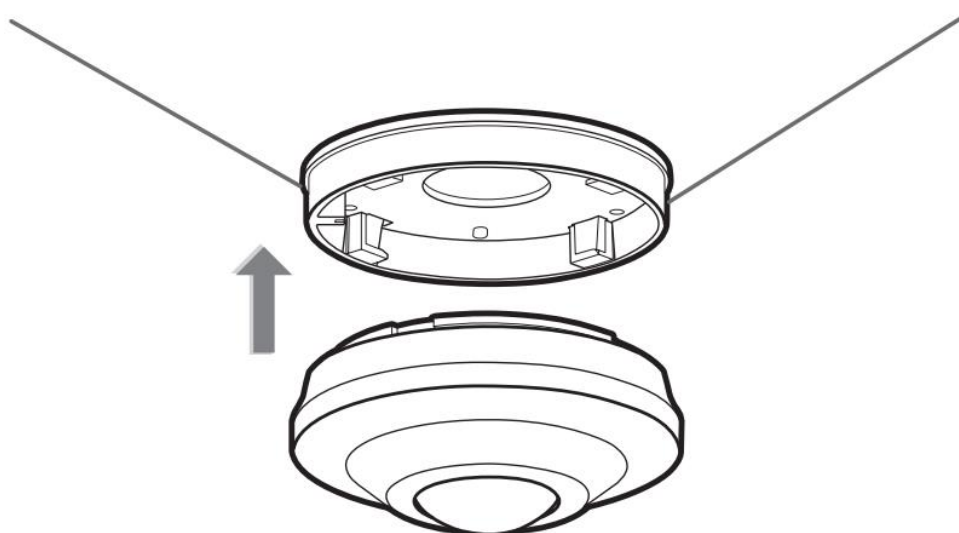


2. Align the installation holes of the camera and use the tapping screws to fix the mounting plate.

- Make sure that the <FRONT> marking on the bottom case is turned towards the direction to monitor.



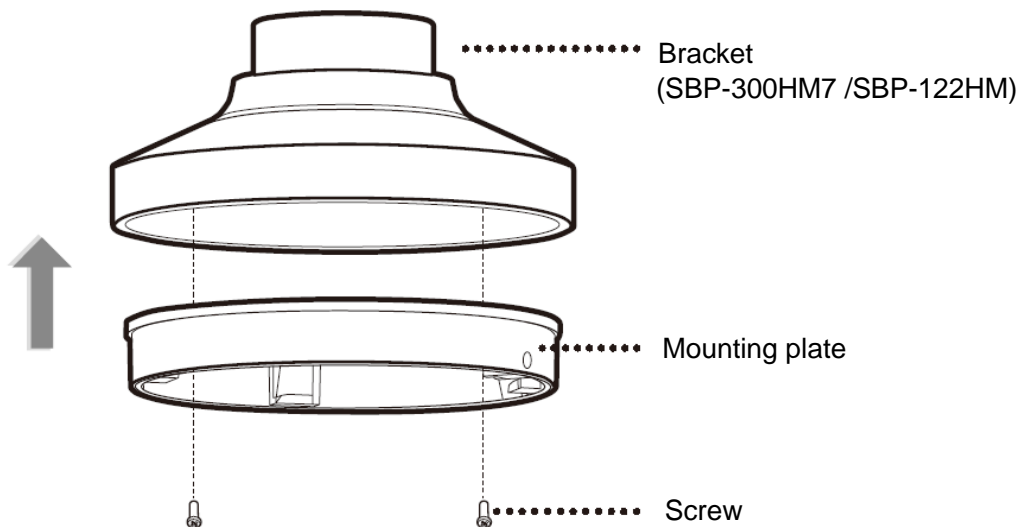
3. "Disassembling" For reference, combine the camera with the hardboard.



