

OSD

On-Screen Display

WDR

COLOR VIDEO CAMERA

DIGITAL VIDEO CAMERA SERIES

- WDR (Wide Dynamic Range)
- Day & Night (ICR)
- Sharpness Enhancement Adjustable (580 TV Lines)
- Privacy Zone Selectable
- 3D-DNR (Digital Noise Reduction)
- ECLPS (ECLIPSE)
- DSS (Digital Slow Shutter)

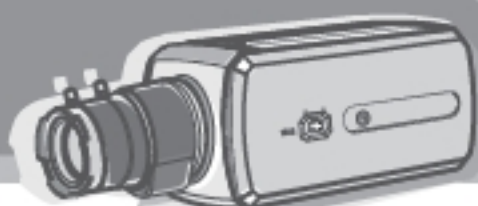


DIGITAL



OWNER'S MANUAL

Color Video Camera Series



. User Information



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION! TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Explanation of two Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance-(servicing) instructions in the literature accompanying the appliance.

THE GRAPHIC SYMBOLS WITH SUPPLEMENTAL MARKING ARE ON THE BOTTOM OF THE SYSTEM.

"WARNING-TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE"

INFORMATION

This equipment has been tested and found to comply with 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 communications.

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 their own expense.

WARNING

- Please ensure that your installation area can support the weight of the camera.
- Do not install the camera in extreme temperature conditions. Only use the camera where temperatures are between 14°F and 131°F (-10°C and 55°C). Be especially careful to provide ventilation when operating under high temperatures.
- Do not aim the camera towards an extreme light source to prevent damaging the CCD.
- Do not drop the camera or subject it to physical shock.
- Do not expose the camera to radioactivity.
- Do not use a strong or abrasive detergent when cleaning the camera.

This installation should be made by a qualified service person and should abide to all local codes.



. Contents



Thank you for purchasing this COLOR VIDEO CAMERA.

Before using this camera, please read this operation manual carefully to obtain the best result and keep this manual for future reference.

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1. SAFETY INSTRUCTIONS

Read Instructions

Read all of the safety and operating instructions before using the product.

Retain Instructions

Save this manual for later use.

Cleaning

Unplug this appliance from wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Water and Moisture.

Do not use this product near water or moisture. (For example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc)

Installation

Do not place this product on an unstable cart, stand, or table. The product may fall causing serious injury to a child or adult, and damage to the product.

Use only with a cart or a stand recommended by your supplier/reseller.

Mounting should follow the manufacturer's instructions, and should use a mounting accessory recommended by manufacturer.

Power source

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.



2. PRECAUTIONS

Handling

- ➔ Do not disassemble the camera and never touch parts inside the camera.
- ➔ Do not drop the camera or subject it to shocks and vibrations to avoid possible damage.
- ➔ When attaching or removing the lens, handle with care so that moisture and dust do not enter the camera.

Installation and storage

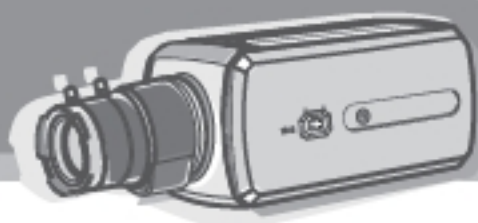
- ➔ Do not point the camera at the sun. This could damage the camera whether it is operating or not.
- ➔ Do not install the camera where the temperature could exceed the allowable range.

- ➔ Be sure the ambient temperature is less than 40°C(104°F) in installation intended for long term continuous operation.
- ➔ Avoid installing in a humid or dusty place.
- ➔ Avoid installing in places where there are strong magnetic fields and electric signals.
- ➔ Avoid installing in places where the camera would be subject to strong vibrations.
- ➔ Never expose the camera to rain and water.



3. FEATURES

- **1/3 inch Double Scan CCD**
- **Min. Illumination (F1.2, 30IRE)**
 - 0.1 Lux (Color)
 - 0.0002 Lux (Sens-up Auto)
- **Selectable, Day & Night (ICR)**
 - TDN (Built-in the ICR Filter) – ※ Option available on select model(s) only.
- **WDR (Wide Dynamic Range)**
 - Improves picture quality and detail in surrounding with a wide range of light by increasing exposure in dark areas while decreasing it in bright, oversaturated areas.
- **RS-485 Communication Control Support**
 - Remote OSD menu control via an RS-485 interface is supported.
- **High Performance Menus For Functions**
 - Privacy zone selectable
 - Motion detection selectable
 - Sharpness enhancement adjustable (580 TV Lines)
 - V-FLIP / MIRROR / ROTATE
 - 3D-DNR (Digital Noise Reduction)
 - BLC (Back Light Compensation)
 - ECLPS (ECLIPSE)
 - DSS (Digital Slow Shutter)
 - Stabilizer



4. NAME AND FUNCTION

CS-Mount Holding Screw

Used to readjust back focus of the camera. There are two back focus lock screws. These must be loosened before the camera may be back focused. Loosen the lock screws to turn the CS-mount lens adaptor, and tighten the lock screws after adjustment.

Auto Iris Lens Connector

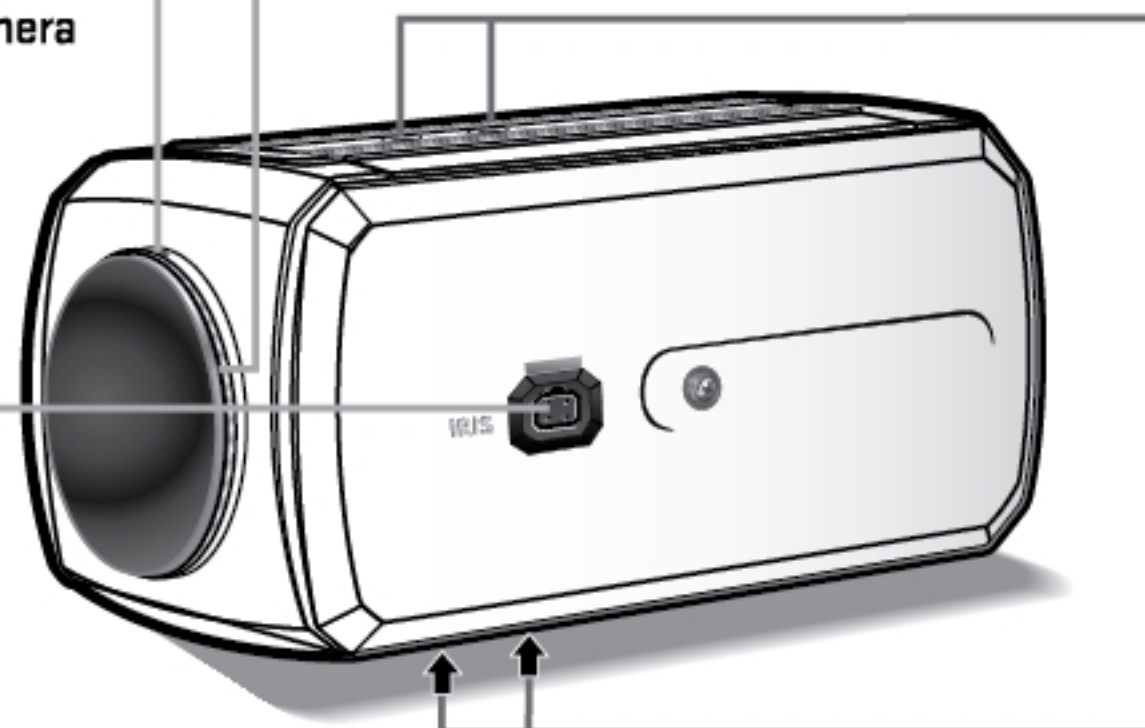
Used to connect Auto Iris Lens plug.

Holder Screw Hole

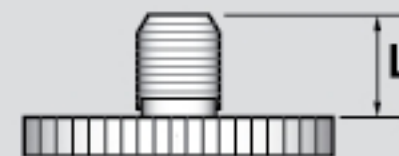
Used to install the camera on an optional holder.(Tripod or Bracket) The optional holder must be equipped with the screw specified as shown right.

CS-Mount Lens Adapter

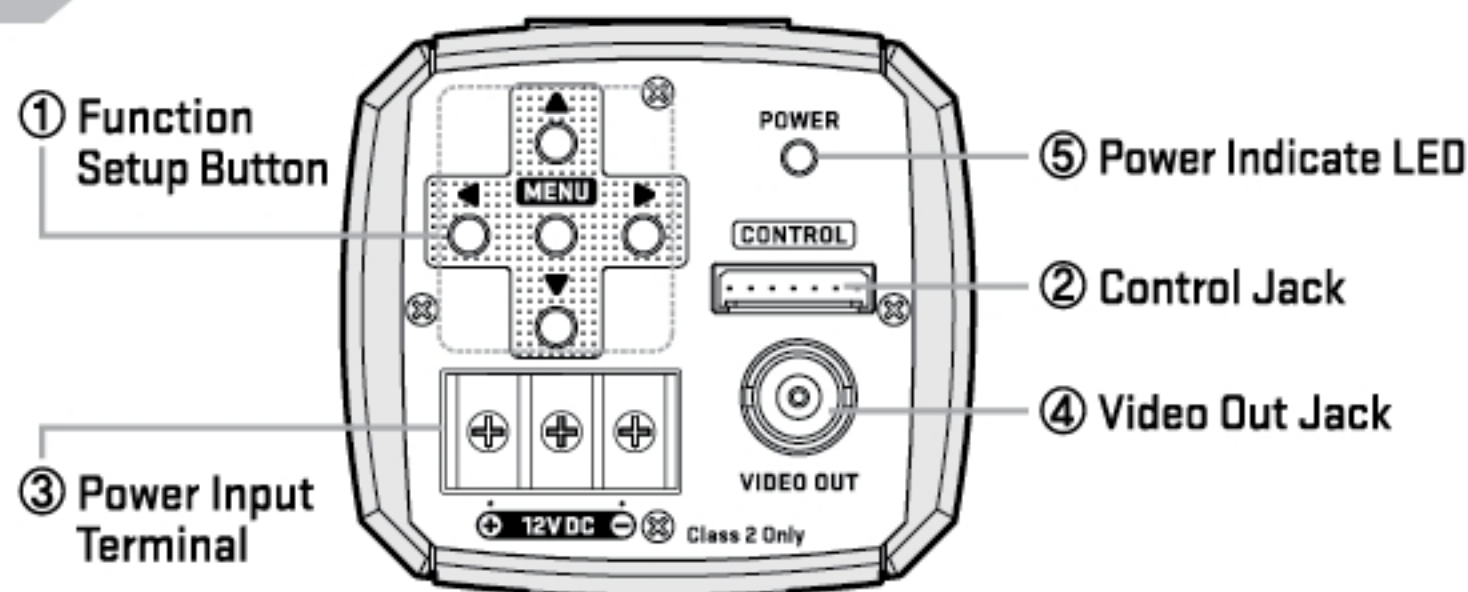
Used to attach CS-mount lens.



