Integrated Positioning System

Installation/Operation Manual

Model

ZC-PT437 / ZC-PTW437

Contents

Safety

Safety Regulations

The purpose of the Safety Regulations is to prevent the risk of damage to property and user's health.

Please read the following precautions carefully.

Detailed Safety standards are as follows:

 **Warning** Failure may result in death or serious injury.

 **Caution** Failure may result in personal injury or property damage.

 **INFO** This symbol is the indication of detailed specifications of the products. Please read this section to understand the detailed menu.

- Please read the manual and use the product in accordance with the instructions.
- Please heed all warnings.

Power	**Warning**	**When connecting the power supply, check the external connection terminal.** - Incorrectly connecting power supply may cause fire, electric shock, or product failure. **Stop using the product, when there is smoke or strange smell.** - In such case, immediately disconnect the power source and contact the service center. Continued use may cause fire or electric shock. **Unplug the power supply, when there is a lightning, and storm** - This may cause a fire or product failure.
	Caution	**Firmly connect the power cord to the power connector before use.** - A loose connection may cause a fire.
Installation	*Warning*	**Must use the adapter that is provided when you purchased our product.** - Using other adapters may cause fire, electric shock, or product failure.
	Caution	**When installing the camera on a wall or ceiling, fasten it securely and firmly.** - The camera may fall and cause serious damage. **Do not place conductive objects or water containers on top of the camera.** - May cause fire, electric shock, or injury. **Do not connect multiple cameras to a single adapter.** - Exceeding the capacity may cause abnormal heat or fire. **Personal construction is prohibited.** - The construction requires experience and technic; contact your dealer for construction. Personal construction may have danger of fire or electric shock. **Do not insert any foreign objects or decompose the product**. - May cause product failure or fire. **Do not install the product where the product can be exposed to radiation**. - Radiation exposure may cause damage to the product.

Cleaning	*Note*	**Do not directly spray the water onto any parts of the product.** - May cause fire or electric shock. **Gently wipe the surface with a dry cloth.** - Never use chemical substances or detergents, using them will damage the painted surface.
Note		**Do not install the product in places where there is a lot of moisture, dust or soot.** - May cause fire, or electric shock. **Do not drop any objects on the product or apply strong impact.** - Keep away from excessive vibration or strong magnetic influence. **Do not install in a location where temperature is too high (55℃ or higher) or low temperature (-40℃ or below) or high humidity.** - May be a cause of fire, or electric shock. **Keep away from heat vents or heating appliances.** - May be a cause of fire, or electric shock. **If you want to relocate already installed product, be sure to turn off the power before moving or reinstalling.** - May cause a fire or electric shock. **Install at well-ventilated locations.** - May cause a fire or electric shock.

FCC Statement

This equipment complies with Part 15 of the FCC Rules and operates in accordance with two terms below.

(1) This equipment may not cause harmful interference.

(2) This equipment accepts any interference received, including interference that may cause undesired operations.

CAUTION

This equipment has been tested and certified against the limits for a Class A Digital Device Regulations in compliance with the provision of Part 15 of FCC Rules. These limitations are designed to provide reasonable protection against harmful interference from the equipment installed in a residential area. This equipment generates and uses radio frequency energy and able to release radio frequency energy, therefore, installing this equipment not in accordance with the instruction manual may cause harmful interference to radio communications.

However, in special cases, there may be interference even though the equipment has been properly installed.

IC Compliance Notice

This Class A digital equipment meets all the requirements of the Canadian Interference-Causing equipment Regulations regarding equipment that may cause interference.

The Proper disposal of the product (Electrical, electronic equipment disposal classification)

Means that this product should not be disposed together with other house hold wastes. Therefore, this equipment should be disposed at a designated collection point for recycling or disposing electrical and electronic wastes. Properly disposing and recycling electrical, electronic wastes will protect your health and the environment, and conserves natural resources. Contact your local city office, the waste disposal company, or the shop where you purchased the product for detailed disposal or recycling locations.

CAUTION

Only qualified service personnel can use all the service instructions. In order to reduce danger of electric shock, or other hazards, services that are not included in the operating instructions may by prohibited.

Precautions

1. This product must be installed in the vertical direction. Please do not install the product upside down and other directions.
2. Please use strong safety chain while installing the product in order to avoid a hazard such as product falling.
3. When using a wall mount, ensure sufficient strength of the screw to prevent the product from falling.
4. Take extra care while moving the product to prevent damage to the product.
5. When connecting power, communication, video and IR lamp through cable gland, seal with tape to prevent the infiltration of water.
6. Please turn off the product when opening the housing in order to install the product.
7. Always use rated adapter.
8. Please use the power adapter that has greater power capacity than AC 24V AC, 6A. (UL Listed Class 2 Adapter

Product Overview

Features

- **Various protocols and coaxial communication**

  RS-422/485 communication and Coaxial(Pelco-C) communication is provided.

  -RS-422/485 (10 types) : SAMSUNG-T, SAMSUNG-E, Pelco(D/P), Panasonic, Honeywell, AD, Vicon, GE, Bosch.

  -Coaxial communication : PelcoCoaxitron (auto detection)

- **Wide Range Auto Security Functions**

  -Preset storage mode : Maximum 12 presets can be saved, and optimal video can be gained. (CAP-370/1)

  -Image Holding : Provides Preset Freeze to reduce the eye fatigue of the observer when moving the group.

  -PTZ Trace : Joy-Stick manipulation pattern command can be saved and replayed.

  -Scan : The swing function enables camera to move between 2 select locations and monitor the path.

  -Group Search : up to 319 preset positions can be monitored in order.

- **Masking**

  If a monitoring location includes a highly private area, the area can be selectively masked on the screen.

- **Propotional P/T (Main->P/T->Speed Limit-> Prop. P/T)**

  The Proportional P/T function automatically adjusts the control speed of the Pan and Tilt functions according to the current zoom ratio. It is useful to adjust the functions manually for detailed controls when monitoring at high zoom ratios.

- **Day & Night**

  With its daytime & nighttime switch and Sens-Up functions based on the ICR (Infrared Cut filter Removal), the camera provides high quality pictures regardless of whether it is day or night.

  - Sens-Up increases the CCD sensitivity by electrically extending the camera's exposure time.

  - Day & Night enables you to select between color and B/W modes depending on the lighting conditions.

- **OSD(On Screen Display)**

  The camera IDs, camera preset numbers, preset names, area names, and camera operation status are displayed on the monitor, allowing set up of various camera functions through the OSD menu screen.

- **Preset Position Saving and Loading**

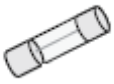
  Up to 319 preset positions can be set.

  Using this function saves and recalls the camera feed of a selected monitoring location.

Components

Check if the following items are included in the product package.

ZC-PT437/ ZC-PTW437



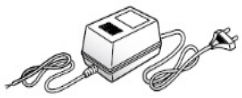
Fuse (8A, 1EA)

Quick Manual 1EA

L-type Wrench (4mm)

Options

The following items are optional and sold separately.



Adapter (AC 24V 6A)

Mounts

The following items are optional and sold separately.

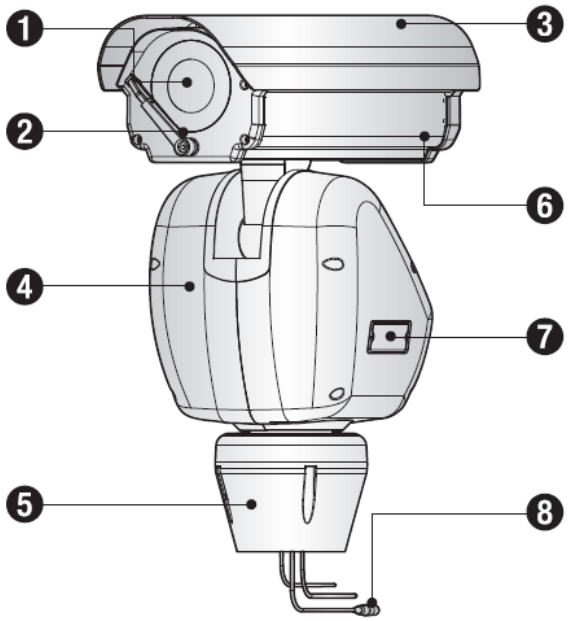
Pole Mount

Wall Mount

Light Bracket

Product Configuration

Appearance



[ZC-PT437, ZC-PTW437]

❶ **Lens**

❷ **Wiper** : Use it to wipe out the front glass of the housing.

❸ **Sun Shield**

❹ **Main Body**

❺ **Base Block**

❻ **Housing**

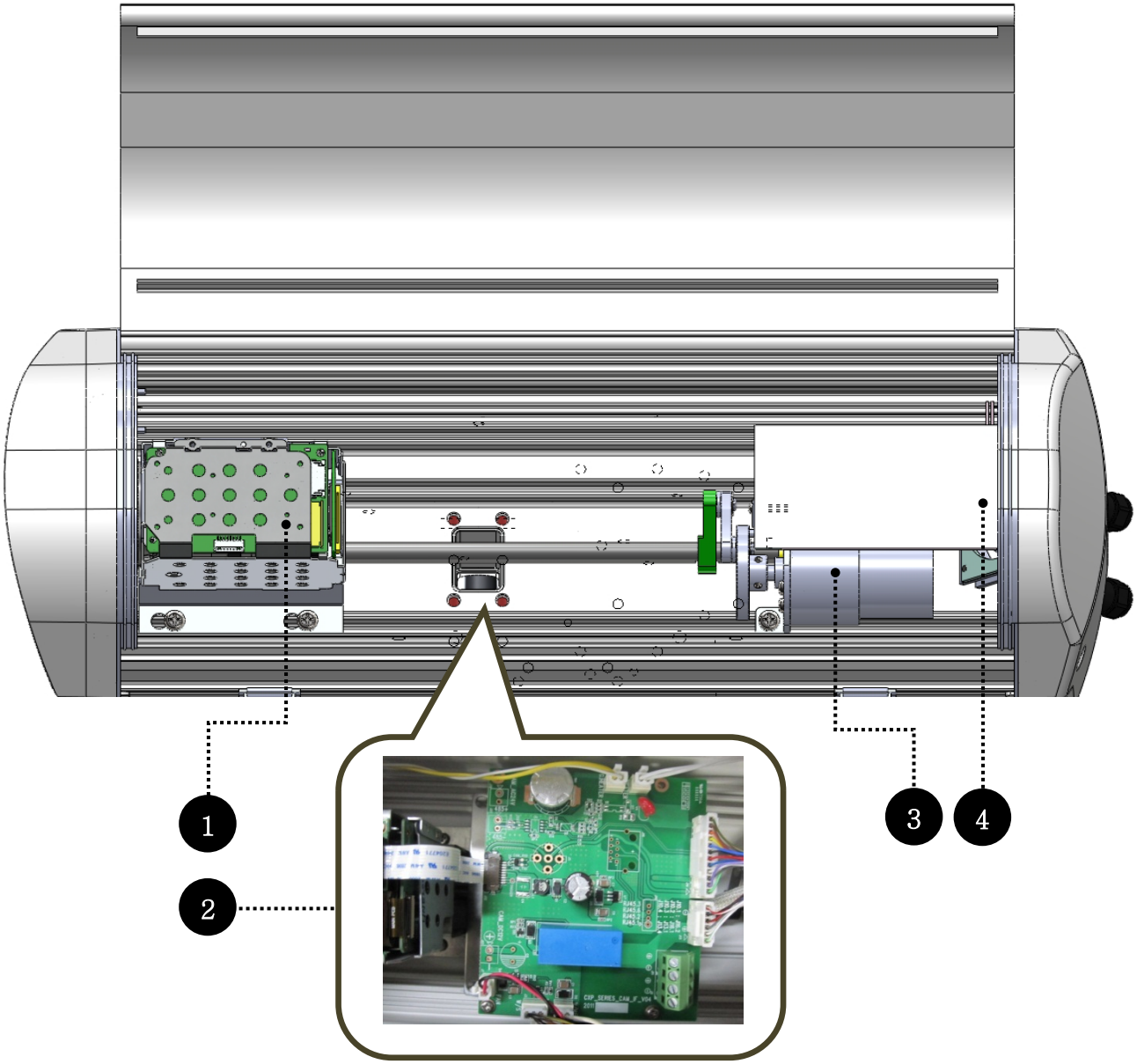
❼ **Communication/ ID Setup Switch**

❗ Reference the page **18** for switch setup.

