

# **x36 PTZ Indoor In-ceiling Mount Camera**

*User's Manual*

# Safety 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.



#### Warning

This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.



#### Precaution

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## WARNING

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

## WARNING

2. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
3. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
4. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
5. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
6. When installing the camera, fasten it securely and firmly. A falling camera may cause personal injury.
7. Do not place conductive objects (e.g. screw drivers, coins, metal things, etc.) or containers filled with water on top of the camera. Doing so may cause personal injury due to fire, electric shock, or falling objects.
8. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
9. If any unusual smells or smoke come from the unit, stop using the product. In such case, immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
10. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
11. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

## Precautions

### Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then
- contact your Special dealer.

### Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Care must be taken when you clean the clear dome cover. Especially, scratch and dust will ruin your quality of camera.

### Installation and Storage

- Do not install the camera in areas of extreme temperature, which exceed the allowable range.
- Avoid installing in humid or dusty places.
- Avoid installing in places where radiation is present.
- 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.

# Important Safety Instructions

1. **Read these instructions.** - All these safety and operating instructions should be read before the product is operated.
2. **Keep these instructions.** - The safety, operating and use instructions should be retained for future reference.
3. **Heed all warnings.** - All warnings on the product and in the operating instructions should be adhered to.
4. **Follow all instructions.** - All operating and use instructions should be followed.
5. **Do not use this apparatus near water.** - For example: near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement; near a swimming pool; etc.
6. **Clean only with dry cloth.** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners.
7. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.** - Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product, and to protect it from over-heating. The openings should never be blocked by placing the product on bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's unstructions have been adhere to.
8. **Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.**
9. **Do not defeat the safety purpose of the polarized or grounding-type plug.** A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
11. **Only use attachments/accessories specified by the manufacturer.**
12. **Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.**
13. **Unplug this apparatus during lightning storms or when unused for long periods of time.**
14. **Refer all servicing to qualified service personnel.** Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.





#### Disposal of Your Old Appliance

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1. When this crossed-out wheel bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio 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 his own expense.

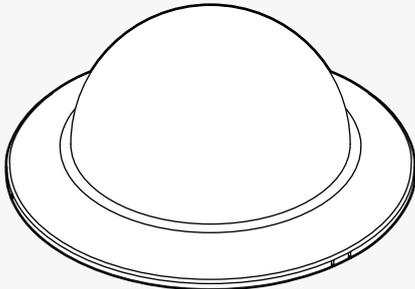
# Contents

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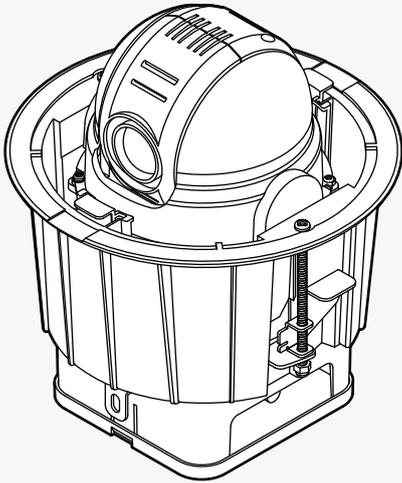
|                          |   |
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# 1 Introduction - Product & Accessories

## Product



Dome Cover

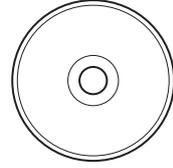


In-ceiling Hosing  
with PTZ Mechanism

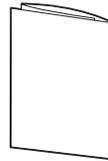
## Accessories



Safety Wire x2

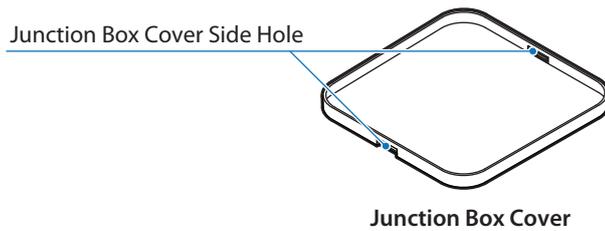
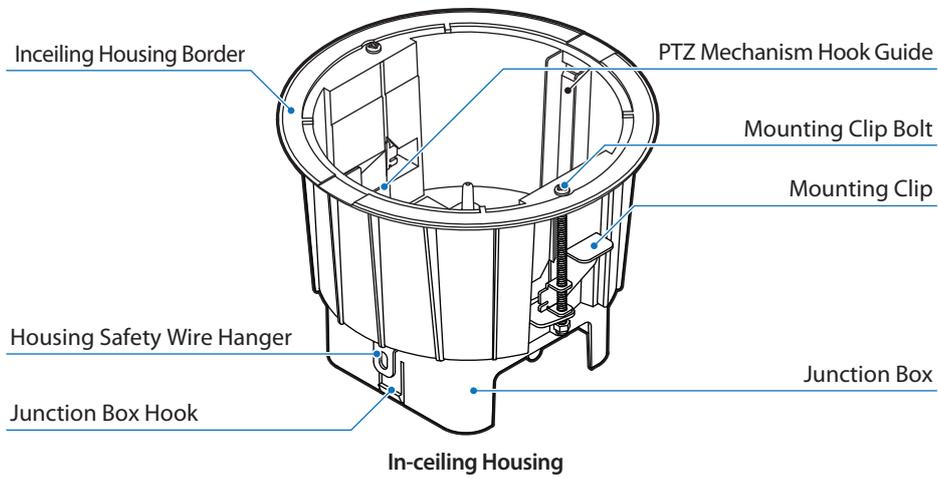
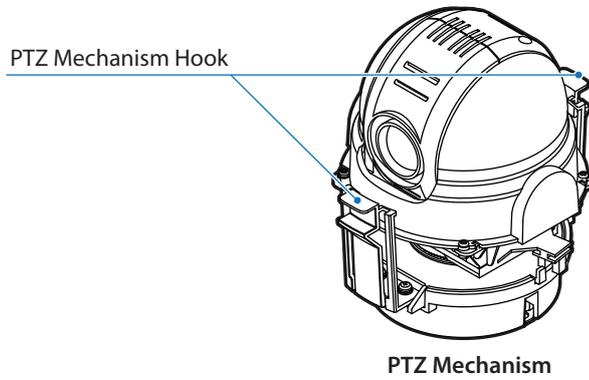
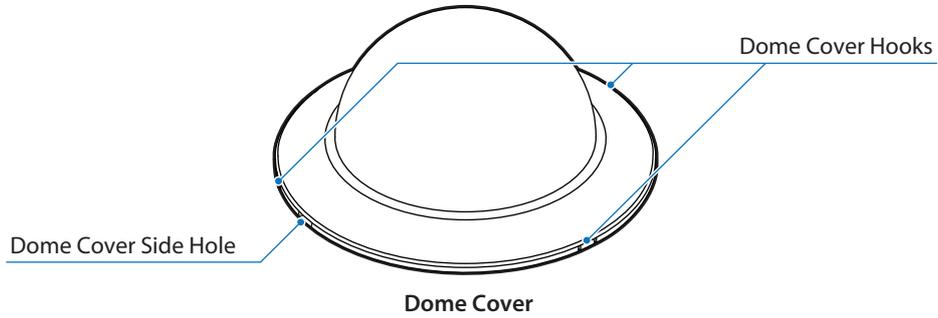


Manual CD



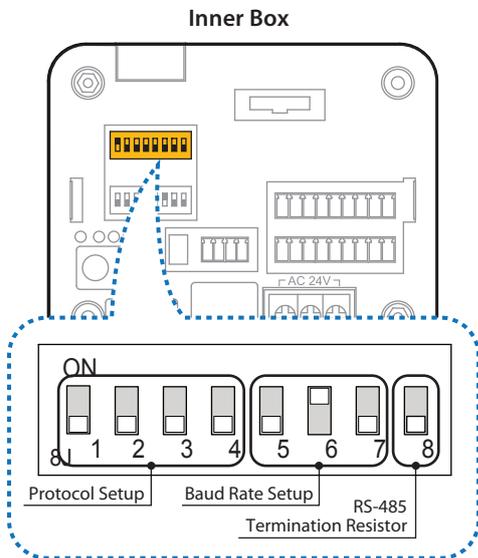
Quick Manual

# 1 Introduction - Part Name

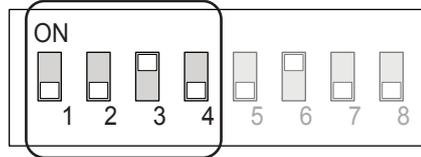


# 2 Installation - DIP Switch Setup

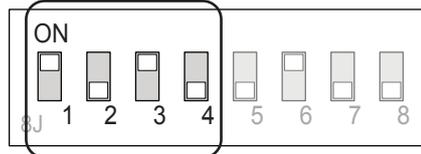
⊠ Before installing the camera, you should set the DIP switch to configure the camera ID, communication protocol.



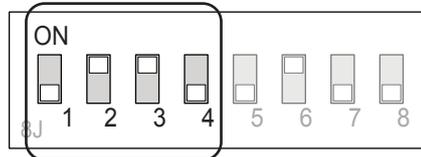
## 5 Panasonic



## 6 GE(Kalatel)



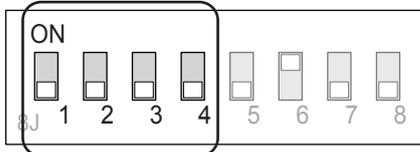
## 7 AD(American Dynamics)



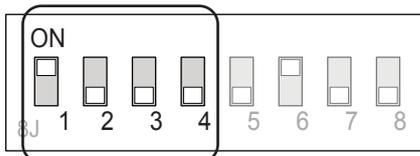
### 1. Communication Protocol Setup

Select the appropriate protocol with DIP switch combination.

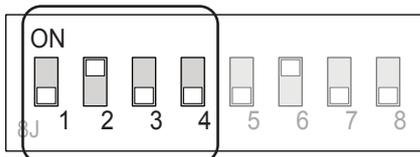
#### 1 Auto - Factory Default



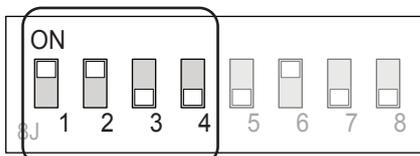
#### 2 PELCO-D



#### 3 PELCO-P



#### 4 SAMSUNG



- If you set the protocol as 'Auto' protocol, camera will automatically recognize PELCO-D or PELCO-P protocol.

- If you want to control using DVR or system keyboard, their protocol must be identical to camera. Otherwise, you can not control the camera.

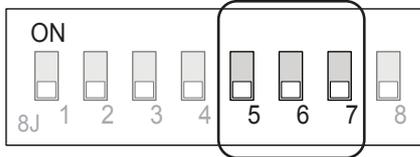
- If you change camera protocol by changing DIP switch, the change will be effective after you reboot the camera.

# 2 Installation - DIP Switch Setup

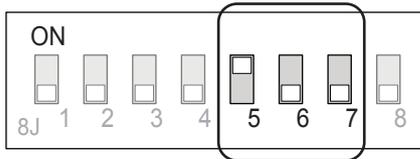
## 2. Communication Baud Rate Setup

Select the appropriate baud rate with DIP switch combination.