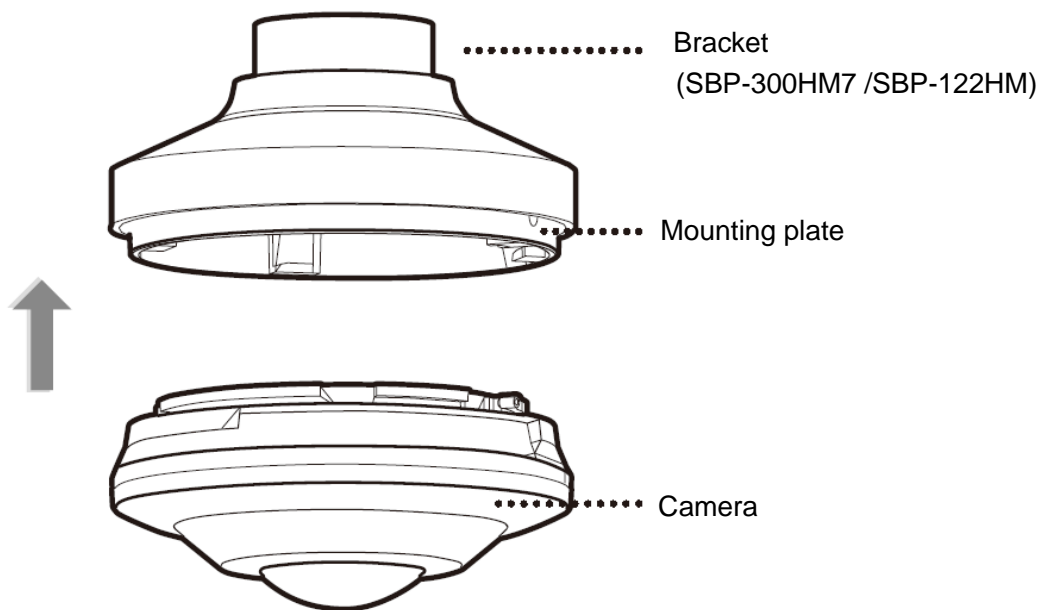
OPTIONAL ACCESSORIES FOR INSTALLATION

For your easier installation, you can purchase appropriate optional accessories available.

1. The following image is first mounted on the hardboard of braque (sbp-300hm 7/ sbp-122hm)
Attach the camera to the hardboard.



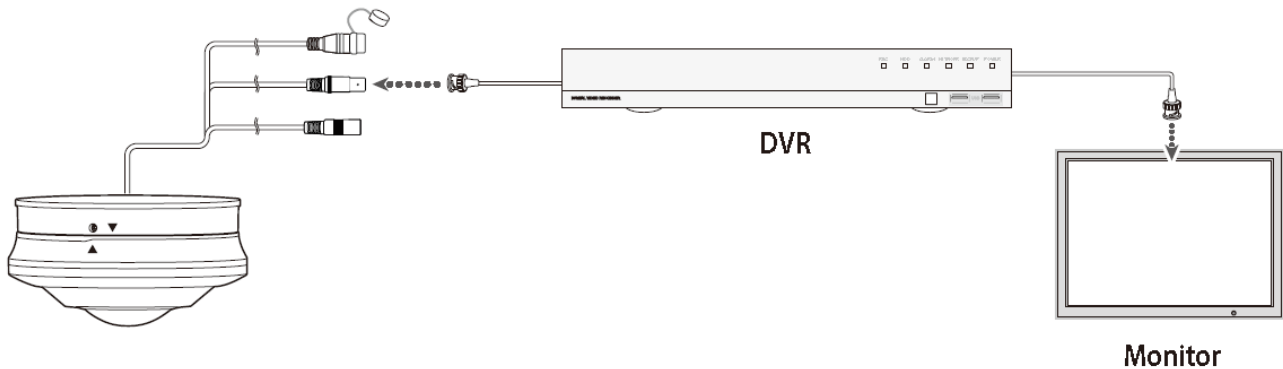
1. Mounting plate Refer to "detach" content when combined with a camera.



Connection

CONNECTING TO MONITOR

Connect the Video OUT port on the rear panel of the camera to a DVR.



- As the connecting method varies with the instruments, refer to the manual supplied with the instrument.
- Only connect the cable when the power is turned off.