❽ **Video Output Cable**

Installation and Connection

Connecting Lens and Camera



❶ User's camera and lens
❷ Camera Control Board
❸ Wiper Motor
❹ Fan & Heater

Connection example of ADL 2MG-M1035DP model

BD Label	5V	GND	F_P	Z_P	F.NEAR	F.FAR	Z.IN	Z.OUT
Lens Label	F&Z Poten. Zoom Tele Focus Far	F&Z Poten. Zoom Wide Focus Near	F&Z Poten. Focus Wiper	F&Z Poten. Zoom Wiper	Focus&Zoom Focus- NEAR TO FAR	Focus&Zoom Focus+ NEAR TO FAR	Focus&Zoom Zoom+ WIDE TO TELE	Focus&Zoom Zoom- WIDE TO TELE
Lens Label Color	GRAY,PURPLE	BLACK, GREEN	BLUE	WHITE	GREEN	BLACK	YELLOW	RED

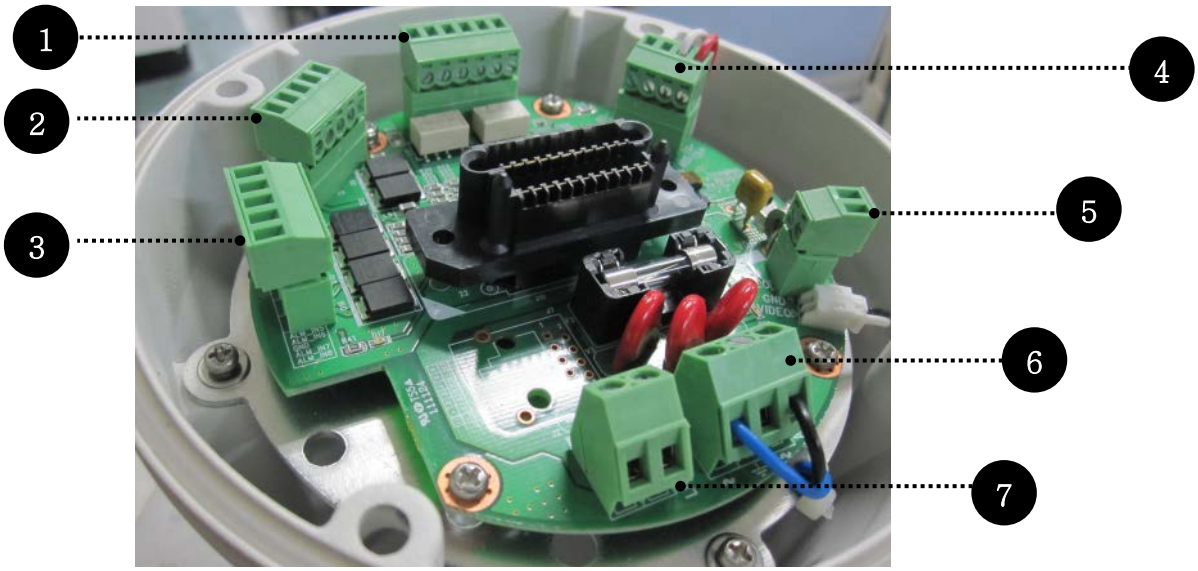
Connection example of SPACECOM HZ8136RDC-MP PZF 4W model

BD Label	5V	GND	F_P	Z_P	F.NEAR	F.FAR	Z.IN	Z.OUT
Lens Label	POT Zoom Tele Focus Far	POT Zoom Wide Focus Near	POT Focus Wiper	POT Zoom Wiper	Z/F Focus +FAR	Z/F Focus COM	Z./F Zoom COM	Z/F Zoom +Wide
Lens Label Color	YEL , BRN	GRY, ORG	GRN	RED	GRN	WHT	BLK	RED

Connecting Camera Communication Board(Interface Board)

Refer to the picture below for the wiring of the product.

(When using Coaxial communication, there will not be any extra wiring needed.)



❶ Alarm Output

❷ Alarm Input (1ch ~ 4ch)

❸ Alarm Input (5ch ~ 8ch)

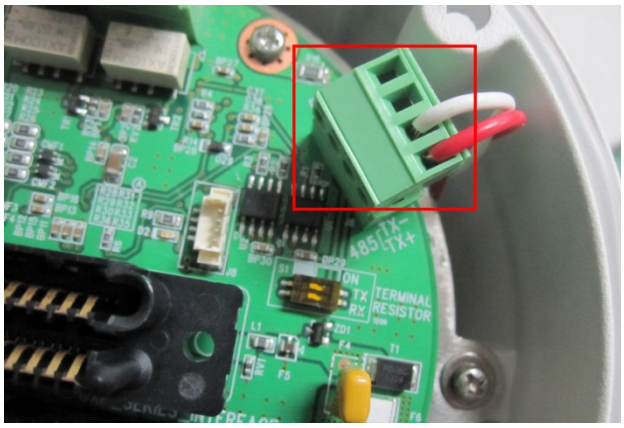
❹ Communication Connector

❺ Video Connector

❻ Main Power (AC 24V)

❼ Illuminator Power (varies depending on the user's IR request. Convex IR uses DC12V~24V.)

Diagram of Communication/Control Signal

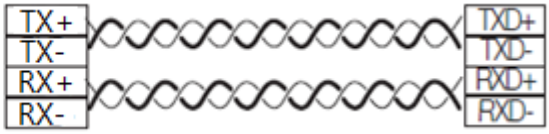


· RS-485 Communication

Positioning Controller or DVR

· RS-422 Communication

Positioning Controller or DVR



For more precise text information, refer to the silk screen text of the board

·Alarm Connection

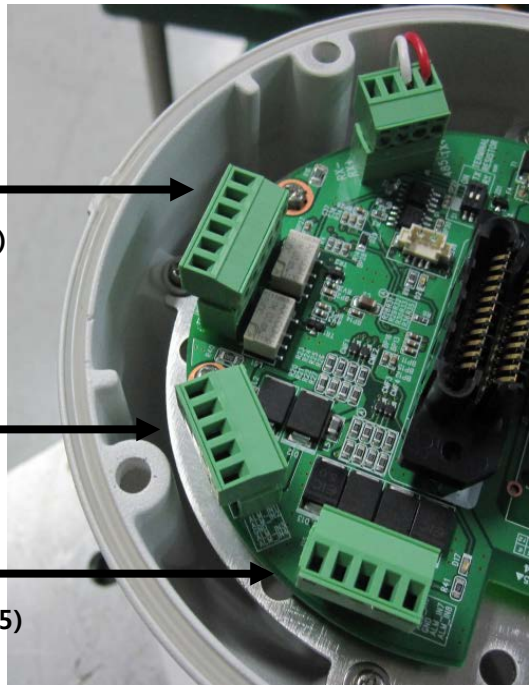
·Alarm Output

NO1 ~ NC2
(Connector Number : J4)

· Alarm Input

ALM_IN 1 ~ 4ch
(Connector Number : J3)

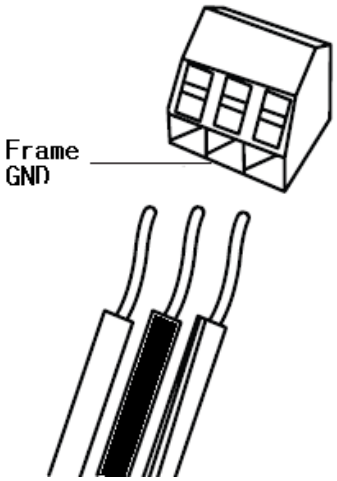
ALM_IN 5 ~ 8ch
(Connector Number : J15)



Name	Descriptions
ALM_IN1	Alarm Signal Input 1
ALM_IN2	Alarm Signal Input 2
GND	Ground
ALM_IN3	Alarm Signal Input 3
ALM_IN4	Alarm Signal Input 4
ALM_IN5	Alarm Signal Input 5
ALM_IN6	Alarm Signal Input 6
GND	Ground
ALM_IN7	Alarm Signal Input 7
ALM_IN8	Alarm Signal Input 8

Name	Descriptions
NO1	Normal Open 1
COM1	Common 1
NC1	Normal close 1
NO2	Normal open 2
COM2	Common 2
NC2	Normal close 2

Connecting Power



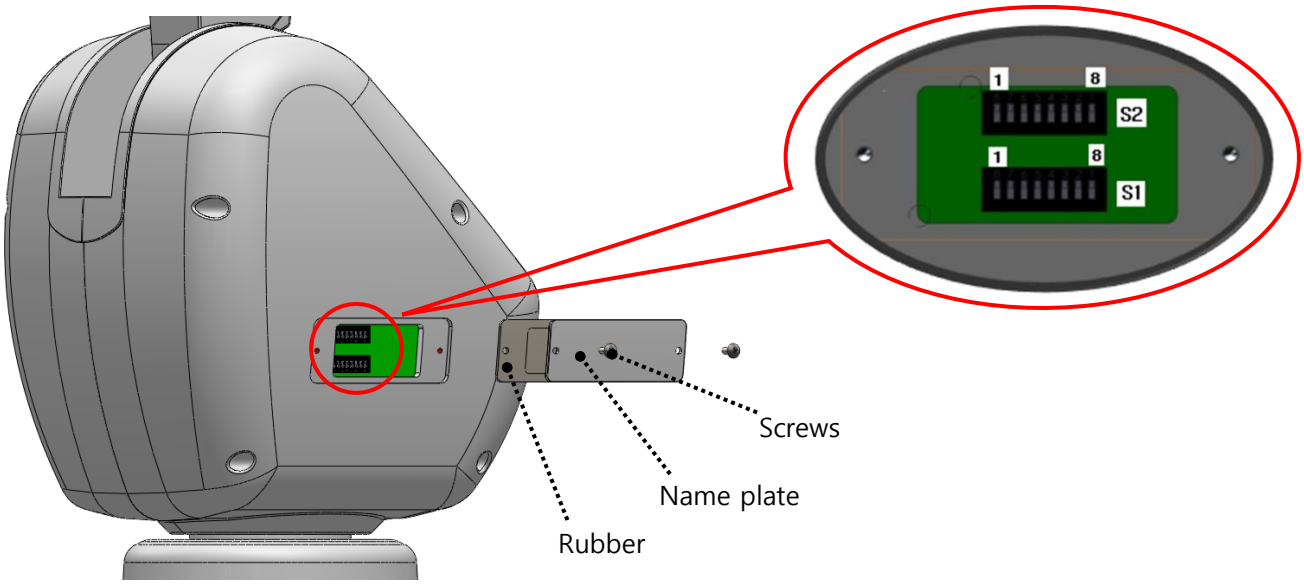
The Power adapter (AC/DC) has no polarity.

