Digital Slow Shutter

DSS

Weatherproof IR
Day & Night Color Camera

True Day & Night (ICR)

High Resolution

Cable Pass Mounts

COLOR VIDEO CAMERA
with DAY & NIGHT and IR LEDs

OWNER'S MANUAL

ICR
True Day & Night

DIGITAL

. 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

The manufacturer could void the user's authority to operate the equipment.

CAUTION - To prevent electric shock and risk of fire hazards:

• Do NOT use power sources except for that specified.

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

. Troubleshooting

If there is no picture on the monitor screen,

   make sure all the cables are properly connected.

   make sure the monitor is properly adjusted.

If the picture on the monitor screen is not clear,

   clean the lens.

   adjust the lens focus.

If there is a video noise or other unknown problems,

   stop using the camera and call your local dealer.

DO NOT DISASSEMBLE THE CAMERA

IF ANY DEFECTIVE CAMERA HAS BEEN OPENED BEFORE IT ARRIVES TO AUTHORIZED RMA OFFICE, THE DEFECTIVE CAMERA MAY NOT BE REPAIRED UNDER IT'S WARRANTY SERVICE.
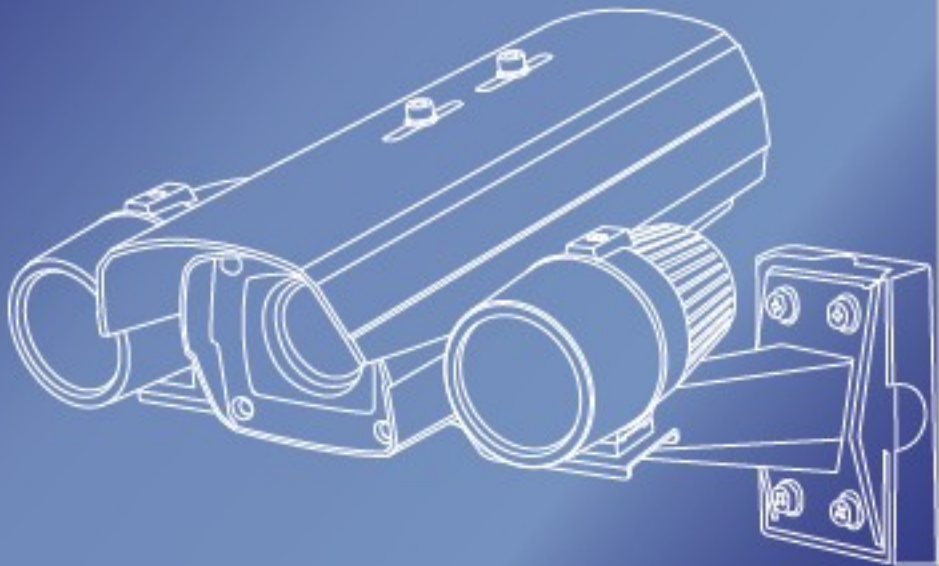
Weatherproof
Day&Night Color Camera

COLOR VIDEO ZOOM CAMERA SERIES
with DAY & NIGHT and IR LEDs

300 x
POWER ZOOM
COLOR VIDEO CAMERA
DAY & NIGHT

. Contents

1. Precautions

■ **Do not install the camera in extreme temperature conditions.**

Do use the camera under conditions where temperatures are within
-10°C to 50°C.
Especially be careful for ventilation under high temperature.

■ **Do not install the camera under unstable lighting conditions.**

Severe lighting change or flicker can cause the camera to
work improperly.

■ **Never use the camera close to a gas or oil leak.**

It can cause malfunctions to occur.

■ **Do not disassemble the camera.**

There are no user-serviceable parts inside it.

■ **Do not drop the camera or subject them to physical shocks.**

It can cause malfunctions to occur.

■ **Never keep the camera face to strong light directly.**
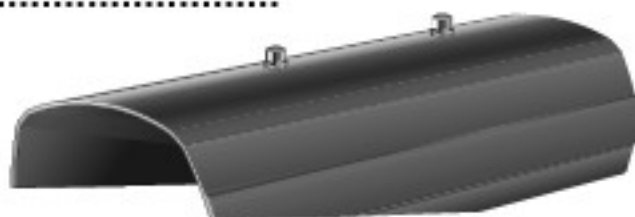
It can damage CCD.

■ **Note**

When this camera is installed near equipment, like a wireless
communication device that emits a strong electro magnetic
field, some irregularity such as noise on the monitor screen
may happen.

300x zoom

2. Composition

1. Weather Proof Camera ....

2. Sunvisor ....

3. Bracket Ass'y ....

4. Owner's Manual ....

5. AC Adaptor ....

◀ AC PLUG
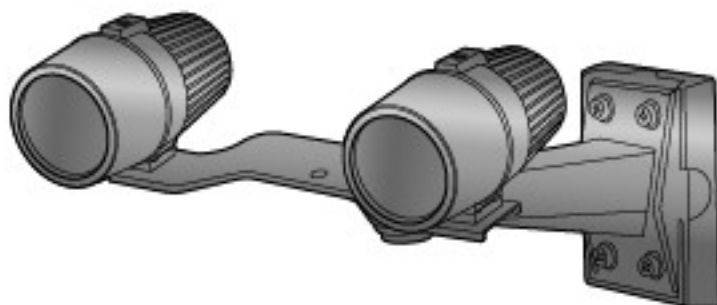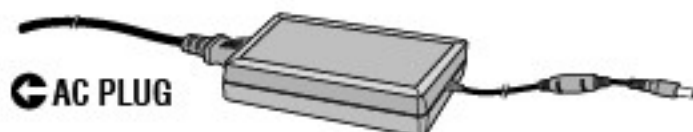
※ DC 12V Input Model

3. Features

1. Day & Night Function

It automatically judges whether it is day or night. Color pictures are provided during the day, black and white pictures at night. A separate infrared LED is unnecessary since the built-in IR LED is used when the IR Cut Filter is removed at night.

2. Built-in Power Zoom Lens (optical 30x)

Subject can be magnified up to max 300 times with the 30x optical zoom and 10x digital zoom.

3. IR Illuminator

Two IR illuminators enable you to see any object under total darkness. Each of them is composed by 63 IR LEDs (Total 126 IR LEDs).
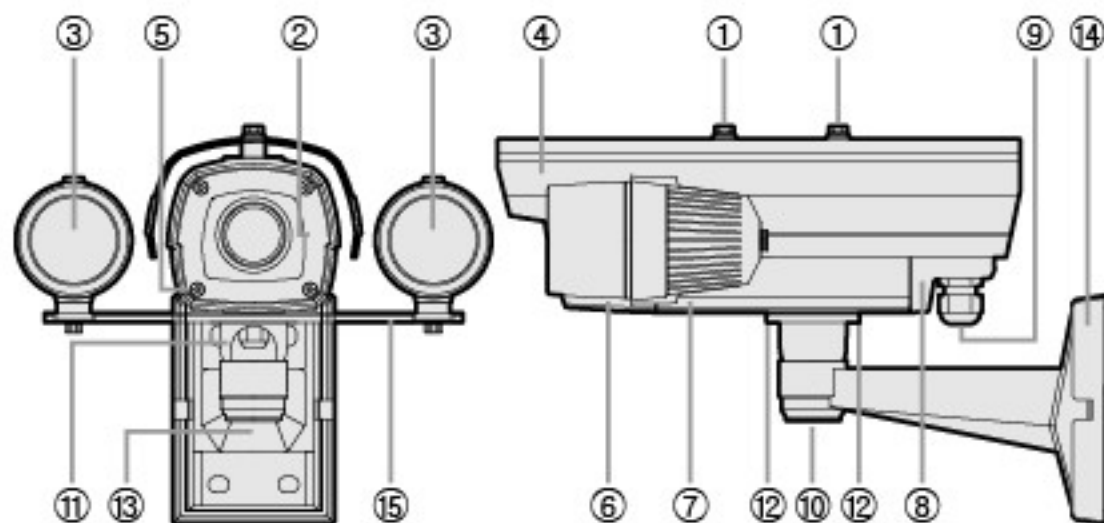
4. High Resolution and High-Definition picture

Provides high-definition picture 480 TV line horizontal resolution, with 1/4 inch SONY Super HAD CCD.

5. Camera Control

RS-485 (PELCO "D") Control

300x zoom

4. Name and Function of Each Parts

① **Fixing Bolt for Sunvisor**
You can unfasten the bolt in order to fix mounting bracket above.

② **Photo Sensor**

③ **IR Illuminator (Infrared LED)**
Automatically controlled according to light condition.

④ **Sunvisor**
To reduce direct sunlight and protect the camera unit from rain or snow outdoor.

⑤ **Fixed Screws (front- 4EA & rear- 4EA)**
Remove the front & rear body from the main body unscrews the four(total eight) fixed screws.

⑥ **Front Body / ⑦ Main Body / ⑧ Rear Body**

⑨ **Compression Gland**
Used to connecting the IR illuminator cables to the rear body panel.
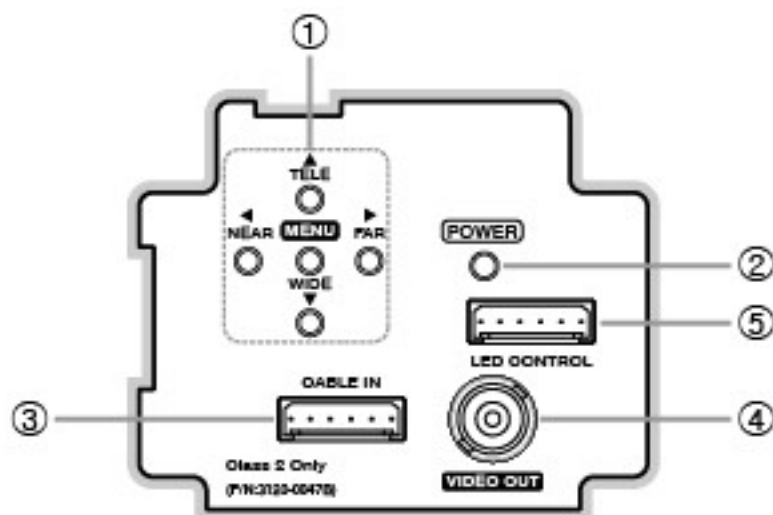
⑩ **Mounting Bracket Fixing Bolt**
Fix the camera main body to bracket by wrench bolt.

⑪ **Base Adapter / ⑫ Base Adapter Fixing Bolt**

⑬ **Wall Mount Bracket / ⑭ Bracket Supporter**

⑮ **IR Illuminator Supporter**

. Main Body ➔ : Rear Panel

① Function Setup Button
Functions can be setup using 5 buttons on the camera's rear panel.
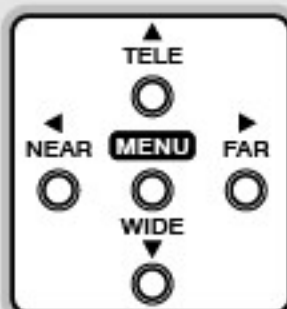
➔ **MENU Buttons :** Used to access menu mode. Also used to escape menu mode.

➔ **TELE/WIDE Button :** Used to choose the desired menu item. It also moves the cursor up or down in the menu screen.

➔ **NEAR/FAR Buttons :** Used to change the parameter of the selected menu item. It also moves the cursor the left of right in the menu screen.

② Power LED
The LED turns on when power is supplied.

③ Cable (Power In / Video Out / Camera Control) Connector

④ Video Out Jack
This camera system includes a service connector that outputs extra camera video signal. Use it at the installation site to set up the field of view and focus the camera.

⑤ Illuminator Control Connector (Refer to page 14)

300x zoom

5. Installation

1. Connecting to Monitor

- Cable the VIDEO out to the monitor video in jack.

**Weatherproof
IR LED Camera**

Black
#3

#4
Yellow

Monitor

• As the connecting method varies with the instruments, refer to the manual supplied with the instrument.

• Connect the cable after power is turned off.

• Set the 75Ω/ Hi-Z selection switch as shown below if you have an intermediate device.

**Intermediate
Video Receiver**

End monitor

VIDEO
75Ω   Hi-Z
IN   OUT

VIDEO
75Ω   Hi-Z
IN   OUT

**Weatherproof
IR LED Camera**
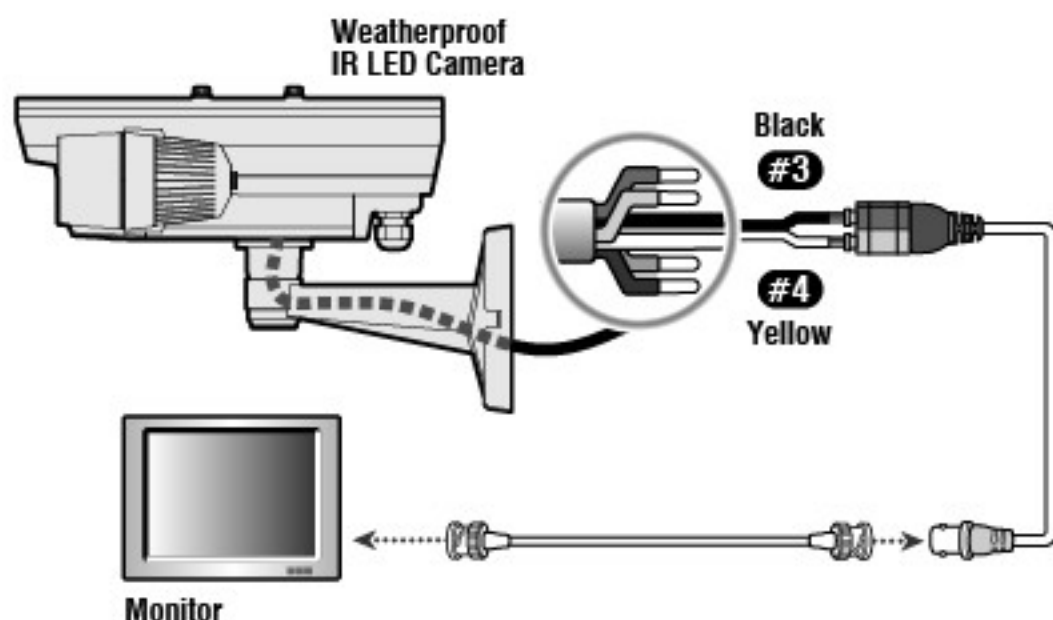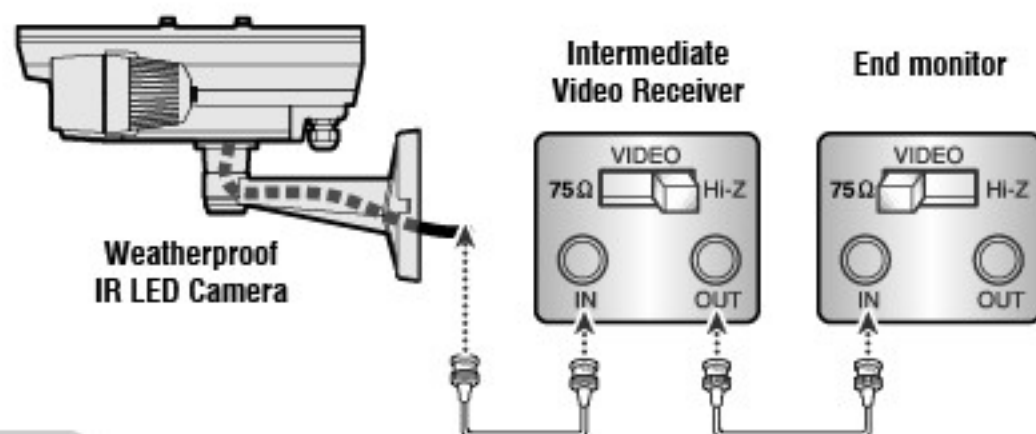
2. Connecting to Power Supply

. DC 12V Power ➜

- The wire is polarized.
- Use DC 12V === power source.
- Note: Make sure you are using olny the supplied AC adapter.