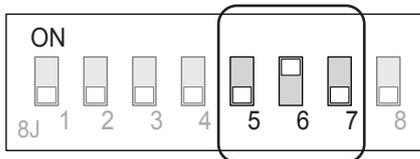
### 1 2400 BPS - Factory Default



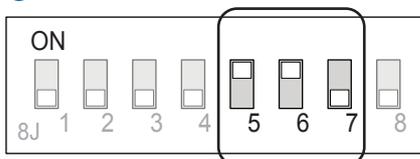
### 2 4800 BPS



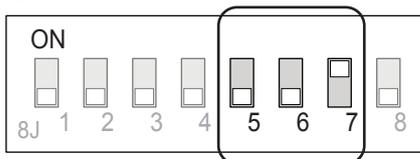
### 3 9600 BPS



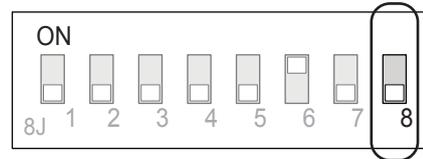
### 4 19200 BPS



### 5 38400 BPS



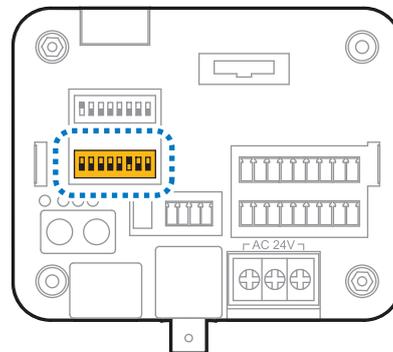
## 3. RS-485 Termination Resistor



- Pin 8 is used for on/off of RS-485 termination.
- Normally, it must be off state.
- Especially, when you have trouble with long daisy chain style connection, turn on this termination switch of the last camera.

## 4. Camera ID Setup

Inner Box

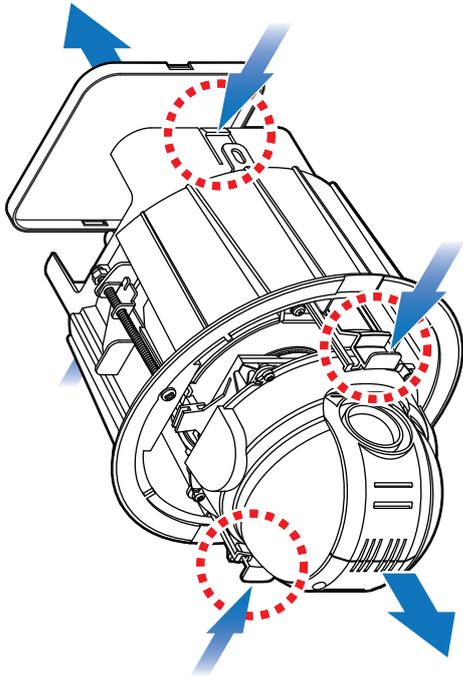


ID number of camera is set using binary number. The example is shown below.

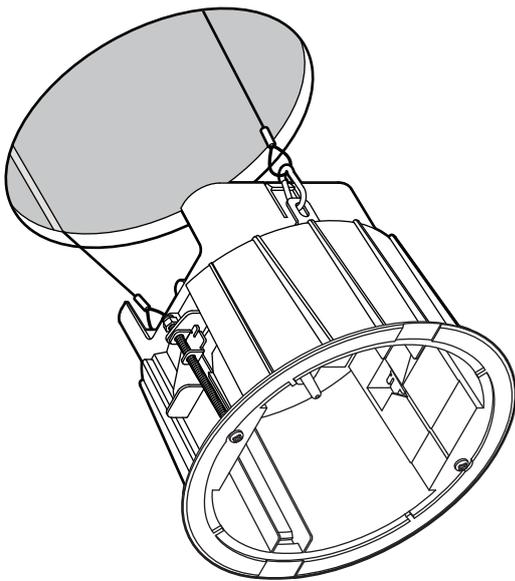
| Pin       | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| ID Value  | 1   | 2   | 4   | 8   | 16  | 32  | 64  | 128 |
| ex) ID=5  | on  | off | on  | off | off | off | off | off |
| ex) ID=10 | off | on  | off | on  | off | off | off | off |

- If you want to control a certain camera, you must match the camera ID with 'CAM ID', setting of DVR or keyboard controller.
- ID number of the camera is set using binary number.
- The range of ID is 0~255.
- Factory default of camera ID is 1.
- Camera ID will be effective without rebooting the camera.

# 2 Installation - Installation

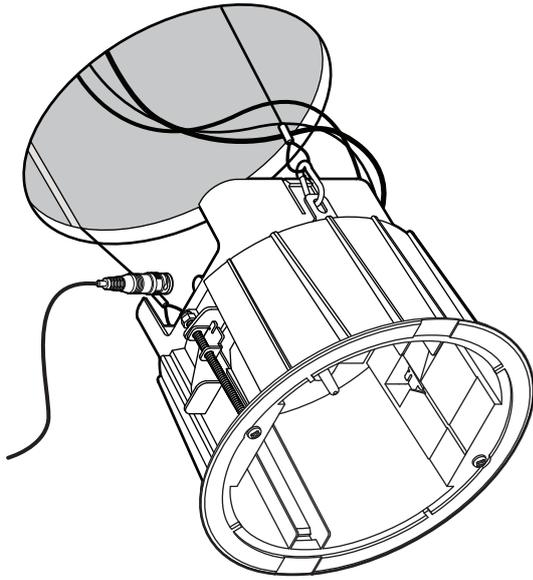


- 1 Detach the PTZ Mechanism and the Junction Box Cover**  
By pressing down and holding up the hooks in both sides of PTZ Mechanism, detach PTZ Mechanism from the housing. Then, detach the junction box cover by pressing down the hooks in both sides of the junction box.

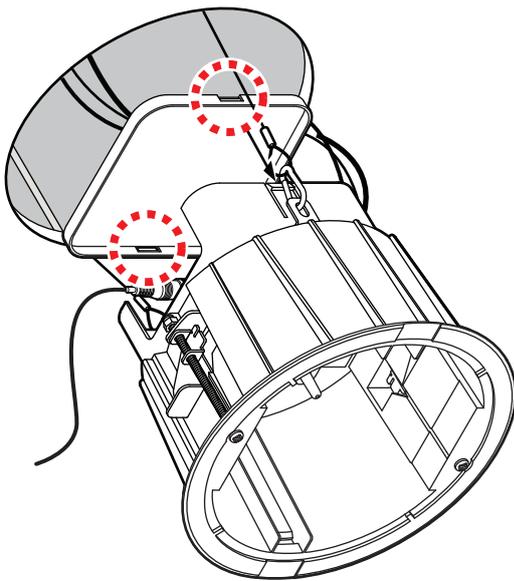
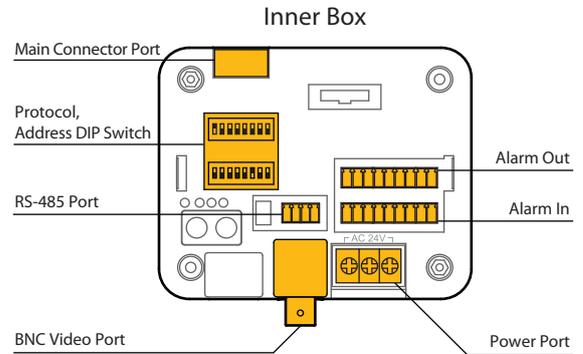


- 2 Drill the hole on the ceiling**  
To install the in-ceiling housing in the ceiling, drill a hole (190mm diameter) on the ceiling.
- 3 Hook the Safety Wires**  
Connect one of the rings of safety wire for preventing falling down with the housing safety wire hanger in either sides of Housing. Then, connect the remained ring of the safety wire with the hanger bolt of the ceiling.

# 2 Installation - Installation

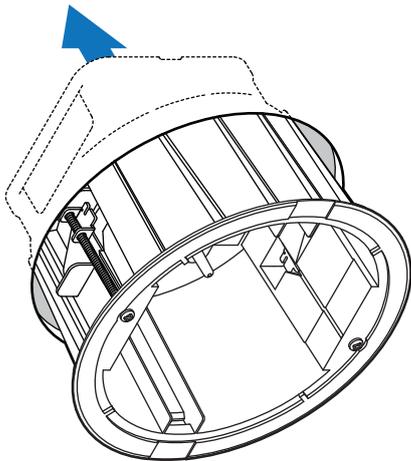


- 4 Connect the Wires and Terminal blocks**  
Connect cables to terminal blocks and BNC in the inner box of junction box.  
✳ See the cabling in the next section.

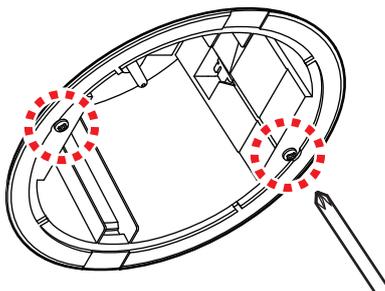


- 5 Close the Junction Box Cover**  
Close the junction box cover by inserting the both junction box cover side holes to the junction box hooks.

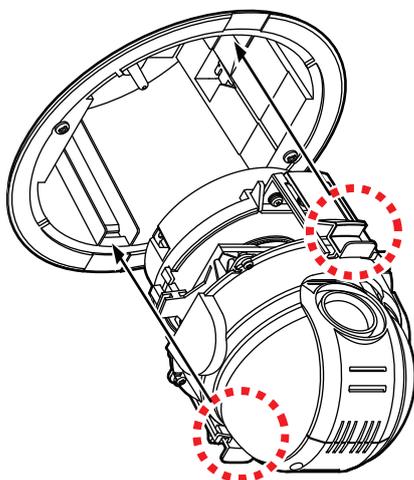
# 2 Installation - Installation



- 6 Insert the In-ceiling Housing**  
Insert the housing to the ceiling hole and press the edge of housing against the ceiling.

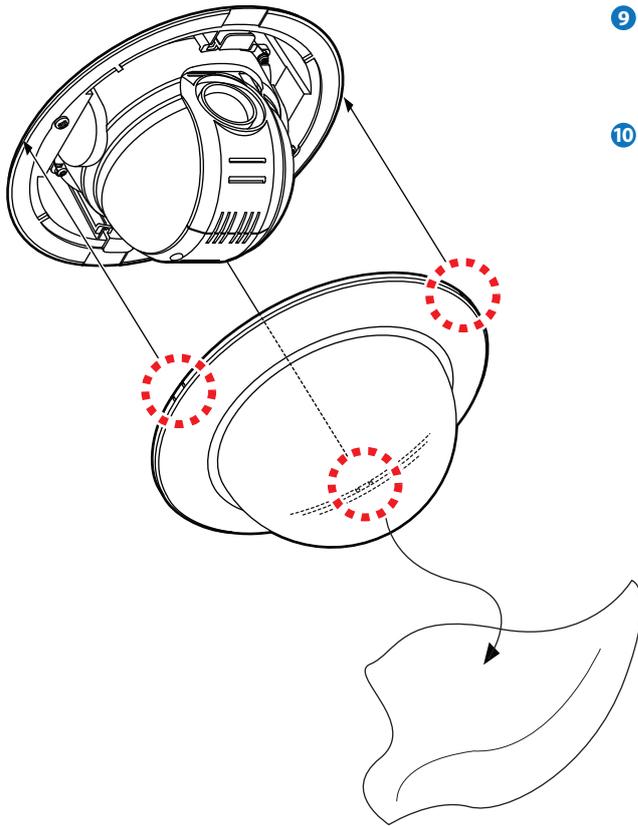


- 7 Fix the In-ceiling Housing**  
Fix the In-ceiling housing by turning the mounting clip bolts clockwise.