- The maximum power capacity of the built-in relay is 30VDC/2A, 125VAC/0.5A, and 250VAC/0.25A.
- A separate relay driver device is required if used with an adaptor which exceeds specified nominal specifications.
- Connecting the power connector and GND incorrectly to the NC/NO and COM ports may cause a short circuit and fire, damaging the internal electronic part.

COMMUNICATION PROTOCOL DIP SWITCH SETTINGS

Coaxial communication automatically detects signals, and so does not require a separate communication setup process.

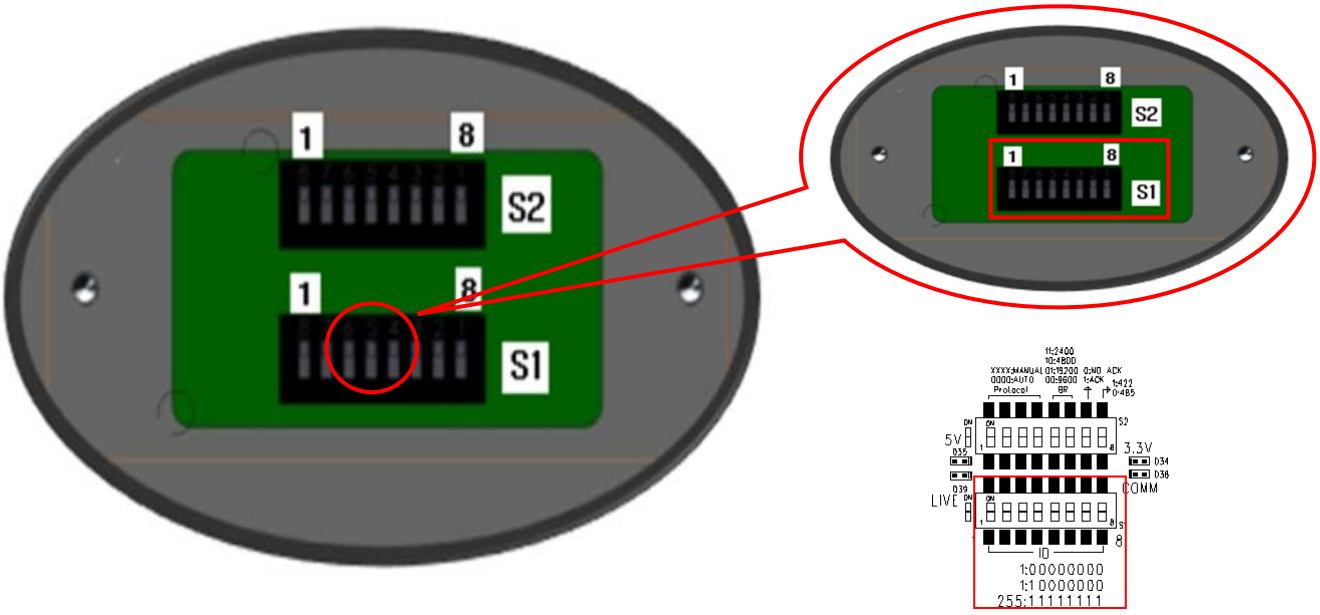
In automatic protocol, it can be used to any compatible controller of the next page table.



SW	Purpose
1	ID
2	Protocol, Communication type, Ack, Etc.

CAMERA ID DIP SWITCH SETTINGS (S1:1~8)

Assign a unique number for each camera.



The initial value of the switch is "0", and all of the 8 switches are defaulted to OFF.

Each switch has a unique value, and the ID is the sum of the values of the switches.

S1-DIP	1	2	3	4	5	6	7	8
Value	1	2	4	8	16	32	64	128

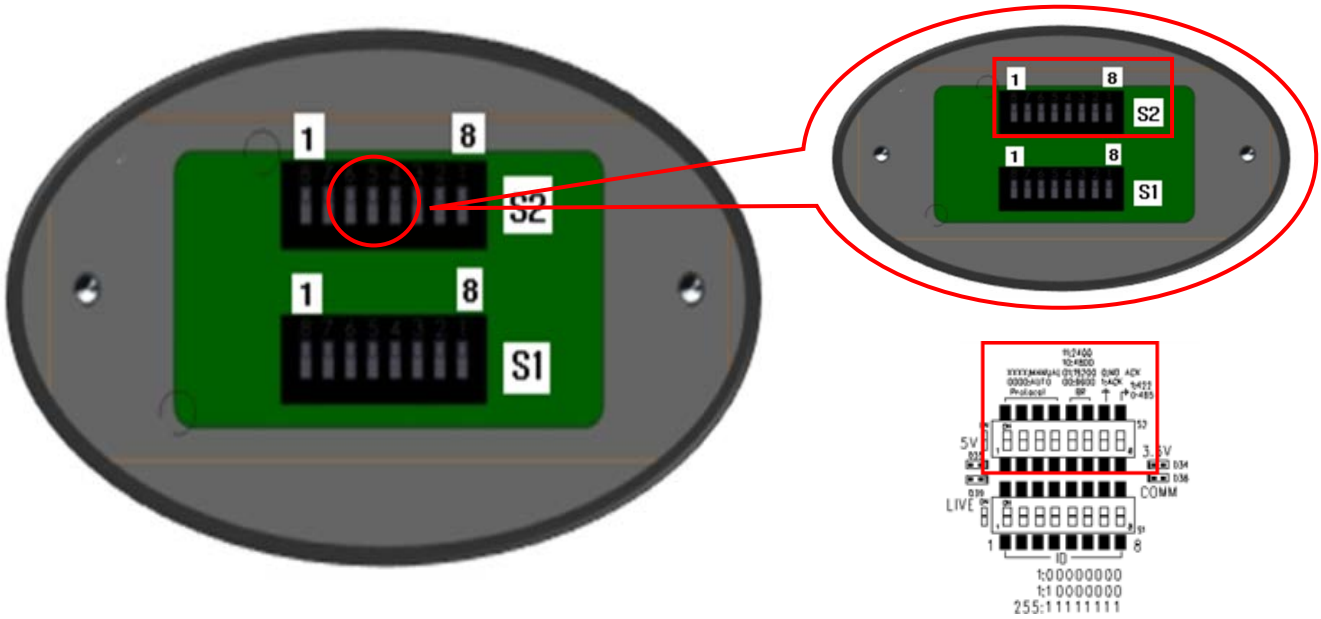
■ Example of Camera ID settings (On: Off:)

Example 1	Example 2	Example 3
		
0+0 = 0 (ID = 1*)	**2+4 = 6 (ID = 6)**	**1+2+4+8+16+32+128 =191 (ID = 191)**

- □ Use a unique ID for each Camera.

The summation values is "0", it is recognized to ID "1".

Protocol(S2:1~4)



Select a Communication protocol for the camera

No	Protocol	S2-4	S2-3	S2-2	S2-1
0	Automatic	OFF	OFF	OFF	OFF
1	CyberScan-I	OFF	OFF	OFF	ON
2	Pelco-D,Pelco-P	OFF	OFF	ON	OFF
3	SAMSUNG-T	OFF	OFF	ON	ON
4	SAMSUNG-E	OFF	ON	OFF	OFF
5	Panasonic	OFF	ON	OFF	ON
6	Vicon	OFF	ON	ON	OFF
7	Honeywell	OFF	ON	ON	ON
8	AD	ON	OFF	OFF	OFF
9	GE	ON	OFF	OFF	ON
10	BOSCH	ON	OFF	ON	OFF

Baud Rate Settings (S2: 5,6)

Select a transfer speed of a selected communication protocol.

No	Baud Rate(BPS)	S2-5	S2-6
1	2,400	ON	ON
2	4,800	ON	OFF
3	9,600	OFF	OFF
4	19,200	OFF	ON

In order to use a third party controller with this product, please contact our Sales Department.

- The product's DIP switch is set to OFF when shipped, and the default values are presented as shadowed in corresponding settings table.

Communication Response Settings (S2: 7)

Select a communication response method for the camera and controller: On or Off.

	Function	ON	OFF
S2-7	Ack. Switch	Ack.	No Ack.

Communication Method Settings (S2:8)

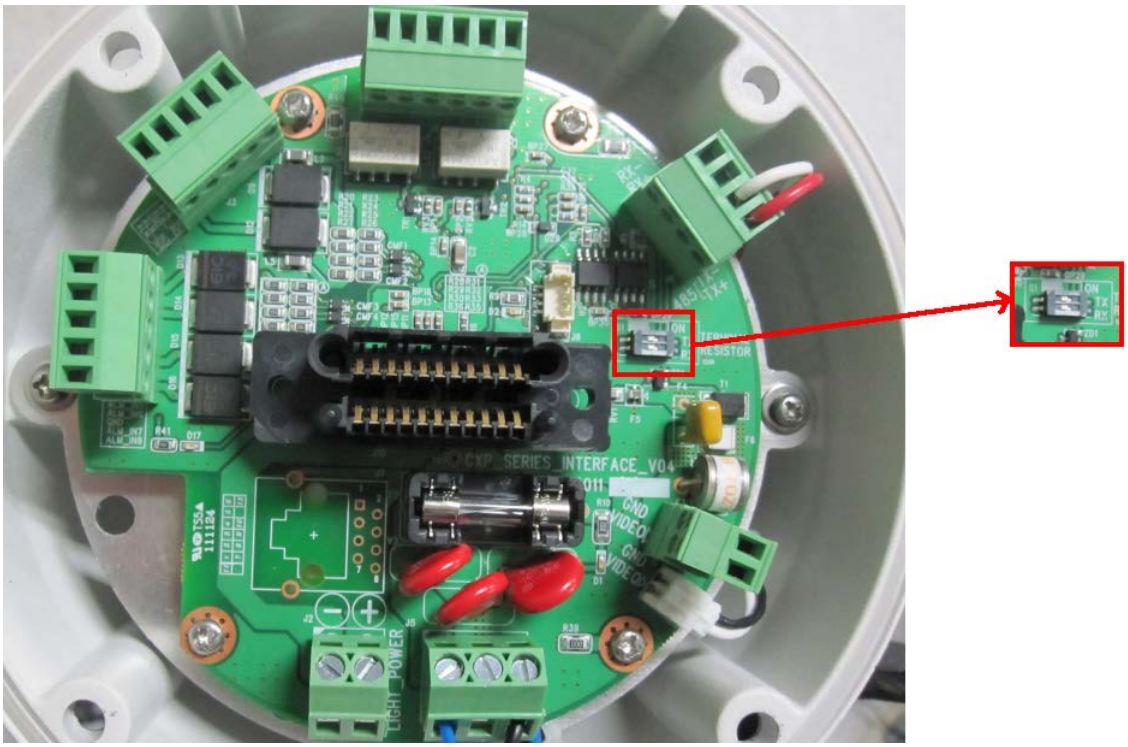
Select a communication method for the camera.

	Function	ON	OFF
S2-8	Communication Mode Switch	RS-422(4Wire)	RS-485(2Wire)

Termination Settings

To prevent the attenuation of communication signals between the camera and controller, the items at the end of line must be set up with the termination settings.