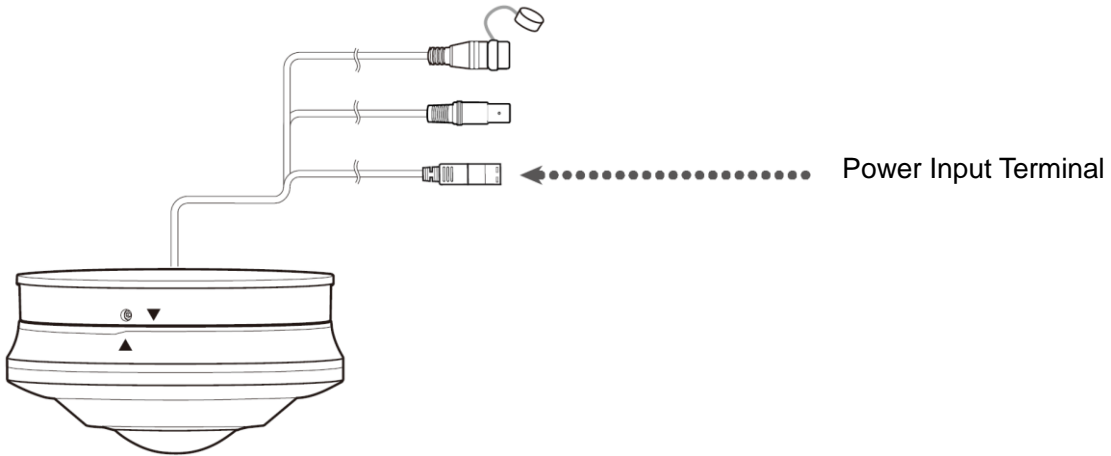
This product supports 3 video output formats of AHD, CVBS, and TVI.

The default is TVI. Select the video output appropriate for your DVR.

Connection

CONNECTING TO POWER

You can connect power as shown in the following figure.



When the resistance value of copper wire is at [20°C (68°F)]

Copper wire size (AWG)	#24 (0.22mm ²)	#22 (0.33mm ²)	#20 (0.52mm ²)	#18 (0.83mm ²)
Resistance value(Ω/m)	0.078	0.050	0.030	0.018
Voltage Drop (V/m)	0.028	0.018	0.011	0.006

- As shown in the table above, voltage decreases as the wire gets longer. Therefore use of an excessively long adaptor output line for connection to the camera may affect the performance of the camera.
- ◇ Standard voltage for camera operation : DC 12V±10%, AC 24V±10%
- ◇ There may be some deviation in voltage drop depending on the type of wire and the manufacturer.

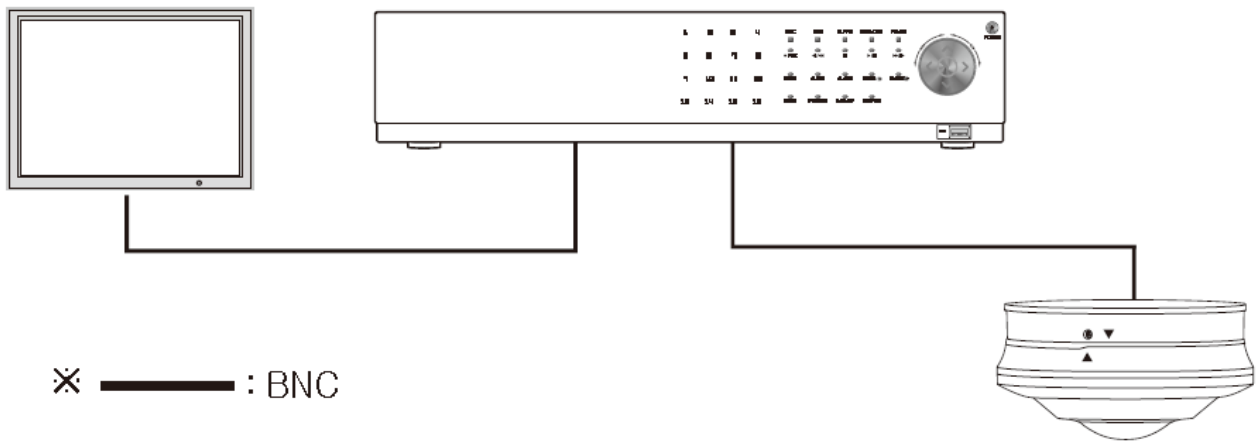


Be sure to connect power only after all the installation is complete.