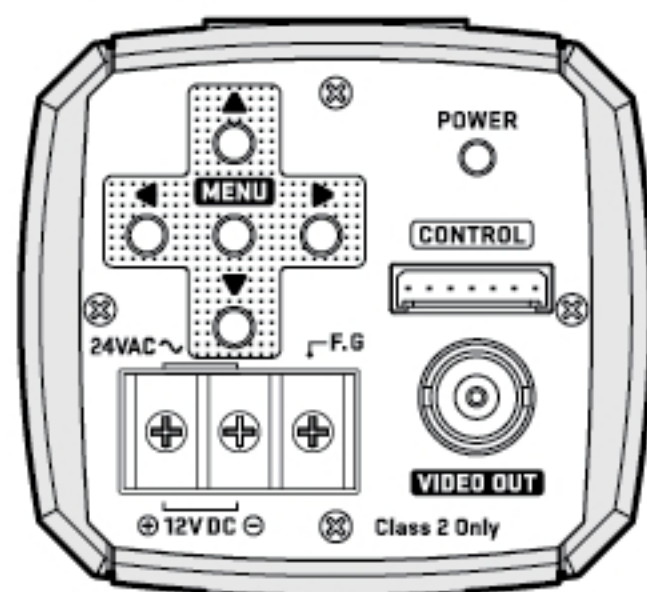
1/4"- 20 UNC (20 THREAD)
L : 4.5mm±0.2mm (ISO standard),
or 0.197" (ASA standard)



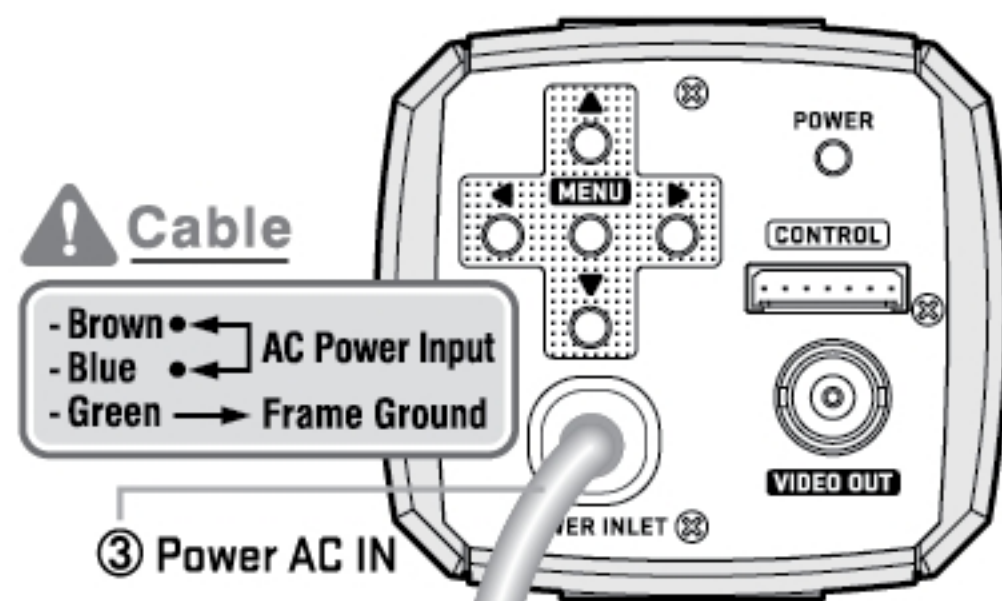
➔ 12VDC Input Model



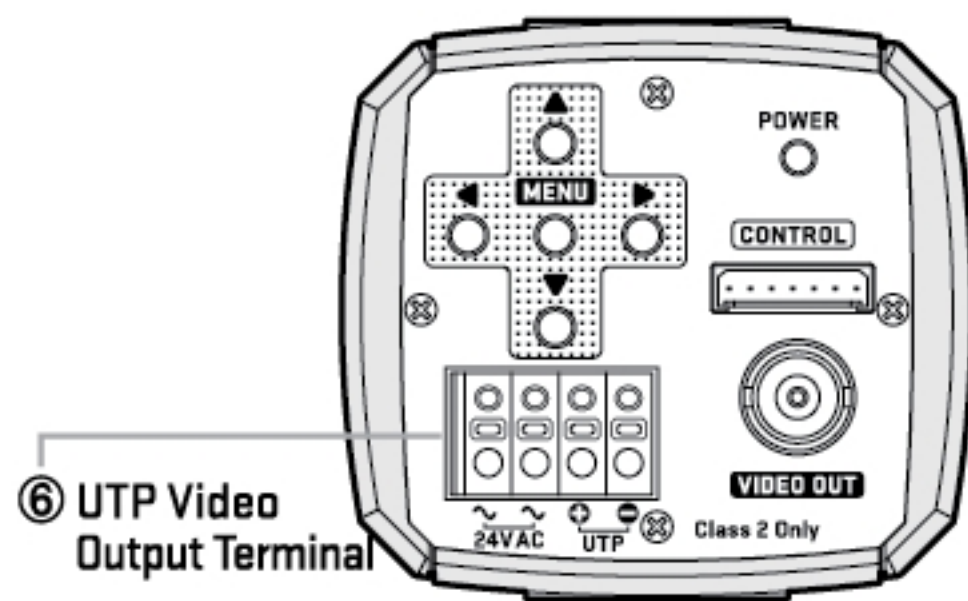
➔ 24VAC/12VDC Input Model



➔ 100VAC~240VAC Input Model

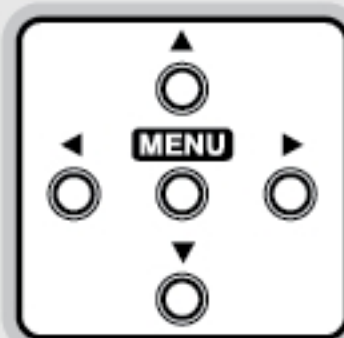


➔ UTP Transmission Model



① Function Setup Button

Functions can be setup using 5 buttons on the camera's rear panel.



- **MENU Buttons:** Used to access menu mode. Also used to escape menu mode.
- **UP / DOWN Buttons:** Used to choose the desired menu item. It also moves the cursor up or down in the menu screen.
- **LEFT/RIGHT Buttons:** Used to change the parameter of the selected menu item. It also moves the cursor the left or right in the menu screen.

② Control Jack (See page 20)

Used to connect control plug.

③ POWER Input Terminal

Used to connect a 12VDC power source.

Used to connect an 24VAC or 12VDC power source.

Used to connect an 100VAC~240VAC power source.

Used to connect an 24VAC power source. (UTP Transmission Model)

④ VIDEO OUT Jack

Used to connect an external video monitor in jack.

⑤ Power Indicate LED

⑥ UTP Video Output Terminal

These terminals provide a composite video output signal which may be transmitted over a twisted-pair connection to furnished with a suitable receiver.

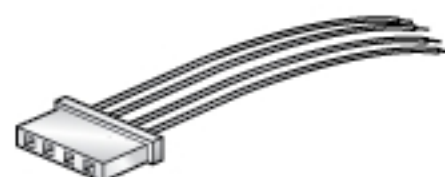
5. COMPOSITION



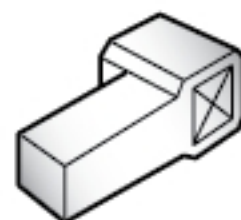
Color Video Camera



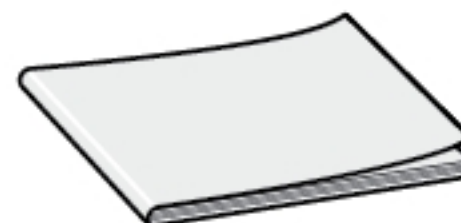
Lens Mount Cap



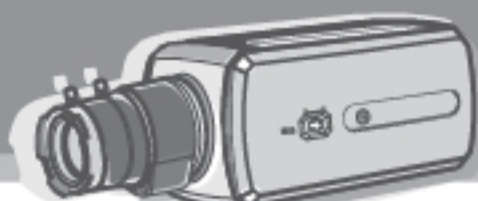
Control Plug



Auto Iris Lens Plug



Owner's Manual



6. CONNECTION

→ LENS

1) LENS

- The lens is not supplied with this camera. Purchase a lens suitable for your environment. This camera accepts the auto iris lens, the C-mount lens and the CS-mount Lens.



- If the lens is marked with fingerprints or other marks, the image quality might be poor.
- It is recommended to use a high quality lens to improve the image quality under low illumination.
- For using main functions it is recommended to use Auto Iris Lens with DC type.

- Depend on lens, The brightness will be set around 30 secs if using DC type of auto iris lens.

→ Installing Auto Iris Lens

1. Peel approximately 8mm from the end of the lens cable outer cover.

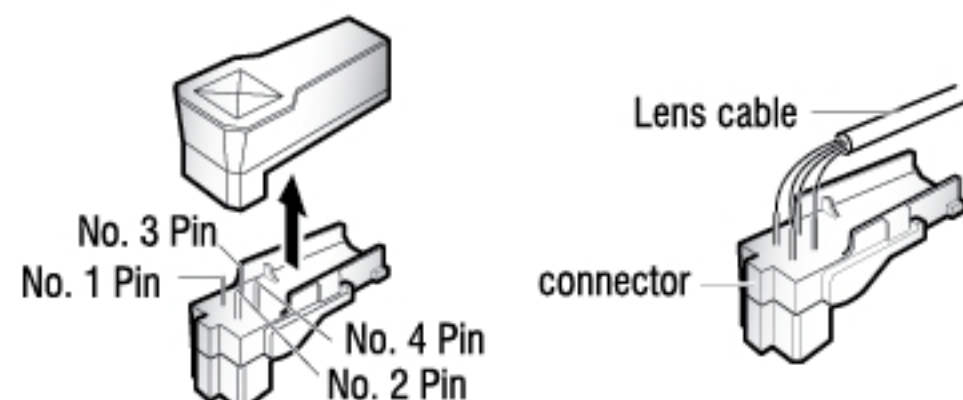


2. Peel approximately 2mm from the end of the cable inner cover.

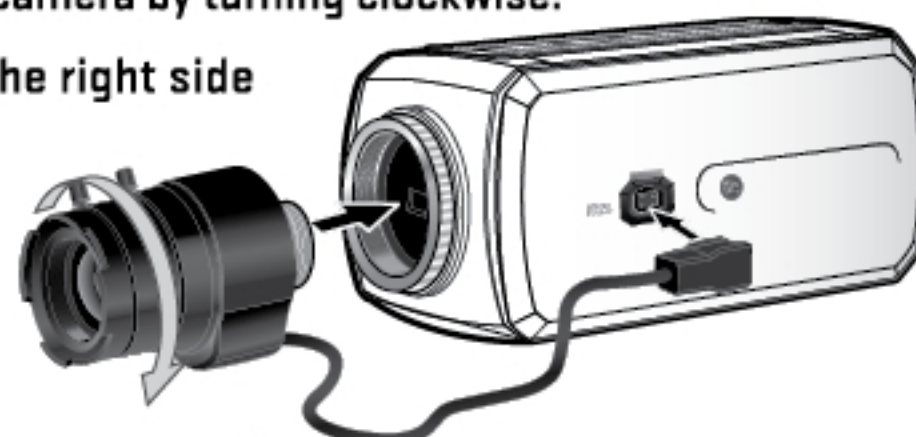


3. Remove the cover from the iris lens plug supplied, and solder the lens cable to the plug as shown below.

Pin No.	DC LENS
1	Damping -
2	Damping +
3	Drive +
4	Drive -



4. Remove the protective cap, and attach the lens to the camera by turning clockwise.
5. Connect the lens plug to the auto iris connector on the right side (or left side) of the camera.