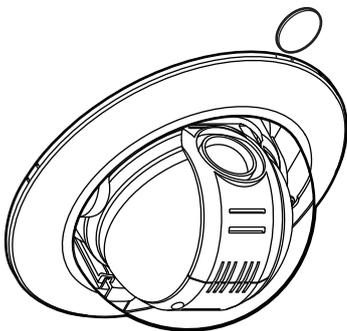
- 8 Mount the PTZ Mechanism**  
Fix the PTZ Mechanism to the housing by inserting PTZ Mechanism hook to the mechanism hook guides.

# 2 Installation - Installation



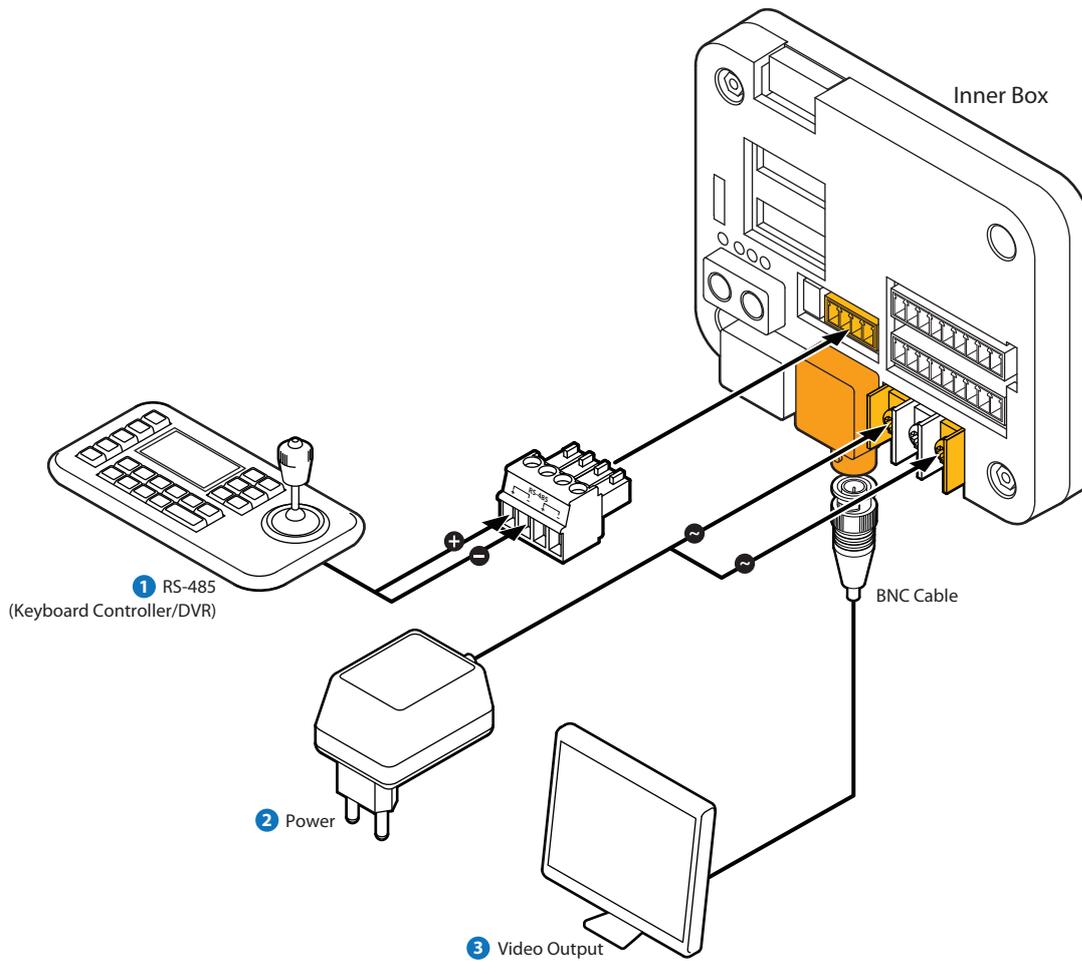
**9 Attach the Dome Cover**  
Attach the dome cover by fixing the dome cover side hooks to the edge of housing.

**10 Detach the Protection Vinyl**



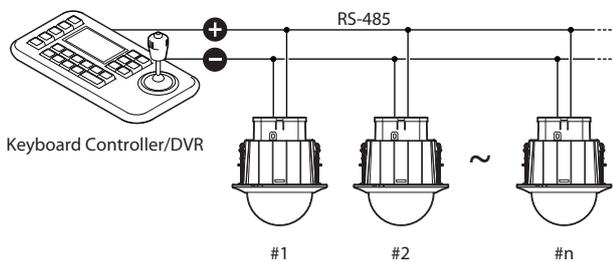
**✳ Detach the Dome Cover**  
Detach the dome cover from the cover side hole by using a flathead screwdriver or a coin.

# 2 Installation - Cabling



## 1 RS-485 Communication (DVR/Keyboard)

For PTZ control, connect this line to keyboard and DVR. To control multiple cameras at the same time, RS-485 communication lines of them are connected in parallel as shown below.



## 2 Power Connection

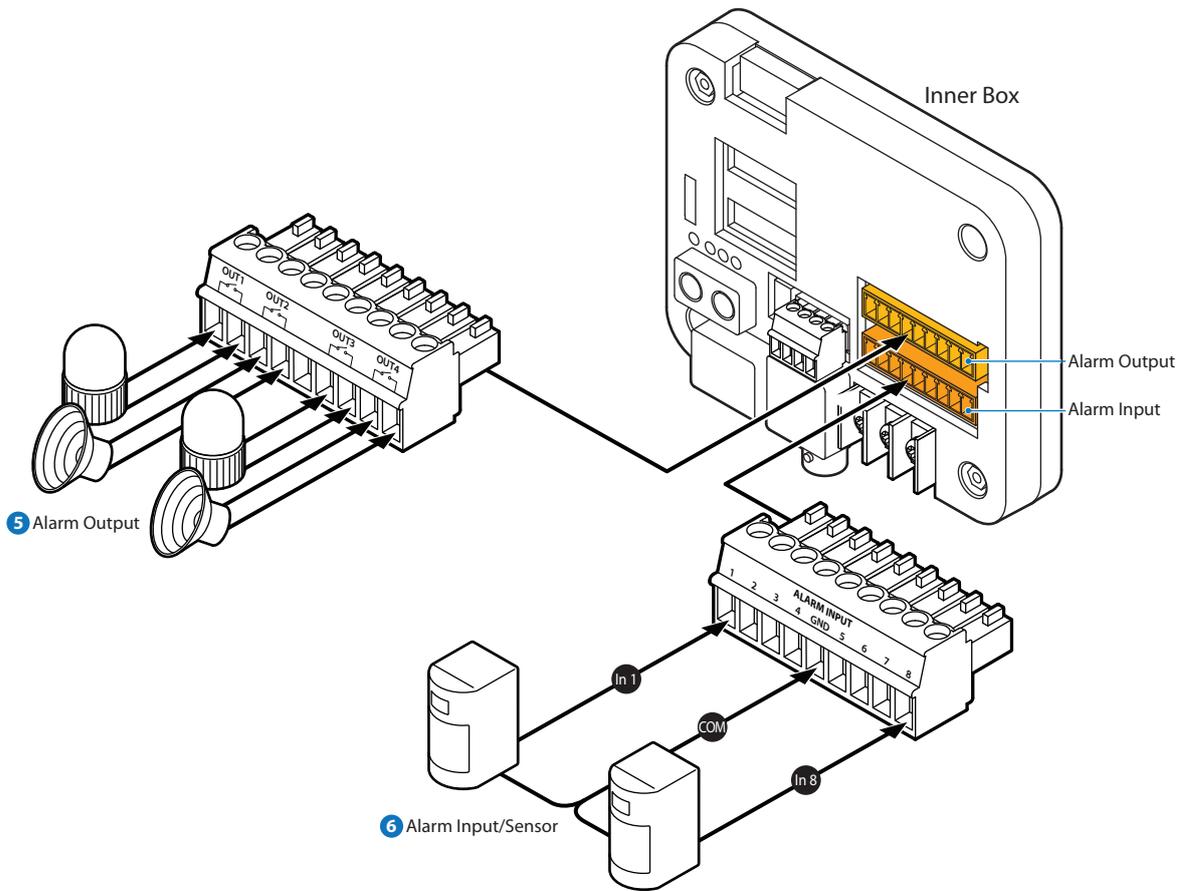
Please, check the voltage and current capacity of rated power carefully.

| Rate Power | Current Consumption              |
|------------|----------------------------------|
| AC 24V     | Heater Off: 24W • Heater On: 55W |

## 3 Video Output

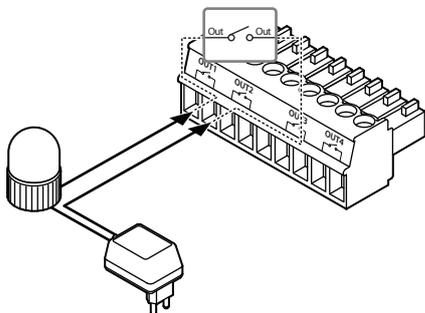
Connect with BNC coaxial cable.

# 2 Installation - Cabling



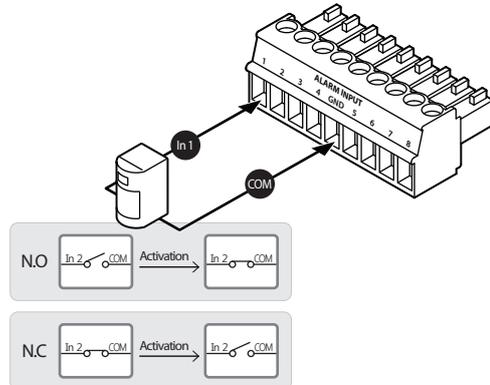
## 5 Alarm Output

There are 4 alarm outputs and all of them are relay contact type. Therefore, you do not have to care about polarity, AC/DC, and isolations between channels. Care must be taken for the power capacity of relay contact written above.



## 6 Sensor Input

If you want to use alarm input, the types of sensor must be selected in OSD menu. The sensor types are 'Normal Open' and 'Normal Close'. If sensor type is not selected properly, the alarm can be activated reversely.



⚠ It is noted that short circuit between GND and Input pin means alarm activation.

# 3 OSD - Check Points before Operation

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✘ The OSD menu in this manual is based on the control of Web-Viewer. Some of the menu items (Date/Time Setup, Alarm Input Setup, etc.) might be different when analog base is used.

## Check Points before Operation

1. Before power is applied, please check the cables carefully.
2. The camera ID of the controller must be identical to that of the camera to be controlled. The camera ID can be check in the system information of OSD menu.
3. If your controller supports multi-protocols, the protocol must be changed to match to that of the camera.
4. If you changed camera protocol by changing DIP switch, the change will be effective after you reboot the camera.
5. Since the operation method can be different for each controller available, refer to the manual for your controller if camera cannot be controlled properly.

### 1 Preset and Pattern Function Pre-check

- Check how to operate preset, pattern, scan and group function with keyboard controller/DVR in advance to operate camera function using them.  
(Refer to your system keyboard manual)

### 2 Auto Calibration

- If the camera is continuously subjected to very high temperature (over 50°C or 122°F) environment for a long time, it is possible for the camera to lose focus. As a result, you will get blurry image. In this case, it is recommended to turn on 'AUTO CALIBRATION'.
- If you execute 'AUTO CALIBRATION', camera will calibrate its focus at every 6 hours.