USING COAXIAL COMMUNICATIONS

- Coaxial Communications System
- OSD Control method

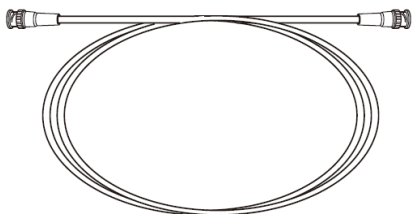
CAM ERA	DVR
SET	MENU/ENTER
UP	UP KEY
DOWN	DOWN KEY
LEFT	LEFT KEY
RIGHT	RIGHT KEY



Connection

Video Cable

The camera's video output port is connected to the DVR with a BNC coaxial cable, shown below.



Distance	Recommended Cable Specification
500m	5C2V



- It is recommended that pure copper coax cable is used and not copper coated steel, as this will cause issues with the communication over the coaxial cable.
- To ensure picture quality, only single-channel video output connector can be used while camera connected to other video equipments.

Camera operation

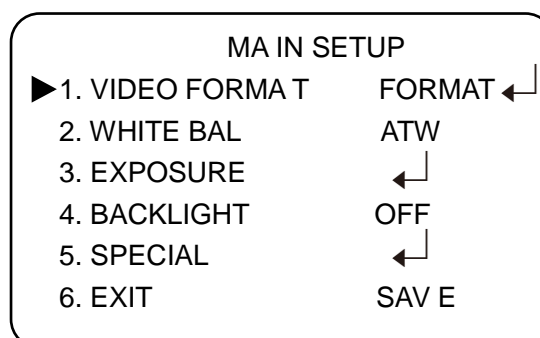
MENU CONFIGURATION

MAIN SETUP			
VIDEO FORMAT	FORMAT	RETURN	
WHITE BAL	ATW RETURN	MANUAL	AWC → SET
EXPOSURE	BRIGHTNESS SSNR	SHUTTER RETURN	AGC
BACKLIGHT	USER BLC	D-WDR	RETURN
SPECIAL	DISPLAY RETURN	IMAGE ADJ	DAY/NIGHT
EXIT	SAVE	NOT SAVE	RESET

CAMERA SET UP

VIDEO FORMAT

1. From the Setup menu, select the <VIDEO FORMAT >.
2. Select the VIDEO mode.
 - The video output can be selected from AHD/CVBS/TVI.



Camera operation

WHITE BAL (WHITE BALANCE)

Use the White Balance function to adjust the screen color.

1. From the Setup menu, select the <White Bal>.

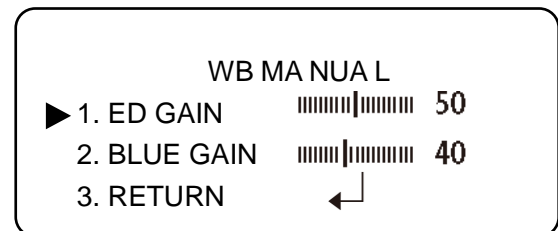
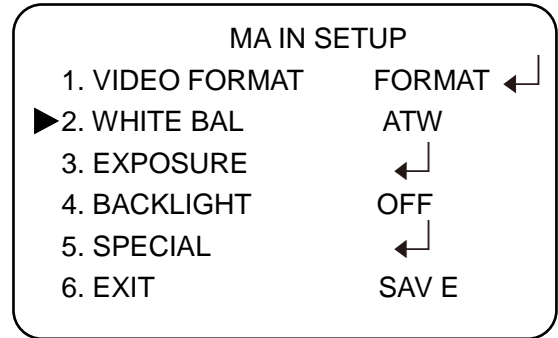
2. Select the desired mode.

※ Select one of the following 3 modes, as appropriate for your purpose.

- **ATW** : Select this when the color temperature is between 1,800K and 10,500K.

- **MANUAL** : Select this to fine-tune White Balance manually. Set White Balance first by using the ATW or AWC mode. After that button to MANUAL mode, fine-tune the White Balance and the Function Setup switch.

- **AWC→SET** : To find the optimal luminance level for the current environment, point the camera towards a sheet of white paper and press the Set button. If the environment changes, readjust it.