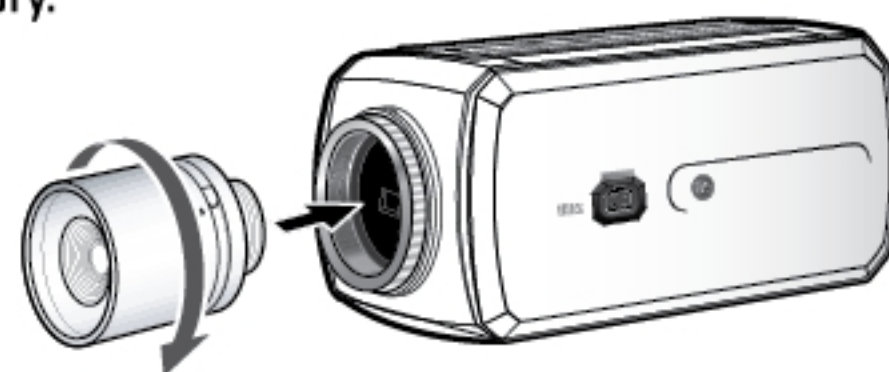


➔ Installing C/CS-Mount Lens

Before mounting a lens, please check whether it is a C-mount or CS-mount lens. The back focus is set for the CS-mount lens at the factory.

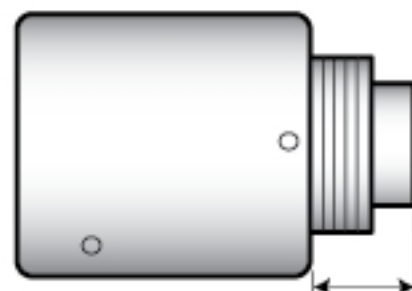
➔ Mounting a CS-Mount Lens

After removing the protecting cap, attach the lens into the camera by turning clockwise.





- Use the lens under the specification as shown. Otherwise the lens can damage the camera or abnormal fixing may result.



C-mount lens : 10mm or less
CS-mount lens : 5mm or less

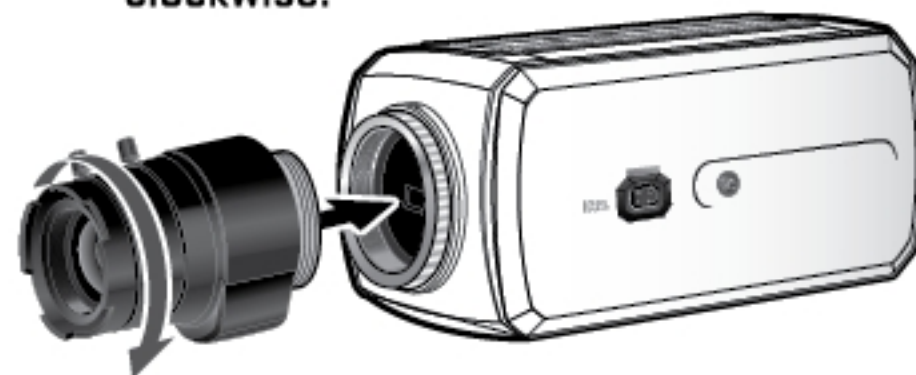
- A heavy lens may disturb the balance with the camera and possibly result in damage. Don't use a lens heavier than 450g.
- It is recommended to set the lens ALC mode to Av mode(Average). Pk mode can be occurred hunting.

➔ Mounting a C-Mount Lens

1. Attach the C-Mount lens adapter by turning clockwise.



2. Attach the lens to the camera by turning clockwise.

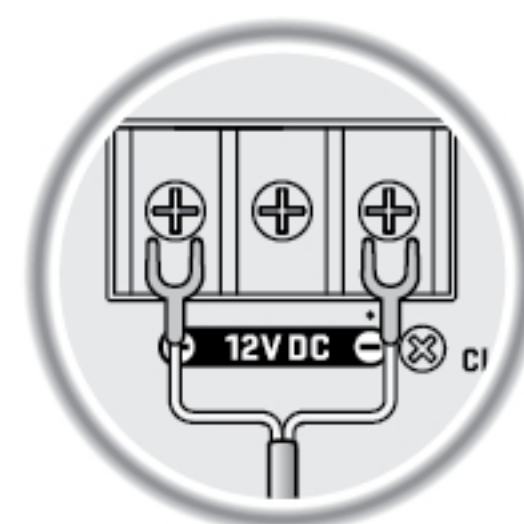
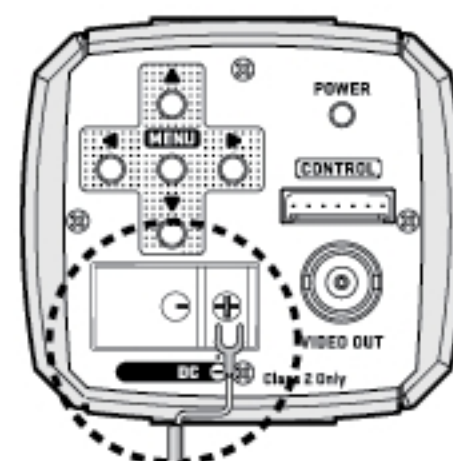


1) Connecting to Power

- Each model has different power specification, please check the name of the model and power specification before connecting to power source. Please refer to the sticker identifying the model, which is attached on the product, for power specification.

➔ For 12VDC Power Type

- The wire is polarized.



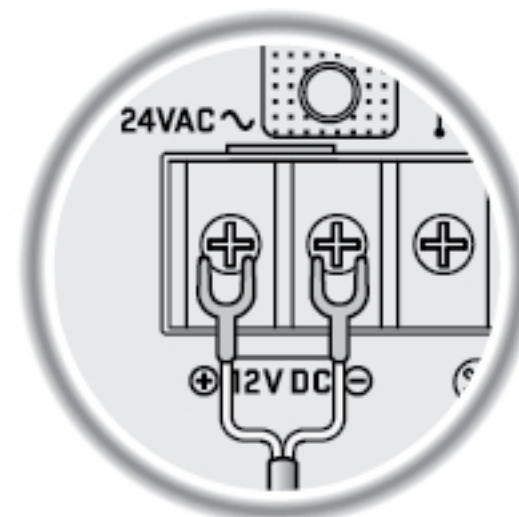
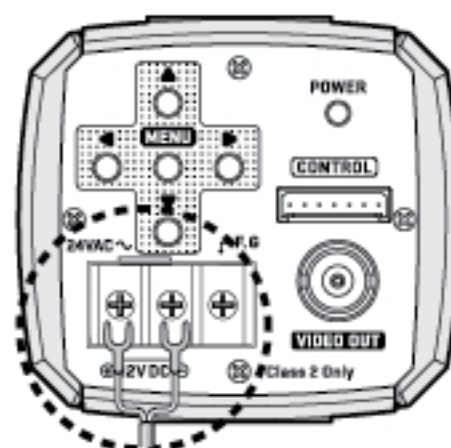
	mm ²
	8
	6

● As voltage may drop according to the length of electric cord as above table, a camera may malfunction if too long output line of adaptor is connected to the camera.

ng to types of electric cord and makers.

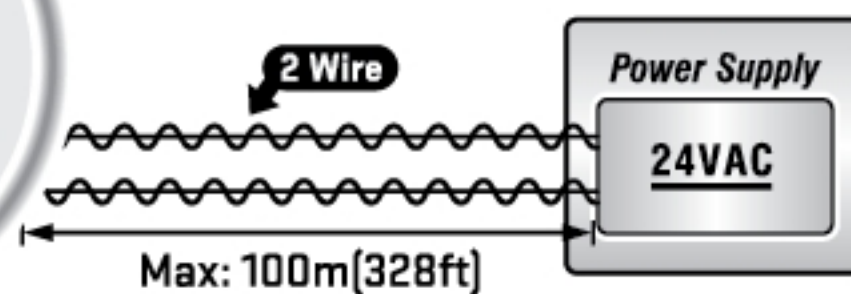
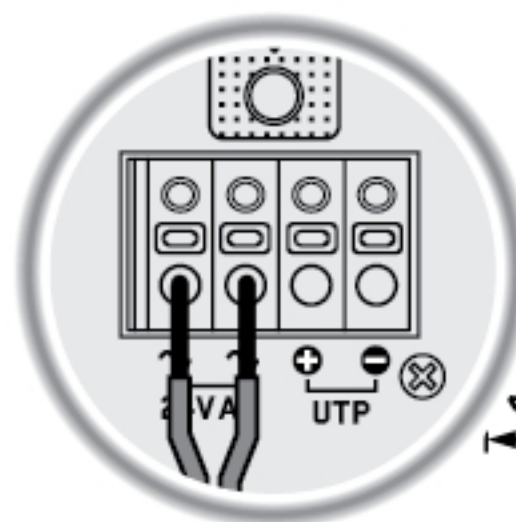
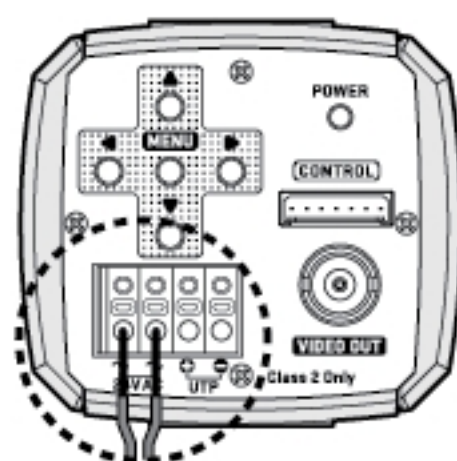
➔ For 24VAC/12VDC Power Type

1. Use 24VAC power source or 12VDC power source.
 - 24VAC power: Non-polarized
 - 12VDC power: Need to be check polarity



➔ For 24VAC Power Type [UTP Video Output]

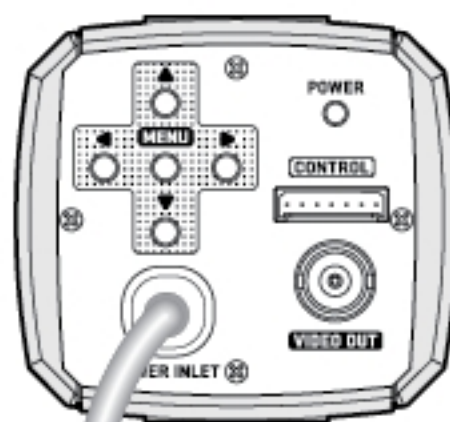
1. When using 24VAC power, it is possible to supply power up to 100m(328ft).
2. Use 4 wires by 2 pair of wires.