### 3 Start OSD Menu

- Using the OSD menu, preset, pattern, scan, group and alarm input function can be configured for each application.  
Enter 'Preset key + 0' or 'Pattern + 30'.

# 3 OSD - Aux Functions

## 1 Preset

- Max. 255 positions can be stored as preset positions. The preset number can be assigned from 1 to 255.
- See the section 'ROOT MENU>FUNCTION SETUP>PRESET SETUP' for more detailed information.

### 1. Set Preset

Method 1) Use keyboard controller:  
☒ Refer to keyboard controller manual.

Method 2) Use OSD menu.

### 2. Run Preset

Method 1) Use keyboard controller:  
Preset key + Number key(1~255)

### 3. Delete Preset

To delete preset, use OSD menu.

## 2 Scan

- By using scan function, you can make camera to move between 2 preset positions repeatedly.
- See the section 'ROOT MENU>FUNCTION SETUP>SCAN SETUP' for more detailed information.

### 1. Set Scan

To set scan, use OSD menu.

### 2. Run Scan

Method) Pattern key + Scan number(1~8) + 10  
Ex) Run scan 2 = Pattern key + [12] + Enter key

### 3. Delete Scan

To delete scan, use OSD menu.

## 3 Pattern

- Pattern function is that a camera memorizes the path (mostly curve path) by joystick of controller for assigned time and revives the path exactly as it memorized.
- See the section 'ROOT MENU>FUNCTION SETUP>PATTERN SETUP' for more detailed information.

### 1. Set Pattern

To set pattern, use OSD menu.

### 2. Run Pattern

Method 1) Pattern key + Pattern number(1~4) + Enter key  
Ex) Run pattern 2 = Pattern key + [2] + Enter key

### 3. Delete Pattern

To delete pattern, use OSD menu.

- ☒ When the pattern is saved/executed, the pan/tilt is operated with 'AUTO FLIP-OFF'.

## 4 Group

- The group function allows running sequence of presets, pattern and/or scans.
- See the section 'ROOT MENU>FUNCTION SETUP>GROUP SETUP' for more detailed information.

### 1. Set Group

To set group, use OSD menu.

### 2. Run Group

Method) Pattern key + [Group number(1~8) + 20]  
Ex) Run group 2 = Pattern key + [22] + Enter key

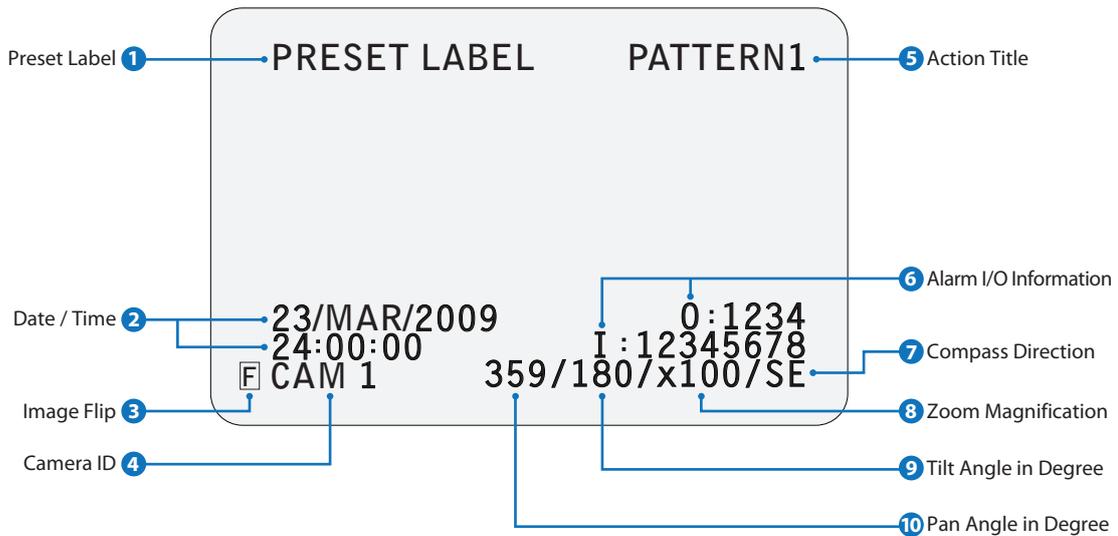
### 3. Delete Group

To delete group, use OSD menu.

## 5 Schedule

- The schedule function allows running an appropriate function like preset, scan, group, pattern, home move at the designated day and time.
- See the section 'ROOT MENU>FUNCTION SETUP>SCHEDULE SETUP' for more detailed information.

# 3 OSD - OSD Information



## 1 Preset Label

- The label stored for specific preset.
- See the section 'ROOT MENU>FUNCTION SETUP>PRESET SETUP>LABEL'.

## 2 Date / Time

- Shows the current date/time.
- See the section 'ROOT MENU>SYSTEM SETUP>DATE/TIME SETUP'.

## 3 Image Flip

- Shows that images are currently reversed by auto flip function.
- See the section 'ROOM MENU>CAMERA SETUP>IMAGE FLIP'.

## 4 Camera ID

- The current camera ID(Address).
- See the section 'ROOT MENU>SYSTEM INFORMATION'.

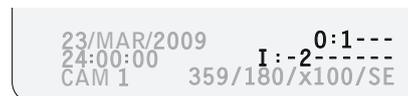
## 5 Action Title

Followings are possible action titles and their meaning.

| Action Title     | Means  |
|------------------|--|
| SET PRESET 123   | Means to store preset 123.                                   |
| PRESET 123       | Means it reached preset 123.                                 |
| PATTERN 1        | Means the camera is running pattern 1.                       |
| SCN 1/PRESET 123 | Means the camera is running scan 1.                          |
| RANGE OVER       | Means the action received is not within the range supported. |
| UNDEFINED        | Means the action received is not defined.                    |

## 6 Alarm I/O Information

- This information shows current state of alarm input and output.
- The 'I' means input and 'O' means output.
- If an input is on state it will show the number of input. If an input is off state, '-' will be displayed. In the same way 'O:1 ---' means output 1 is on and other output is off.
- Ex) When point 2 of inputs are on, and output 1 is on, OSD will show as below.



## 7 Compass Direction

- Shows the current compass direction of the camera.
- The direction is shown as N(North), S(South), E(East), W(West), NE(Northeast), NW(Northwest), SE(Southeast), SW(Southwest).
- See the section 'ROOT MENU>SYSTEM SETUP>SET NORTH DIRECTION'.

## 8 Zoom Magnification

- Shows the current zoom magnification.

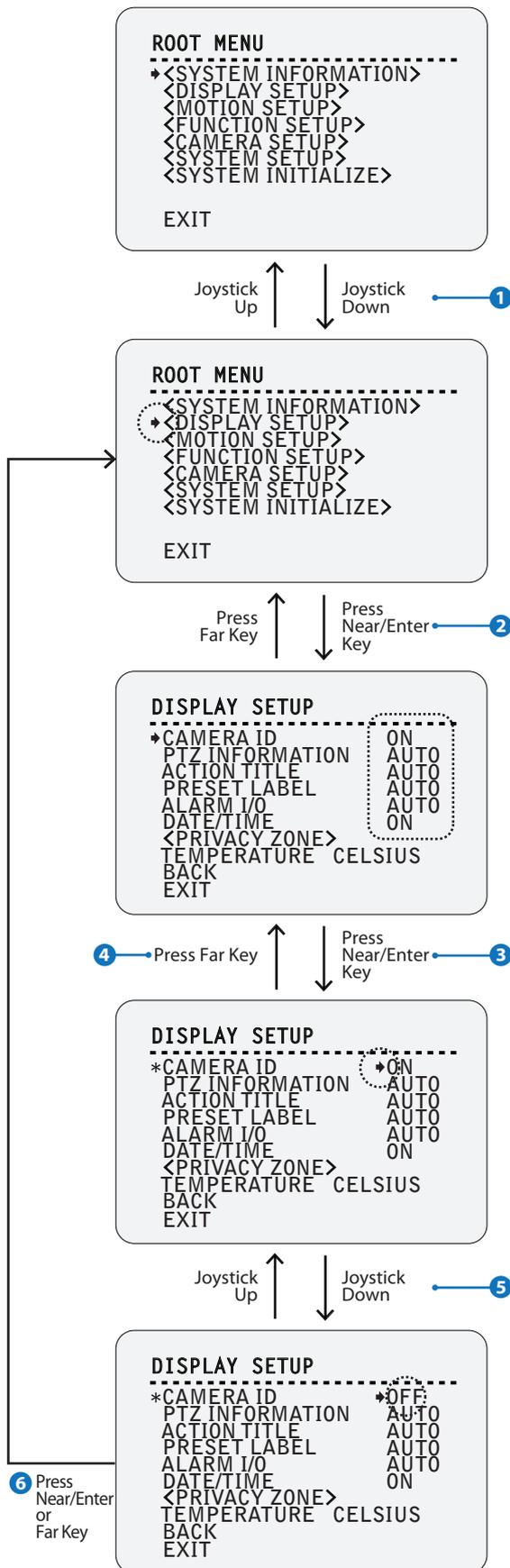
## 9 Tilt Angle in Degree

- Shows the current tilt(0 ~ 180) angle.

## 10 Pan Angle in Degree

- Shows the current pan(0 ~ 359) angle.

# 3 OSD - General Rules of Menu Operation



- 1 The menu items surrounded with < > always has its sub menu.
- 2 To move from items to item in the menu, use joystick in the up/down or left/right.
- 3 For all menu level, to go into sub menu, press near or enter key.
- 4 To go to up-one-level menu, press far key.
- 5 To change a value of an item, use up/down of the joystick in the controller.
- 6 Press near or enter key to save values and press far key to cancel values.

# 3 OSD - ROOT MENU & SYSTEM INFORMATION

1

```
ROOT MENU
-----
-><SYSTEM INFORMATION>
<DISPLAY SETUP>
<MOTION SETUP>
<FUNCTION SETUP>
<CAMERA SETUP>
<SYSTEM SETUP>
<SYSTEM INITIALIZE>

EXIT
```

1 ROOT MENU

---

<SYSTEM INFORMATION>  
Shows information and current configuration.

---

<DISPLAY SETUP>  
Enable/Disable of OSD display on main screen.

---

<MOTION SETUP>  
Setup for motion related settings.

---

<FUNCTION SETUP>  
Setup for various functions such as preset, scan, pattern, group and schedule.

---

<CAMERA SETUP>  
Configure camera related functions and data.

---

<SYSTEM SETUP>  
Configure for basic system setup.

---

<SYSTEM INITIALIZE>  
Initializes system configuration and sets all data to factory default configuration.

---

EXIT  
To escape from the OSD setting, go to exit.

---

1

```
SYSTEM INFORMATION
-----
FIRMWARE VER 1.0
COLOR SYSTEM NTSC
PROTOCOL AUTO
BAUD RATE 2400
ADDRESS 1

BACK
EXIT
```

1 SYSTEM INFORMATION

---

FIRMWARE VER  
Shows the current firmware version.

---

COLOR SYSTEM  
Shows the current analog video system.

---

PROTOCOL  
Shows the current PTZ control protocol.