- White Balance may not work properly under the following conditions. In this case select the AWC mode.
 - ① Select this When the color temperature of environment surrounding the subject is out of the control range (e.g. clear sky, or sunset)
 - ② When the ambient illumination of the subject is dim.
- If the camera is directed towards a fluorescent light or is installed in a place where illumination changes dramatically, the White Balance operation may become unstable.

EXPOSURE

1. When the SETUP menu screen is displayed, select 'EXPOSURE' by using the Function Setup switch so that the arrow indicates 'EXPOSURE'.

From the Setup menu, select the <EXPOSURE>.

2. Select each item and set it properly.

MA IN SETUP	
1. VIDEO FORMAT	FORMAT ←
2. WHITE BAL	ATW
▶ 3. EXPOSURE	←
4. BACKLIGHT	OFF
5. SPECIAL	←
6. EXIT	SAV E

- **BRIGHTNESS** : Adjusts the video brightness.

- **SHUTTER** : You can select the shutter.

-- MIN : 1/30 ~ 1/10000

-- MAX : 1/60 ~ 1/50000(NTSC) , 1/50 ~ 1/50000(PAL)

-- A.FLK : Select this when you experience picture flicker, this happens when there is a clash with the installed lighting frequency.



- The greater the shutter value the brighter the screen is but the more the residual images of objects there are.
- If the min shutter value is large, it can cause noise, spots and white areas but still operate normally.
- If you do not use the AGC mode on the exposure menu, it cannot be set above 1/60sec.
- Depending on the setting range of the minimal/maximal shutter, the screen exposure can become saturated.
- **AG C (OFF/LOW/MIDDLE/HIGH)** :
The higher the gain level, the brighter the screen - but the greater the noise.
- **SSNR** : This function reduces the background noise in a low luminance environment.
-- 2DNR (OFF/LOW/MIDDLE/HIGH)
-- 3DNR (OFF/LOW/MIDDLE/HIGH)



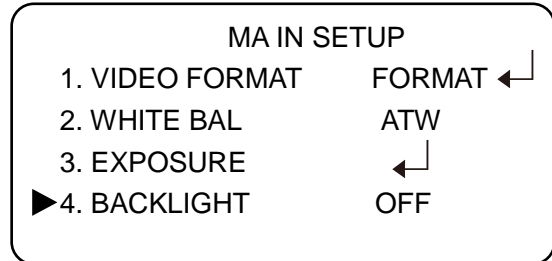
- When adjusting the noise reduction level in the SSNR mode, remember that the higher the level set, the more the noise level will be reduced, as will the brightness of the image.

Camera operation

BACKLIGHT

The camera uses high performance DSP chips that are designed to clearly display the object and the background despite severe reverse light.

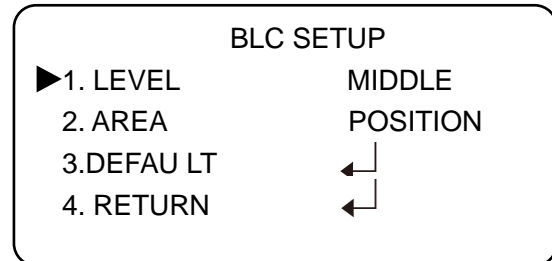
1. From the Setup menu, select the <BACKLIGHT>.
2. Select the desired mode.



- **BACKLIGHT :**

Enables a user to select a desired area on a picture and view that area more clearly.

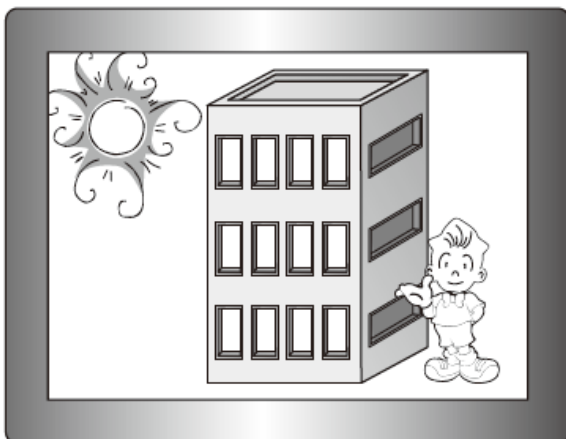
- LEVEL : Adjusts the brightness level of a monitoring area.
- AREA: Adjust the area to be enhanced.
- DEFAULT: BACKLIGHT set value initialize.
- RETURN : Return to the MAIN SETUP menu.