➔ For 100VAC ~ 240VAC Power Type

1. Cable

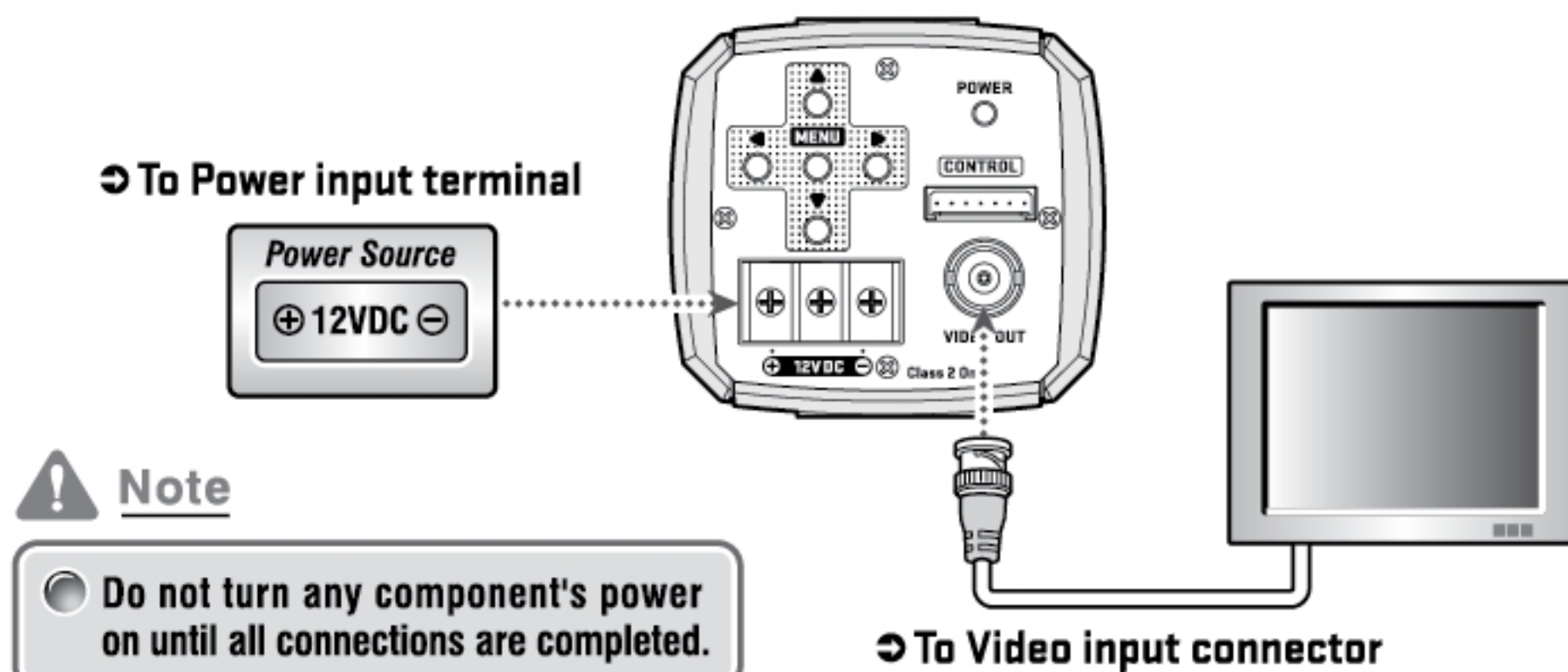
- Brown • ← AC Power Input
- Blue • ← AC Power Input
- Green → Frame Ground



- Be sure to connect power after all the installation is done.
- Note that AC adaptor is not supplied with camera.
- Use only 24VAC / 12VDC UL listed class 2 power supply.
- Do not use power sources other than that specified.

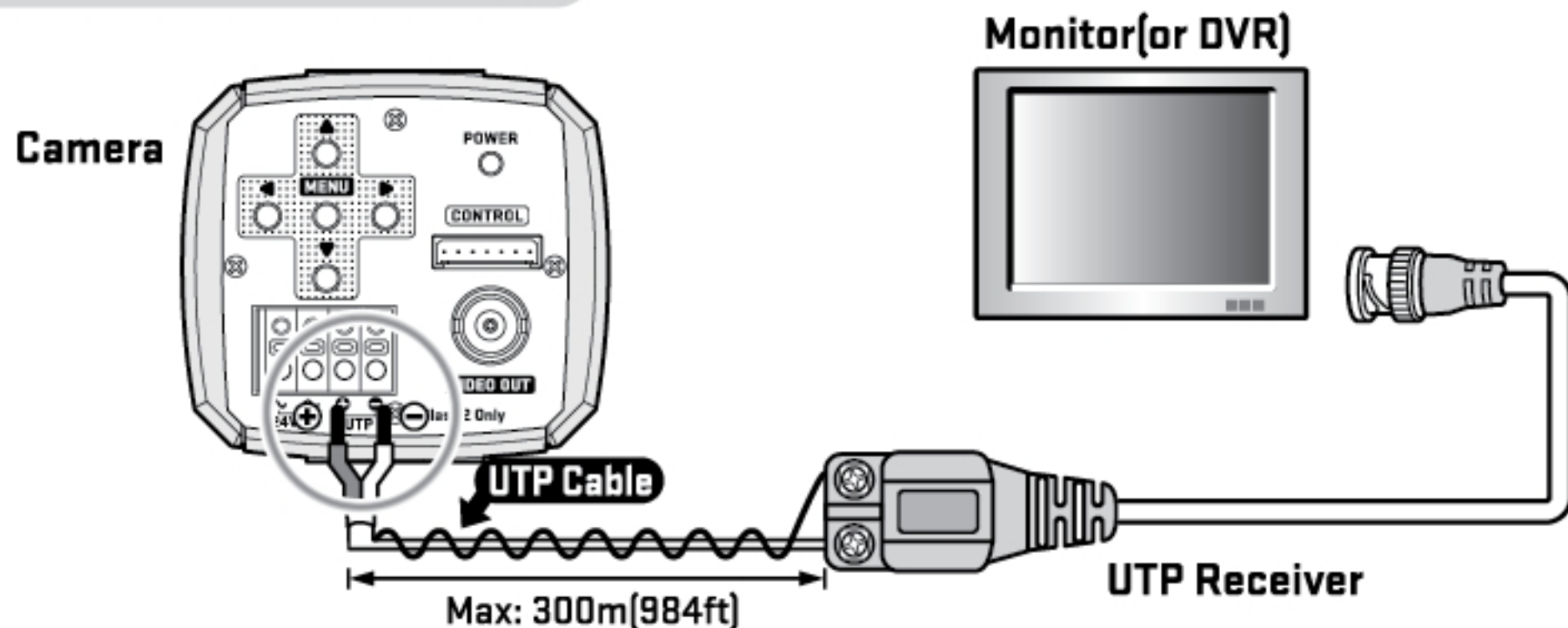
➔ Connecting to Monitor

➔ For BNC Video Output Model



- Connect the video output of the camera to the video input of a monitor or other equipment. When using a "loop through" connection of two or more monitors, set the 75Ω switch of only the final monitor to on. Determine the type of cable according to the distance of the connected equipment.

➔ For UTP Video Output Model



- Connect UTP (Unshielded Twisted Pair) wire to the UTP output of the camera directly.
- UTP transmitter is included in the camera therefore additional UTP transmitter is not necessary.
- UTP receiver is necessary to connect UTP wire to Monitor or DVR.
- When connecting UTP wire, make sure to check for polarity of the video signal.
- Use UTP wire "CAT5 24AWG" to have the best transmission quality.
- The twisted-pair output cannot be used at the same time as the composite video output.

→ Control Jack



No.	Function
1	Motion Detection "H"
2	GND
3	Day/Night Output "H"
4	EXT Input
5	Cds Input
6	R + (RS-485)
7	R - (RS-485)



→ Motion Detection Output

: It is the function that can turn on DVR recorder when MD mode is set "ON" on the OSD menu of the camera.

1	Motion Detection "H"
2	GND

+3.3V 0V +3.3V 10mA : Motion on
0V : Motion off

→ Day / Night Output

: It is the function that can turn on external IR LED lamp when the Day/Night mode is set "Auto" or "IRED" or "EXT" on the OSD menu of the camera.

3	Day/ NIGHT Output "H"
2	GND

+3.3V 0V +3.3V 10mA : IR LED on (Night)
0V : IR LED off (Day)

→ EXT Input

: It is the function that can turn on external Day/Night mode is set "EXT" on the OSD menu of the camera.

4	EXT Input
2	GND

EXT Type Open contact : Day
Close contact : Night

➔ Cds Input

: It is the function that can turn on external Day/Night mode is set "IRED" on the OSD menu of the camera.