---

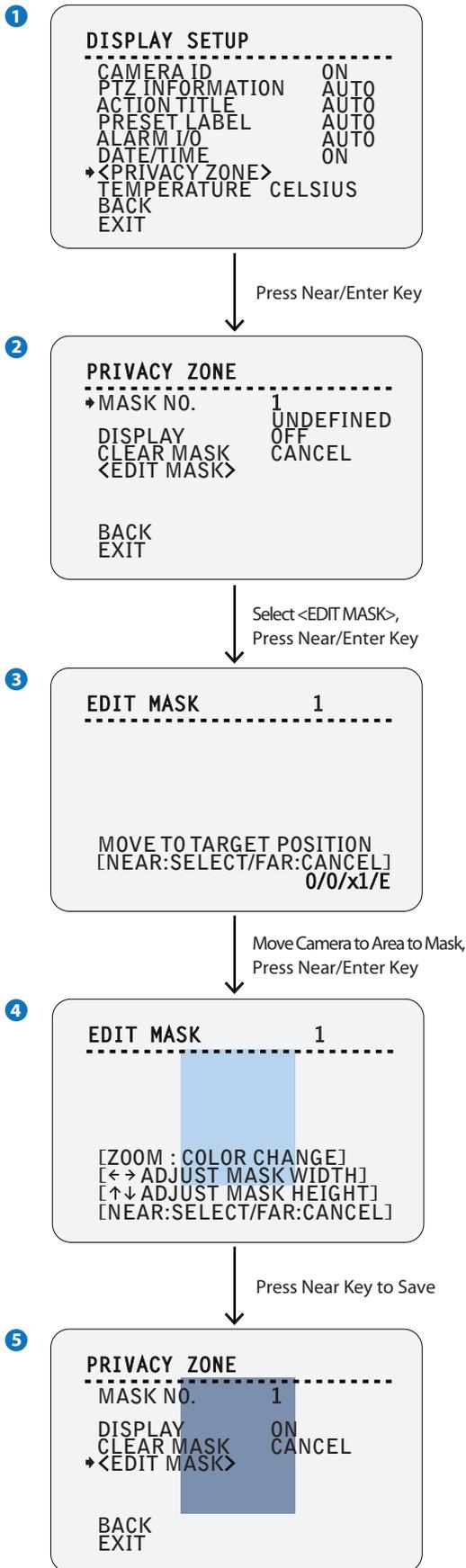
BAUD RATE  
Shows the current baud rate of the PTZ control.

---

ADDRESS  
Shows the current camera ID of the PTZ control.

---

# 3 OSD - DISPLAY SETUP



## 1 DISPLAY SETUP

This menu defines enable/disable of OSD display on main screen. If an item is set to be 'AUTO', the item is displayed only when the value of it is changed.

|                 |                                     |
|-----------------|-------------------------------------|
| CAMERA ID       | ON / OFF                            |
| PTZ INFORMATION | ON / OFF / AUTO                     |
| ACTION TITLE    | ON / OFF / AUTO                     |
| PRESET LABEL    | ON / OFF / AUTO                     |
| ALARM I/O       | ON / OFF / AUTO                     |
| DATE/TIME       | ON / OFF                            |
| <PRIVACY ZONE>  | Start Privacy Zone Mask setup Menu. |
| TEMPERATURE     | CELSIUS / FAHRENHEIT / OFF          |

## 2 PRIVACY ZONE

- Selects area in image to mask.

|             |                             |
|-------------|-----------------------------|
| MASK NO.    | 1 ~ 8                       |
| DISPLAY     | ON / OFF                    |
| CLEAR MASK  | CANCEL / OK                 |
| <EDIT MASK> | Moves to setup the mask no. |

## 3 EDIT MASK - Move to Target Position

Move camera to area to mask. Then the menu to adjust mask size will be displayed.

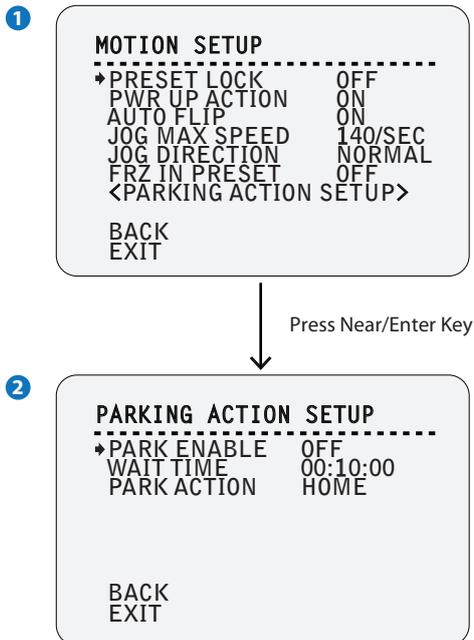
- ☒ If the tilt angle is located in the range between 90° to 90°, you can not set up privacy zone mask.
- ☒ If tilt angle over 90° (image flipped region) is designated, camera will automatically move to identical position by changing tilt angle less than 90° and moving pan angle 180° relatively.

## 4 EDIT MASK - Color Change & Adjust Mask Size

Adjust mask size. Use joystick or arrow buttons to adjust mask size.

- Zoom In/Out: Change Color of Mask.
- Move Joystick Left/Right(◀▶): Adjust Mask Width.
- Move Joystick Up/Down(▲▼): Adjust Mask Height.
- ☒ To hide a certain zone completely regardless of high speed pan/tilt motions, it is recommended that the size of mask must be 20% bigger than original target size.
- ☒ It is noted that during pan/tilt control like jog action, the object behind the privacy mask can be disclosed in a short period of time.

# 3 OSD - MOTION SETUP



## 1 MOTION SETUP

Setup the general functions of pan/tilt motions.

**PRESET LOCK** ON / OFF

If motion lock is set to on, it is impossible to set up and delete preset, scan, pattern and group. It is possible only to run those functions. To set up and delete those functions, enter into OSD menu.

**PWR UP ACTION** ON / OFF

This function enables to resume the last action executed before power down. Most of actions such as preset, pattern, scan and group are available for this function but jog actions are not available to resume.

**AUTO FLIP** ON / OFF

In case that tilt angle arrives at the top of tilt orbit (90°), zoom module camera keep moving to opposite tilt direction (180°) to keep tracing targets. As soon as zoom module camera passes through the top of tilt direction(90°), images should be reversed automatically and [F] appears in screen. If this function is set to 'OFF', tilt movement range is 0° ~ 90°.

**JOG MAX SPEED** 2/SEC ~ 200/SEC

Sets maximum jog speed. Jog speed is inversely proportional to zoom magnification. As zoom magnification goes up, pan/tilt speed goes down.

**JOG DIRECTION** INVERSE / NORMAL

If you set this to 'NORMAL', the view in the screen is moving same direction with jog tilting. If 'INVERSE' is selected, the view in the screen is moving reversely.

**FRZ IN PRESET** ON / OFF

At start point of preset movement, camera starts freezing the image of start point. Camera keeps displaying the image of start point during preset movement and does not display the images which camera gets during preset movement. As soon as camera stops at preset end point, camera starts displaying live images which it gets at preset end point. This function availability should be different by models.

<PARKING ACTION SETUP>

Moves to 'PARKING ACTION SETUP' screen.

## 2 PARKING ACTION SETUP

If 'PARK ENABLE' is set to 'ON', camera runs assigned function automatically if there is no PTZ command during assigned 'WAIT TIME'.

**PARK ENABLE** ON / OFF

**WAIT TIME** 00:00:05 ~ 04:00:00

The time is displayed with "hh:mm:ss" format and you can change this by 1 sec. unit.

1. To place the cursor on the time marked as below, press near key.

**00:10:00**

2. Move joystick Left/Right to adjust hours, minutes and seconds.

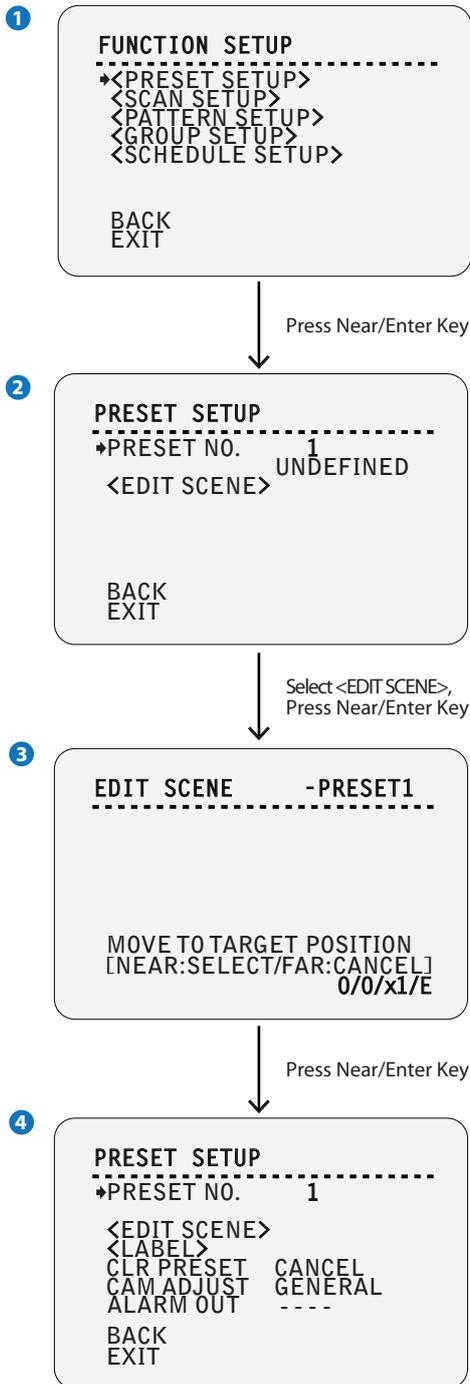
3. Move joystick Up/Down to select the digit.

4. By pressing near key, save current setting.

**PARKING ACTION** HOME / PRESET 1~128 / SCAN 1~8 / PATTERN 1~4 / GROUP 1~8

Ex) If 'HOME' is selected for park action, camera will move to home position when there is no PTZ command during the assigned 'WAIT TIME.'

# 3 OSD - FUNCTION SETUP > PRESET SETUP



## 1 FUNCTION SETUP

Configure 5 special functions with this menu.

## 2 PRESET SETUP - Undefined

255 presets from the number 1 to 255 can be assigned excluding preset 95 reserved for menu.

**PRESET NO.** 1 ~ 255

If a selected preset is already defined, camera moves to pre-defined position and preset characteristics such as label and relay outputs show on monitor. (Refer screen 4) If a selected preset is not defined, 'UNDEFINED' shows on monitor.

**<EDIT SCENE>**

Redefine the current preset scene position(i.e. PTZ).

## 3 EDIT SCENE

1. Using joystick, move camera to the desired position.
2. By pressing near key, save the current PTZ data.
3. Press far key to cancel.

## 4 PRESET SETUP

If the preset is defined, the information will be shown on the OSD menu with the setting, and the alarm device (if defined) will be activated.

**PRESET NO.** 1 ~ 255

**<EDIT SCENE>**

**<LABEL>**

Edits Label to show on monitor when preset runs. Max. 10 alphabets are allowed.

**CAM ADJUST** GENERAL / SPECIAL

- WB(White Balance) and AE(Auto Exposure) can be set up independently for each preset.

- **GENERAL:** WB or AE can be set up totally and simultaneously for all presets in 'ROOT MENU>CAMERA SETUP' menu.

- **SPECIAL:** WB or AE can be set up independently or separately for each preset in each preset setup menu.

- Each special WB/AE value should be activated correspondingly when camera arrives at each preset location. During jog operation, general WB/AE value should be applied.

- All special WB/AE value should not be changed although general WB/AE value is changed. If 'SPECIAL' is selected, the menu to set WB/AE is shown on monitor.

**ALARM OUT** ---- ~ 1 2 3 4

State of four alarm outputs can be freely controlled in conjunction with preset run. The character '-' means off state and the number representing each bit means on.