No.	Line Color	Function	Remark
#1	RED	DC12V	DC 12V / 2.5A
#2	ORANGE	GND	GND
#3	BLACK	GND(VIDEO)	GND
#4	YELLOW	VIDEO OUT	1.0Vp-p Composite
#5	GREEN	RS-485 (+)	-
#6	BROWN	RS-485 (−)	-

300x zoom

3. Connecting to IR Illuminator

- Unscrew the four fixed screws to remove the rear body from the main body.

• **Weatherproof IR LED Camera**
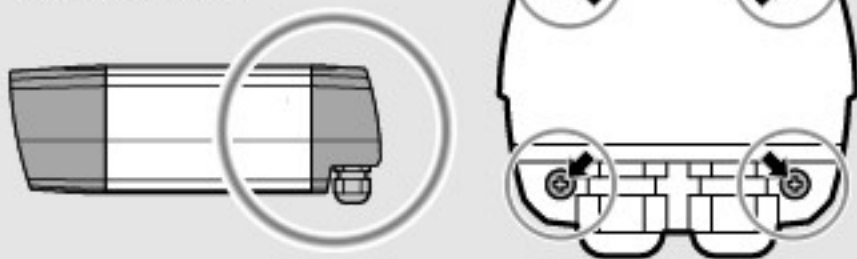
. Main Body →

- Connect the power cable plug of the IR illuminator to its power cable jack.

. Rear Body →

- Connect the control cable plug of the IR illuminator to its control jack.

4. Camera Installation

- Assembling the sunvisor and the bracket.

Hex Head Bolt
(2EA)

(2EA)

Base Adapter Fixing Bolt
(4EA)

Mounting Bracket Fixing Bolt
(1EA)

- Assembling the bracket supporter

300x zoom
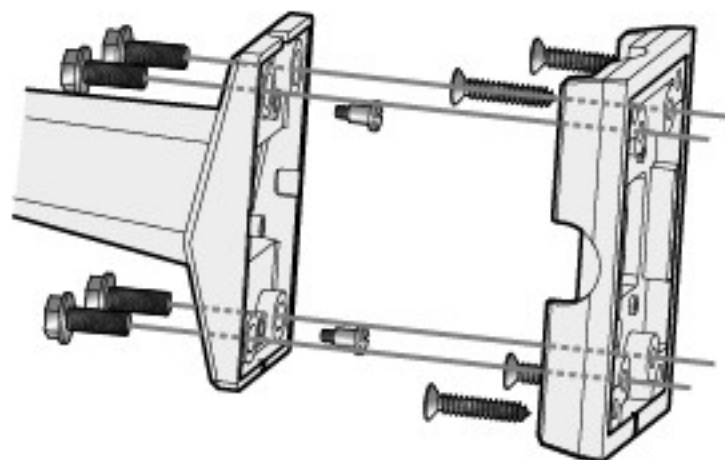
6. Remote Controller Operation

The remote controller is optional item.

■ Receiver

· RS-485 Signal

❶ ❷ ❸ ❹

Power
DC 12V, 500mA
⊖ ─ ⓒ ─ ⊕

⊕ ⊖ ⊕ ⊖

- *White Terminal :* ⊕
- *Black Terminal :* ⊖
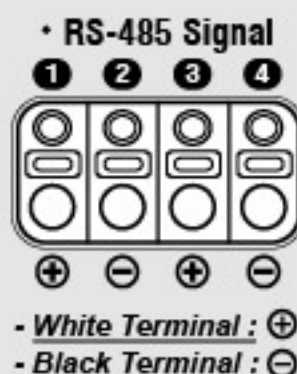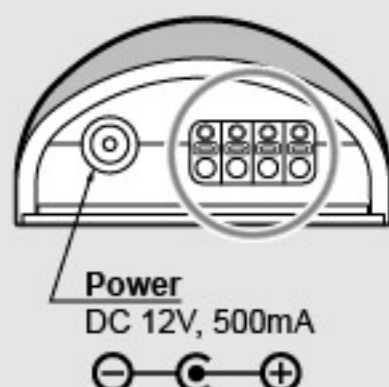
■ Remote Control

① **Camera Selection**
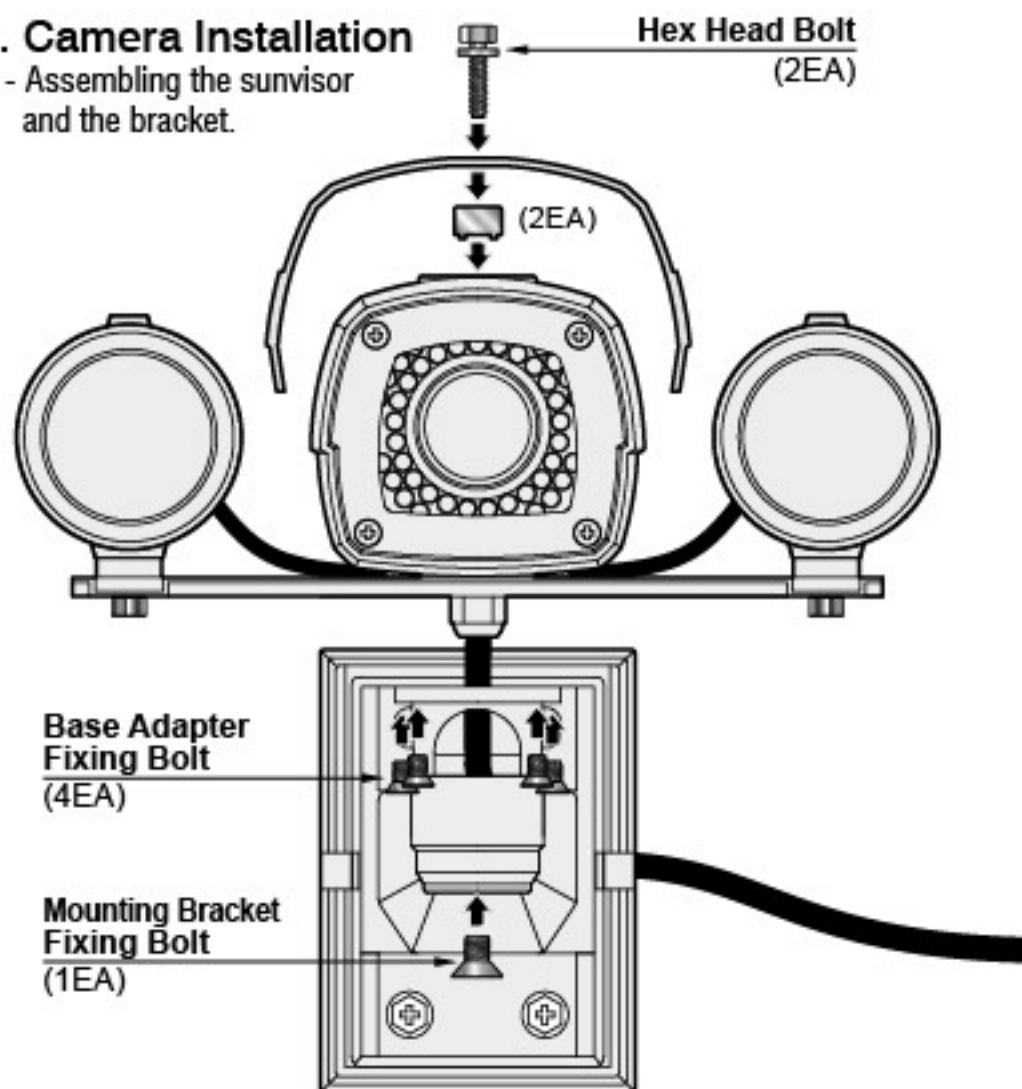- After camera connects with receiver, firstly check camera I.D.
- Press camera I.D. number(1~39 buttons) on the top of wireless remote controller.

➜ Example: ZOOM IN
  · I.D. No.5: Press **5** + <TELE>
  · I.D. No.15: Press <F1> + **5** + <TELE>
  · I.D. No.24: Press <F2> + **4** + <TELE>
  · I.D. No.34: Press <F3> + **4** + <TELE>

·*Caution : Usually camera I.D. number are selected from No.1 to No.39. over I.D. No.40, you will have a use limit.*

- *Initial camera I.D. number is set up No.0 when it takes out of manufacturer's warehouse.*

② **Menu (PROG):** Shows / Hides Menu.

③ **(TELE):**
④ **(WIDE):**] Moves up and down items.

⑤ **(NEAR):**
⑥ **(FAR):**] Set data for the selected items.

■ Cable Connection (Pelco-D/ RS-485)

• Receiver & Remote Control

• Signal (RS-485)

• DVR System

• Pelco-D Keyboard

300x zoom
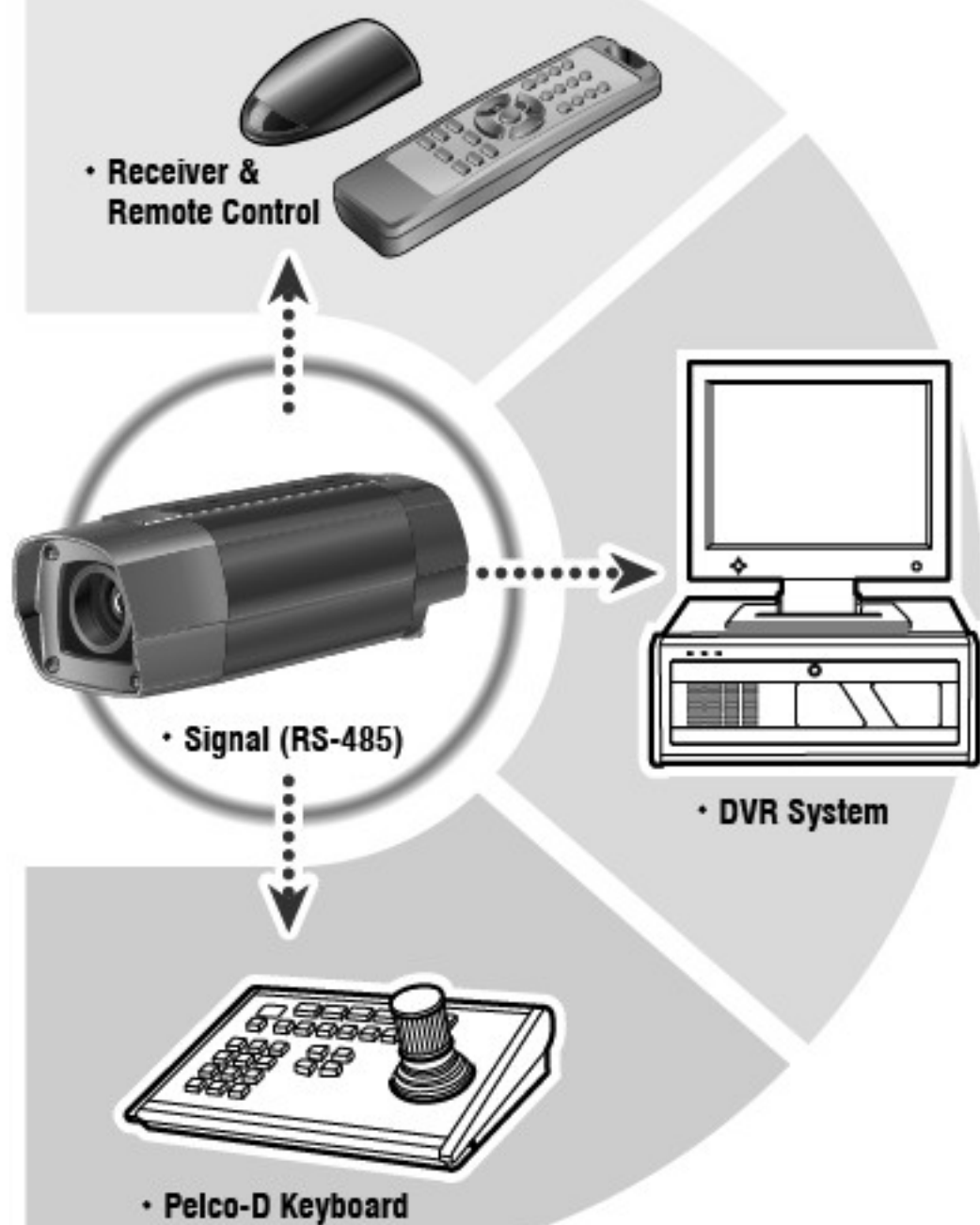
7. On-Screen Display

■ Explanation of the On-Screen Display

The OSD (On Screen Display) is as follows:
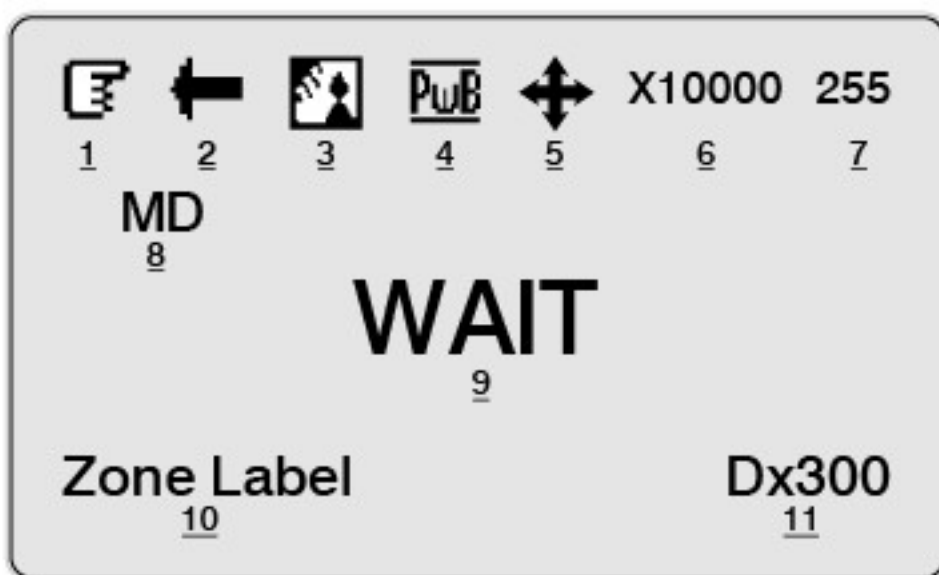
"ND": No Display