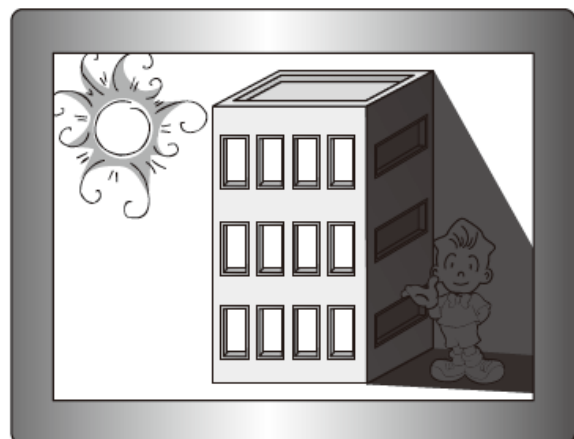
- **D-WDR**

If an object has a large variance between bright and dark areas, it will keep bright areas bright and make selected dark areas bright, so that the overall brightness can be maintained.

- LEVEL : The setting range is 1 ~ 32.



<D-WDR ON>

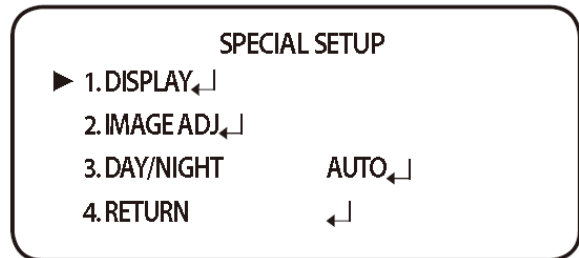


<D-WDR OFF>

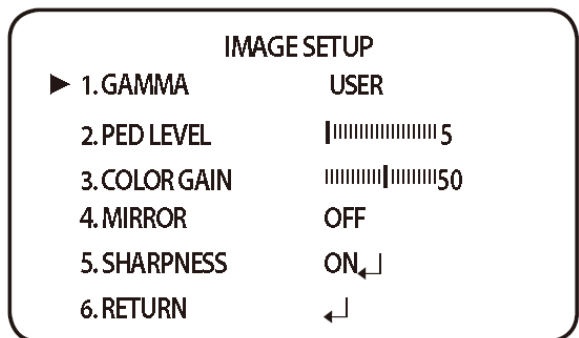
SPECIAL

1. From the Setup menu, select the <SPECIAL>.
2. Select the desired mode.

- DISPLAY
 - ① Select < DISPLAY >.
 - ② Select each item and set it properly.
 - LANGUAGE : You can select the menu language according to your requirements.
 - RETURN : Return to the SPECIAL menu.



- IMAGE ADJ
 - ① Select <IMAGE ADJ>.
 - ② Select each item and set it properly.
 - GAMMA : The setting range is 0.35 ~ 1.0. The closer to 1.0 the setting is, the darker it gets.
 - PED LEVEL : The setting range is 1 ~ 100. The closer to 100 the setting is, the higher the PED level gets.
 - COLOR GAIN : The setting range is 1 ~ 100. The smaller the setting value is the smaller the color gain gets and the more color blind it gets.
 - MIRROR
 - MIRROR : Turn upside down the image that is captured by the camera.
 - V-FLIP: Flip horizontal the image that is captured by the camera.
 - ROTATE : Rotates the video captured by the camera according to the set angle.
 - SHARPNESS : Select a mode to adjust the thickness of an image's sharpness. Increase or decrease the level of each mode to adjust the level of sharpness.
 - OFF : Released state
 - ON : The setting range is 1 ~ 32.
 - RETURN : Return to the SPECIAL menu.



- If you increase the SHARPNESS level too high, the picture may become distorted or noise may appear.

Camera operation

- DAY/NIGHT: You can display pictures in color or in black and white.

- 1 Select <DAY/NIGHT>.

- 2 Select each item and set it properly.

-- AU TO : The mode is switched to 'Color' in a normal environment, but switches to 'B/W' mode when ambient illumination is low. To set up the switching time for AUTO mode, press the Function Setup switch. You can turn on or off the burst signal on B/W mode.