Ex) If it is set to be '- 2 3 -', output relay 2, 3 will be on and 1, 4 will be off, when you run this preset.

# 3 OSD - FUNCTION SETUP > PRESET SETUP

**1**

```

PRESET SETUP
-----
PRESET NO.    1
<EDIT SCENE>
*<LABEL>
CLR PRESET   CANCEL
CAM ADJUST   GENERAL
ALARM OUT    -----
BACK
EXIT
    
```

Press Near/Enter Key

**2**

```

LABEL          PRESET1
-----
[ ]
1 2 3 4 5 6 7 8 9 0 OK CANCEL
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 < > - / : . <
    
```

Press Near/Enter Key

**3**

```

LABEL          PRESET1
-----
[SKY]
1 2 3 4 5 6 7 8 9 0 *OK CANCEL
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 < > - / : . <
    
```

- 2 LABEL**  
- Edits label to show on monitor when camera arrives at preset.

```

LABEL          PRESET1
-----
[ ]
1 2 3 4 5 6 7 8 9 0 OK CANCEL
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 < > - / : . <
    
```

- a Current Cursor Position:** In edit label menu, a reverse rectangular is cursor. As soon as finishing selecting alphabet, cursor moves to the next digit.
- b Selecting Alphabet:** Using left/right/up/down of joystick, move to an appropriate character from the character set. To choose the character, press the near or enter key.
- c Space:** If you want to use blank, choose space character (' ').
- d Back-Space:** If you want to delete a character in front, use back space character ('←').

- 3 LABEL – Complete Editing**  
If you complete the label editing, move cursor to 'OK' and press near key to save completed label. To abort current change, move cursor to 'CANCEL' and press near key.

**1**

```

PRESET SETUP
-----
PRESET NO.    1
<EDIT SCENE>
<LABEL>
CLR PRESET   CANCEL
*<CAM ADJUST > *<SPECIAL>
ALARM OUT    -----
BACK
EXIT
    
```

Press Near/Enter Key

**2**

```

CAM ADJUST     -PRESET1
-----
*<WHITE BALANCE SETUP>
<AUTO EXPOSURE SETUP>
BACK
EXIT
    
```

- 2 CAM ADJUST**  
Edits label to show on monitor when the camera arrives at presets.

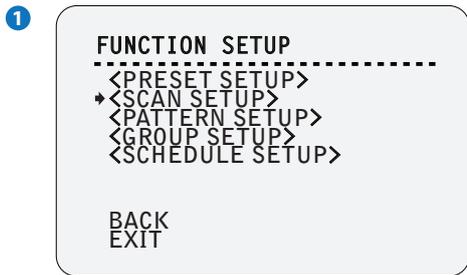
<WHITE BALANCE SETUP>

See the section 'ROOT MENU>CAMERA SETUP>WB SETUP'.

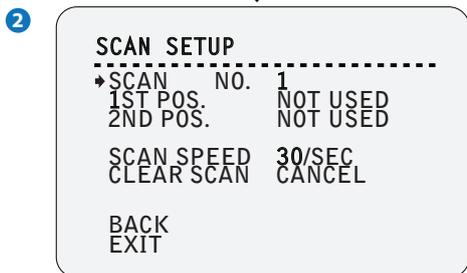
<AUTO EXPOSURE SETUP>

See the section 'ROOT MENU>CAMERA SETUP>AE SETUP'.

# 3 OSD - FUNCTION SETUP > SCAN SETUP



Press Near/Enter Key

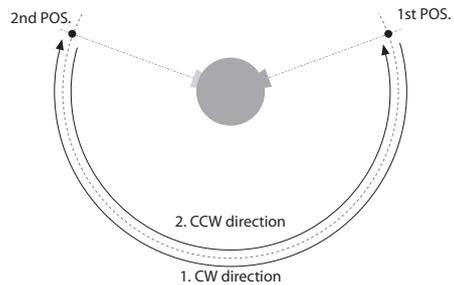


## 2 SCAN SETUP

By using the scan function, you can make the camera to move between 2 preset positions repeatedly.

When the scan function runs, the camera moves from the preset assigned as the 1st point to the preset assigned as the 2nd point in CW(Clockwise) direction. Then the camera moves from the preset assigned as the 2nd point to the preset assigned as the 1st point in CCW(Counterclockwise) direction.

In case that the preset assigned as the 1st point is same as the preset assigned as the 2nd point, the camera turns on its axis by 360° in CW direction and then it turns on its axis by 360° in CCW direction.

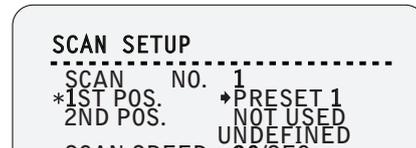


**SCAN NO.** 1 ~ 8

Selects the scan number to edit. If a selected scan has not defined, 'NOT USED' is displayed in 1st position and 2nd position.

**1ST POS. / 2ND POS.** PRESET 1 ~ 255 / NOT USED

Set up the 2 position for scan function. If a selected preset is not defined, 'UNDEFINED' will be displayed as shown below.



**SCAN SPEED** 1/SEC ~ 180/SEC

Sets the scan speed.

**CLEAR SCAN** CANCEL / OK

Deletes the current scan data.



# 3 OSD - FUNCTION SETUP > GROUP SETUP

1

```

FUNCTION SETUP
-----
<PRESET SETUP>
<SCAN SETUP>
<PATTERN SETUP>
* <GROUP SETUP>
<SCHEDULE SETUP>

BACK
EXIT
    
```

Press Near/Enter Key

2

```

GROUP SETUP
-----
* GROUP NO.      1
CLEAR GROUP    UNDEFINED
<EDIT GROUP>   CANCEL

BACK
EXIT
    
```

Select <EDIT GROUP>, Press Near/Enter Key

3

```

EDIT GROUP      1
-----
* NO. ACTION NO. DWELL OPT
  1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE
CANCEL [NEAR:EDIT]
    
```

Press Near/Enter Key

4

```

EDIT GROUP      1
-----
NO. ACTION NO. DWELL OPT
* 1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE [NEAR:EDIT ACT]
CANCEL [FAR :EDIT END]
    
```

Press Near/Enter Key

5

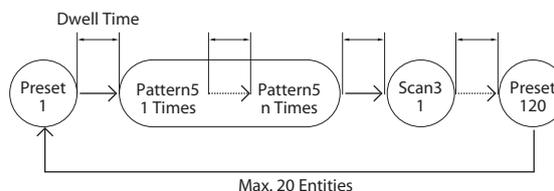
```

EDIT GROUP      1
-----
NO. ACTION NO. DWELL OPT
* 1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE [←→:MOVE CURSOR]
CANCEL [↑↓:CHANGE VAL.]
    
```

## 2 GROUP SETUP SCREEN

The group function allows running sequence of presets, pattern and/or scans. Max. 8 group can be stored. Each group can have max. 20 action entities which can be preset, pattern or scan.

Preset speed can be set up and the repeat number of pattern & scan can be set up in group setup. Dwell time between actions can be set up also.



**GROUP NO.** 1 ~ 8

Selects group number to edit. If a selected group number is not defined, 'UNDEFINED' will be displayed under the selected group number.

**CLEAR GROUP** CANCEL / OK

Deletes data in the current group.

**<EDIT GROUP>**

Starts editing group.

## 3 EDIT GROUP - Initial Screen

Press near or enter key in 'NO' list to start group setup.

**ACTION NO.** NONE / PRESET 1~255 / PATTERN 1~4 / SCAN 1~8

**DWELL TIME** 00:03 ~ 04:00 (min:sec)

Sets dwell time between function by moving joystick up/down.

**OPT** PRESET: 2~360 / PATTERN & SCAN: 1~255

It represents preset speed (2~360) when preset is selected. It should be the number of repetition (1~255) when pattern or scan is selected for 'ACTION'.

## 4 EDIT GROUP - Select Function Sequence

Note that max. 20 functions are allowed in a group.

Move cursor up/down and press near or enter key to set up.

## 5 6 EDIT GROUP - Assign Function

Set up 'ACTION', 'DWELL' and 'OPT'. Note that selected item is displayed in reverse. Move cursor left/right to select items and move cursor up/down to change each value.

# 3 OSD - FUNCTION SETUP > GROUP SETUP

6

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
→ 1 PATTERN 1  00:03  1
   2 NONE
   3 NONE
   4 NONE
   5 NONE
-----
SAVE  [← →:MOVE CURSOR]
CANCEL [↑ ↓:CHANGE VAL.]
    
```

↓  
Press Near/Enter Key

7

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
→ 1 PATTERN 1  00:03  1
   2 NONE
   3 NONE
   4 NONE
   5 NONE
-----
SAVE  [NEAR:EDIT ACT]
CANCEL [FAR :EDIT END]
    
```

↓  
Press Far Key

8

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
  1 PATTERN 1  00:03  1
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
→SAVE
CANCEL
    