	FUNCTION	OSD	EXPLANATION
1	Focus	ND	Automatic focus mode
		(icon)	Manual focus mode
2	Mirror	ND	No screen inverted
		(icon)	Screen is inverted to the left or right
3	Backlight	ND	Backlight compensation off
		(icon)	Backlight compensation mode
		(icon)	Automatic backlight compensation mode

The OSDs of *1, 2, 3, 4, 5, 6, 8, 9, 11* disappear 5 sec later.   "ND": No Display

	FUNCTION	OSD	EXPLANATION
4	White Balance	ND	Automatic color correction mode
		$\overline{SwB}$	Special color correction mode
		$\overline{IwB}$	Indoor mode
		$\overline{OwB}$	Outdoor mode
		$\overline{PwB}$	Temporary automatic mode
5	Pan / Tilt	ND	No Act Digital Panning / Tilting
		✥	Digital Panning / Tilting
6	Shutter Speed	ND	Standard shutter speed (NTSC:1/60, PAL:1/50)
		$F_{.L}$	Flicker correction mode
		x125 ~ x10000	Shutter speed indicator
7	ID	000 ~ 255	Camera identification number
8	Motion Detect	ND	No motion detected
		MD	Motion detected
9	Initial LOGO	WAIT	Displayed when POWER ON of the camera is in operation
10	Zone Label	-	Explanation of the scene capture by the camera (max. 10 letters)
11	Zoom	x1 ... Dx300	Optical zoom: x1 ~ x30 Digital zoom: Dx31 ~ Dx300 * 'D' indicates digital zoom

300x zoom

8. Menu and Operation

■ How to Set Up Functions

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

▲ TELE

◄ NEAR MENU ► FAR
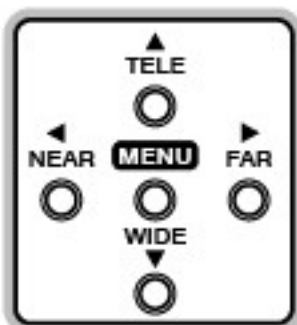
▼ WIDE

➲ MENU Key : Shows/Hides Menu
➲ TELE/WIDE : Moves up and down items
➲ NEAR/FAR : Set data for the selected item

(*) The above keys may be used differently
    in some functions : 'Zone Label'

1. Press the MENU button.

➲ The Menu consists of the "Main Menu" and "Sub Menu".
➲ The main menu is displayed where 10 camera functions can be selected.
➲ To the right of each main menu selection, the sub-menu is displayed.

NEAR / FAR

TELE / WIDE

MENU

GENERAL	—— CAMERA ID
FOCUS	—— LANGUAGE
AWB	—— ZONE LABEL
AE	—— BACKLIGHT
D&N	—— SHARPNESS
SLOW_SHT	—— MIRROR
MOTION	—— PROTOCOL
DISPLAY	
INITIAL	
EXIT	
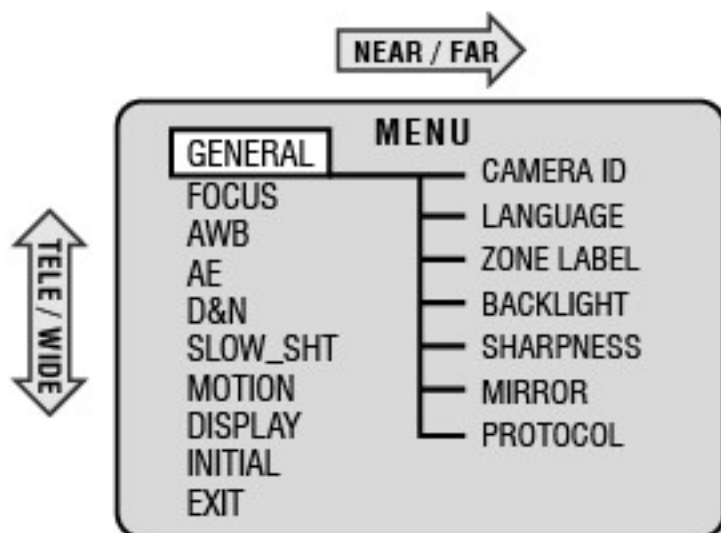
✔GENERAL

 : This blinks to show that this category has been selected.

2. Press the TELE/WIDE button.

➲ It moves up and down the main menu category.

➲ The sub-menu functions of the main menu category are displayed on the right.

```
                    M E N U
    GENERAL
    FOCUS          ──── FOCUS MODE
    AWB            ──── PUSH AUTO
    AE             ──── FOCAL DIST
    D&N            ──── ZOOM START
    SLOW_SHT       ──── ZOOM END
    MOTION         ──── ZOOM SPEED
    DISPLAY
    INITIAL
    EXIT
```
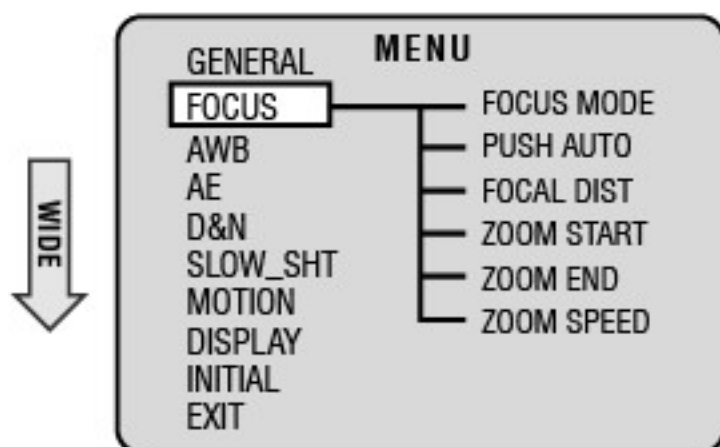
WIDE

3. Press the NEAR/FAR button.

➲ It moves to the sub-menu window of the selected main menu.

➲ The current set state of each sub-menu can be checked.

➲ Press the TELE/WIDE button to move up and down the sub-menu category and set each category by pressing the NEAR/FAR button.

```
                F O C U S
    FOCUS MODE       MANUAL  ◄──  Can be changed
    PUSH AUTO        OFF           using the
    FOCAL DIST       50CM          Near/Far button.
    ZOOM START       x001
    ZOOM END         x300
    ZOOM SPEED       3
    INITIAL          ON
    EXIT             ↵
```

TELE / WIDE

300x zoom
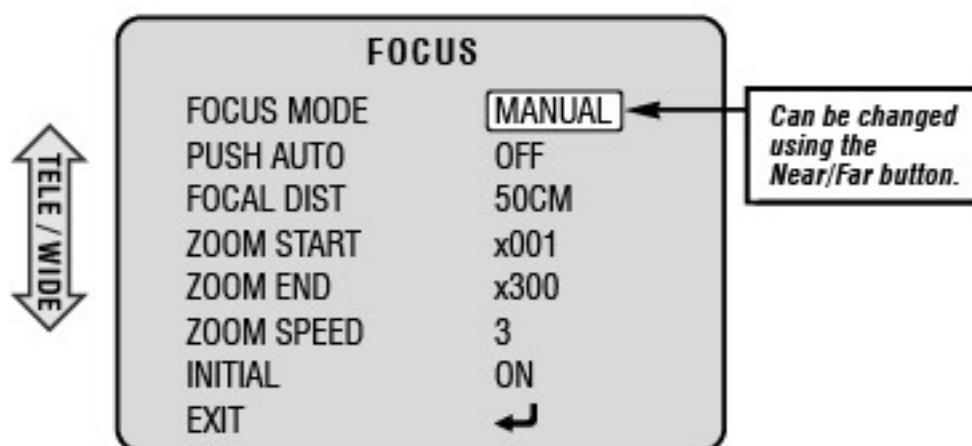
4. Press the OSD MENU button at the main menu or sub-menu screen to hide the menu.

➲ It does not apply when the MENU button is used for other uses.

: 'Zone Label' setup screen

■ Main Menu- GENERAL

➲ Sets up the general operation of the camera.

➲ Press the NEAR/FAR button to move to the sub-menu.

NEAR / FAR

MENU

GENERAL	CAMERA ID
FOCUS	LANGUAGE
AWB	ZONE LABEL
AE	BACKLIGHT
D&N	SHARPNESS
SLOW_SHT	MIRROR
MOTION	PROTOCOL
DISPLAY	
INITIAL	
EXIT	

NEAR / FAR

GENERAL

CAMERA ID	000
LANGUAGE	ENG
ZONE LABEL	EDIT
BACKLIGHT	NORMAL
SHARPNESS	10
MIRROR	OFF
PROTOCOL	DEF
INITIAL	ON
EXIT	↵

Move up and down using the TELE/WIDE button.

Can be changed using the Near/Far button.

- DEF (Default)
- P/D (Pelco-D)
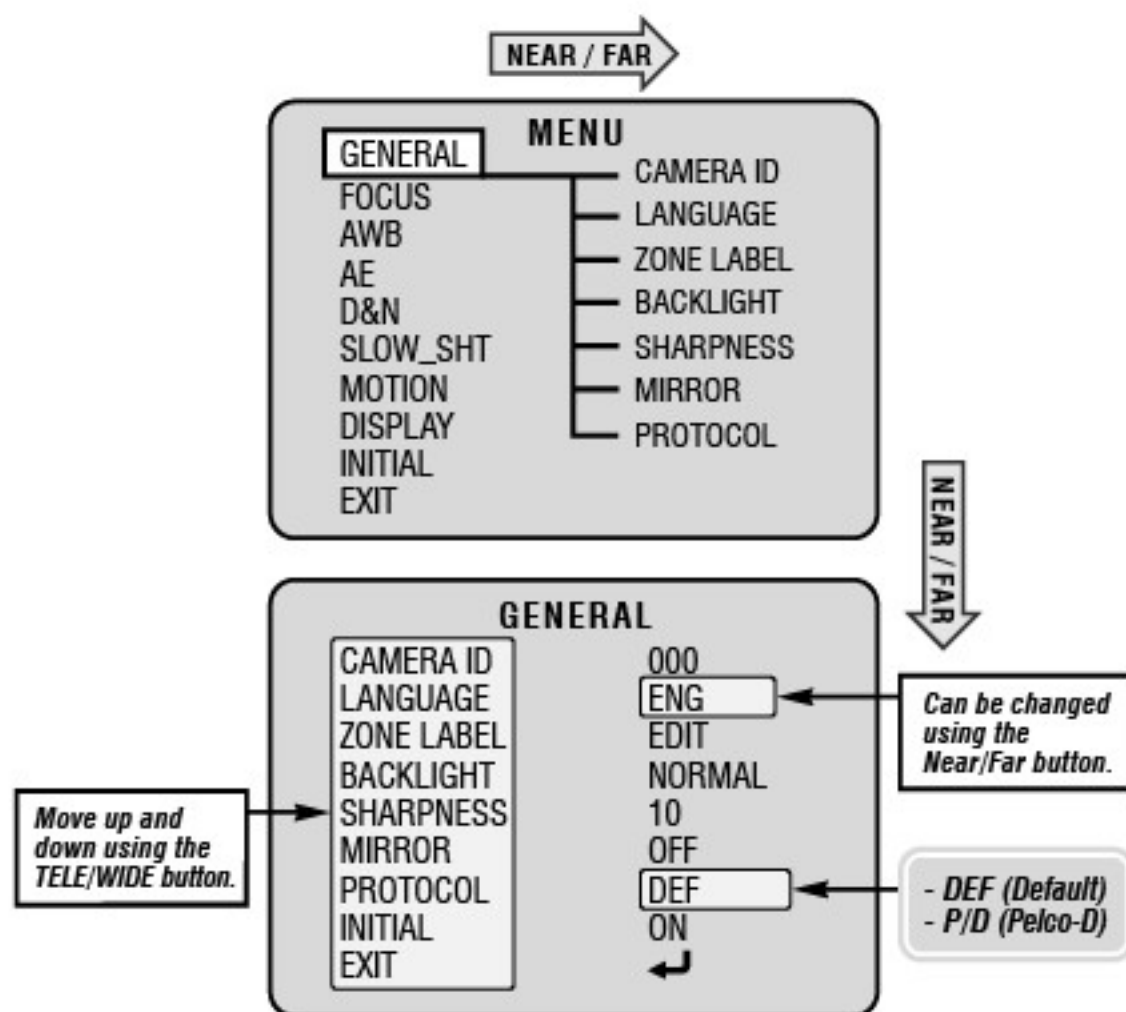
1. CAMERA ID

➲ Displays the camera's ID.

➲ Camera ID can be specified using numbers from 000 to 255 by using the NEAR/FAR button.

2. LANGUAGE

- ⮑ Displays the currently set language.
- ⮑ Language can be set from ENG to KOR and vice versa using the NEAR/FAR button.

3. ZONE LABEL

- ⮑ Edits and displays the information of camera or explanation on the area of the image being captured at the bottom left of the screen.
- ⮑ Maximum of 10 letters can be used / edited.
- ⮑ It is described in detail on page 38.

4. BACKLIGHT

- ⮑ Use to select BLC mode.
- ⮑ BLC can be set from NORMAL, C1, C2, L1, L2, U1, U2, D1, D2, R1, R2 and vice versa using the NEAR/FAR button.