5	Cds Input
2	GND

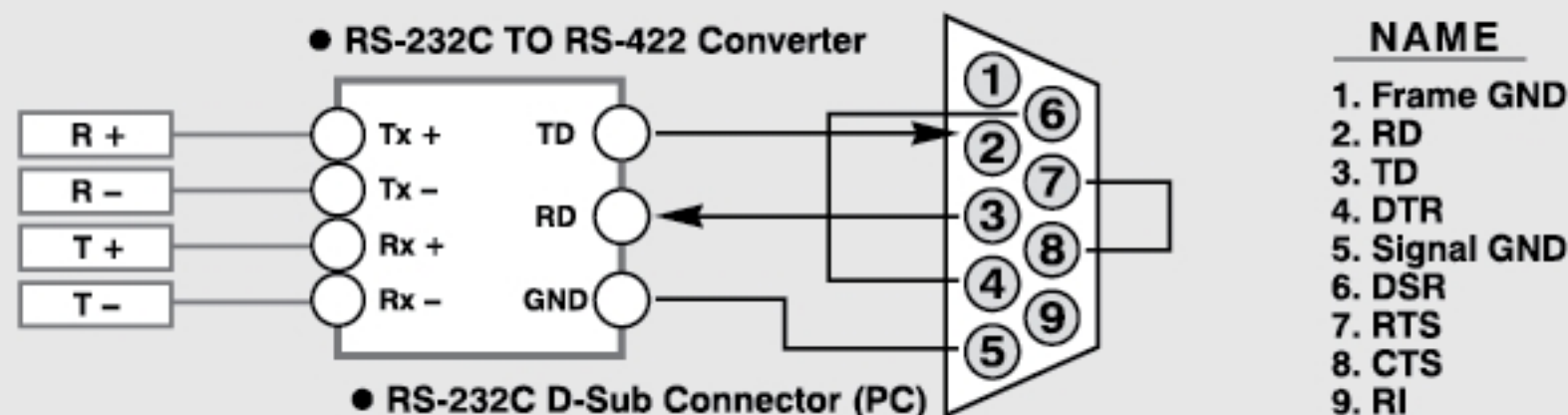
Cds Type



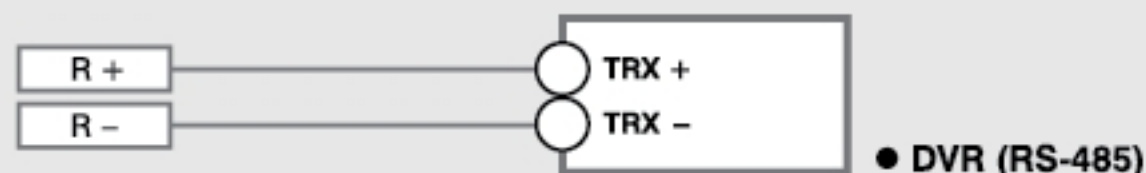
➔ Control Input Jack (RS-485)

: It is a terminal that controls the function of the camera at long distance.

• PC Interface

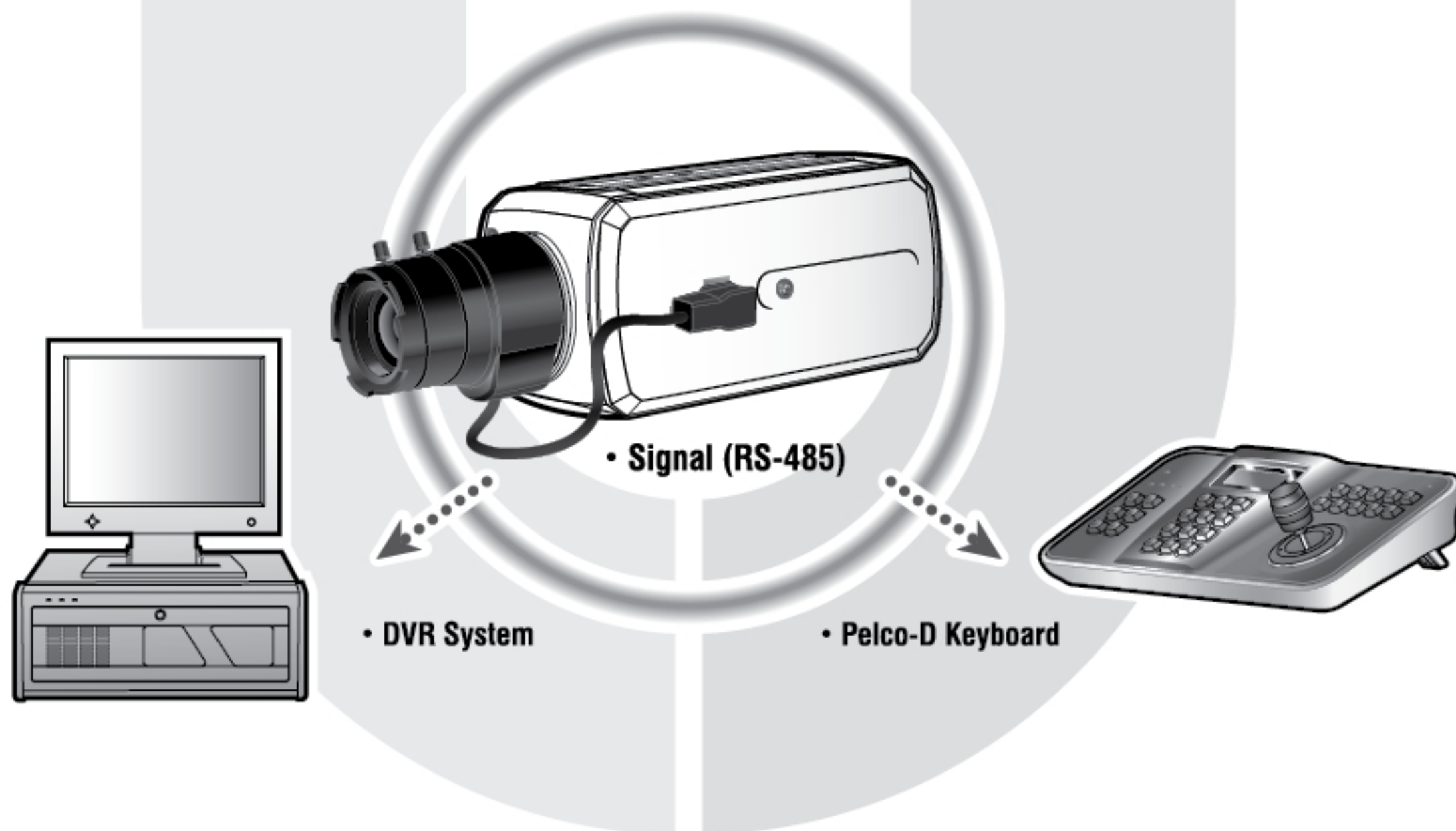


• DVR Interface (RS-485 Communication)



➔ Connecting to Controller

➔ Cable Connection (Pelco-D/ RS-485)





7. COMMUNICATION PROTOCOL

➔ PELCO "D" Byte Format

※ Baud rate : 4800, 9600, 19200, 38400, 57600

Function		KEY UP (ZOOM TELE)						
		BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG		0xFF	ID	0x00	0x20	0x00	0x00	CS
Function		KEY DOWN (ZOOM WIDE)						
		BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG		0xFF	ID	0x00	0x40	0x00	0x00	CS
Function		KEY LEFT (FOCUS NEAR)						
		BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG		0xFF	ID	0x01	0x00	0x00	0x00	CS
Function		KEY RIGHT (FOCUS FAR)						
		BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG		0xFF	ID	0x00	0x20	0x00	0x00	CS
Frame	Function	KEY MENU (OSD MENU)						
		BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
PELCO	MSG	0xFF	ID	0x00	0x23	0x00	0x5F	CS
V/D	MSG	0xFF	ID	0x00	0x03	0x00	0x62	CS
CNB	MSG	0xFF	ID	0x40	0x00	0x00	0x00	CS
	MSG	0xFF	ID	0x00	0x07	0x00	0x5F	CS



- ID=00hex : ID check skip mode (Camera will not check the camera ID.)
- ID=01hex ~ FFhex : ID check mode (Camera will check the camera ID. If the ID contained in command packet isn't identical to the current camera ID, the received command will be ignored and deleted.)

8. OPERATING CAMERA



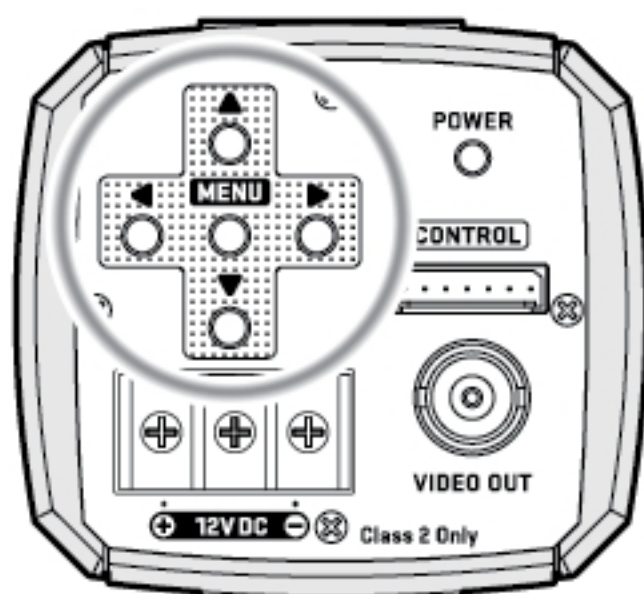
SETUP MENU

CAM NAME	ON / OFF		
LENS	MANUAL / DC LENS (DC IRIS RESET)		
EXPOSURE	AGC	OFF / LOW / MIDDLE / HIGH	
	BRIGHTNESS	0 ~ 80	
	SHUTTER	AUTO / OFF / A.FLK / x (2 ~ 512) / (1/90000 ~ 1/160)	
	DSS	OFF / AUTO x (2 ~ 128)	
DAY / NIGHT	AUTO	D/N LEVEL	LOW / MIDDLE / HIGH
		FILTER DLY	1, 3, 5, 10, 15, 30, 60 SEC
		NIGHT BURST	ON / OFF
	DAY		
	NIGHT		
	EXT		
	IRED	D/N LEVEL	LOW / MIDDLE / HIGH
		FILTER DLY	1, 3, 5, 10, 15, 30, 60 SEC
		NIGHT BURST	ON / OFF
WDR / BLC / ECLPS	WDR	WDR LEVEL	LOW / MIDDLE / HIGH LONG / SHORT
	BLC	BLC LEVEL	LOW / MIDDLE / HIGH
	ECLPS	AREA SETTING	ON / OFF (16 ZONES)
		ALL AREA SET	ON / OFF
		MASK COLOR	GRAY / D.GRAY / BLACK
		ECLPS LEVEL	1 ~ 5

WHITE BAL	ATW		
	ANTI-ROL		
	PUSH		
	MANUAL	COLOR TEMP	INDOOR / OUTDOOR
		RED	-100 ~ 100
		BLUE	-100 ~ 100
3D-DNR	ON	LEVEL	0 ~ 63
		GLOBAL MOTION	ON / OFF
IMAGE ADJ	DIGITAL ZOOM	ZOOM	x 1.00 ~ x 6.13
		DZOOM PAN	-100 ~ 100
		DZOOM TILT	-100 ~ 100
	D-EFFECT	OFF / V-FLIP / MIRROR / ROTATE	
	COLOR	ON / OFF	
	CONTRAST	0 ~ 100	
	SHARPNESS	0 ~ 100	
	CR GAIN	-100 ~ 100	
	CB GAIN	-100 ~ 100	
SPECIAL	CAMERA ID	CAMERA ID	000 ~ 255
		ID POSITION	