```

7

## EDIT GROUP - Selects Function Sequence

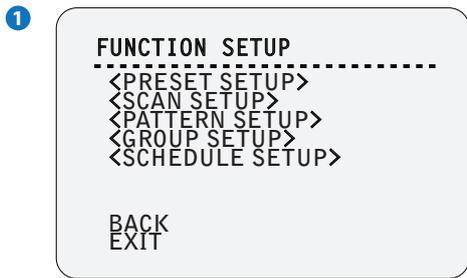
After finishing setting up an 'ACTION', press near or enter key to one-upper-level menu. Move cursor up/down to select 'ACTION NO.' and repeat to step 4 ~ step 6 to edit the selected group.

8

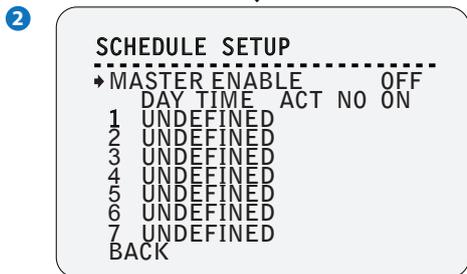
## EDIT GROUP - Saves the Setting

After finishing setting up all actions, press far key to exit. Then cursor should be moved to 'SAVE'. Press near or enter key to save the data.

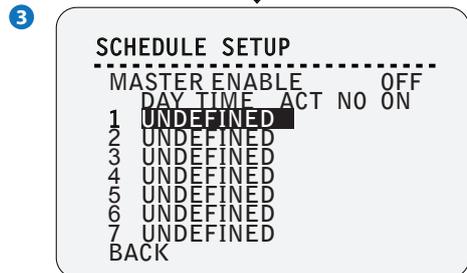
# 3 OSD - FUNCTION SETUP > SCHEDULE SETUP



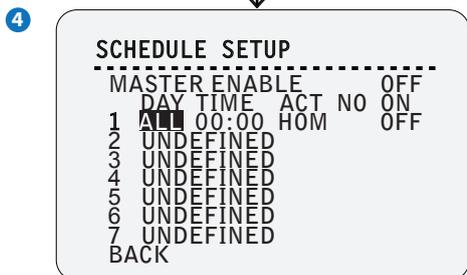
Press Near/Enter Key



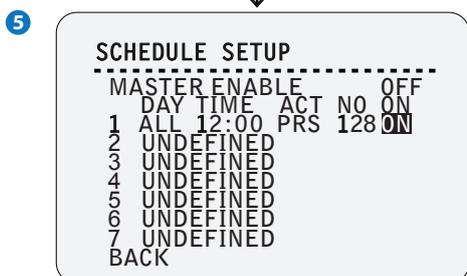
Joystick Down,  
Press Near Key



Joystick Down



Assign Value



## 2 SCHEDULE SETUP SCREEN

The schedule function allows running an appropriate function like preset, scan, pattern, group, home move at designated day and time.

EX) If you setup a rule 'Tuesday at 9:00AM' and 'Preset 1(say main gate)', the camera will move to main gate every Tuesday at 9:00 AM. If you choose weekday, camera will move to main gate everyday except weekend.

It is noted that due to the real time clock(ROOT MENU> SYSTEM SETUP>DATA/TIME SETUP), the time data will be kept regardless of blackout. The initial time and day setup is essential to proper schedule function.

|               |          |
|---------------|----------|
| MASTER ENABLE | ON / OFF |
|---------------|----------|

Decide whether schedule function is active or not.

|     |                                   |
|-----|-----------------------------------|
| DAY | UNDEFINED / ALL / WKD / SUN ~ MON |
|-----|-----------------------------------|

Set the day for scheduling.

- **Undefined:** Inactivate

- **All:** Applies to every day

- **WKD:** Applies to every day except Saturday and Sunday

- **SUN-MON:** Applies to designated day only

|      |                          |
|------|--------------------------|
| TIME | 00:00 ~ 23:59 (hour:min) |
|------|--------------------------|

Set the time.

|        |   |
|--------|---|
| ACT NO | HOM(HOME) / PRS(Preset) 1~255<br>/ SCN(Scan) 1~8 / PTN(Pattern) 1~4<br>/ GRO(Group) 1~8 |
|--------|---|

Set the function and no.

|    |          |
|----|----------|
| ON | ON / OFF |
|----|----------|

Decide to make this rule effective or not.

## 4 5 SCHEDULE SETUP - Assign Value

Each field (DAY, TIME, ACT, NO., ON) can be selected by Left/Right keys and the values in the field are changed using Up/Down keys.

# 3 OSD - FUNCTION SETUP > SCHEDULE SETUP

6

## SCHEDULE SETUP

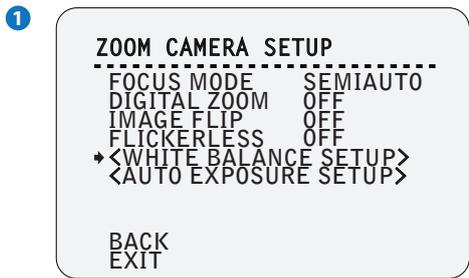
```
-----  
MASTER ENABLE          ON  
DAY TIME ACT NO ON  
1 MON 01:20 HOM 12 ON  
2 WED 07:00 PRS 12 ON  
3 THU 11:40 SCN 3 ON  
4 ALL 12:00 SCN 1 ON  
5 UNDEFINED  
6 UNDEFINED  
7 UNDEFINED  
BACK
```

### EX)

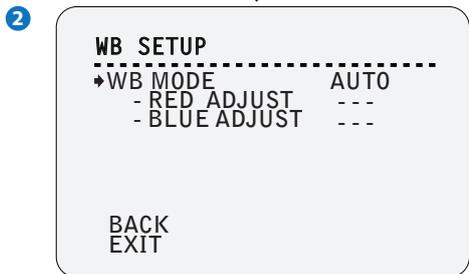
The second rule means camera will move to preset 12 position at 7:00 on every wednesday.

- ⊗ If there are rules conflicts to each other, the higher number is the higher priority has.
- ⊗ If you assign undefined function, there will be no action.
- ⊗ Using reserved preset, you can make various schedules.  
For example, PRS179 and PRS178 are 'DAY' and 'NIGHT' mode respectively.  
(Refer to Reserved Preset(page 18) list in this manual.)

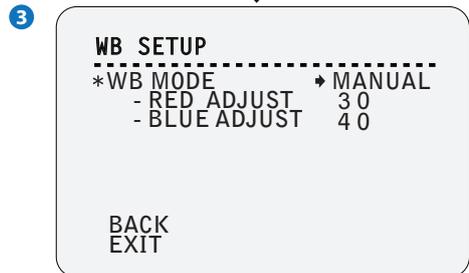
# 3 OSD - CAMERA SETUP > WB SETUP



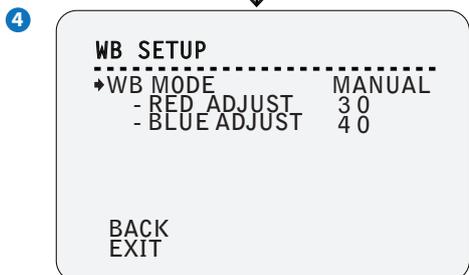
Press Near/Enter Key



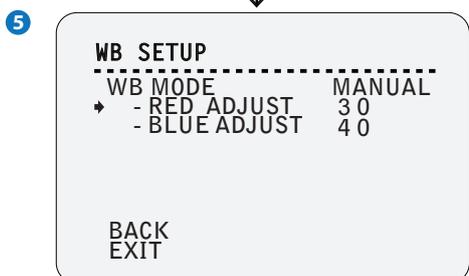
Press Near Key,  
Joystick Down



Press Near/Enter Key



Joystick Down



## 1 ZOOM CAMERA SETUP

Setup the general functions of zoom camera module.

**FOCUS MODE** AUTO / MANUAL / SEMIAUTO

Sets the camera focus mode.

- **SEMIAUTO**: This mode exchanges the focus mode automatically between manual focus mode and auto focus mode. Manual focus mode activates in preset operation and auto focus mode activates when jog operation starts.

- **MANUAL**: With manual mode at presets, focus data is memorized in each preset in advance and camera calls focus data in correspondence with presets as soon as camera arrives at a preset.

**DIGITAL ZOOM** ON / OFF

Sets digital zoom function to 'ON' or 'OFF'. If this is set to 'OFF', optical zoom function runs but zoom function stops at the end of optical zoom magnification.

**IMAGE FLIP** ON / OFF

Sets if the image should be reversed or not.

**FLICKERLESS** ON / OFF

Turns on or off the flickerless function. In this function, AE mode becomes shutter priority mode and shutter speed value will be fixed to 1/100 sec.

<WHITE BALANCE SETUP>

Starts 'WHITE BALANCE SETUP' setup screen.

<AUTO EXPOSURE SETUP>

Starts 'AUTO EXPOSURE SETUP' setup screen.

## 2 WB SETUP

**WB MODE** AUTO / MANUAL / ATW / AWC / OUTDOOR / INDOOR

- **AUTO**: Camera perform white balance automatically.

- **Manual**: R/B gain level can be set up manually.

- **ATW**: Auto White Balance is performed in the wider range of color temperature than that of the 'AUTO' mode.

- **AWC**: When right direction key is clicked, one time white balance is performed for current illumination condition and the value is kept.

- **INDOOR**: WB will be done under assumption of Indoor illumination.

- **OUTDOOR**: WB will be done under assumption of Sun light.

**RED ADJUST** 0 ~ 255

**BLUE ADJUST** 0 ~ 255

# 3 OSD - CAMERA SETUP > AE SETUP

1

| ZOOM CAMERA SETUP      |          |
|------------------------|----------|
| FOCUS MODE             | SEMIAUTO |
| DIGITAL ZOOM           | ON       |
| IMAGE FLIP             | OFF      |
| FLICKERLESS            | OFF      |
| <WHITE BALANCE SETUP>  |          |
| ▶<AUTO EXPOSURE SETUP> |          |
| BACK                   |          |
| EXIT                   |          |

Press Near/Enter Key

2

| AE SETUP     |         |
|--------------|---------|
| ▶WDR/BLC     | ALL OFF |
| DAY/NIGHT    | AUTO 1  |
| AE MODE      | AUTO    |
| ■IRIS LEVEL  | ---     |
| ■GAIN LEVEL  | ---     |
| ■SHUTTER SPD | ---     |
| ■BRIGHTNESS  | ---     |
| ■SENS-UP     | OFF     |
| BACK         |         |
| EXIT         |         |

2 AE SETUP

**WDR/BLC** ALL OFF / WDR ON / BLC ON  
Sets the backlight compensation.

**DAY/NIGHT** AUTO 1 / AUTO 2 / DAY / NIGHT  
'AUTO' exchanges day/night.

**AE MODE** AUTO / MANUAL / IRIS / SHUTTER / BRIGHT

- **AUTO**: Full auto mode for AE function

- **MANUAL**: In manual mode. 'IRIS', 'GAIN', 'SHUTTER SPEED' can be changed in this mode.

- **IRIS**: Iris priority mode. You can change iris while others are adjusted automatically.

- **SHUTTER**: Shutter priority mode. Shutter speed can be changed while while others are adjusted automatically.

- **BRIGHT**: In this mode, you can assign AE value in terms of brightness.

**IRIS LEVEL** CLOSE / F1.6 / F2 / F2.4 / F2.8 / F3.4 / F4 / F4.8 / F5.6 / F6.8 / F8 / F9.6 / F11 / F14 / F16 / F19 / F22 / F28 (18 steps)

Works when 'AE MODE' is 'MANUAL' or 'IRIS' mode.

**GAIN LEVEL** -3 / 0 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 24 / 26 / 28dB (16 steps)

Works when 'AE MODE' is 'MANUAL'.

Enhances image brightness automatically in case that luminance level of image signal is too low.

**SHUTTER SPD** x64 / x32 / x16 / x8 / x4 / x2 / 1/60 / 1/90 / 1/100 / 1/125 / 1/180 / 1/250 / 1/350 / 1/500 / 1/725 / 1/1000 / 1/1500 / 1/2000 / 1/3000 / 1/4000 / 1/6000 / 1/10000 (22 steps)

Works when 'AE MODE' is 'MANUAL' or 'SHUTTER' mode.

**BRIGHTNESS** 0~31 (32 steps)

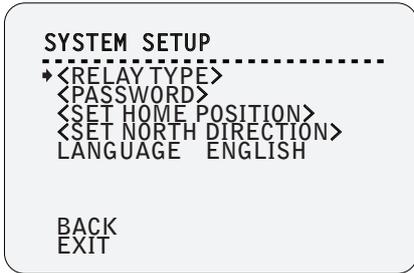
Works when 'AE MODE' is 'BRIGHT'.

Adjusts brightness of images. Iris, shutter speed and gain are adjusted automatically in correspondence with this value.

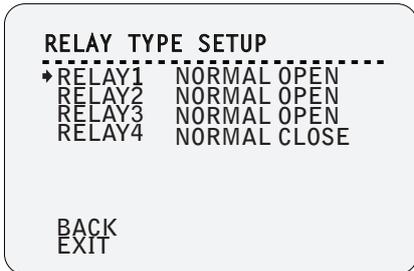
**SENS-UP** OFF / AUTO x2 / AUTO x4 / AUTO x8 / AUTO x16

# 3 OSD - SYSTEM SETUP

1



2



3



## 1 SYSTEM SETUP

<RELAY TYPE>  
Start 'RELAY TYPE' setup.

<PASSWORD>  
Start 'PASSWORD' setup.

<SET HOME POSITION>  
Starts 'SET HOME POSITION' setup.

<SET NORTH DIRECTION>  
Starts 'SET NORTH DIRECTION' setup.

LANGUAGE ENGLISH / ESPAÑOL / FRANÇAIS / DEUTSCH  
/ ITALIANO / РУССКИЙ / PORTUGUÊS

You can select a preferred Language of OSD display from 7 choices.  
After selecting a language, press near or enter key.