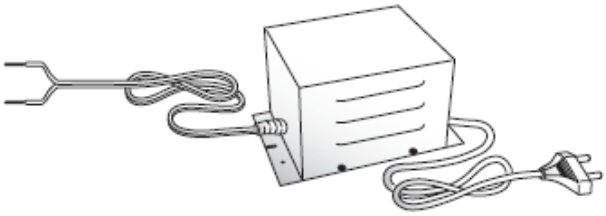
Termination	S1-1		S1-2	
	ON	OFF	ON	OFF
Terminal Resistance RS-422 RX, RS-485	Terminated	Not Terminated	-	-
Terminal Resistance RS-422 TX	-	-	Terminated	Not Terminated



Optional Adapter

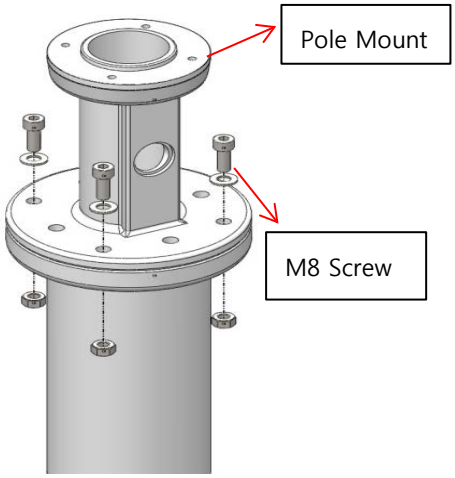
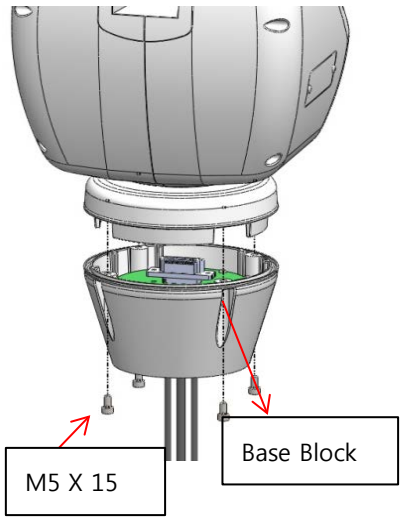
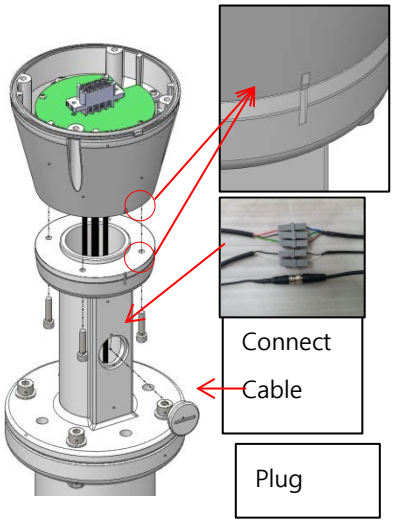
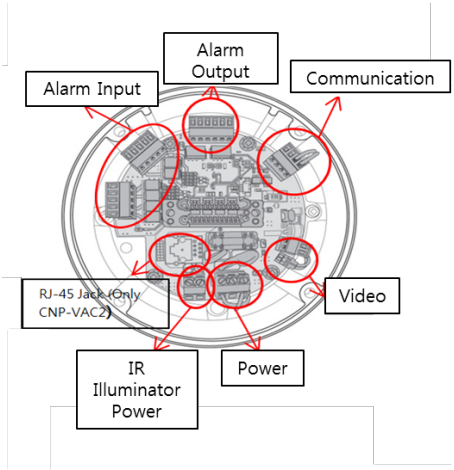
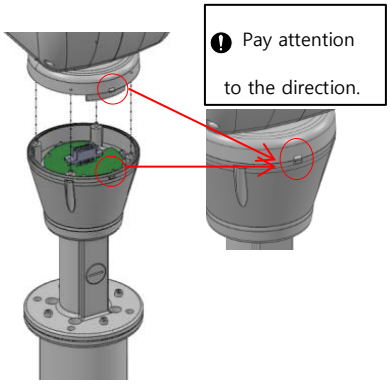
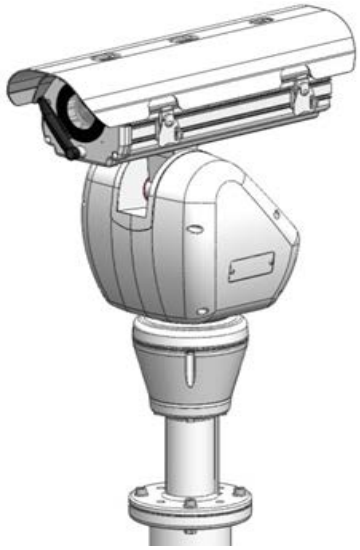
- **Power Adapter**

Power adapter has the capacity of AC24V 6A. (UL Listed Class 2 Adapter)

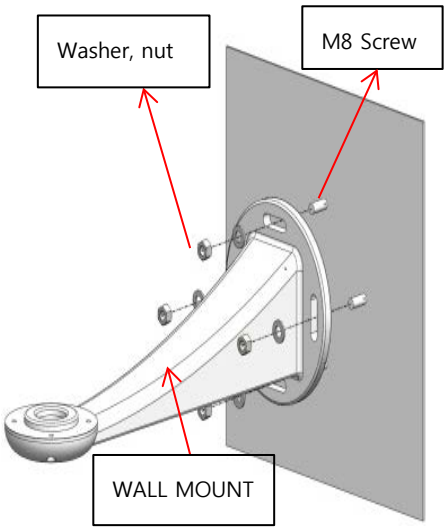
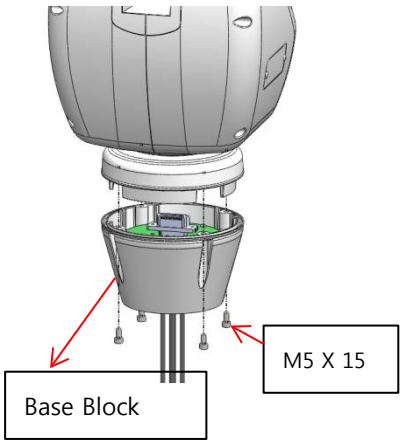
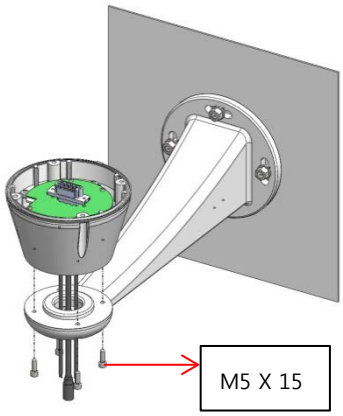
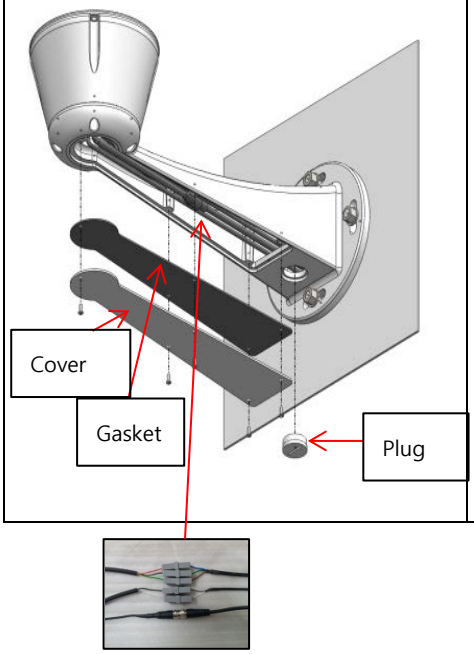
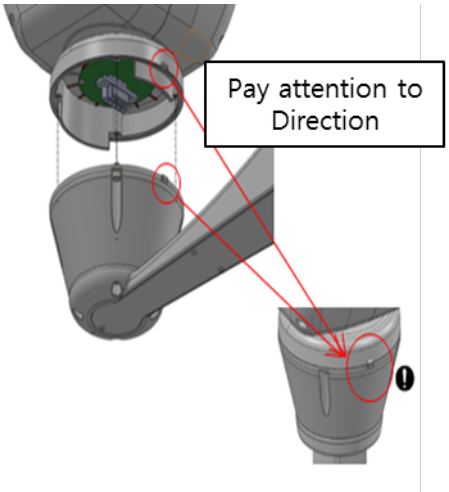
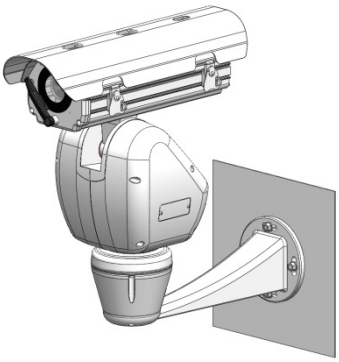


Assembly & Installation

Using POLE Mount

1. Fix 4 hex screws to secure the pole mount on the base.	2. Disassemble base block from the main body.	3. Fix 4 hex screws to secure the base block on the pole mount. Connect cables and close the plug.
		
⚠ **Reference- Wiring Diagram**	**4. Fix housing and main body set to the base block. The lower portion and the upper portion of the base block is designed to have only one way direction.** **The convex portion is the fastening point. (Blind Mating Design)**	**4. Finish the Installation.**
		

Using WALL Mount

1. Fix 4 hex screws to secure the wall mount on the wall.	2. Disassemble base block from the main body.	3. Connect base block cable of the product to the Wall Mount and fix it using 4 hex screws
		
4. Connect the cables through the bottom of the wall mount and close the gasket & plate of the Wall Mount.	**5. Fix housing and main body set to the base block. The lower portion and the upper portion of the base block is designed to have only one way direction. The convex portion is the fastening point. (Blind Mating Design)**	**6. Finish the Installation.**
		

⚠	• **Do not connect the camera to a power outlet until the installation is complete.** **Supplying power in the middle of the installation may cause fire or damage the product.** • **Ensure that the housing is closed completely before you turn on the product.** **Do not reset the system with the housing open. Otherwise, it may cause damage to the product.**

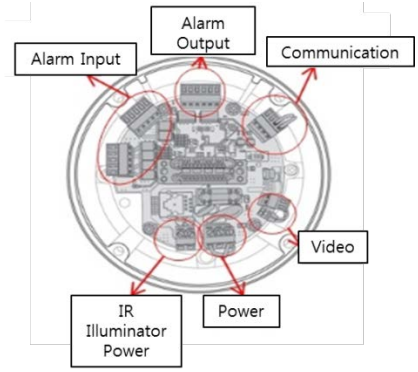
Installing the LIGHT BRACKET

1. Cable connection

Connect Light adapter to j2 on base block.

*** Refer to the first image on the right :**

IR Illuminator Power on Base Block

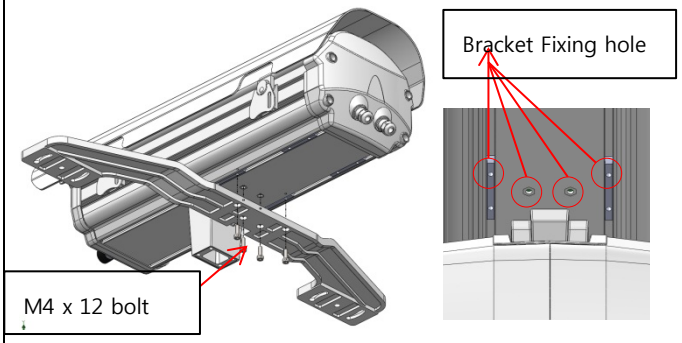


The max. power voltage is 50V/6A.

Be careful about polarity when using DC power

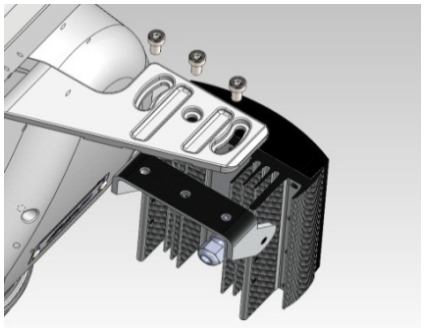
2. Fasten 4 hex screws to secure the Light Bracket at the bottom side of the camera housing.