SPECIAL	MOTION DET	ZONE NUMBER	ZONE 1 ~ ZONE 4	
		ZONE STATE	ON / OFF	
		WIDTH	16 ~ 100	
		HEIGHT	12 ~ 100	
		MOVE X	8 ~ 92	
		MOVE Y	6 ~ 94	
		SENSITIVITY	0 ~ 100	
	PRIVACY MASK	MASK NUMBER	MASK 1 ~ MASK 8	
		MASK STATE	ON / OFF	
		MASK COLOR	GRAY/WHITE/RED/GREEN/BLUE/YELLOW/BLACK	
		WIDTH	4 ~ 100	
		HEIGHT	4 ~ 100	
		MOVE X	2 ~ 98	
		MOVE Y	2 ~ 98	
	LANGUAGE	ENG / KOR / RSN / CHN / SPN / FRN		
	STABILIZER	ON / OFF		
	SYNC	INT / LL	L/L PHASE 0 ~ 359 (Only AC Power)	
	GAMMA MODE	CRT / LCD / USER		
	FACTORY RESET			
	COMM SET	BAUD RATE	4800 / 9600 / 19200 / 38400 / 57600	
		SAVE & REBOOT		
SAVE & EXIT				

➔ Setting up the Menu



Use five buttons on rear side of the camera.

- DOWN Button
- UP Button
- LEFT Button
- RIGHT Button
- MENU(SET) Button

SETUP

- Push and hold MENU button 1 second to access the setup mode.
- Select the status using the ◀, ▶, ▲, ▼ button.

<CAMERA SET MENU>

- | | |
|------------------|-----------|
| ▶ 1. CAM NAME | OFF |
| 2. LENS | DC LENS ◀ |
| 3. EXPOSURE ◀ | |
| 4. DAY/NIGHT | AUTO ◀ |
| 5. WDR/BLC/ECLPS | OFF |
| 6. WHITE BAL | ATW |
| 7. 3D-DNR | ON ◀ |
| 8. IMAGE ADJ ◀ | |
| 9. SPECIAL ◀ | |
| 0. SAVE & EXIT ◀ | |

➔ Main Menu - **SETUP**

- Press MENU button, then SETUP mode is activated.
 - MAIN SETUP menu is displayed on the monitor.

- Select OSD item using UP, DOWN button.

- Set details using LEFT, RIGHT button.

- Select "Exit" and then press the MENU button to finish the SETUP (Save and Exit)

<CAMERA SET MENU>

- ▶ 1. CAM NAME OFF
- 2. LENS DC LENS ←
- 3. EXPOSURE ←
- 4. DAY/NIGHT AUTO ←
- 5. WDR/BLC/ECLPS OFF
- 6. WHITE BAL ATW
- 7. 3D-DNR ON ←
- 8. IMAGE ADJ ←
- 9. SPECIAL ←
- 0. SAVE & EXIT ←

1) CAM NAME setup

- Select **ON** using the LEFT or RIGHT button and then press the MENU button.
- Use the four direction buttons to move to a desired letter and select the letter by pressing the MENU button.
- Repeat this to enter multiple letters.
- You can enter up to 15 letters.

<CAMERA NAME>

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
-	.	0	1	2	3	4	5	6	7	8	9	

← → CLR POS END



- ←, → : Move cursor to Left/Right direction from selected character
- CLR : Delete all selected characters
- POS : Set the position of Camera Name on the screen
- END : **CAMERA NAME** Save & Exit

1) LENS setup

- Select **LENS** using the UP or DOWN button.
- You can change between **DC LENS** and **MANUAL** using the LEFT or RIGHT button.

1 DC LENS (ALC)

When you attach an Auto IRIS lens requiring the **DC LENS** control signal, Select **DC LENS** using the LEFT or RIGHT button.

➡ DC IRIS RESET

The optimized DC level for each lens can be different from the camera's default DC level. The proper level may be auto-tracked and adjusted at the **DC IRIS RESET** menu.

(Please allow up to 30 seconds after readjustment of DC level to stabilize).

<IRIS SETUP MENU>

▶ DC IRIS RESET

PREVIOUS ◀

2 MANUAL (ELC)

When you attach a manual or fixed lens, Select **MANUAL** using the LEFT or RIGHT button.

1) **EXPOSURE** setup

- Select **EXPOSURE** using the UP or DOWN button and then press the MENU button to access **EXPOSURE** menu.

1 **AGC**

Select **AGC** using the UP or DOWN button. You can select between **OFF**, **LOW**, **MIDDLE** and **HIGH** using the LEFT or RIGHT button.

2 **BRIGHTNESS**

Select **BRIGHTNESS** using the UP or DOWN button. You can adjust between 0 ~ 80 using the LEFT or RIGHT button.

3 **SHUTTER**

Select **SHUTTER** using the UP or DOWN button. You can select **AUTO**, **OFF**, **A.FLK** or adjust the shutter speed between x 2 ~ x 512, x 1/90000 ~ 1/160 using the LEFT or RIGHT button.

4 **DSS**

When the shutter speed is **AUTO** or **A.FLK**, Select **DSS** using the UP or DOWN button. You can adjust the DSS value between **OFF**, **AUTO** x(2 ~ 128) using the LEFT or RIGHT button.

5 **INITIAL SET**

To initialize the setting, Select **INITIAL SET** using the UP or DOWN button and then press the MENU button.

<EXPOSURE MENU>

▶ **AGC** HIGH
BRIGHTNESS 50 |||||
SHUTTER AUTO
DSS OFF
INITIAL SET ←
PREVIOUS ←

1) DAY / NIGHT setup

- Select **DAY/NIGHT** using the UP or DOWN button.
- You can select between **AUTO**, **DAY**, **NIGHT** and **EXT** and **IRE** using the LEFT or RIGHT button.

1 **AUTO (DAY/NIGHT mode is changing by AGC Level)**

Select **AUTO** using the LEFT or RIGHT button and then press the MENU button to access **D/N AUTO** menu.

<D/N AUTO MENU>

▶ D/N LEVEL	HIGH
FILTER DLY	10 SEC
NIGHT BURST	ON
INITIAL SET	←
PREVIOUS	←

➔ **D/N LEVEL**

Select **D/N LEVEL** using the UP or DOWN button.

You can select between **LOW**, **MIDDLE** and **HIGH** using the LEFT or RIGHT button.

DAY/NIGHT mode is changed by source of light from bright to dark by **HIGH -> MID -> LOW** order

➔ **FILTER DLY**

Select **FILTER DLY** using the UP or DOWN button. You can select between

1 SEC, **3 SEC**, **5 SEC**, **10 SEC**, **15 SEC**, **30 SEC** and **60 SEC** using the LEFT or RIGHT button.

➔ **NIGHT BURST**

Select **NIGHT BURST** using the UP or DOWN button. You can select between **ON/OFF** using the LEFT or RIGHT button.

➔ **INITIAL SET**

To initialize the setting, select **INITIAL SET** using the UP or DOWN button and then press the MENU button.

2 EXT (Mode changing by external trigger)

DAY/NIGHT mode is can be changed by external trigger signal. Refer to page 20 for external trigger signal.

3 IRED (DAY/NIGHT mode is changing by Cds Sensor)

Select IRED using the LEFT or RIGHT button and then press the MENU button to access D/N IRED menu.

<D/N IRED MENU>

▶ D/N LEVEL	MIDDLE
FILTER DLY	10 SEC
NIGHT BURST	ON
INITIAL SET	←
PREVIOUS	←

➡ D/N LEVEL

Select D/N LEVEL using the UP or DOWN button.

You can select between LOW, MIDDLE and HIGH using the LEFT or RIGHT button.

DAY/NIGHT mode is changed by source of light from bright to dark by HIGH -> MID -> LOW order

➡ FILTER DLY

Select FILTER DLY using the UP or DOWN button. You can select between

1 SEC, 3 SEC, 5 SEC, 10 SEC, 15 SEC, 30 SEC and 60 SEC using the LEFT or RIGHT button.

➡ NIGHT BURST

Select NIGHT BURST using the UP or DOWN button. You can select between ON/OFF using the LEFT or RIGHT button.

➡ INITIAL SET

To initialize the setting, select INITIAL SET using the UP or DOWN button and then press the MENU button.

1) WDR/ BLC/ ECLPS setup

- Select **WDR/BLC/ECLPS** using the UP or DOWN button.
- You can select between **OFF, WDR, BLC** and **ECLPS** using the LEFT or RIGHT button.
- Select the desired menu and then press the MENU button.

1 WDR

➔ WDR LEVEL

You can select between **LOW, MIDDLE** and **HIGH** using the LEFT or RIGHT button.

➔ LONG

You can select between 0 ~ 60 using the LEFT or RIGHT button.

➔ SHORT

You can select between 0 ~ 60 using the LEFT or RIGHT button.

2 BLC

➔ BLC LEVEL

You can select between **LOW, MIDDLE** and **HIGH** using the LEFT or RIGHT button.

<WDR MENU>

▶ **WDR LEVEL** HIGH
 LONG 40 |||||
 SHORT 40 |||||
 PREVIOUS ←

<BLC MENU>

▶ **BLC LEVEL** MIDDLE
 PREVIOUS ←

3 ECLIPSE

Select ECLPS and then press the MENU button to access ECLIPSE menu.

➡ AREA SETTING

Select AREA SETTING using the UP or DOWN button and then press the MENU button to access the AREA SETTING mode. The full screen is divided into 16 areas. Use the LEFT or RIGHT button to move to a desired area and then select one of the ON / OFF by pressing the UP or DOWN button. To exit out from the divided screen by pressing the MENU button.

➡ ALL AREA SET

To set all areas, select ALL AREA SET using the UP or DOWN button. You can select between ON / OFF using the LEFT or RIGHT button.

➡ MASK COLOR

Select MASK COLOR using the UP or DOWN button. You can select between GRAY, D. GRAY and BLACK using the LEFT or RIGHT button.

➡ ECLPS LEVEL

Select ECLPS LEVEL using the UP or DOWN button. You can adjust from 1 ~ 5 using the LEFT or RIGHT button.