## 2 RELAY TYPE SETUP

RELAY1, 2, 3, 4 NORMAL OPEN(N.O) / NORMAL CLOSE(N.C)  
Contacts type of of 4ch. Relay out are defined.

## 3 EDIT PASSWORD

Sets the 4 characters long password. If this function is set to 'ENABLE', the password is required whenever you enter OSD menu.

⊠ The default password is '4321' and the master password is '- - > g'.

# 3 OSD - SYSTEM SETUP

5

## SET HOME POSITION

MOVE TO TARGET POSITION  
[NEAR:SELECT/FAR:CANCEL]  
0/0/x1/E

6

## SET NORTH DIRECTION

MOVE TO TARGET POSITION  
[NEAR:SELECT/FAR:CANCEL]  
0/0/x1/N

### 5 SET HOME POSITION

Home position means the origin of pan angle calculation. The value of pan angle displayed on the screen is based on this home position.

By using joystick, move the camera to the desired position and press near key.

Home is not effective to tilt angle.

If you change the location of the home position, all horizontal location of functions such as preset, scan, pattern, group and privacy zone mask will be shifted based on the changed home position.

If there are no setup for those functions like preset, pattern, scan, group camera will automatically move to home position after rebooting.

If power up action is set to be on, camera will continue the function which is executed lastly after rebooting.

#### ⊠ Set Home Position?

When you replace the camera block or the orientation of camera is changed due to maintenance operations, it is very difficult to maintain the same pan orientation. Therefore, all function data maintain on pan orientation such as preset, scan, pattern, group and privacy zone mask are not useful any more accordingly.

However, even in this case, you can reuse the data if you redefine set home position on the previous home position.

### 6 SET NORTH DIRECTION

By using joystick, move the camera to the desired north position and press enter (near/save).

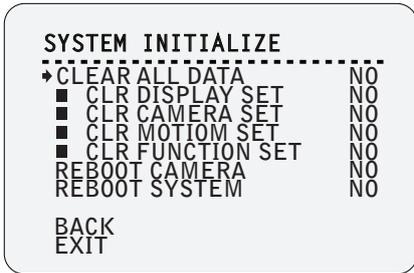
The direction will be displayed in the screen



Direction will be displayed from:

N(North) / S(South) / E(East) / W(West) / NE(Northeast) / NW(Northwest) / SE(Southeast) / SW(Southwest).

# 3 OSD - SYSTEM INITIALIZE



## SYSTEM INITIALIZE

|   |          |  |
|---|----------|--|
| <b>CLEAR ALL DATA</b>   | YES / NO |  |
| Deletes all configuration data such as display, camera, motion setup and so on. |          |  |
| <b>CLR DISPLAY SET</b>  | YES / NO |  |
| Initializes display configuration.  |          |  |
| <b>CLR CAMERA SET</b>   | YES / NO |  |
| Initializes camera configuration.   |          |  |
| <b>CLR MOTION SET</b>   | YES / NO |  |
| Initializes motion configuration.   |          |  |
| <b>CLR FUNCTION SET</b>   | YES / NO |  |
| Deletes preset data, scan data, pattern data, group data and schedule data.     |          |  |
| <b>REBOOT CAMERA</b>  | YES / NO |  |
| Reboots zoom camera module.   |          |  |
| <b>REBOOT SYSTEM</b>  | YES / NO |  |
| Reboots speed dome camera.  |          |  |

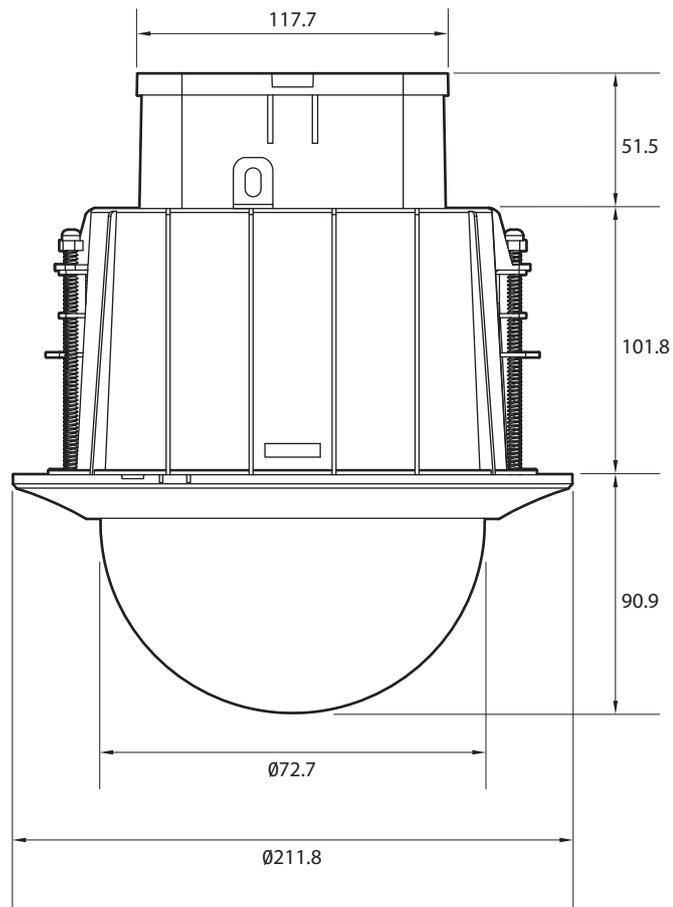
### ※ Initial Configuration Table

|                         |           |               |
|-------------------------|-----------|---------------|
| <b>Camera ID</b>        | ON        |               |
| <b>PTZ Information</b>  | AUTO      |               |
| <b>Action Title</b>     | AUTO      |               |
| <b>Preset Label</b>     | AUTO      | Display       |
| <b>Alarm I/O</b>        | AUTO      |               |
| <b>Date/Time</b>        | ON        |               |
| <b>Privacy Zone</b>     | Undefined |               |
| <b>Preset Lock</b>      | OFF       |               |
| <b>Power Up Action</b>  | ON        |               |
| <b>Auto Flip</b>        | ON        |               |
| <b>Jog Max Speed</b>    | 140°/sec  | Motion        |
| <b>Jog Direction</b>    | NORMAL    |               |
| <b>Freeze In Preset</b> | OFF       |               |
| <b>Park Action</b>      | OFF       |               |
| <b>Alarm I/O Action</b> | OFF       |               |
| <b>Preset 1~255</b>     | Undefined |               |
| <b>Auto Pan 1~8</b>     | Undefined |               |
| <b>Pattern 1~4</b>      | Undefined | Function      |
| <b>Scan 1~8</b>         | Undefined |               |
| <b>Schedule 1~7</b>     | Undefined |               |
| <b>Focus Mode</b>       | SEMIAUTO  |               |
| <b>Digital Zoom</b>     | OFF       |               |
| <b>Image Flip</b>       | OFF       |               |
| <b>Flickerless</b>      | OFF       |               |
| <b>White Balance</b>    | AUTO      |               |
| <b>Backlight/BLC</b>    | ALL OFF   |               |
| <b>Day/Night</b>        | AUTO 1    | Camera        |
| <b>AE Mode</b>          | AUTO      |               |
| <b>Iris Level</b>       | -         |               |
| <b>Gain Level</b>       | -         |               |
| <b>Shutter Speed</b>    | -         |               |
| <b>Brightness</b>       | -         |               |
| <b>Sens-up</b>          | -         |               |
| <b>Protocol</b>         | AUTO      |               |
| <b>Baud Rate</b>        | 2400      | Communication |

# 4 Specifications - Dimension

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Unit: mm



# 4 Specifications - Specification

## Camera

|                  |   |
|------------------|---|
| Image Device     | 1/4" Sony Ex-View CCD   |
| Total Pixel      | <b>NTSC</b> : 811 (H) × 508 (V) 410K Pixels • <b>PAL</b> : 795 (H) × 596 (V) 470K Pixels  |
| Effective Pixel  | <b>NTSC</b> : 768 (H) × 494 (V) 380K Pixels • <b>PAL</b> : 752 (H) × 582 (V) 440K Pixels  |
| H. Resolution    | Color: 530 TV Lines • B/W: 570 TV Lines   |
| S/N Ratio        | 50 dB (AGC Off)   |
| Zoom             | x36 Optical Zoom & x12 Digital Zoom (Total x432)  |
| Focal Length     | f = 3.4 (W) ~ 122.4 (T) mm, F1.6 (W) ~ 4.5 (T)  |
| Angle of View    | H: 57.8° (W) ~ 1.7° (T) • V: 43.35° (W) ~ 1.27° (T)   |
| Min. Illuminance | Color: 1.4 Lux (Sens up Off), 0.088 Lux (Sens up x64) @ 50 IRE<br>B/W: 0.15 Lux (Sens up Off), 0.0094 Lux (Sens up x256) @ 50 IRE |
| Shutter Speed    | <b>NTSC</b> : x64 ~ x2, 1/60 ~ 1/10,000 sec. • <b>PAL</b> : x64 ~ x2, 1/40 ~ 1/10,000 sec.  |
| Day & Night      | Auto / Day / Night (ICR)  |
| Focus            | Auto / Manual / Semi-Auto   |
| Iris             | Auto / Manual   |
| White Balance    | Auto / ATW / Manual / Indoor / Outdoor / One Push (Red&Blue Gain adjustable)  |
| AGC              | Auto / Manual (-3 ~ 28 dB)  |
| DNR              | N/A   |
| DIS              | N/A   |
| BLC              | All Off / BLC / WDR   |
| WDR              | On / Off  |
| Other Functions  | Frame Freeze Function, System Image Flip by Installation Type   |

## Pan/Tilt

|                 |   |
|-----------------|---|
| Pan Range       | 360° (Endless)  |
| Tilt Range      | 0° ~ 180° (Auto-Flip On) • 0° ~ 90° (Auto-Flip Off)                                   |
| Pan/Tilt Speed  | Preset: 360°<br>Scan: 1° ~ 180°/sec.<br>Manual: 0.05° ~ 200°/sec. (Zoom Proportional) |
| Preset          | 255 Presets with Labels / Independent Camera Setup                                    |
| Pattern         | 4 Patterns  |
| Scan            | 8 Scans   |
| Group           | 8 Groups (Max. 20 Entities per Group)   |
| Schedule        | 7 Rules (Condition: Day, Time → Action: Preset, Scan, Group, Pattern)                 |
| Other Functions | Image Auto Flip, Auto Parking, Power-up Action & etc.                                 |

## General

|                 |  |
|-----------------|--|
| Video Out       | 1.0 V p-p / 75Ω / BNC  |
| Communication   | RS-485   |
| Protocol        | Auto, Pelco-D/P, Samsung, Panasonic, GE(Kalatel), AD(American Dynamics) Selectable   |
| Privacy Zone    | 8 Zones  |
| Sensor In/Out   | Built-in 8 Input / 4 Relay Output  |
| OSD             | Menu, PTZ Information, etc., Support 7 Languages:<br>ENGLISH / ESPAÑOL / FRANÇAIS / DEUTSCH / ITALIANO / РУССКИЙ / PORTUGUÊS |
| Power           | AC 24 V, 24 W (Heater Off) / 55 W (Heater On)  |
| Approvals       | FCC, CE, IP66, RoHS  |
| Outdoor Housing | Weather Proof, Vandal Proof Structure, White Pearl Color   |
| Material        | Body: Aluminum Die-casting • Clear Bubble: Polycarbonate   |
| Weight          | 4.5 Kg   |
| Operating Temp. | AC: -45° ~ 50° C (-49° ~ 122° F)   |