(4x12, spring washer)



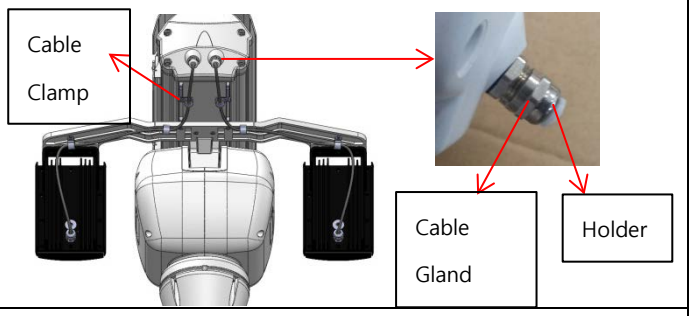
3. To secure the light projector on the bracket, fasten 3 hex screws through the holes prepared on the boundary of the bracket, from the bottom side. Fix the center hex screw from the upper side of the bracket mount towards the light projector.

*** Mounting and securing the light projector may vary depending on the light projector type.**



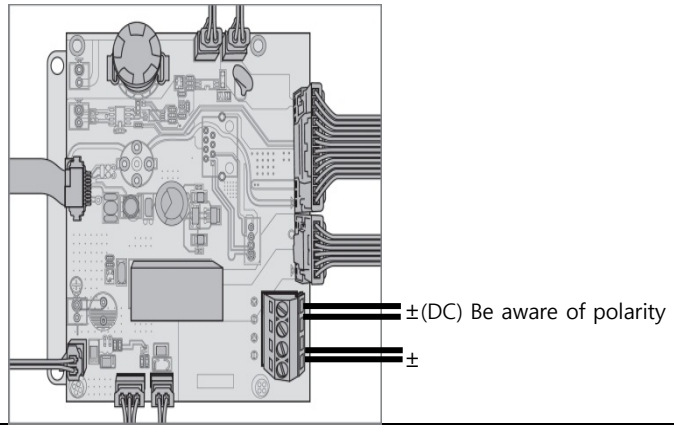
4. Insert the projector cables through the rear hole of the camera. Without completely opening the cable gland, coil it twice, then remove the holder and connect the cable.

After connecting, use cable clamp to fix the cable.



5. Illuminator cable is to be connected to the power module on CXP housing board J2.

*** Refer to the image on the right. : Light power on a camera board of CAP-37x housing.**



Be careful about polarity

(+, -) when using DC power

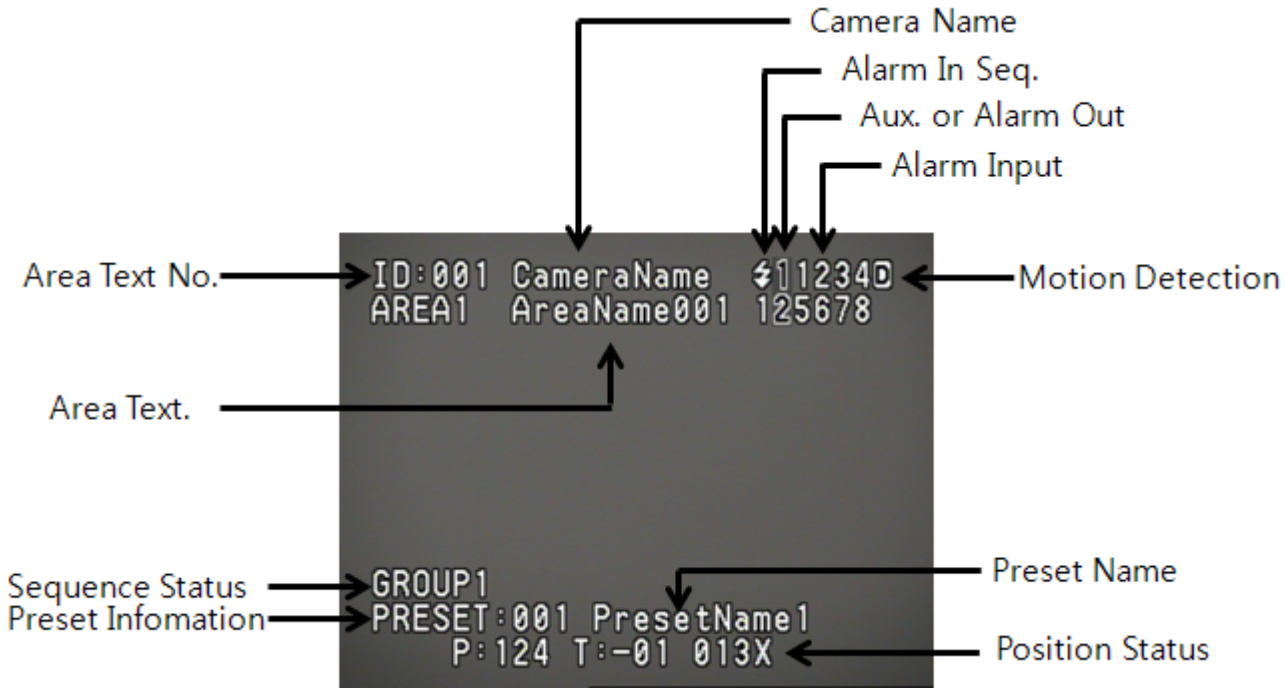
Settings

INTERFACE SYMBOLS

- **Display Standby/Operation of Motion Detection:**
- In standby mode, the "D" displays on the upper right corner of the screen,
  If motion is detected, "D" blinks and it is delayed for "MD Dwell Time".
- **Alarm Input Port Status Display:**
  Blinking 1", "2" and "**3**" sign at the upper right corner of the screen.
- **Current Alarm Port Display According to Input Alarm Ports(Priority) :**
  One of signs from 1 to 8 will be blinking.
  ※ The alarm port indicator blinks only when the sequence is running.
- **Preset Number Display Settings :**
- *': If a preset number is already available
- 'H': If a preset location is the camera's home position

If you use CRT monitor, the edge text of screen may not displayed.

- **PTZ Function Screen :**



Power Supply

This system turns on simply by connecting the power.

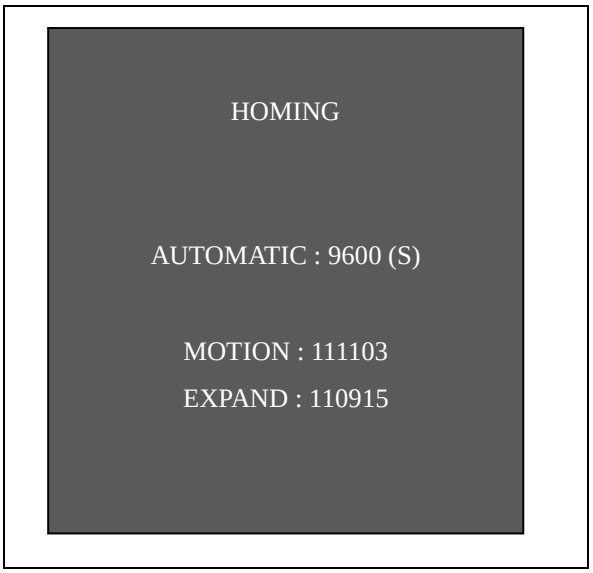
	The automatic pre-heating process could be started whenever the device is switched on and the air temperature is below -24℃. This process is used to ensure that the device works properly even at low temperature. The duration ranges between 60 to 180 minutes, depending on conditions.

Before connecting the power

	Make sure that system and other components for installation are closed so that it is impossible to come into contact with live parts.
	Make sure that all the parts are fastened down firmly and safety condition.

Initial Display (when operating normally, the same image below will be displayed)

When the system is turned on, the device displays the selected protocol, version and other information.



- **Displays for 2 seconds.**

OSD Commands, Function Chart, and Menu Controls

This camera can be operated using two methods: Using hot keys on its dedicated controller, or accessing the OSD (On Screen Display) on the video output.

Control Command Method per each Protocol

Control Command	Pelco-D, Pelco-P	Samsung-T Protocol	AD Protocol	VICON Protocol	GE Protocol
Entering Camera OSD	Preset 95 Set	OSD Key	3+AuxilaryON	IRIS OPEN	IRIS OPEN
Exiting Camera OSD	IRIS CLOSE	FOCUS NEAR	3+Auxilary OFF	IRIS CLOSE	IRIS CLOSE
ENTER	IRIS OPEN	FOCUS FAR	IRIS OPEN	IRIS OPEN	IRIS OPEN
ESC	IRIS CLOSE	FOCUS NEAR	IRIS CLOSE	IRIS CLOSE	IRIS CLOSE

The OSD menu commands are as follows:

Command	Function
Move the joystick up/down/left/right	Moves the OSD menus up/down/left/right, respectively.

OSD Menu Chart

You can have an overall view of the menu structure. For more information, refer to the applicable page or section in the manual.

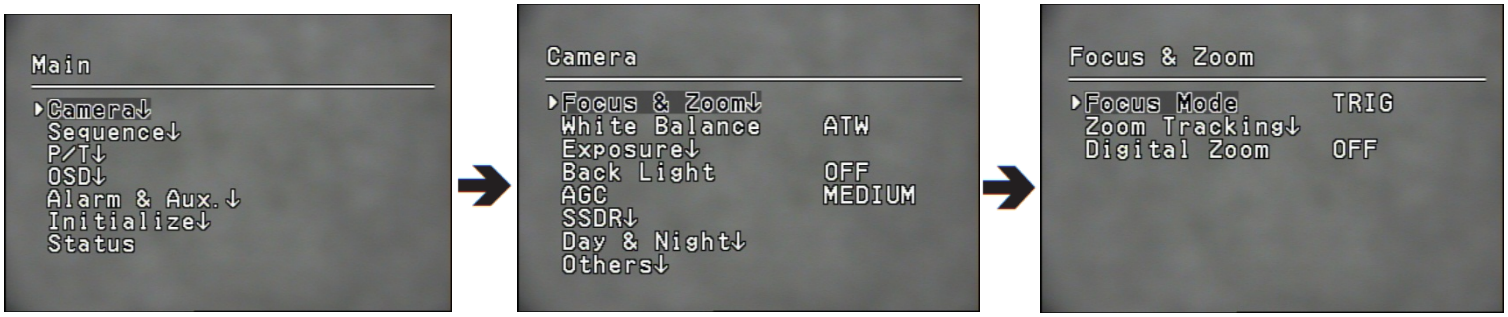
Main Menu	Sub Menu	2nd Sub Menu	Page
CAMERA	Focus & Zoom	AUTO/ MANUAL/ TRIG	25
	White Balance	ATW/ INDOOR/ OUTDOOR/ AWC/ MANUAL	27
	Exposure	Brightness/ Iris/ Shutter/ Sens-Up	28
	Back Light	OFF/ **WDR*** / HLC/ BLC	29
	AGC	OFF/ LOW/ MEDIUM/ HIGH/ MANUAL	32
	SSDR	SSNR/ SSDR	33
	Day & Night	AUTO/ COLOR/ B/W	34
	Others	Sync, Stabilizer/ Image Adj	35
	※ For CAP-VAC products, refer to the User Manual for CAP-VAC. ※ The camera, which supports Samsung-T, Pelco-D Protocol, installed in VAC2 model supports OSD MENU setup.		
Sequence	Preset	1 to 319	36
	Scan	Pan Scan/ Tilt Scan/ P&T Scan	40
	Group	1 to 6	41
	Pattern	1 to 4	42
	Auto Run	HOME/ PRESET/ SCAN/ GROUP/ PATTERN/ A.PAN	43
	Power Resume	ON/ MANUAL	44
	MD Dwell Time	Motion Detection Dwell Time	44
P/T (PAN/TILT)	Position Limit	Pan/ Tilt	45
	Text Area	ON/OFF	49
	Masking	1 to 8	50
	Payload	3 kg to 10 kg	51
	Wind	10 to 55(M/S)	51
	Image Hold	ON/OFF	51
OSD	ID	ON/ OFF	52
	Name	ON/ OFF	52
	Preset No	ON/ OFF	52
	Preset Name	ON/ OFF	52
	Status	ON/ OFF	53
	Position	ON/ OFF	53
	Language	English/ Chinese/ French/ German/ Spanish/ Italian/ Portuguese	53
	Alarm Enable	ON/ OFF	53
Alarm & Aux	Alarm Input	1 to 8	54
	Illuminator	ON/ OFF/ AUTO	57
	Wiper	Pump 활성화 / 비활성화	58