<ECLIPSE MENU>

▶ AREA SETTING ◀

ALL AREA SET OFF
MASK COLOR GRAY
ECLPS LEVEL 1 |
PREVIOUS ◀

OFF	OFF	OFF	OFF
OFF	OFF	OFF	OFF
OFF	OFF	OFF	OFF
OFF	OFF	OFF	OFF

1) **WHITE BAL** setup

- Select **WHITE BAL** using the UP or DOWN button.
- You can select between **ATW**, **PUSH**, **ANTI-ROL** and **MANUAL** using the LEFT or RIGHT button.

1 **ATW**

Adjust automatically the white balance on the color temperature range of 2000 ~ 10000°K.

2 **ANTI-ROL**

Anti color-rolling mode

3 **PUSH**

The color temperature is adjusted on the special picture of the current camera screen.

- ➔ Select **PUSH** using the LEFT or RIGHT button and then press the MENU button.

4 **MANUAL**

To access **WB MANUAL** menu, select **MANUAL** using the **LEFT** or **RIGHT** button and then press the **MENU** button.

➔ **COLOR TEMP**

Select **COLOR TEMP** using the **UP** or **DOWN** button. You can select between **INDOOR** and **OUTDOOR** using the **LEFT** or **RIGHT** button.

- **INDOOR** : 3200°K
- **OUTDOOR** : 5100°K

➔ **RED**

Select **RED** using the **UP** or **DOWN** button. You can adjust density of **RED** (-100 ~ 100) using the **LEFT** or **RIGHT** button.

➔ **BLUE**

Select **BLUE** using the **UP** or **DOWN** button. You can adjust density of **BLUE** (-100 ~ 100) using the **LEFT** or **RIGHT** button.

<WB MANUAL MENU>

▶ **COLOR TEMP** **INDOOR**
RED 0 ||||| | |||||
BLUE 0 ||||| | |||||
INITIAL SET ←
PREVIOUS ←

1) 3D-DNR setup

- Select **3D-DNR** using the UP or DOWN button.
- Select **ON** using the LEFT or RIGHT button and then press the MENU button.

1 LEVEL

Select **LEVEL** using the UP or DOWN button. You can adjust between 0 ~ 63 using the LEFT or RIGHT button.

<3D-DNR MENU>

▶ **LEVEL** 25 |||||

GLOBAL MOTION ON

PREVIOUS ⬅

2 GLOBAL MOTION

Select **GLOBAL MOTION** using the UP or DOWN button. You can select between **ON / OFF** using the LEFT or RIGHT button.

1) IMAGE ADJ setup

- Select **IMAGE ADJ** using the LEFT or RIGHT button and then press the MENU button to access **IMAGE ADJUST** menu.

1 DIGITAL ZOOM

Select **DIGITAL ZOOM** using the UP or DOWN button. Select **ON** using the LEFT or RIGHT button and then press the MENU button to access **DIGITAL ZOOM** menu.

➔ ZOOM

Select **ZOOM** using the UP or DOWN button. You can control a digital zoom of X1.00 ~ X6.13 using the LEFT or RIGHT button.

➔ DZOOM PAN

Select **DZOOM PAN** using the UP or DOWN button. You can adjust the screen horizontally within the range from -100 to 100 using the LEFT or RIGHT button.

➔ DZOOM TILT

Select **DZOOM TILT** using the UP or DOWN button. You can adjust the screen vertically within the range from -100 to 100 using the LEFT or RIGHT button.

<IMAGE ADJUST MENU>

▶ DIGITAL ZOOM	OFF
D-EFFECT	OFF
COLOR	ON
CONTRAST	50
SHARPNESS	55
CR GAIN	0
CB GAIN	0
INITIAL SET	←
PREVIOUS	←

<DIGITAL ZOOM MENU>

▶ ZOOM	X1.00
DZOOM PAN	0
DZOOM TILT	0
PREVIOUS	←

2 D-EFFECT

Select **D-EFFECT** using the UP or DOWN button. You can select between **OFF**, **V-FLIP**, **MIRROR**, **ROTATE** using the LEFT or RIGHT button.

- ➡ **V-FLIP** : You can flip the picture vertically on the screen.
- ➡ **MIRROR** : You can flip the picture horizontally on the screen.
- ➡ **ROTATE** : You can rotate 180 degrees the picture.

3 COLOR

Select **COLOR** using the UP or DOWN button. You can select between **ON / OFF** using the LEFT or RIGHT button.

4 CONTRAST

Select **CONTRAST** using the UP or DOWN button. You can adjust between 0 ~ 100 using the LEFT or RIGHT button.

5 SHARPNESS

Select **SHARPNESS** using the UP or DOWN button. You can adjust between 0 ~ 100 using the LEFT or RIGHT button. As you increase this value, the picture outline becomes stronger and clearer.

6 CR GAIN

Select **CR GAIN** using the UP or DOWN button. You can adjust between -100 ~ 100 using the LEFT or RIGHT button.

7 CB GAIN

Select **CB GAIN** using the UP or DOWN button. You can adjust between -100 ~ 100 using the LEFT or RIGHT button.

1) SPECIAL setup

- Select **SPECIAL** using the UP or DOWN button and then press the MENU button to access the SPECIAL menu.

1 **CAMERA ID**

Select **CAMERA ID** using the UP or DOWN button. Select **ON** using the LEFT or RIGHT button and then press the MENU button to access the **SET CAMERA ID** menu.

<SPECIAL MENU>

▶ CAMERA ID	OFF
MOTION DET	OFF
PRIVACY MASK	OFF
LANGUAGE	ENG
STABILIZER	OFF
SYNC	INT
GAMMA MODE	CRT
FACTORY RESET	←
COMM SET	←
PREVIOUS	←

➔ **CAMERA ID**

Select **CAMERA ID** between 000 ~ 255 using the LEFT or RIGHT button.

➔ **ID POSITION**

Select **ID POSITION** using the UP or DOWN button and then press the MENU button. You can move position of **CAMERA ID** only using the LEFT or RIGHT button.

<SET CAMERA ID>

▶ CAMERA ID	001	
ID POSITION	←	
PREVIOUS	←	

001

← → MOVE AND PRESS SET

2 MOTION DET

Select **MOTION DET** using the UP or DOWN button.
To use motion detection function,
Select **ON** using the LEFT or RIGHT button and then
press the MENU button.

➔ ZONE NUMBER

Select **ZONE NUMBER** using the UP or DOWN
button. You can select up to 4 ZONE areas using
the LEFT or RIGHT button.

➔ ZONE STATE

Select **ZONE STATE** using the UP or DOWN button.
As you select one of the **ON / OFF** using the LEFT or RIGHT button,
Determines whether or not to use the selected ZONE area.

➔ WIDTH

Select **WIDTH** using the UP or DOWN button. You can enlarge or decrease the horizontal
size of the selected ZONE area by using the LEFT or RIGHT button. [16 ~ 100]

➔ HEIGHT

Select **HEIGHT** using the UP or DOWN button. You can enlarge or decrease the vertical
size of the selected ZONE area by using the LEFT or RIGHT button. [12 ~ 100]

< MOTION DET MENU >

▶ ZONE NUMBER	ZONE 1
ZONE STATE	OFF
WIDTH	30
HEIGHT	30
MOVE X	30
MOVE Y	25
SENSITIVITY	50
INITIAL SET	←
PREVIOUS	←

➔ **MOVE X**

Select **MOVE X** using the UP or DOWN button. You can move horizontal position of the selected ZONE area by using the LEFT or RIGHT button. [8 ~ 92]

➔ **MOVE Y**

Select **MOVE Y** using the UP or DOWN button. You can move vertical position of the selected ZONE area by using the LEFT or RIGHT button. [6~ 94]

➔ **SENSITIVITY**

To setup the sensitivity of motion detection, Select **SENSITIVITY** using the UP or DOWN button. You can adjust the motion sensitivity of a movement within the range 0 to 100 using the LEFT or RIGHT button.

3 **PRIVACY MASK**

Select **PRIVACY MASK** using the UP or DOWN button. To use privacy mask function, Select **ON** using the LEFT or RIGHT button and then press the MENU button.

➔ **MASK NUMBER**

Select **MASK NUMBER** using the UP or DOWN button. You can select up to 8 MASK areas using the LEFT or RIGHT button.

<PRIVACY MASK>

▶ MASK NUMBER	MASK 1
MASK STATE	OFF
MASK COLOR	GRAY
WIDTH	30
HEIGHT	30
MOVE X	30
MOVE Y	25
INITIAL SET	↩
PREVIOUS	↩

➔ **MASK STATE**

Select **PRIVACY STATE** using the UP or DOWN button. As you select one of the ON / OFF using LEFT or RIGHT button, Determines whether or not to use the selected MASK area.

➔ **MASK COLOR**

Select **MASK COLOR** using the UP or DOWN button. You can select between GRAY, WHITE, RED, GREEN, BLUE, YELLOW, BLACK using the LEFT or RIGHT button.

➔ **WIDTH**

Select **WIDTH** using the UP or DOWN button. You can enlarge or decrease the horizontal size of the selected MASK area by using the LEFT or RIGHT button. [4 ~ 100]

➔ **HEIGHT**

Select **HEIGHT** using the UP or DOWN button. You can enlarge or decrease the vertical size of the selected MASK area by using the LEFT or RIGHT button. [4 ~ 100]

➔ **MOVE X**

Select **MOVE X** using the UP or DOWN button. You can move horizontal position of the selected MASK area by using the LEFT or RIGHT button. [2 ~ 98]

➔ **MOVE Y**

Select **MOVE Y** using the UP or DOWN button. You can move vertical position of the selected MASK area by using the LEFT or RIGHT button. [2 ~ 98]

4 LANGUAGE

Select **LANGUAGE** using the UP or DOWN button. You can select between **ENG**, **KOR**, **RSN**, **CHN**, **SPN** and **FRN** using the LEFT or RIGHT button.

5 STABILIZER

Select **STABILIZER** using the UP or DOWN button. To compensates for any camera movement, Select **ON** using the LEFT or RIGHT button.

6 L/L SYNC

➔ INT

- **INT mode** : Internal Synchronization
- **SYNC** has been fixed to the **INT** mode.

➔ L/L(Line Lock mode)

- **L/L mode** : When using AC power at 60Hz or 50Hz frequency, you can use the L/L type synchronization.
- **L/L PHASE mode** : When using AC power at 60Hz or 50Hz frequency, you can use the L/L type synchronization.
- Select **L/L PHASE 0 ~ 359** using the LEFT or RIGHT button.

7 GAMMA MODE

Select **GAMMA MODE** using the UP or DOWN button. You can select between **CRT** and **LCD**, **USER** using LEFT or RIGHT button.

<USER GAMMA MENU>

▶ **USER GAMMA** 0.45 |■■■■■■■■■■
PREVIOUS ←

8 **FACTORY RESET**

Select **FACTORY RESET** using the UP or DOWN button and then press the MENU button to reset to factory default.