5. SHARPNESS

- ⮑ Adjusts sharpness of outlines.
- ⮑ Can be set from 0 to 15.

6. MIRROR

- ⮑ Inverts the screen to the right or left.

7. PROTOCOL

- ⮑ DEF : Default
- ⮑ P/D : Pelco-D

8. INITIAL

- ⮑ Resets the current general settings category to the initial settings.

9. EXIT

- ⮑ Closes the sub-menu and moves to the main menu.

Caution

- • Change the data of the sub-menu using the NEAR/FAR button.

300x zoom

■ Main Menu- FOCUS

➲ Sets camera zoom and focus.

➲ Press the NEAR/FAR button to move to the sub-menu.

```
                    M E N U
   GENERAL
   FOCUS                FOCUS MODE
   AWB                  PUSH AUTO
   AE                   FOCAL DIST
   D&N                  ZOOM START
   SLOW_SHT             ZOOM END
   MOTION               ZOOM SPEED
   DISPLAY
   INITIAL
   EXIT
```

NEAR / FAR

```
                   F O C U S

   FOCUS MODE           MANUAL
   PUSH AUTO            OFF
   FOCAL DIST           50CM
   ZOOM START           x001
   ZOOM END             x300
   ZOOM SPEED           3
   INITIAL              ON
   EXIT                 ↵
```
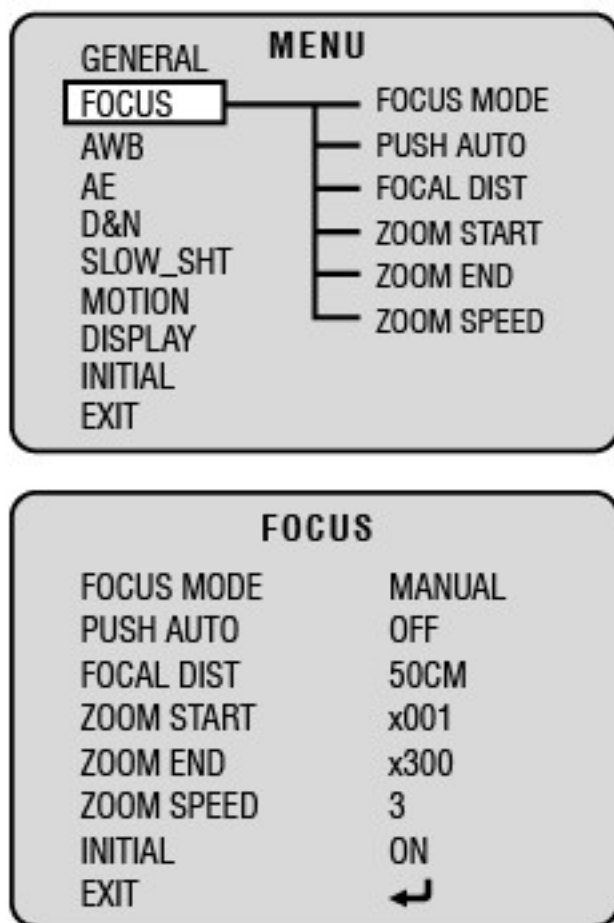
1. FOCUS MODE

➲ AUTO: Focuses automatically when the menu including D&N chages.

➲ MANUAL: User focuses manually.

Note) Automatic focus in manual mode is only possible when the location of the zoom lens has changed or when the "temporary automatic focus" category is selected. Automatic focus is also possible based on external AF command (1 shot AF).

2. PUSH AUTO

➲ When temporary automatic focus is selected, the camera focuses automatically when only the NEAR/FAR button is pressed.

➲ In the Automatic Mode, it will be displayed as "Not Used".

3. FOCAL DIST

➲ Minimum distance the camera can focus.
ex) 10cm: Objects/subjects closer than 10cm cannot be brought into focus.

4. ZOOM START

➲ Minimum zoom movement.

➲ Possible from x 001 to x 030

5. ZOOM END

➲ Maximum zoom movement.

➲ Possible from x 001 to x 300

6. ZOOM SPEED

➲ Zoom speed movement. (Start x1 ~ End x30)
- 1 : 15 sec
- 2 : 7 sec
- 3 : 5 sec

7. INITIAL

➲ Initializes the changed category in focus menu.

8. EXIT

➲ Closes the sub-menu and moves to the main menu.

300x zoom

■ Main Menu- AWB

➔ Adjusts picture color.
➔ Press the NEAR/FAR button to move to the sub-menu.

```
                   MENU
GENERAL
FOCUS
┌─────────┐
│ AWB     │──────── WB MODE
└─────────┘    ├─── RED CONT
AE             ├─── BLUE CONT
D&N            └─── PUSH AUTO
SLOW_SHT
MOTION
DISPLAY
INITIAL
EXIT
```

NEAR / FAR ⬇

```
              AWB

WB MODE          AUTO
RED CONT         NOT USED
BLUE CONT        NOT USED
PUSH AUTO        NOT USED
INITIAL          ON
EXIT             ↵
```

1. AWB

➲ AUTO : Automatically adjusts color according to the available lighting.
➲ PUSH AUTO : Color will be automatically adjusted while the NEAR/FAR button is pressed in the temporary automatic mode.
➲ OUTDOOR : Set color temperature to be 5400°K.
➲ INDOOR : Set color temperature to be 3200°K.
➲ SPECIAL : Color can be corrected when the user increases or decreases "Red Control" or "Blue Control".

2. RED CONT

➲ Can be changed in special mode only, and R-Gain value is adjusted.
➲ Can be set from 0 to 255.

3. BLUE CONT

➲ Can be changed in special mode only, and B-Gain value is adjusted.
➲ Can be set from 0 to 255.

4. PUSH AUTO

➲ Can chage WB Mode to PUSH AUTO.
➲ Can be Push Auto whenever pushes NEAR/FAR button ('Off' is displayed to 'Push' whenever pushes key)
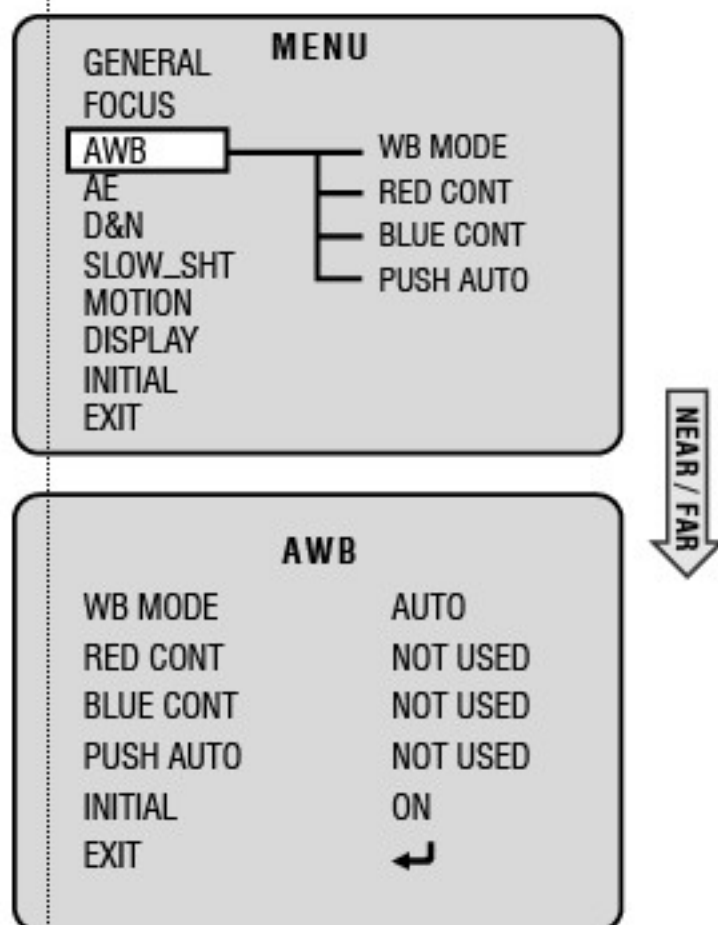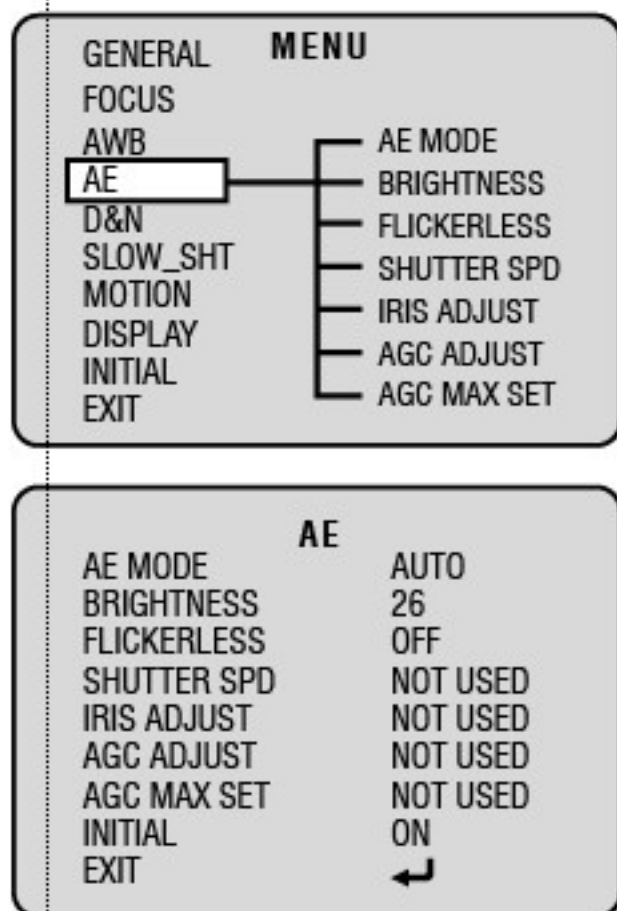
5. INITIAL

➲ Initializes the changed category in AWB menu.

6. EXIT

➲ Closes the sub-menu and moves to the main menu.

300x zoom

■ Main Menu- AE

➲ Adjusts picture brightness.
➲ Press the NEAR/FAR button to move to the sub-menu.

```
MENU
GENERAL
FOCUS
AWB
AE ──────── AE MODE
D&N                BRIGHTNESS
SLOW_SHT           FLICKERLESS
MOTION             SHUTTER SPD
DISPLAY            IRIS ADJUST
INITIAL            AGC ADJUST
EXIT               AGC MAX SET
```

NEAR / FAR

```
                AE
AE MODE          AUTO
BRIGHTNESS       26
FLICKERLESS      OFF
SHUTTER SPD      NOT USED
IRIS ADJUST      NOT USED
AGC ADJUST       NOT USED
AGC MAX SET      NOT USED
INITIAL          ON
EXIT             ↵
```

1. AE MODE

➲ AUTO : Automatically adjusts brightness according to the available lighting.
➲ MANUAL : Manually adjusts all brightness.
➲ AGC MAN : Allows you to adjust gain.
➲ IRIS MAN : Allows you to adjust iris.
➲ SHUT MAN : Allows you to adjust the shutter speed.

Note) Cannot adjust when D&N mode(refer to 30 page)is in Auto.

2. BRIGHTNESS

⮩ Brightness can be adjusted from 0 (dark) to 48 (bright).
⮩ Not used while in manual mode.

3. FLICKERLESS

⮩ Removes screen flickering caused by discordance of frequency and lighting.

4. SHUTTER SPD

⮩ Can be changed while in manual and shutter manual mode.
⮩ Shutter speed can be changed from standard to 1/10000.
⮩ Standard shutter speed: NTSC- 1/60, PAL- 1/50.

5. IRIS ADJUST

⮩ Adjusts the opening of iris.
⮩ Can be adjusted from 0 (closed) to 255 (opened).
⮩ Change in screen can be recognized only within the certain range.
⮩ Can be adjusted while in manual and gain adjustment mode.

6. AGC ADJUST

⮩ Gain adjustment of image signal.
⮩ Can be adjusted from 0 to 255.
⮩ Can be adjusted while in manual and gain adjustment mode.

7. AGC MAX SET

⮩ Maximum gain value used when gain is automatic.
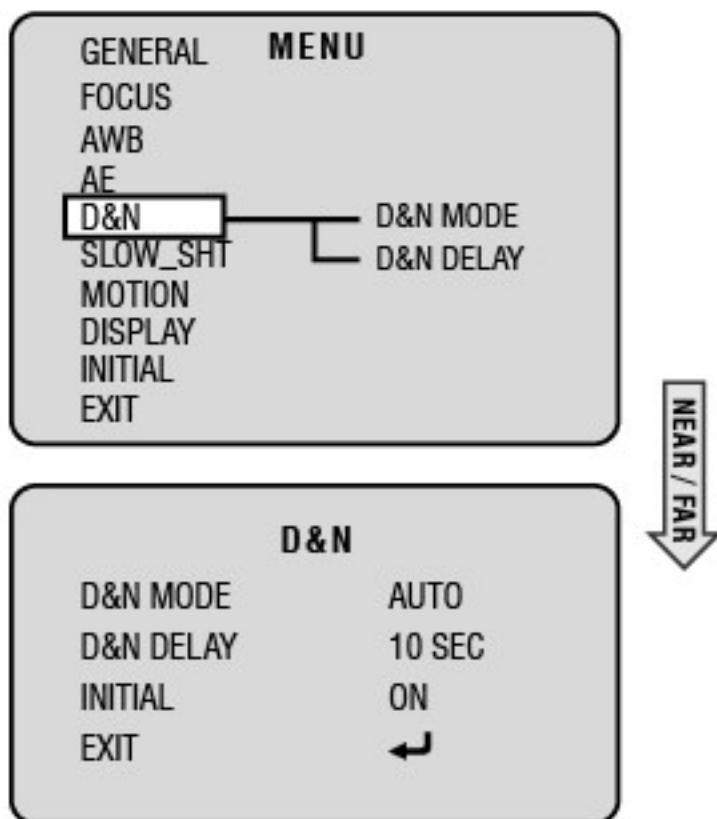⮩ Can be adjusted from 0 to 255.

8. INITIAL

⮩ Initializes the changed category in exposure menu to the initial settings.

9. EXIT

⮩ Closes the sub-menu and moves to the main menu.