Initialize	Reset	ON/ OFF	59
	Default Set	ON/ OFF	59

Camera Settings (ZC-PT(W)437)

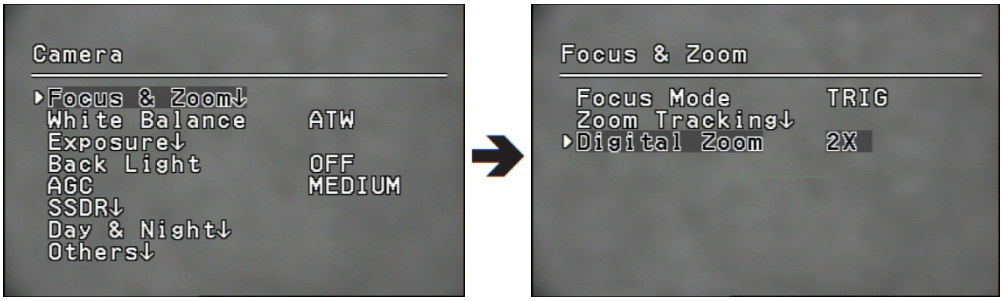
Camera settings are explained based on ZC-PT437, 1 (Samsung Techwin Zoom Module SCM-2370, SCM-3370).
Please refer to the manufacturer's manual for details about the camera.

Focus & Zoom Settings



- **Focus Mode :**

  - AUTO : consecutive auto focusing function.
  - MANUAL : converts camera to manual Focus mode.
  - TRIG : one time auto focusing after Pan/Tilt/Zoom action



- **Digital Zoom :**

Setting the maximum value of the digital zoom.
Digital Zoom can be set from 2 x ~ 16 x, and in conjunction with the Optical Zoom, peforms up to 592 x Zoom.

□ The resolution of the Digital Zoom decreases as the Zoom ration increases.

□ The Auto Focus function may not normally operate under following conditions. :

- Flashing lights such as bright lighting, neon sign
- Illumination in the surveillance area is low
- Slow-Shutter action
- Dark Subject
- Illumination in the surveillance area is too bright
- If distant and near objects are in the surveillance area
- If there is no contrast such as the sky and a wall
- Staring at the thin horizontal line

□ Auto Focus focuses at the subject in the middle of the display,
therefore, subjects not in the middle may be out focused.

Zoom Tracking Settings

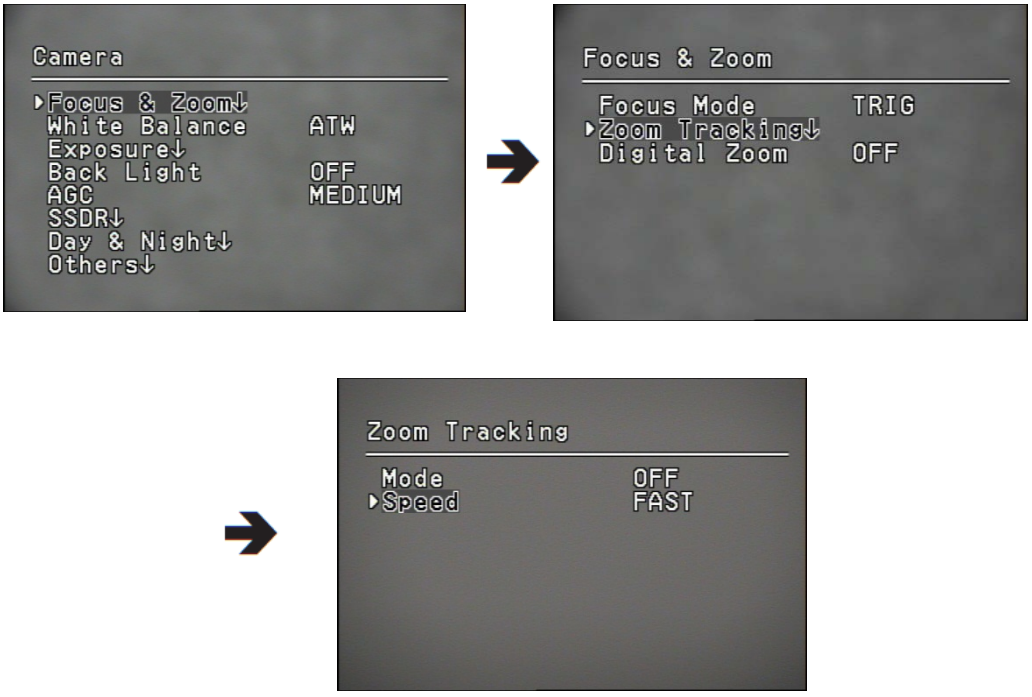
Focus indexation function when the camera is using Zoom function.

- **Mode :**

  - AUTO : Perform Zoom while in Auto Focus mode.
  - TRACKING : perform Zoom while in Manual Focus mode.
  - OFF : Perform Zoom without Focus action (Full Manual Mode)

- **Speed :**

  SLOW/MEDIUM/FAST : Zoom Speed Control



White Balance Settings

Enables the color to be seen normally under any lighting conditions.

- **ATW :** Automatically adjusts the color.
- **INDOOR :** Automated correction function to optimize the color of the camera for indoor environment.
- **OUTDOOR :** Automated correction function to optimize the color of the camera for outdoor environment.
- **AWC :** Optimizes the color of the camera to current lighting condition.

  May need readjustment if the lighting condition changes.
- **MANUAL :** Manually adjusts the Red gain and Blue gain of the camera.

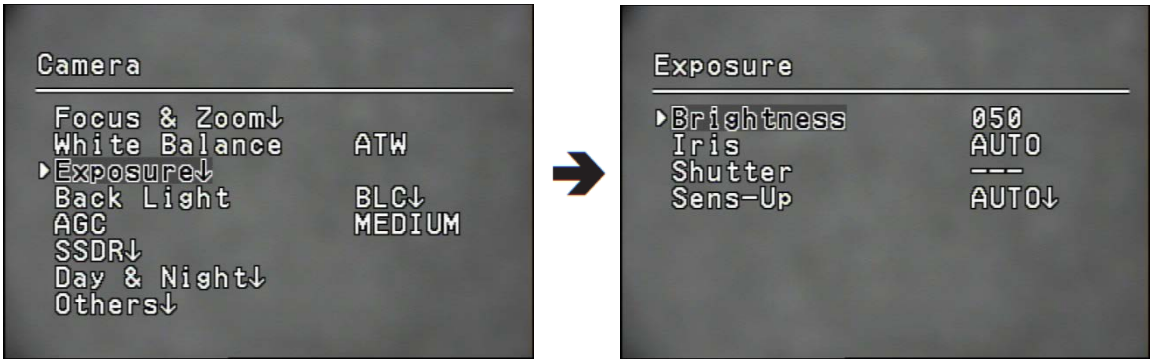
❗ □ The White Balance may not normally work under following conditions.

❶ The environment surrounding the subject is out of color temperature correction range(Clear Sky, Sun Set)

❷ When the subject's surroundings are dark.

❸ If the camera is directed towards a fluorescent light or installed in a place where a lot of illumination changes occur, the White Balance may become unstable.

Exposure Settings



Controls the exposure meter of the camera.

- **Brightness :** Controls the brightness of the display.(over 50 : Brighter, under 50 : Darker)
- **Iris :**
  - AUTO : Automatically adjusts the Iris of the camera.
    MANUAL : Manually adjusts the Iris of the camera. (F1.6~Close : 18 Levels)
- **Shutter :** Controls the electronic shutter.
  - ——— : Electronic shutter speed is fixed(NTSC:1/60, PAL:1/50). Applicable only when Iris is set to Auto.
  - ESC : Automatically controls the shutter speed according to the brightness of the screen. Applicable only when Iris is set to manual.
  - A.FLK : Use this function when the screen flickers due to discordance between surrounding illumination and the frequency.
  - MANUAL : Manually adjusts the shutter speed of the camera.
- **Sens-Up :**
  - AUTO : Accumulates video frame to restore brightness when the shutter speed has dropped considerably at night or in low-light environments
  - Sens-Up Limit : Select maximum accumulated magnification.
    When the accumulation factor is higher, the brighter the screen though the afterimage and scuffing can occur.

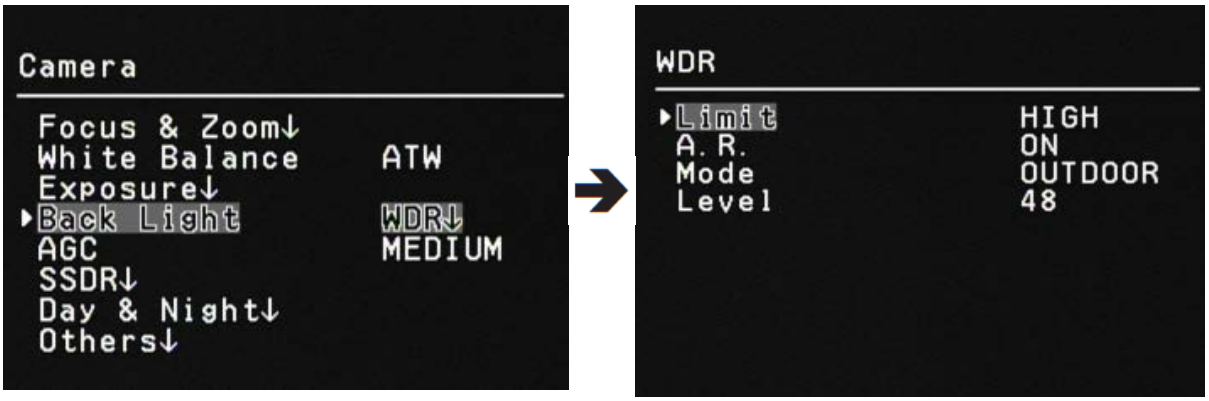
- For effective A.FLK mode, do not use Back Light mode at the same time.
- The screen may become unstable if the Shutter mode has set to '---',
  and the camera has directly pointed at bright light.
- The Sens-Up function will not be available if the Shutter mode is in Manual or A.FLK mode.

Back Light Settings

Unlike the conventional camera, even if the subject is in backlight, this function enables the subject and the background to be seen clearly.

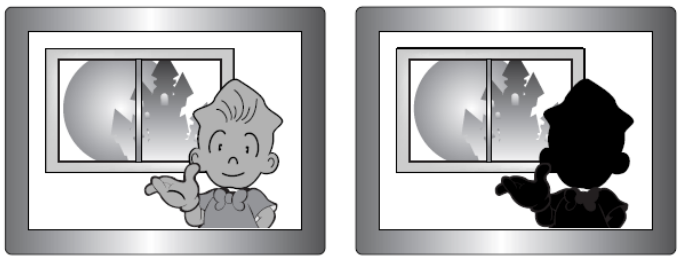
- **Back Light Mode**

  -OFF : No Backlight mode.
  -WDR: Activate Wide Dynamic Range. (Only for ZC-PTW437)
  -HLC : Activate Highlight Correction function.
  -BLC : Activate user's backlight correction function.