When the **FACTORY RESET** is set, the language is remained previous selected language.

9 **COMM SET**

Select **COMM SET** using the UP or DOWN button and then press the MENU button to access the **COMM SETTING** menu.

➔ **BAUD RATE**

Select **BAUD RATE** using the UP or DOWN button. You can select between 4800, 9600, 19200, 38400 and 57600 using the LEFT or RIGHT button.

➔ **SAVE & REBOOT**

To apply the changed **BAUD RATE**, select **SAVE & REBOOT** using the UP or DOWN button and then press the MENU button.

< COMM SETTING MENU >

▶ **BAUD RATE** 9600

SAVE & REBOOT

PREVIOUS ◀

COMMUNICATION BAUD RATE

1) **SAVE & EXIT** setup

- To save the settings for all menus and to exit out from the OSD SETUP menu, select **SAVE & EXIT** using the UP or DOWN button and then press the MENU button.



Note



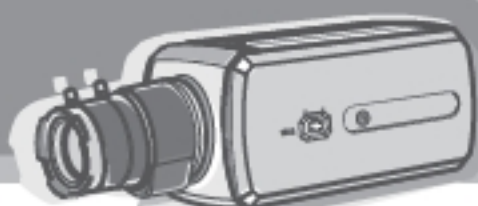
When the **FACTORY RESET** is set, the language is remained previous selected language.



9. 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.

Problem	Solution
Nothing appears on the screen.	• Check that the power cord and line connection between the camera monitor are fixed properly. • Check that you have properly connected VIDEO cable to the camera VIDEO output jack.
The image on the screen is dim.	• Is lens stained with dirt? Clean your lens with soft, clean cloth. • Set the monitor to proper condition. • If the camera is directly exposed to strong light, change the camera position. • Adjust the lens' focus properly.
The image on the screen is dark.	• Adjust the contrast feature of the monitor. • If you have an intermediate device, set the 75ohms/ Hi-z properly. • Adjust DC Level, on the OSD menu.
The camera is not working properly, and the surface of the camera is hot.	• Check that you have properly connected the camera to an appropriate power source.
The image on the screen flickers.	• Is the camera facing to direct sunlight or fluorescent lighting? Change the camera position.



11. SPECIFICATIONS

MODEL	WDR (Wide Dynamic Range)	
Signal System	NTSC	PAL
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Image Sensor	1/3 inch Double Scan CCD	
Video Output	1.0Vp-p Composite Signal (75 ohms)	
Sync. System	Internal Sync	
Luminance S/N Ratio	52dB Min. (AGC OFF)	
Horizontal Resolution	580 TV Lines (BW 650 TV lines)	
Sensitivity / Min.Illumination	0.1 Lux / 0.0002 Lux (Sens-Up Auto)	
Brightness	0 ~ 80	
Shutter	AUTO / OFF / A.FLK / x (2 ~ 512) / (1/90000 ~ 1/160)	
DSS	OFF / AUTO x (2 ~ 128)	
3D-DNR	ON / OFF (0 ~ 63)	
White Balance	ATW / ANTI-ROL / PUSH / MANUAL	
AGC	OFF / LOW / MID / HIGH	
WDR	Up to 72 dB (LOW / MIDDLE / HIGH) (LONG / SHORT)	
BLC	LOW / MIDDLE / HIGH	

➔ 12V DC Input Model

ECLIPSE	ON / OFF (16 Zones)
Stabilizer	ON / OFF
Digital-ZOOM	x 1.00 ~ x 6.13
Day & Night	AUTO / DAY / NIGHT / EXT / IRED
Night Burst	ON / OFF
Motion Detection	ON / OFF (4 Programmable Zone)
Privacy	ON / OFF (8 Programmable Zone)
D-EFFECT	V - FLIP / MIRROR / ROTATE
Sharpness	1 ~ 100
Baud Rate	4800 / 9600 / 19200 / 38400 / 57600
OSD Language	ENG / KOR / RSN / CHN / SPN / FRN
Applicable Lens	DC Iris / Manual Lens
Supply Voltage	12V DC (+10% -20%)
Power Consumption	2.8W (Max)
Operating Temperature/Humidity	-10°C to 50°C (14°F to 122°F) / 30% ~ 80% RH
Storage Temperature/Humidity	-20°C to 60°C (-4°F to 140°F) / 20% ~ 90% RH

MODEL	WDR (Wide Dynamic Range)	
Signal System	NTSC	PAL
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Image Sensor	1/3 inch Double Scan CCD	
Video Output	1.0Vp-p Composite Signal (75 ohms)	
Sync. System	Internal Sync	
Luminance S/N Ratio	52dB Min. (AGC OFF)	
Horizontal Resolution	580 TV Lines (BW 650 TV lines)	
Sensitivity / Min.Illumination	0.1 Lux / 0.0002 Lux (Sens-Up Auto)	
Brightness	0 ~ 80	
Shutter	AUTO / OFF / A.FLK / x (2 ~ 512) / (1/90000 ~ 1/160)	
DSS	OFF / AUTO x (2 ~ 128)	
3D-DNR	ON / OFF (0 ~ 63)	
White Balance	ATW / ANTI-ROL / PUSH / MANUAL	
AGC	OFF / LOW / MID / HIGH	
WDR	Up to 72 dB (LOW / MIDDLE / HIGH) (LONG / SHORT)	
BLC	LOW / MIDDLE / HIGH	

ECLIPSE	ON / OFF (16 Zones)
Stabilizer	ON / OFF
Digital-ZOOM	x 1.00 ~ x 6.13
Day & Night	AUTO / DAY / NIGHT / EXT / IRED
Night Burst	ON / OFF
Motion Detection	ON / OFF (4 Programmable Zone)
Privacy	ON / OFF (8 Programmable Zone)
D-EFFECT	V - FLIP / MIRROR / ROTATE
Sharpness	1 ~ 100
Baud Rate	4800 / 9600 / 19200 / 38400 / 57600
OSD Language	ENG / KOR / RSN / CHN / SPN / FRN
Applicable Lens	DC Iris / Manual Lens
Supply Voltage	24V AC / 12V DC (+20% -20%)
Power Consumption	5.6W (Max)
Operating Temperature/Humidity	-10°C to 50°C (14°F to 122°F) / 30% ~ 80% RH
Storage Temperature/Humidity	-20°C to 60°C (-4°F to 140°F) / 20% ~ 90% RH

MODEL	WDR (Wide Dynamic Range)	
Signal System	NTSC	PAL
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Image Sensor	1/3 inch Double Scan CCD	
Video Output	1.0Vp-p Composite Signal (75 ohms)	
Sync. System	Internal Sync	
Luminance S/N Ratio	52dB Min. (AGC OFF)	
Horizontal Resolution	580 TV Lines (BW 650 TV lines)	
Sensitivity / Min.Illumination	0.1 Lux / 0.0002 Lux (Sens-Up Auto)	
Brightness	0 ~ 80	
Shutter	AUTO / OFF / A.FLK / x (2 ~ 512) / (1/90000 ~ 1/160)	
DSS	OFF / AUTO x (2 ~ 128)	
3D-DNR	ON / OFF (0 ~ 63)	
White Balance	ATW / ANTI-ROL / PUSH / MANUAL	
AGC	OFF / LOW / MID / HIGH	
WDR	Up to 72 dB (LOW / MIDDLE / HIGH) (LONG / SHORT)	
BLC	LOW / MIDDLE / HIGH	

ECLIPSE	ON / OFF (16 Zones)
Stabilizer	ON / OFF
Digital-ZOOM	x 1.00 ~ x 6.13
Day & Night	AUTO / DAY / NIGHT / EXT / IRED
Night Burst	ON / OFF
Motion Detection	ON / OFF (4 Programmable Zone)
Privacy	ON / OFF (8 Programmable Zone)
D-EFFECT	V - FLIP / MIRROR / ROTATE
Sharpness	1 ~ 100
Baud Rate	4800 / 9600 / 19200 / 38400 / 57600
OSD Language	ENG / KOR / RSN / CHN / SPN / FRN
Applicable Lens	DC Iris / Manual Lens
Supply Voltage	100VAC ~ 240VAC
Power Consumption	6W (Max)
Operating Temperature/Humidity	-10°C to 50°C (14°F to 122°F) / 30% ~ 80% RH
Storage Temperature/Humidity	-20°C to 60°C (-4°F to 140°F) / 20% ~ 90% RH

MODEL	WDR (Wide Dynamic Range)	
Signal System	NTSC	PAL
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Image Sensor	1/3 inch Double Scan CCD	
Video Output	1.0Vp-p Composite Signal (75 ohms)	
Sync. System	Internal Sync	
Luminance S/N Ratio	52dB Min. (AGC OFF)	
Horizontal Resolution	580 TV Lines (BW 650 TV lines)	
Sensitivity / Min.Illumination	0.1 Lux / 0.0002 Lux (Sens-Up Auto)	
Brightness	0 ~ 80	
Shutter	AUTO / OFF / A.FLK / x (2 ~ 512) / (1/90000 ~ 1/160)	
DSS	OFF / AUTO x (2 ~ 128)	
3D-DNR	ON / OFF (0 ~ 63)	
White Balance	ATW / ANTI-ROL / PUSH / MANUAL	
AGC	OFF / LOW / MID / HIGH	
WDR	Up to 72 dB (LOW / MIDDLE / HIGH) (LONG / SHORT)	
BLC	LOW / MIDDLE / HIGH	

ECLIPSE	ON / OFF (16 Zones)
Stabilizer	ON / OFF
Digital-ZOOM	x 1.00 ~ x 6.13
Day & Night	AUTO / DAY / NIGHT / EXT / IRED
Night Burst	ON / OFF
Motion Detection	ON / OFF (4 Programmable Zone)
Privacy	ON / OFF (8 Programmable Zone)
D-EFFECT	V - FLIP / MIRROR / ROTATE
Sharpness	1 ~ 100
Baud Rate	4800 / 9600 / 19200 / 38400 / 57600
OSD Language	ENG / KOR / RSN / CHN / SPN / FRN
Applicable Lens	DC Iris / Manual Lens
Supply Voltage	24V AC / 12V DC (+20% -20%)
Power Consumption	5.6W (Max)
Input / Output Connector	Power / Video / UTP
Operating Temperature/Humidity	-10°C to 50°C (14°F to 122°F) / 30% ~ 80% RH
Storage Temperature/Humidity	-20°C to 60°C (-4°F to 140°F) / 20% ~ 90% RH



. Memo



CAMERA SERIES

EO CAMERA



P/N : 3810-0212A ©
(Ver.1005E)

- Design and specifications are subject to change without notice.

Color Video Camera Series