300x zoom

■ Main Menu- D & N

➲ Determines and operates in mode suitable for day or night.
➲ Press the NEAR/FAR button to move to the sub-menu.

```
                    MENU
    GENERAL
    FOCUS
    AWB
    AE
    D&N              ──── D&N MODE
    SLOW_SHT         ──── D&N DELAY
    MOTION
    DISPLAY
    INITIAL
    EXIT
```

NEAR / FAR

```
                  D&N

    D&N MODE          AUTO
    D&N DELAY         10 SEC
    INITIAL           ON
    EXIT              ↵
```

1. D&N MODE

➲ AUTO : Filter operates automatically according to brightness.
➲ NIGHT : Manual Mode- removes IR cut filter.
➲ DAY : Manual Mode- does not remove IR cut filter.
➲ The IR illuminator will be activated when the IR cut filter is removed automatically.

2. D&N DELAY

➲ Sets conversion time of IR cut filter while in automatic mode
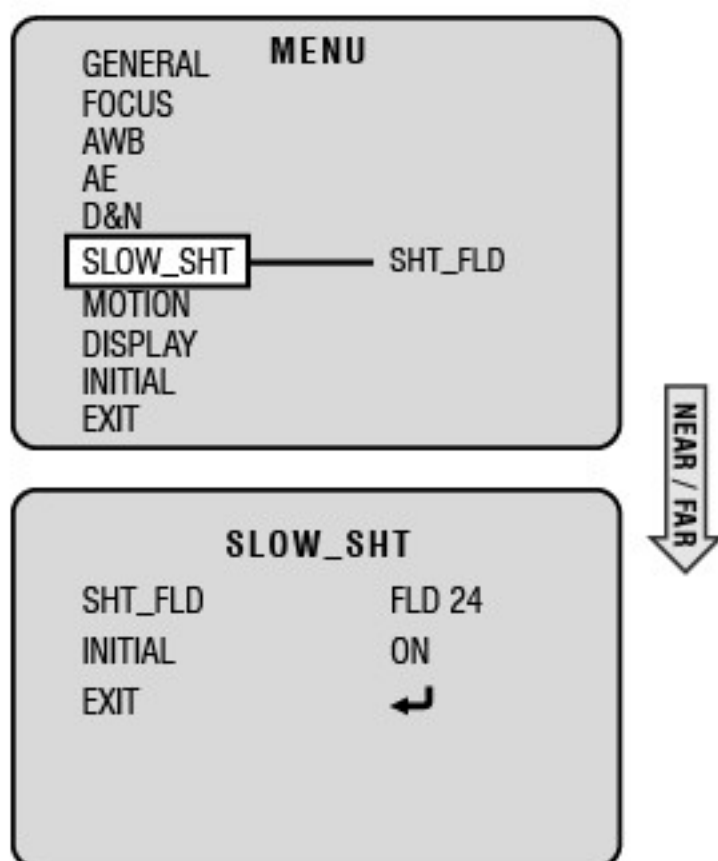➲ Time can be adjusted from 1 to 10 seconds.

3. INITIAL

➲ Initializes the changed category in night Day/Night menu.

4. EXIT

➲ Closes the sub-menu and moves to the main menu.

■ Main Menu- SLOW_SHT

➲ Use under very low light condition for full color surveillance.

OFF -> FLD2 -> -------------- ➔ FLD128

➲ Press the NEAR/FAR button to move to the sub-menu.

```
                    MENU
    GENERAL
    FOCUS
    AWB
    AE
    D&N
    SLOW_SHT  ──────── SHT_FLD
    MOTION
    DISPLAY
    INITIAL
    EXIT
```

NEAR / FAR

```
                SLOW_SHT
    SHT_FLD            FLD 24
    INITIAL            ON
    EXIT              ↵
```

300x zoom

1. SLOW_SHT

➲ Use under very low light condition for full color surveillance.

➲ OFF: Digital slow shutter function is disabled.
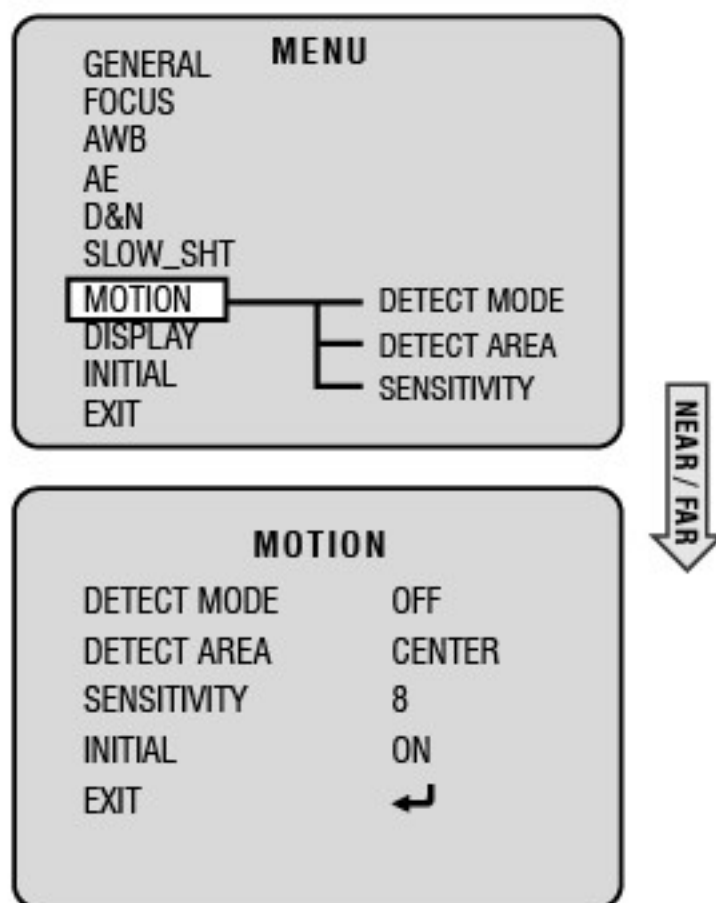
➲ Can be adjusted from FLD 2 to FLD 128

2. INITIAL

➲ Initializes the changed category in digital slow shutter menu.

3. EXIT

➲ Closes the sub-menu and moves to the main menu.

■ Main Menu- MOTION

➲ When there is movement of the subject in the screen, there will be an alarm, or the user will be informed through communications or "MD" will display on the screen.

➲ Press the NEAR/FAR button to move to the sub-menu.

```
                    MENU
  GENERAL
  FOCUS
  AWB
  AE
  D&N
  SLOW_SHT
 ┌─────────┐
 │ MOTION  │────── DETECT MODE
 └─────────┘
  DISPLAY   ─────── DETECT AREA
  INITIAL   ─────── SENSITIVITY
  EXIT
```

NEAR / FAR

```
                  MOTION
  DETECT MODE        OFF
  DETECT AREA        CENTER
  SENSITIVITY        8
  INITIAL            ON
  EXIT               ↵
```

1. DETECT MODE

➲ Enables or disables motion detection function.

2. DETECT AREA

➲ Sets motion detection field.
➲ Can be set to CENTER, OUT, UPPER and WHOLE.

3. SENSITIVITY

➲ Sets sensitivity to detect movement.

➲ Can be set from 1 (low response) to 15 (sensitive).

4. INITIAL

➲ Initializes the changed category in motion detection menu.

5. EXIT
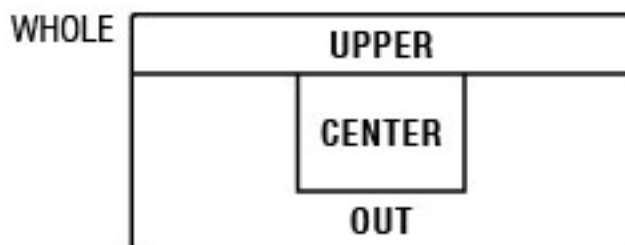
➲ Closes the sub-menu and moves to the main menu.

Note) There is a signal every time there is movement by the subject. If motion is detected, MD (Motion Detected) is displayed on the upper left of the screen. This message enables the user to set On-screen display state in the menu.

Caution

• Error can occur in the motion detection function in the following cases.
 (1) When lighting is unsteady.
 (2) When light changes often even though there is no movement of the subject.
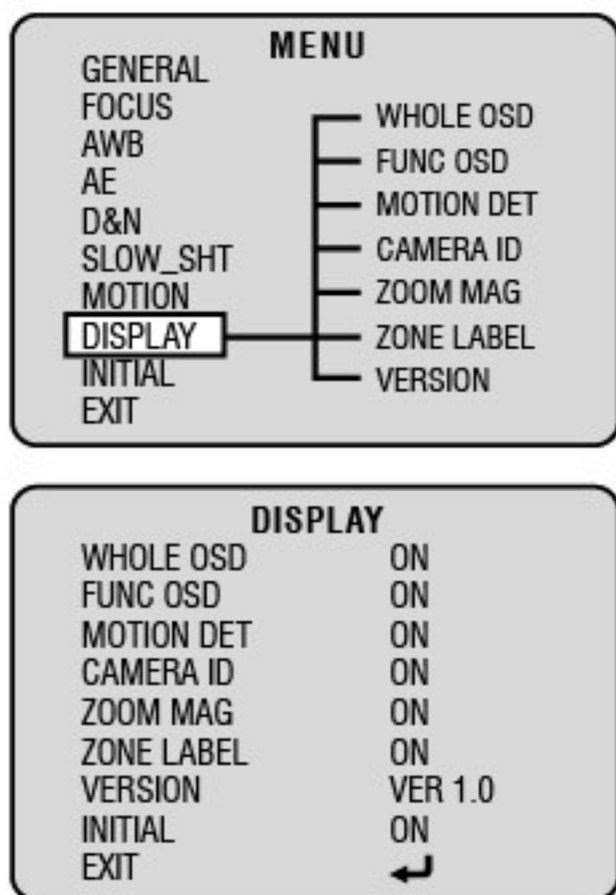
It is recommended that this function should be used after setting the detection sensitivity and detection field after monitoring the environment for an extended time.

Note) The detection field on screen is as follows:

```
WHOLE  ┌──────────────────────────┐
       │          UPPER           │
       ├──────┬────────────┬──────┤
       │      │   CENTER   │      │
       │      └────────────┘      │
       │          OUT             │
       └──────────────────────────┘
```

300x zoom

■ Main Menu- DISPLAY

➲ Specify what to display on the screen.
➲ Press the NEAR/FAR button to move to the sub-menu.

```
                    MENU
  GENERAL
  FOCUS
  AWB              ┌── WHOLE OSD
  AE               ├── FUNC OSD
  D&N              ├── MOTION DET
  SLOW_SHT         ├── CAMERA ID
  MOTION           ├── ZOOM MAG
  DISPLAY ─────────┤── ZONE LABEL
  INITIAL          └── VERSION
  EXIT
```

NEAR / FAR

```
                  DISPLAY
  WHOLE OSD          ON
  FUNC OSD           ON
  MOTION DET         ON
  CAMERA ID          ON
  ZOOM MAG           ON
  ZONE LABEL         ON
  VERSION            VER 1.0
  INITIAL            ON
  EXIT               ↵
```

1. WHOLE OSD

➲ All on-screen display is "ON" or "OFF".
➲ Nothing will be displayed if specified as "Hidden" even when other categories are individually set as "ON". (Exception: Initial logo when power is turned on.)

2. FUNC OSD

➲ Images displayed on the upper area of the screen.
Refer to the "On-Screen Display" section- images 1 to 6.

3. MOTION DET

➲ "MD" is displayed on the upper left of the screen when motion is detected.

4. CAMERA ID

➲ Displays ID number on the upper right of the screen.

5. ZOOM MAG

➲ Displays zoom on lower right of the screen.
➲ The number in Dx300 shows the magnification, and D represents digital zoom.

6. ZONE LABEL

➲ Displays texts explaining screen area on the lower left of the screen.

7. VERSION

➲ Displays the version information of camera (cannot be changed).

8. INITIAL

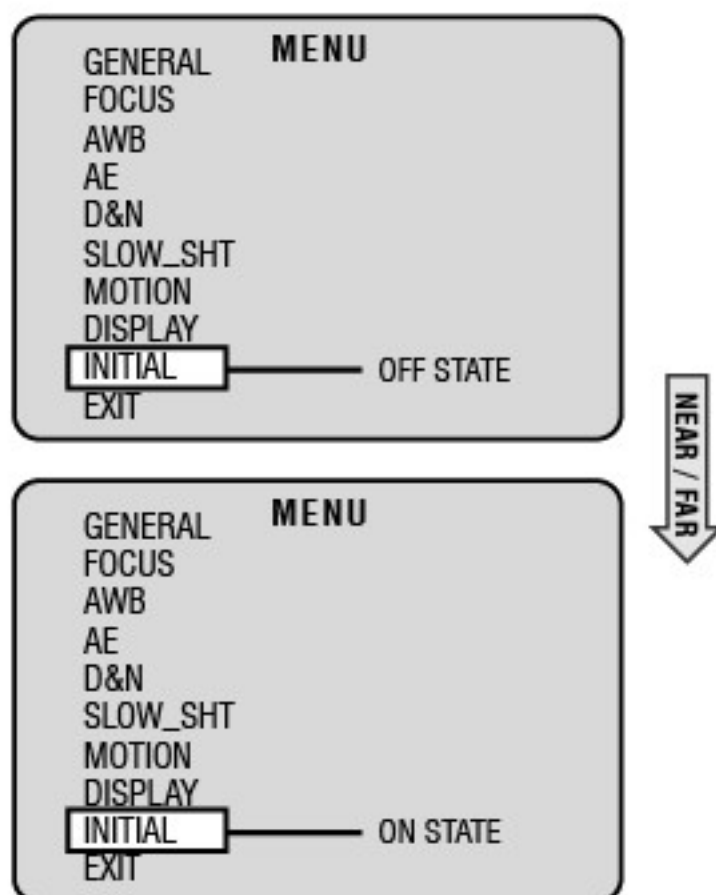➲ Initializes the changed category in on-screen display menu.

9. EXIT

➲ Closes the sub-menu and moves to the main menu.

Note) Refer to the "On-Screen Display" for details.

300x zoom

■ Main Menu- INITIAL

➲ Initializes all current settings.
➲ No sub-menu.
➲ Press the NEAR/FAR button to initialize the entire camera settings.
➲ Note that all settings in the sub-menus will be initialized.

MENU

GENERAL
FOCUS
AWB
AE
D&N
SLOW_SHT
MOTION
DISPLAY
INITIAL —————— OFF STATE
EXIT

NEAR / FAR

MENU

GENERAL
FOCUS
AWB
AE
D&N
SLOW_SHT
MOTION
DISPLAY
INITIAL —————— ON STATE
EXIT

➲ OFF STATE : Indicates that settings are not initialized.
➲ ON STATE : Indicates that camera settings have been initialized.