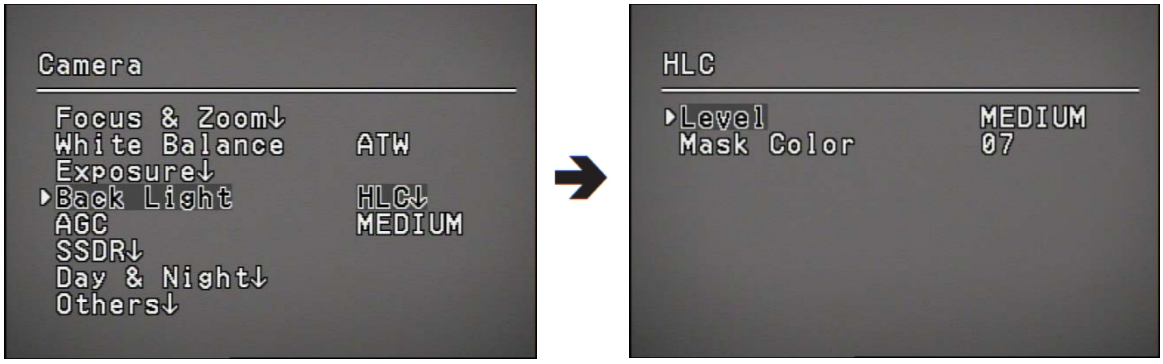
- **WDR(Applied to CAP-371)**

  Obtains clean video through shooting and correcting both the bright and dark area at the same time.

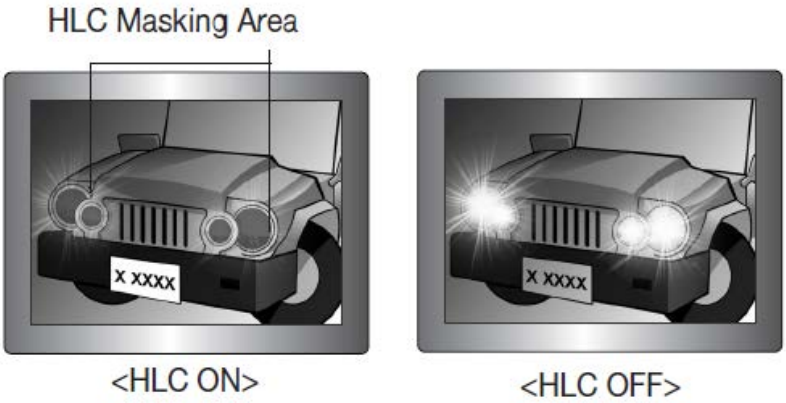


- Limit : Adjusts the WDR function by 3 levels (Low/Medium/High).
  The WDR function is not available while in OFF condition.
- A.R. (Anti-Rolling) : The greater the sensitivity, lower the brightness difference between bright and dark area.
- Mode : INDOOR / OUTDOOR.
- Level : Adjusts overall brightness of the WDR video.

This function will not be operable if the Shutter is in manual mode.



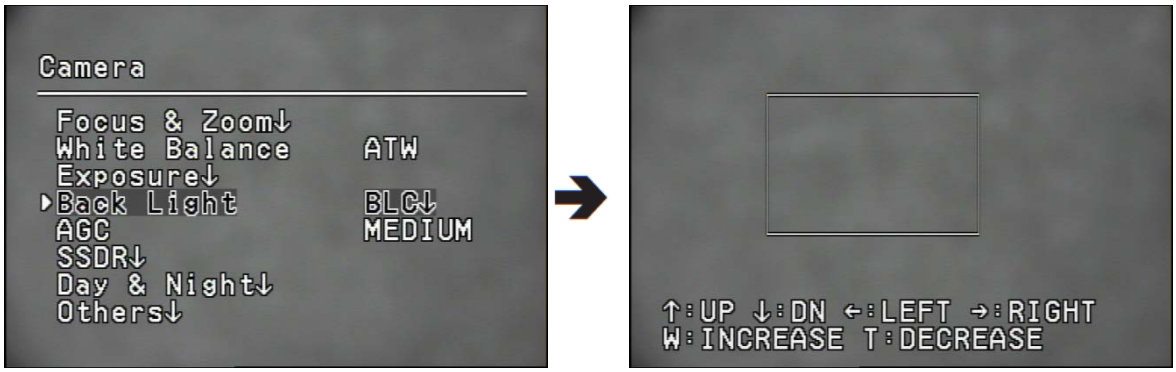
- **HLC**



This function removes the High Light function to effectively detect the license plate number when high light has intruded in the limited environment such as the entrance of the underground parking lot.
This function activates during the night when high light from headlamp of the car intrudes the lens more than certain area to remove the High Light and properly adjust the brightness of the license plate.

- Level : Adjusts the sensitivity of HLC function.
- Mask Color : Able to adjust the Mask Color of the High Light area.

 Even if you are using this function, the license plate may not be recognized due to installation angle, brightness, etc.
 The HLC function will not be available while using Digital Zoom or in Freeze mode.



- **BLC**

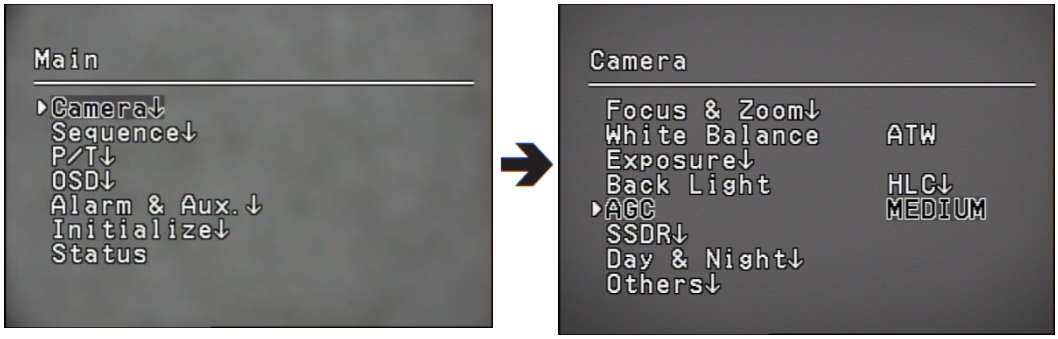
User can directly assign an area in the video and increase the clarity of the object.

- Maneuvering Joystick up/down/left/right:

Move the Joystick to adjust the position of the boundary region.

- Zoom Control :
  - Zoom Tele : Increases the area of boundary region.
  - Zoom Wide : Decreases the area of boundary region.

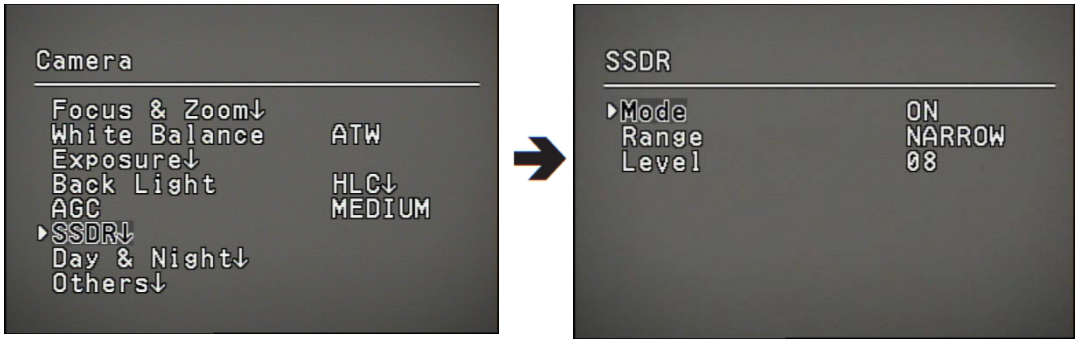
AGC (Auto Gain Control) Settings



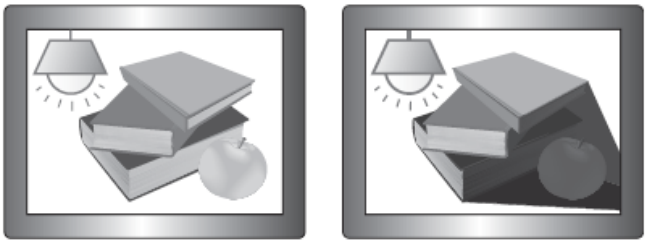
AGC (Automatic Gain Control) controls the brightness by controlling the control sensitivity of video Gain when the brightness of the video is under certain level, due to the subject has film under dark lights.

- **OFF :** No AGC function
- **LOW / MEDIUM / HIGH:**
  Increasing step toward the High level adjusts the video to be brighter in dark environment.
- **MANUAL:**
  Control the Level for detailed control of AGC. (5dB ~ 41dB)

SSDR(Samsung Super Dynamic Range)

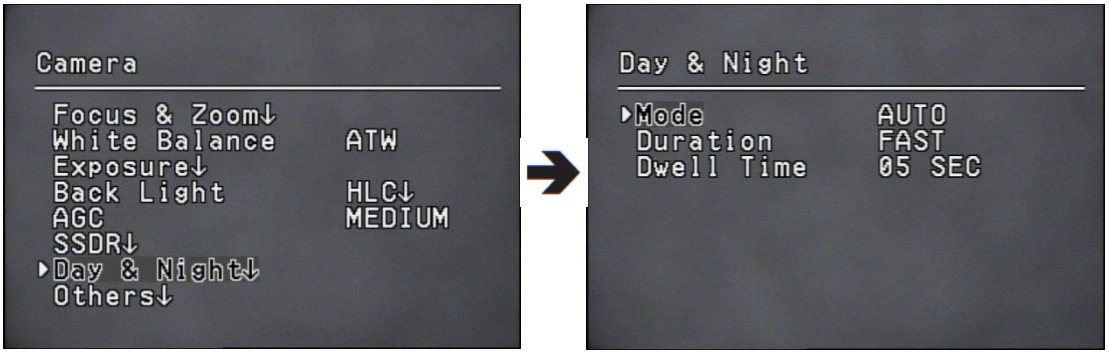


In the environment where the difference between bright area and dark area is dramatic, maintains the bright area and increases the brightness of the dark area to balance the overall brightness.



- Mode : Activate of deactivate the SSDR function.
- Range : Able to setup the area where the function will be applied.
- Level : Able to adjust the level based on the difference between bright and dark area.

Day & Night



Converts the camera between Color mode and Black & White mode.

- **MODE**

  - AUTO : Normally color mode, converts to Black & White mode during night or low light conditions.
  - COLOR : Always display the video in color mode.
  - B/W : Always display the video in B/W mode. Through the BURST ON/OFF control, the BURST signal can be maintained or removed.

  ※ Set Burst signal to 'On', when connecting to a device that needs external Sync through Burst signal in B/W mode

- **Duration :**

  - The sensitivity can be adjusted as the following chart. According to the camera installation environment, the Switch Illumination may vary.

	Color → B/W	B/W → Color
FAST	2.5 Lux	4 Lux
SLOW	0.8 Lux	6 Lux

- **Dwell Time :**

  - In order to activate switching of Day & Night mode, you can determine the duration of each mode.

If the AGC is at OFF or MANUAL, the Auto mode cannot be activated. The Auto mode can only be activated in Color or B/W mode.