AUTO SETUP	
▶ 1. BURST MODE	ON
2. DURATION	NORMAL
3. DWELL TIME	30 SEC
4. RETURN	←

- BURST MODE : Activate or deactivate the burst mode to maintain or remove the color signal.
- DURATION : This function is used to select the brightness of light where switching occurs.
- DWELL TIME : You can select day/night switching delay time from. 3s, 5s, 7s, 10s, 15s, 20s, 30s, 40s, 60s



- If you set the AGC mode to off on the exposure menu, you cannot switch the day/night mode to auto.
- When a bright light source is in the screen or there are frequent brightness changes, if you use the auto night/day mode, and set the switching time to short (3, 5 sec), a hunting can be caused. In this situation, it is recommended to use the default setting (30 sec).

-- COLOR : The picture is always displayed in color.
 -- B/W : The picture is always displayed in black and white.
 You can turn on or off the burst signal on B/W mode.

EXIT

Select a desired EXIT mode using the Function Setup switch depending on the camera purpose.

- SAV E : Save the current settings and exit the MAIN SETUP menu.
- NOT SAVE : Do not save the current settings and exit the MAIN SETUP menu.
- RESET : R evert camera to factory settings. (The language, communication and lens settings will remain the same).

Troubleshooting

If you have trouble operating your camera, refer to the following table.

If the guidelines do not enable you to solve the problem, contact an authorized technician.

Problems	Troubleshooting
Nothing appears on the screen.	<ul style="list-style-type: none"> ● Check that the power cord and line connection between the camera and monitor are properly connected. ● Check that you have properly connected BNC cable to the camera. ● Check the type of lens.
The image on the screen is dim.	<ul style="list-style-type: none"> ● Is lens stained with dirt? Clean your lens with soft, clean cloth. ● Set the monitor or DVR to the proper condition. ● If the camera is exposed to very strong light, change the camera position.
The image on the screen is dark.	<ul style="list-style-type: none"> ● Adjust the contrast feature of the monitor or DVR. ● If you have an intermediate device, set the 75Ω / Hi-z properly.
The camera is not working properly, and the surface of the camera is hot.	<ul style="list-style-type: none"> ● Check that you have properly connected the camera to an appropriate power source.
The DAY/NIGHT menu does not work.	<ul style="list-style-type: none"> ● Check that AGC of EXPOSURE SETUP menu is 'OFF'.
Color is not correct.	<ul style="list-style-type: none"> ● Check the setting of WHITE BAL SETUP menu
The screen flickers continually.	<ul style="list-style-type: none"> ● Ensure the camera is not pointing towards the sun.