Caution

Please use caution when performing this function.
Every setting(even in all sub-menus)will be initialized.
Initialization in sub-menus will initialize each category of the sub-menu only.

■ Main Menu- EXIT

⮩ Closes menu.
⮩ Press the NEAR/FAR button to close menu.

```
                    M E N U
       GENERAL
       FOCUS
       AWB
       AE
       D&N
       SLOW_SHT
       MOTION
       DISPLAY
       INITIAL
       EXIT
```

300x zoom
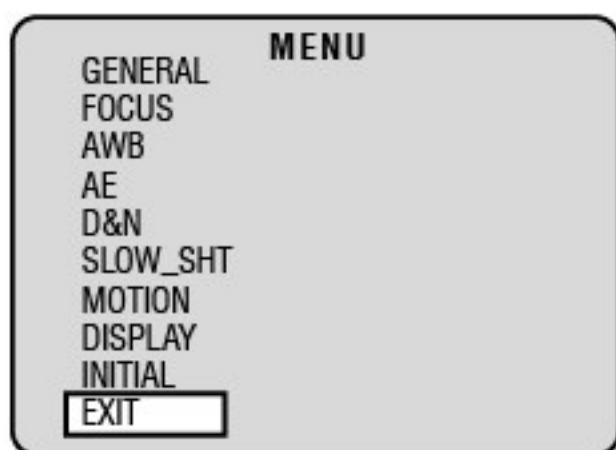
■ ZONE LABEL

⮑ User can edit explanation or condition of camera, and this will be displayed on the lower left screen.

ZONE LABEL

⬇

FRONT■DOOR ← | Max. 10 Letter |

TE/WI - POSITION
NE/FA - CHAR SELECT
MENU - EXIT

■ : Space
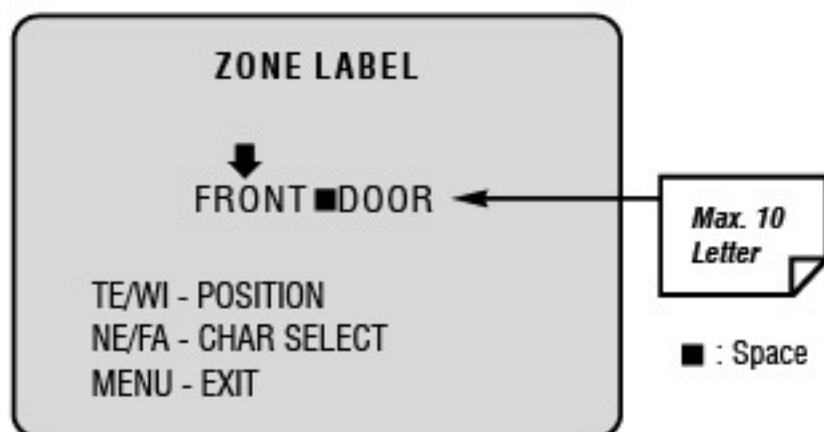
1. You can choose up to 84 symbols from the available symbols table.

0	1	2	3	4	5	6	7	8	9	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	~	!	#	*	-	+
/	:	;	?	.	"	_	(	)	&	%	⬆	⬇	→	←	■	NU

2. Select the location of letters using the TELE/WIDE button. A downward arrow will blink on top of the letter to edit.

3. Select letters using the NEAR/FAR button.

4. To exit, press the MENU.

Caution) ■: denotes a blank letter and will be displayed as a blank space on the actual screen.

9. Communication Protocol

■ **PELCO "D" Byte Format** -RS-485,2400bps,1 Start bit,8 data bits,1 stop bit,no parity
■ **Command Message**

Function	Zoom Tele						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x20	0x00	0x00	Checksum
Function	Zoom Wide						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x40	0x00	0x00	Checksum
Function	Focus Near						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x01	0x00	0x00	0x00	Checksum
Function	Focus Far						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x80	0x00	0x00	Checksum
Function	Menu On / Off						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x40	0x00	0x00	0x00	Checksum
Function	Power On						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x88	0x00	0x00	0x00	Checksum
Function	Power Off						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x08	0x00	0x00	0x00	Checksum
Function	Pelco D Stop						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x00	Don't care		Checksum

• **Pelco Keyboard (95+ PATTERN)**

Function	Menu On / Off						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x23	0x00	0x5F	Checksum

• **V/D Keyboard (Set Preset + 98)**

Function	Menu On / Off						
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
MSG	0xFF	CamID	0x00	0x03	0x00	0x62	Checksum

300x zoom

10. Specficications

Signal System	NTSC	PAL
Scanning System	2 : 1 Interlace	
Horizontal Scanning Frequency	15.734 kHz	15.625kHz
Vertical Scanning Frequency	59.94 Hz	50 Hz
Pick-up Device	1/4 Inch SONY Super HAD CCD / EX-View CCD	
Total Pixels	811(H) x 508(V) 410K	795(H) x 596(V) 470K
Effective Pixels	768(H) x 494(V) 380K	752(H) x 582(V) 440K
Horizontal Resolution	480 TV lines	
S/N Ratio	More than 48dB (AGC off)	
Lens	30x Zoom Video AF (F1.6(W), F3.2(T) f = 3.3~99.0mm)	
Angle of View (HOR)	58.0° ~ 2.22°	
Minimum Illumination (F1.2, 30IRE)	1 Lux (Color) , 0.001 Lux (DSS 128 FLD) 0 Lux (IR LED On)	
Synchronization	Internal	
Signal Output	1Vp-p Composite Output with 75Ω Terminated	
Operating Temperature	-10℃~+45℃ / -30℃~+50℃ (with Fan & Heater)	
Storage Temperature	-20℃~+65℃	
Power Consumption	DC 12V (DC 9V~15V), Max. 30W	
Dimensions (WxHxD)	272.1 x 220.2 x 356.5 mm	
Weight	Approx 3.2kg	

Weather Proof
Day&Night Color Camera

Built-in Vari-focal Lens
with DAY & NIGHT and IR LEDs

Vari-focal

Indoor & Outdoor
COLOR VIDEO CAMERA
DAY & NIGHT

. Contents

1. Precautions

Safety

The camera should be operated only from the type of power source indicated on the marking label.

Do not disassemble the camera.

Do not allow anything to get inside the camera.

Do not drop the camera.

Installation

Camera should be only operated within operating temperature range.

Avoid installing the camera in the location as like; Dusty/ Vibrating/ Strong magnetic and radio frequency.

Vari-focal

2. Composition - IR Illuminator Type

1. Weather Proof Camera ....
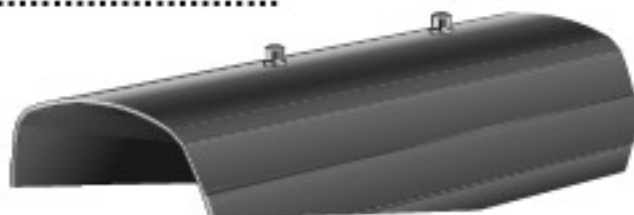
2. Sunvisor ....

3. Bracket Ass'y ....
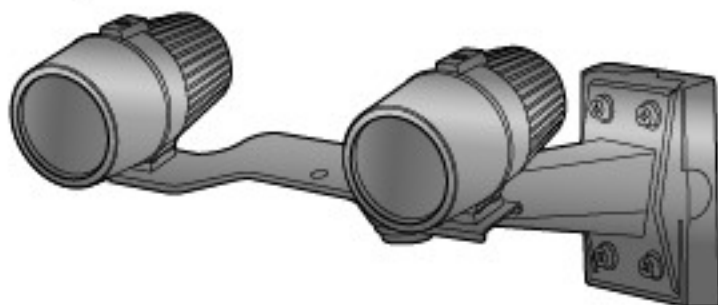
4. Owner's Manual ....
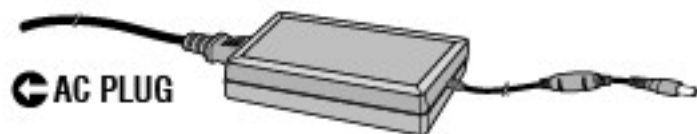
5. AC Adaptor ....

⊂ AC PLUG

※ DC 12V Input Model

2. Composition - Normal LED Type

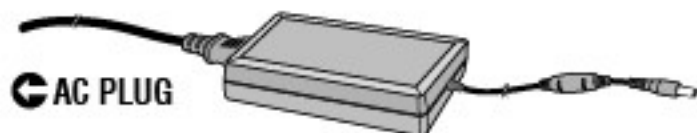### 1. Weather Proof Camera ....

2. Sunvisor ....
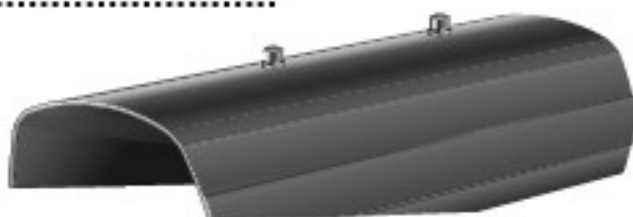
3. Bracket ....
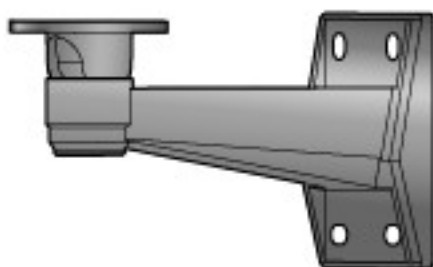
4. Owner's Manual ....

5. AC Adaptor ....

AC PLUG

※DC 12V Input Model

Vari-focal

3. Features

1. Weather-proof camera housing

2. Built-in Vari-focal auto iris lens for easy set up

3. New mechanical Day & Night function :
   Color in day, B&W at night for 24-hour monitoring

4. Super High Resolution
   Horizontal resolution 550 TV lines.

5. Digital Zoom Function
   2x magnified power.

6. SDNR (Super Digital Noise Reduction)
   - Reduces the amount of low illuminance noise significantly.
   - Get more clear & exact image at a gloomy place

7. BLC / Flickerless control
   On / Off selectable by DIP switches.

8. Fan / Heater
   According to the internal temperature of the main body,
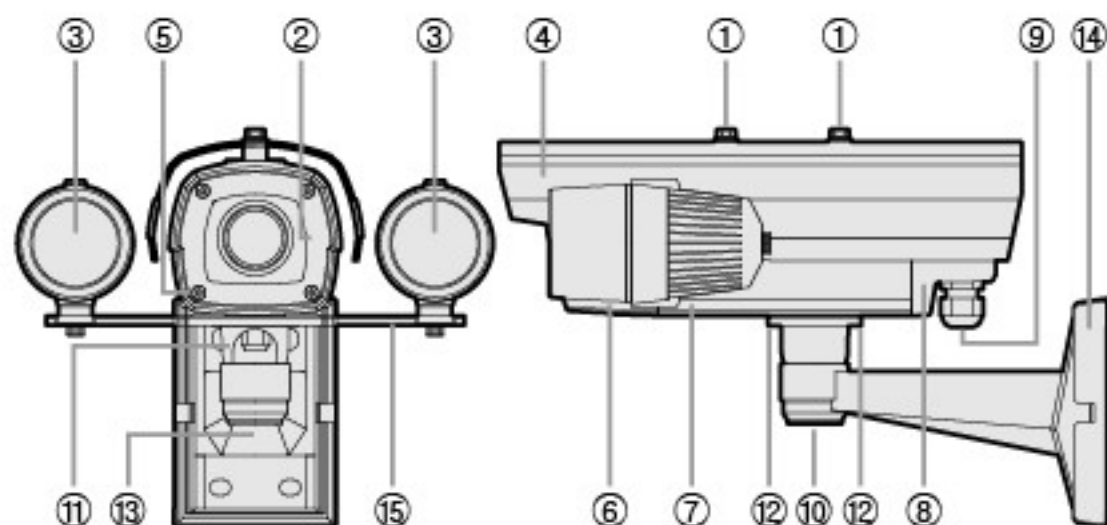   - Fan ON : over 45°C
   - Heater ON : under 10°C

9. Built-in IR LEDs / IR Illuminator
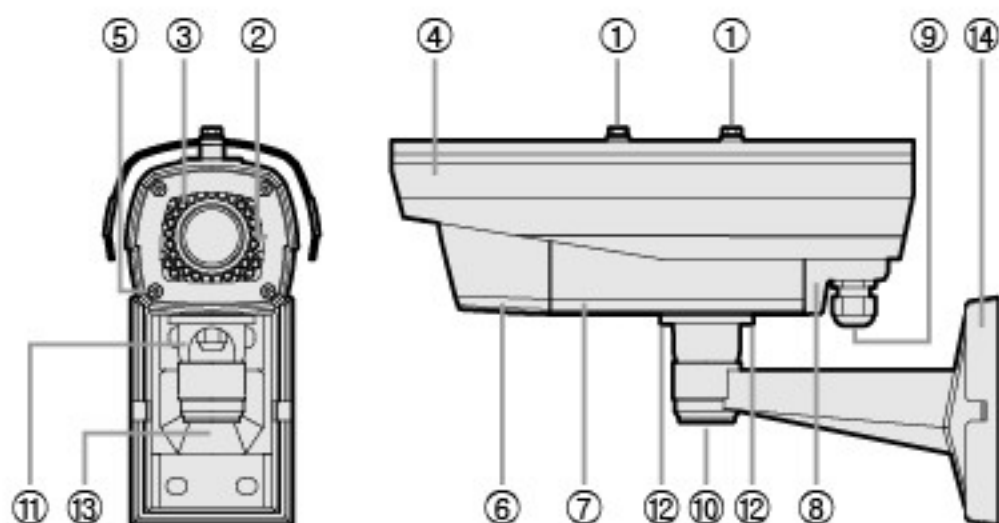   IR LEDs or IR Illuminator enable you to see any object under total darkness.
   - IR Illuminator type model uses two IR illuminators.
    (IR LED: Total 126EA).
   - Normal LED type model uses built-in IR LEDs. (IR LED: Total 34EA)

4. Name and Function of Each Parts

. IR Illuminator Type ⮕

③ ⑤ ② ③ ④ ① ① ⑨ ⑭

⑪ ⑬ ⑮ ⑥ ⑦ ⑫ ⑩ ⑫ ⑧

. Normal LED Type ⮕

⑤ ③ ② ④ ① ① ⑨ ⑭

⑪ ⑬ ⑥ ⑦ ⑫ ⑩ ⑫ ⑧

Vari-focal

① **Fixing Bolt for Sunvisor**
You can unfasten the bolt in order to fix mounting bracket above.

② **Photo Sensor**

③ **IR Illuminator / IR LED (Infrared LED)**
Automatically controlled according to light condition.

④ **Sunvisor**
To reduce direct sunlight and protect the camera unit from rain or snow outdoor.

⑤ **Fixed Screws (front- 4EA & rear- 4EA)**
Remove the front & rear body from the main body unscrews the four(total eight) fixed screws.

⑥ **Front Body**

⑦ **Main Body**

⑧ **Rear Body**

⑨ **Power & Video Output Jack**

⑩ **Mounting Bracket Fixing Bolt**
Fix the camera main body to bracket by wrench bolt.
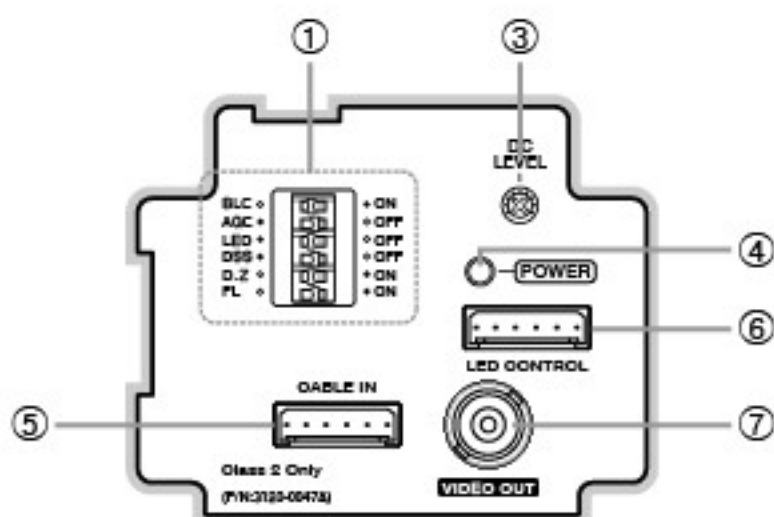
⑪ **Base Adapter**

⑫ **Base Adapter Fixing Bolt**

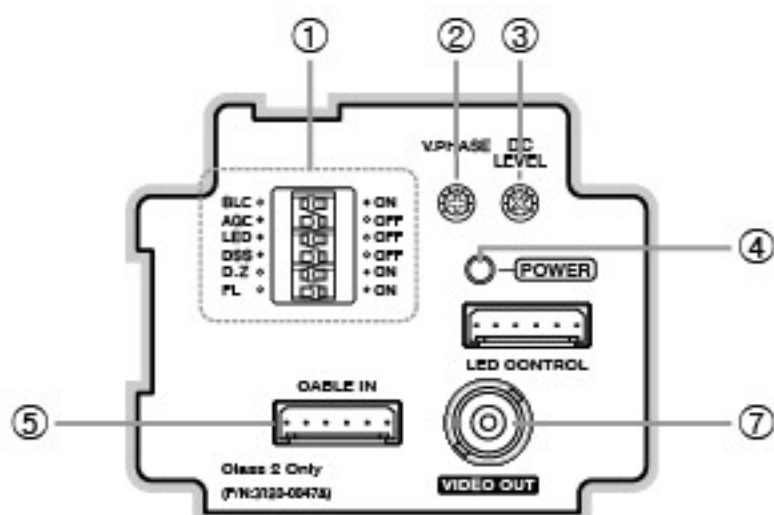⑬ **Wall Mount Bracket**

⑭ **Bracket Supporter**

⑮ **IR Illuminator Supporter**

. DC 12V Input Model ➡

① ③

DC
LEVEL

BLC ◇ + ON
AGC ◇ + OFF
LED ◇ + OFF
DSS ◇ + OFF
D.Z ◇ + ON
FL ◇ + ON

④ —POWER

⑥ LED CONTROL

⑤ CABLE IN

Class 2 Only
(P/N:3120-0047A)

⑦ VIDEO OUT

. AC 24V / DC 12V Input Model ➡

① ② ③

V.PHASE DC
LEVEL

BLC ◇ + ON
AGC ◇ + OFF
LED ◇ + OFF
DSS ◇ + OFF
D.Z ◇ + ON
FL ◇ + ON

④ —POWER

LED CONTROL

⑤ CABLE IN

Class 2 Only
(P/N:3120-0047A)

⑦ VIDEO OUT

Vari-focal

① Function Selection Switch

■ BLC (Back Light Compensation)
This feature would be useful when camera is facing an object that has excessive light behind it. BLC prevents the center of object from too much darkness.
E.g.: Video camera in the store facing the entrance doors.

```
BLC ◦ ▛█▟ • ON
AGC •  ▛ ▟ ◦ OFF
LED •  ▛ ▟ ◦ OFF
DSS •  ▛ ▟ ◦ OFF
D.Z ◦ ▛ ▟ • ON
FL  • ▛ ▟ • ON
```

■ AGC (Automatic Gain Control)
With AGC ON, the setting, camera's sensitivity is automatically increased when the level of ambient light drops. AGC function automatically controls signal gain in the range of maximum 28dB.

```
BLC ◦ ▛ ▟ • ON
AGC • ▛█▟ ◦ OFF
LED • ▛ ▟ ◦ OFF
DSS • ▛ ▟ ◦ OFF
D.Z ◦ ▛ ▟ • ON
FL  • ▛ ▟ • ON
```
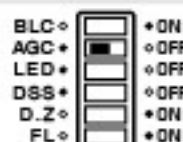
■ LED
This camera can switch to the COLOR mode to support the best color image in the day time and switch to the B/W mode for the clear image in the night time.

```
BLC ◦ ▛ ▟ • ON
AGC • ▛ ▟ ◦ OFF
LED • ▛█▟ ◦ OFF
DSS • ▛ ▟ ◦ OFF
D.Z ◦ ▛ ▟ • ON
FL  ◦ ▛ ▟ • ON
```
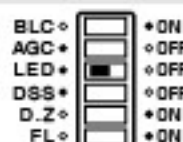
■ DSS (Digital Slow Shutter)
This camera can detect automatically darkness or night and support it to take a clear and bright image. As the grade of darkness, this camera can accumulate up to 32 fields.

```
BLC ◦ ▛ ▟ • ON
AGC • ▛ ▟ ◦ OFF
LED • ▛ ▟ ◦ OFF
DSS • ▛█▟ ◦ OFF
D.Z ◦ ▛ ▟ • ON
FL  ◦ ▛ ▟ • ON
```
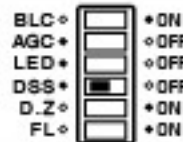
■ D-ZOOM (Digital Zoom)
This camera can magnify its image in a distance.
On the mode of D-ZOOM, it magnifies twice (x2) than the real image.

```
BLC ◦ ▛ ▟ • ON
AGC • ▛ ▟ ◦ OFF
LED • ▛ ▟ ◦ OFF
DSS • ▛ ▟ ◦ OFF
D.Z ◦ ▛█▟ • ON
FL  ◦ ▛ ▟ • ON
```
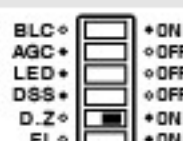
■ FL (Flickerless)
If the camera is used with 50Hz fluorescent lighting, there maybe flicker on the screen. In this case, FL switch should be set to ON position. But, FL switch should be set to OFF position if 60Hz power source is used.

```
BLC ◦ ▛ ▟ • ON
AGC • ▛ ▟ ◦ OFF
LED • ▛ ▟ ◦ OFF
DSS • ▛ ▟ ◦ OFF
D.Z ◦ ▛ ▟ • ON
FL  ◦ ▛█▟ • ON
```
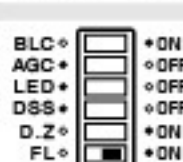
② V.PHASE Adjustment V.R (AC 24V / DC 12V Input Model)
If the camera is to be used in LineLock mode, the vertical phase may require adjustment to synchronize the vertical phase of the camera with other camera in the system. Make this adjustment when the vertical phase of the camera does not match with other cameras or systems. For correct adjustment, use a multi-channel oscilloscope. The V.PHASE adjustment can be readjusted.

③ ELC / DC LEVEL Adjustment V.R
Used to adjust video output level of DC driven auto iris lens or ELC mode. When the brightness control of the monitor does not operate correctly.

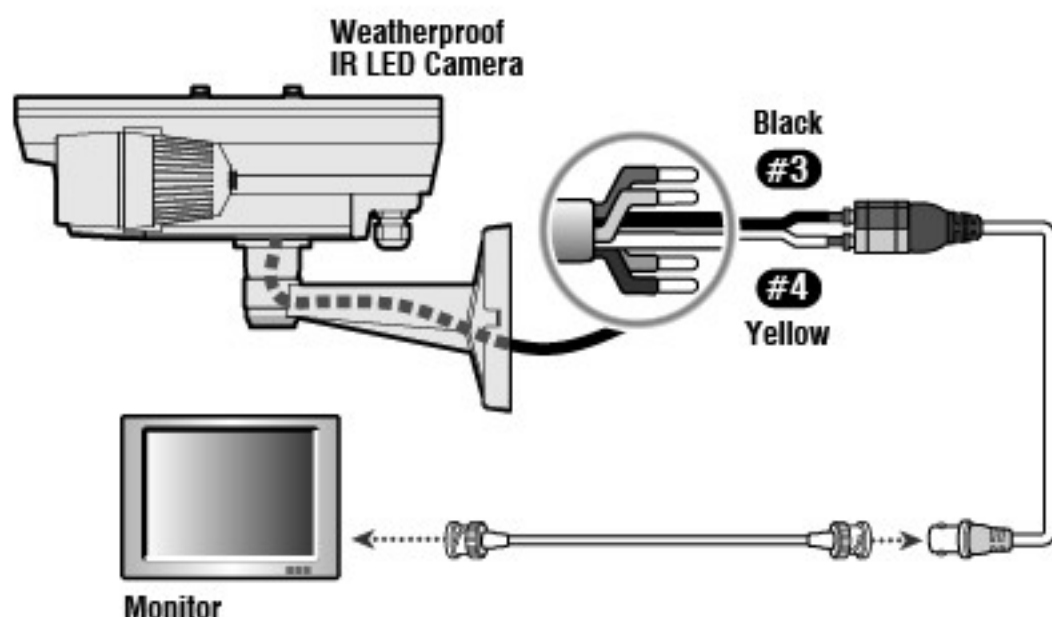## ④ Power Indicate LED

⑤ Cable (Power In / Video Out) Connector

⑥ Illuminator Control Connector (IR Illuminator Type Only)

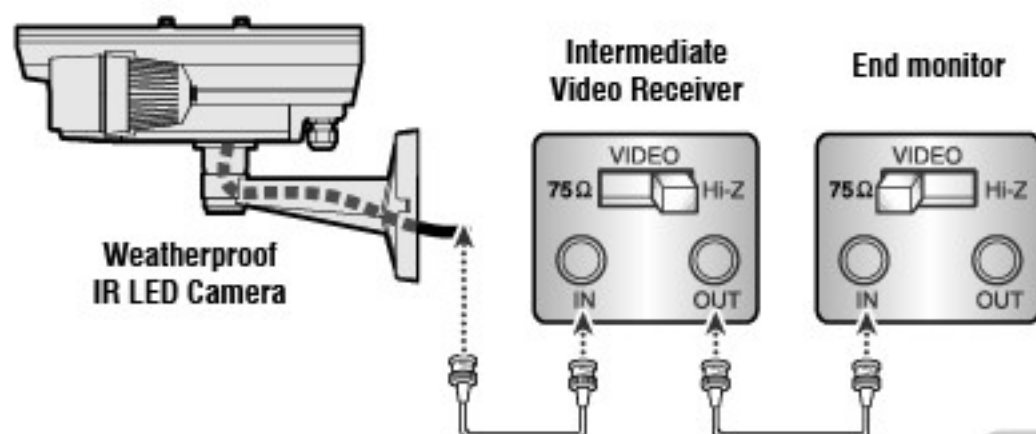## ⑦ VIDEO OUT Jack: Video signal output 75ohms 1Vp-p composite signal.

5. Installation

1. Connecting to Monitor

- Cable the VIDEO out to the monitor video in jack.

Weatherproof IR LED Camera

Black #3

#4 Yellow

Monitor

• As the connecting method varies with the instruments, refer to the manual supplied with the instrument.

• Connect the cable after power is turned off.

• Set the 75Ω/ Hi-Z selection switch as shown below if you have an intermediate device.

Weatherproof IR LED Camera

Intermediate Video Receiver

VIDEO
75Ω Hi-Z
IN   OUT

End monitor

VIDEO
75Ω Hi-Z
IN   OUT

Vari-focal

2. Connecting to Power Supply

. DC 12V Input Model

- The wire is non-polarized.
- Use AC 24V ∿ power source or DC 12V ⎓ power source.

| No.	Line Color	Function
#1	RED	DC12V
#2	ORANGE	GND
#3	BLACK	GND(VIDEO)
#4	YELLOW	VIDEO OUT
#5	GREEN	Not Used
#6	BROWN	Not Used

. AC 24V / DC 12V Input Model

- The wire is polarized.
- Use DC 12V ⎓ power source.
- Note: Make sure you are using olny the supplied AC adapter.

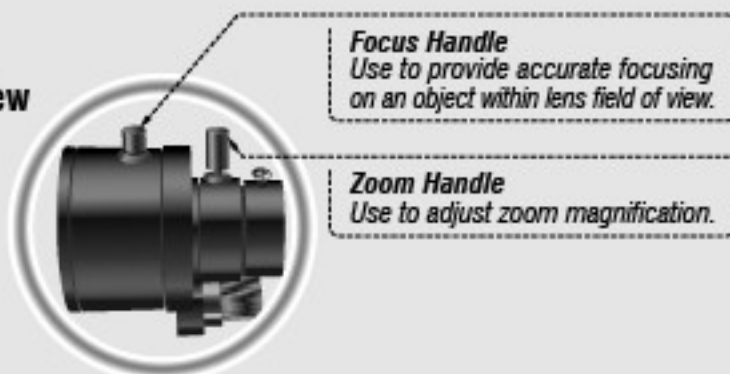| No.	Line Color	Function
#1	RED	DC12V/AC24V(H)
#2	ORANGE	GND/AC24V(N)
#3	BLACK	GND(VIDEO)
#4	YELLOW	VIDEO OUT
#5	GREEN	Not Used
#6	BROWN	Not Used

3. Zoom and Focus Adjustment

- Remove the front body from the main body
  unscrews the four fixed screws.