Specifications

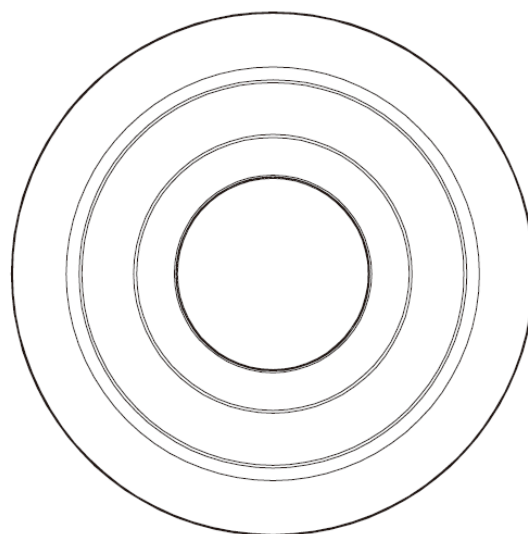
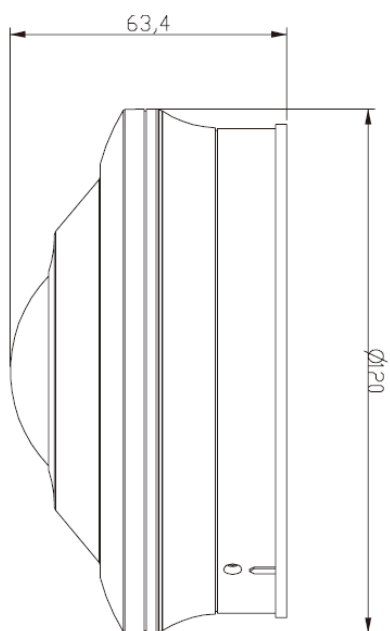
RS-CA451NFEA-11W-OTZ	
Video	
Imaging Device	1/2.9" CMOS
Total Pixels	2560(H) x 1944(V)
Effective Pixels	1944(H) x 1944(V)
Scanning System	Progressive Scan
Min. Illumination	TBD
S / N Ratio	52dB (AGC off, Weight on)
Video Output	BNC(AHD / TVI / CVBS Selectable)
Resolution	5MP(2560x1944)
Max, Framerate	20fps @5MP
Lens Type	
Focal Length (Zoom Ratio)	1.1mm
Max. Aperture Ratio	F2.0
Angular Field of View	H : 180° V : 180°
Min. Object Distance	0.5m
Focus Control	Manual
Lens Type	Fixed lens
Mount Type	Board-in type
Operational	
On Screen Display	English
Day & Night	Auto (ICR) / Color / B/W
Backlight Compensation	Off / User BLC
Wide Dynamic Range	DWDR
Digital Noise Reduction	SSNR (3DNR, 2DNR)
Gain Control	Supported
White Balance	ATW / Manual / AWC (1,800K° ~ 10,500K°)
Electronic Shutter Speed	1 sec ~ 1/50,000 sec
Reverse	Off / Mirror/V-Flip/Rotate
Remote control interface	Coaxial
Protocol	AHD : ACP (AHD Coax Protocol), CVBS : Pelco-C (Coaxitron) TCP (TVI Coax Protocol)

	HCF-8010V
Video Transmission Distance	500m(5C2V)
Environmental	
Operating Temperature	-30°C ~ +55°C (-22°F ~ +131°F)
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage	DC12V and AC24V
Power Consumption	Max. 3W
Mechanical	
Color / Material	Ivory / Metal
Dimension	O120 x 163.4mm
Weight	500g (TBD)

※ The specification for this product may change without prior notice for product improvement.

Dimension

Unit: mm (inch)



Warranty Card

Dear User:

Thanks for purchasing our product, in order to offer you better after sales service. Please complete the Warranty Card and Product Registration Card carefully, then send the completed card to franchiser or our Exclusive Sales Agent.

Product Description: _____

Product Model No.: _____

Date of Purchase: _____

Invoice(P/O) No.: _____

User Name: _____

Telephone: _____ FAX: _____

Address: _____ E-Mail: _____

Franchiser or exclusive sales agent: _____

Telephone: _____

Warranty Record	Repair Date	Repair Item	Person

Remark: 1)Presentation of Warranty items, please refer to back.

2)The card will be valid after 15 days of purchase when the franchiser or Exclusive sales agent chop.

----- Cut along the dashed -----

Product Registration Card

Product Description: _____

Product model No.: _____

Date of Purchase: _____

Invoice(P/O) No.: _____

User Name: _____

Telephone: _____ FAX: _____

Address: _____ E-Mail: _____

Franchiser or exclusive sales agent: _____

Telephone: _____

Product Warranty Presentation

Warranty Period:

Since the date of purchase. Exchange service after 3 months of purchase, repair service after 1 year of purchase.

Warranty items:

- 1 Before you use the product , please read the <User Manual> carefully.
- 2 You can share the Warranty service after you buy our product and send the completed card our franchiser or exclusive agent.
- 3 Based on the Warranty items ,you can use the free charge repair service only when you show the card under right operation of the product.
- 4 Please reserve /keep the Warranty card carefully if you need us to repair the product.
- 5 you are charged for repairing under below condition
 - 1)Beyond the Warranty period
 - 2)Physical damage to unit
 - 3)wrong operation under high temperature/pressure,deep;strong electrimagnetic interference.
 - 4)Not followingthe in struction manual or incorrect operation
- 6 we will ignore product, under below condition.
 - 1) Attempted repair by themselves.
 - 2) Problem caused by software or virus.
- 7The card is only valid in China.

----- Cut along the dashed -----

Your suggestion on our product is highly appreciated. We will keep tracing and developing to product high quality product for you.

Thanks for your co-operation

Yours Suggestion

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