• **Weather Proof Camera**
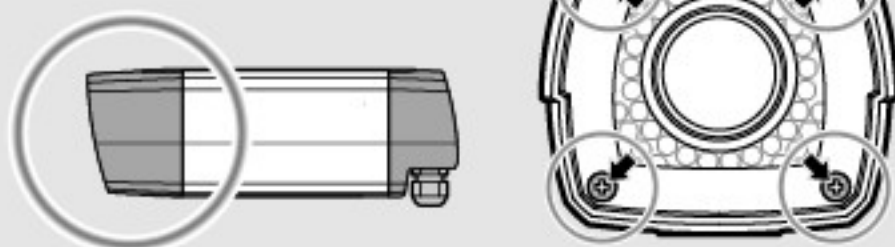
- Unlock the zoom(or the focus) handle to release it.
- Adjusting the zoom(or the focus) handle by moving it to Wide(Near)
  or Tele(Far) position.

• **Lens View**

Focus Handle
Use to provide accurate focusing
on an object within lens field of view.

Zoom Handle
*Use to adjust zoom magnification.*

- After adjustment, tighten the zoom(or focus) handle, taking care that
  the adjusted position does not change.
- After adjusting zoom and focus the varifocal lens, reinstall the front
  body and main body by screw the four fixed screws.

Vari-focal

4. Connecting to IR Illuminator (IR Illuminator Type Only)

- Remove the rear body from the main body
  unscrews the four fixed screws.

• **Weatherproof**
  IR LED Camera
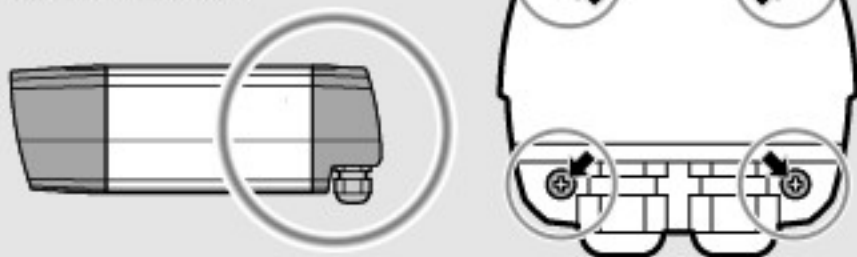
. Main Body ➔

- Connect the power
  cable plug of the
  IR illuminator to its
  power cable jack.

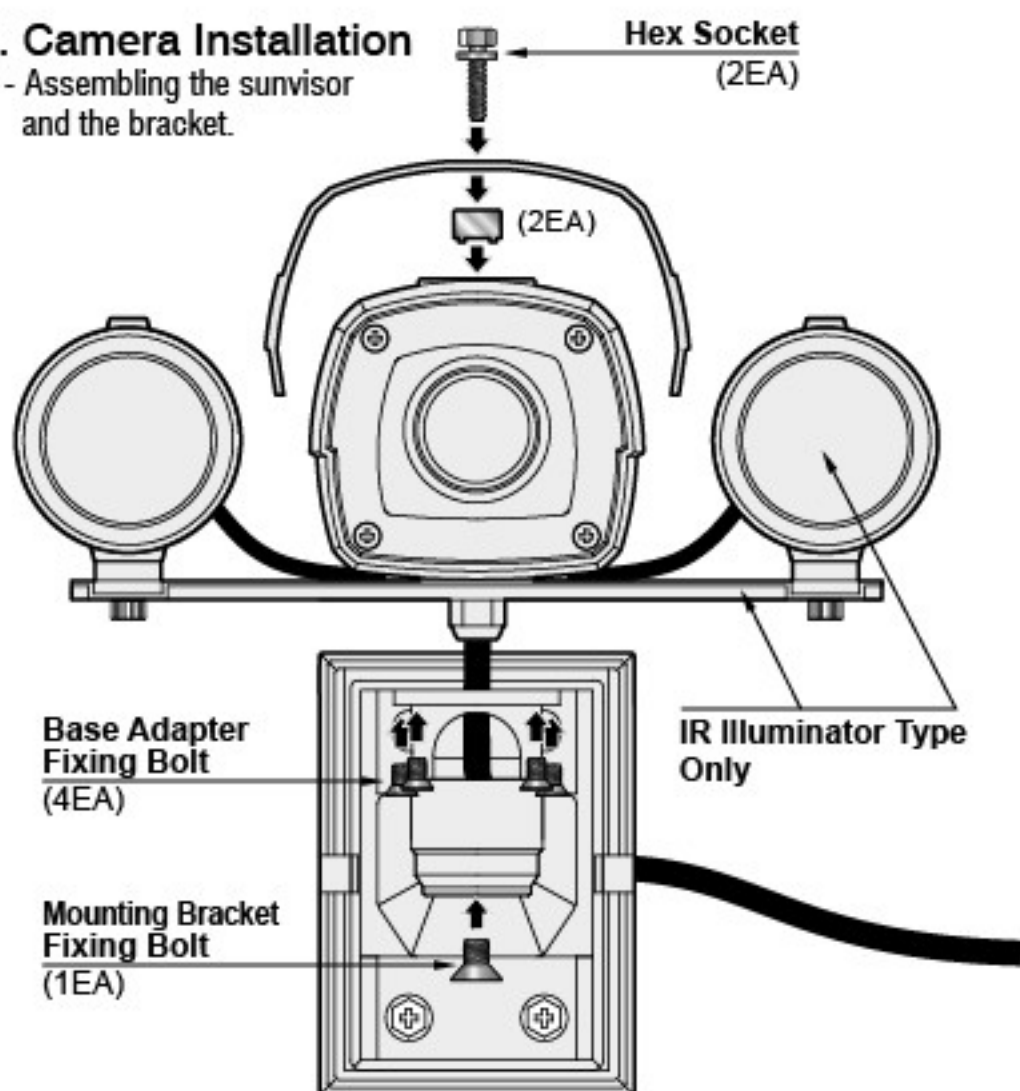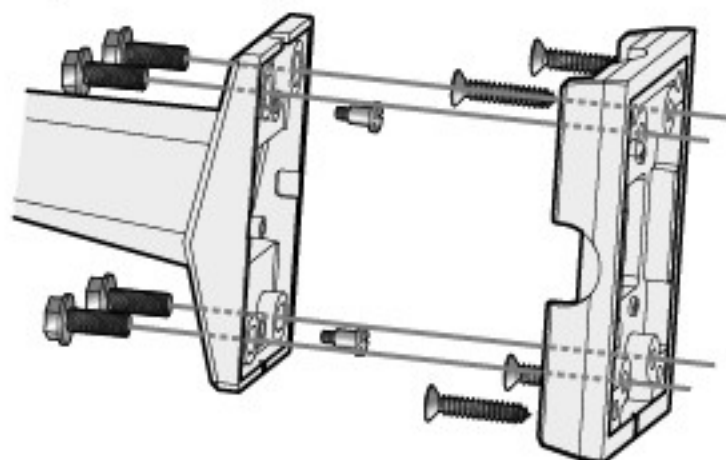**. Rear Body ➔**

- Connect the control cable plug of
  the IR illuminator to its control jack.

5. Camera Installation

- Assembling the sunvisor and the bracket.

Hex Socket (2EA)

(2EA)

Base Adapter Fixing Bolt (4EA)

Mounting Bracket Fixing Bolt (1EA)

IR Illuminator Type Only

- Assembling the bracket supporter

Vari-focal

6. Specifications - IR Illuminator Type

Model	Super High Resolution	
Signal System	NTSC	PAL
Pick-up Device	2:1 Interalce Transfer 1/3 Inch Super HAD CCD	
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω	
Sync. System	Internal Sync	
Luminance S/N Ratio	More than 50dB (AGC OFF)	
Resolution	550 TV lines	
Sensitivity (F1.2)	0.3 Lux(Color), 0.008 Lux(DSS 32 FLD), 0 Lux(IR LED ON)	
Lens	DC Iris Vari-focal Lens (f=7.5~50mm F1.3)	
Electronic Shutter	1/60 ~ 120,000 Sec.	1/50 ~ 120,000 Sec.
White Balance	AWB	
Auto Gain Control	On / Off Selectable	
Back Light Compensation	On / Off Selectable	
Day & Night	On / Off Selectable	
Flickerless	On / Off Selectable	
IR LED & Sensor	IR LED 126EA (850nm 15°), Sensor 1EA	
Digital Slow Shutter	Max. 32 FLD (On/Off)	
D-ZOOM	2 x (On/Off)	
Digital Noise Reduction	Auto	
Operating Temperature	-10℃~+45℃ / -30℃~+50℃ (with Fan & Heater)	
Storage Temperature	-20℃~+65℃	
Power Consumption	DC 12V (9.6V ~ 13.2V)	
	Max. 30W	
Dimensions (WxHxD)	272.1 x 220.2 x 356.5 mm	
Weight	Approx. 3.2kg	

6. Specifications - Normal LED Type

Model	Super High Resolution	
Signal System	NTSC	PAL
Pick-up Device	2:1 Interalce Transfer 1/3 Inch Super HAD CCD	
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Video Output	Composite: 1.0V p-p, 75Ω	
Sync. System	Internal/ Line-lock (Auto detection)	
Luminance S/N Ratio	More than 50dB (AGC OFF)	
Resolution	550 TV lines	
Sensitivity (F1.2)	0.3 Lux(Color), 0.008 Lux(DSS 32 FLD), 0 Lux(IR LED ON)	
Lens	DC Iris Vari-focal Lens (f=3.8~9.5mm F1.2)	
Electronic Shutter	1/60 ~ 120,000 Sec.	1/50 ~ 120,000 Sec.
White Balance	AWB	
Auto Gain Control	On / Off Selectable	
Back Light Compensation	On / Off Selectable	
Day & Night	On / Off Selectable	
Flickerless	On / Off Selectable	
IR LED & Sensor	IR LED 34EA (850nm 15°, 30° mixed), Sensor 1EA	
Digital Slow Shutter	Max. 32 FLD (On/Off)	
D-ZOOM	2 x (On/Off)	
Digital Noise Reduction	Auto	
Operating Temperature	-10℃~+45℃ / -30℃~+50℃ (with Fan & Heater)	
Storage Temperature	-20℃~+65℃	
Power Consumption	AC 24V (20V~28V) or DC 12V (11V~15V) Max. 20W (AC 24V) / 15W (DC 12V)	
Dimensions (WxHxD)	123.2 x 220.2 x 356.5 mm	
Weight	Approx. 2.46kg	

Vari-focal

7. Dimensions (mm)
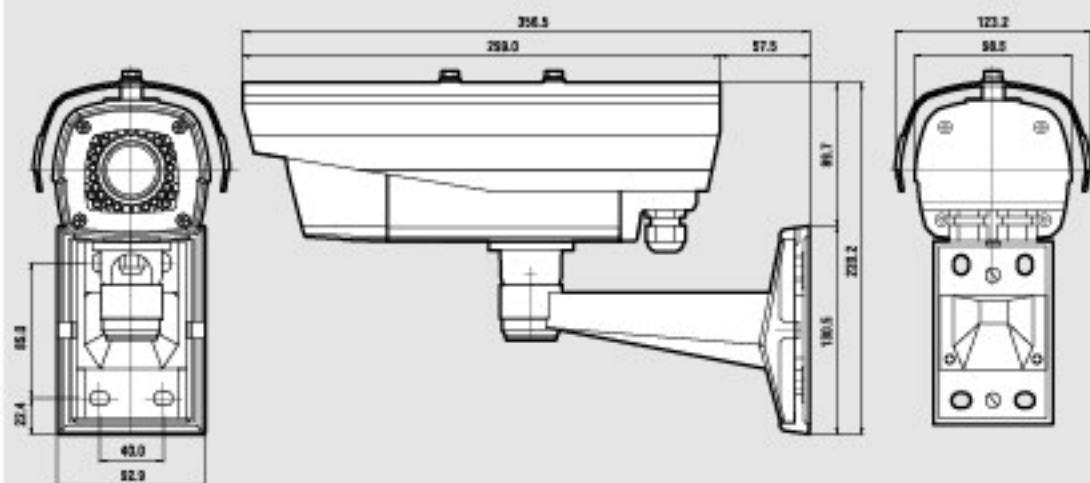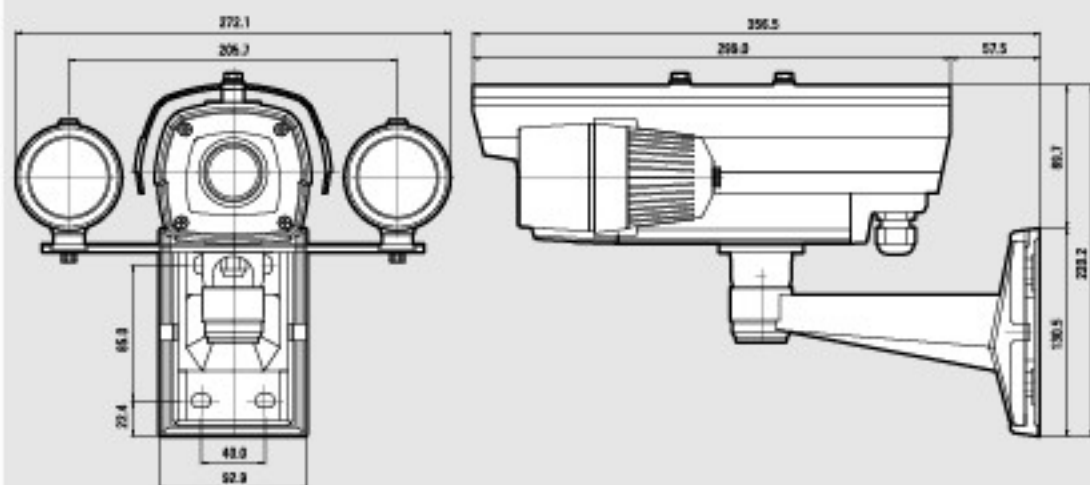
. Memo

Weatherproof IR LED
Day & Night Color Camera

.Day & Night IR Camera Series

P/N : 3810-0099A
(Ver.0702E)

Color Video Camera Series

● Design and specifications
are subject to
change without notice.