Using Sunlight and Halogen Lamp in B/W mode, the Focus may become muddier than the common lighting..

Others

- **Sync :** Select Internal / Line Lock.
  - INTERNAL : Internal Sync type. This function Syncs the output timing of the camera to internal crystal.
  - LINE LOCK : This function Syncs the output timing to AC power to Sync the power of multiple cameras.
  - LINE LOCK PHASE : Able to setup the adapter's Sync phase between 0~ 359°.

  The basic model of ZC-PT437 Series does not provide LINE LOCK function.

- **Stabilizer :** Stabilizes the video when external environments causes the vibration of the camera.
  Using the digital Zoom may decrease the resolution.
  Not applicable for low light video.
  Not applicable for monotonous image patter such as the sky and white wall.

- **Image Adj. :**
  - Sharpness : You can adjust the overall sharpness of the video.
  - Color : You can adjust the overall color density of the video.

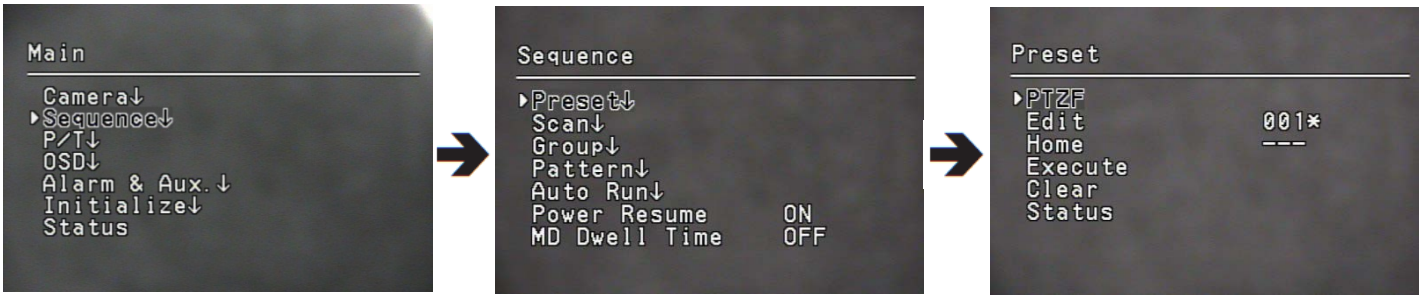
- **Freeze :** Pauses or plays the video.

- **SSNR**
  Function which attenuates the low light background noise.
  - OFF : No noise reduction effect.
  - LOW : Low noise reduction effect, but rarely no after image.
  - MEDIUM : The most common effect will be expected. Properly reduces the noise and not that much after image.
  - HIGH : Excellent noise reduction effect, but increased after image.

If the AGC mode is set to OFF or MANUAL, the SSNR function cannot be used.

Sequence Settings

Preset Setup

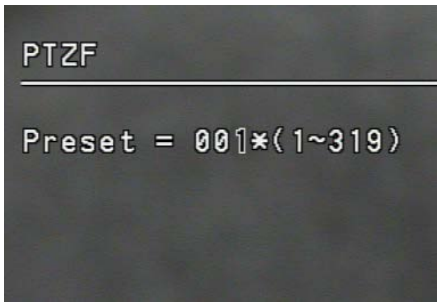


This function enables the memorization of a selected location and activates the Pan, Tilt, and Zoom functions at that location. Saved locations can be recalled using the Preset Execute command.

- **Setting Up Preset Numbers :**

  Selecting the Preset Setting menu brings up a screen as shown below. Move the joystick in all four directions to select the desired number up to 319.
  Depends on Protocol and Using Controller, Number of Preset is limited in using Hot-Key
  You can use 319 presets via OSD menu in any protocol.
  '*' : Valid Preset, 'H': Home Preset

No	Protocol	No. of Preset
0	Automatic	---
1	CyberScan-I	319
2	SAMSUNG-T	255
3	SAMSUNG-E	255
4	Pelco-D	253
5	Pelco-P	253
6	Panasonic	64
7	Vicon	255
8	Honeywell	255
9	AD	255
10	GE	255
11	Bosch	319



- **Saving Preset Position :**

Selecting a preset number and pressing the Enter key redirects the menu to the screen shown below. Using the joystick, adjust the location of the Pan and Tilt functions and then set the Zoom and Focus command. In Preset Settings, the Zoom and Focus command is controllable only by the Zoom command.

- **PTZF Setup**

1. If you open the PTZF setup menu, you will see the following window. You can use the joystick to select a desired number.

2. Select a preset number and press ENTER. You will move to the setup screen. Using the joystick, adjust the location of the Pan and Tilt functions and then set the Zoom and Focus command. In Preset Settings, the Zoom and Focus command is controllable only by the Zoom command. For switching Zoom & Focus, Use ENTER and ESC key.

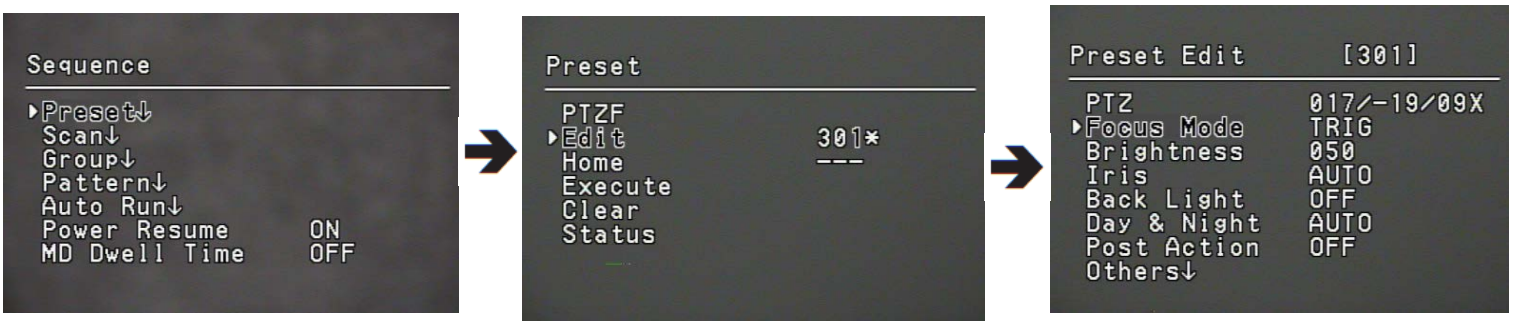
Edit

With this feature, you can edit or save the camera scene related settings

- Focus Mode : Refer to the section entitled Setting Up Your Camera.
- Brightness : Refer to the section entitled Setting Up Your Camera.
- Iris : Refer to the section entitled Setting Up Your Camera.
- Back Light : Refer to the section entitled Setting Up Your Camera.
- Day & Night : Refer to the section entitled Setting Up Your Camera.
- SSNR : Refer to the section entitled Setting Up Your Camera.
- Post Action : Enables setting up an automatic action after the camera arrives at a selected preset location.

MD : Commands the camera to perform the Motion Detection function. If Focus mode is set to Auto, the MD function may not work properly in a environment.
OFF : Select this when no action is desired.

- Others : You can set AGC, Stabilizer, SSDR, Shutter, Sens-Up, White Balance SSNR functions. For terms related to settings, refer to the camera menu..



When each preset-edit starts, until preset is executed completely, any key don't work.

Home

Sets one of the Preset as the home position.

Execute

Recalls saved preset location. While in Sequence mode operation, the actual movement can be slower than the specified when moving the camera in the direction of Pan and Tilt at the same time.

Clear

Deletes selected preset locations.

Status

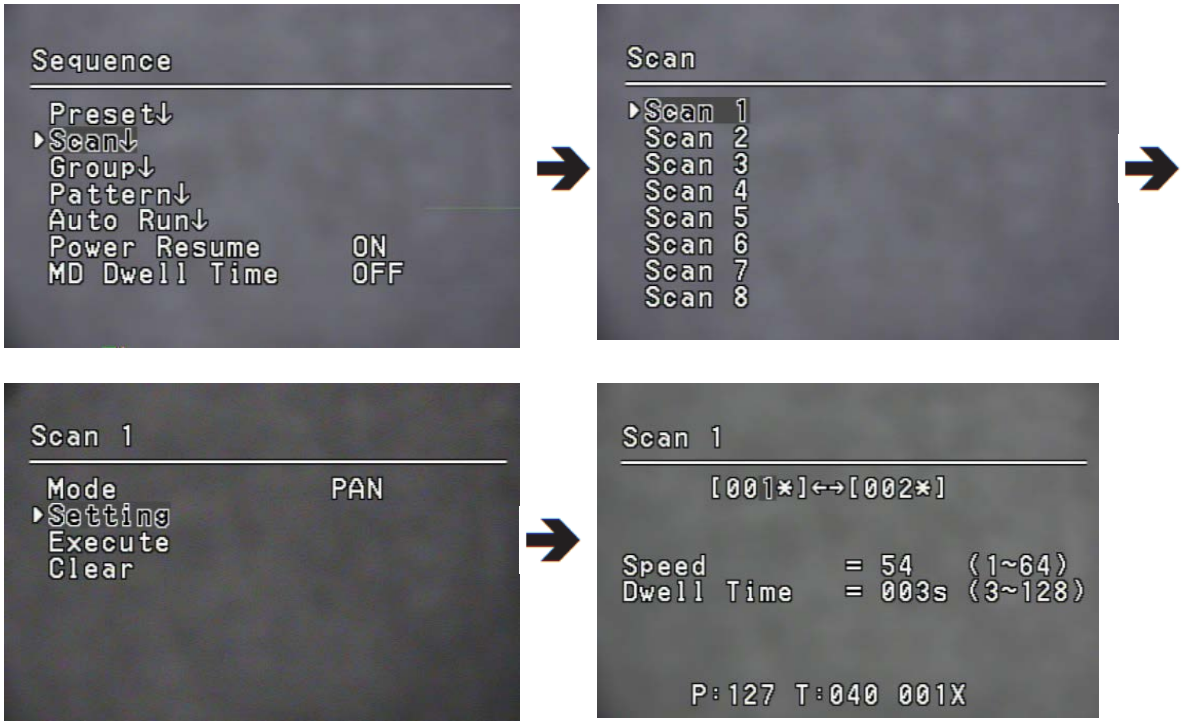
Open a map of saved preset locations.

An area saved as a preset location is displayed with the 'V' icon.

Scan

The Scan Seq. commands the camera to move between 2 selected locations, monitoring the route.

- Pan Scan : Activates the Pan function for the Scan operation.
- Tilt Scan : Activates the Tilt function for the Scan operation.
- P&T Scan : Activates both the Pan and Tilt functions for the Scan operation.



- Scan Setting/Execute/Clear
  Each of the Swing menu have sub menus with the settings.

Select 2 preset locations by using the joystick. Speed indicates the camera's movement speed.
"Dwell Time" indicates the camera's duration of stay at a preset location.
- Execute : Executes the Swing operation.
- Clear : Deletes data in the Swing memory

While in Sequence operation, the actual movement can be slower than the specified movement when moving the camera in the direction of Pan and Tilt at the same time.

Group SEQ

Selecting Group SEQ recalls a group of multiple preset locations in a consecutive manner. Up to 6 groups can be defined and up to 319 presets can be memorized for each group.

- **Setting :**

  Using the joystick, enter desired preset numbers into the PSET section. DWT indicates the camera's duration of stay at a preset location. SPD shows the camera's movement speed by 64 different levels.
- **Execute :** Executes the group operation.
- **Clear :** Deletes the selected group.

While in Sequence mode operation, the actual movement can be slower than the specified when moving the camera in the direction of Pan and Tilt at the same time.

Pattern

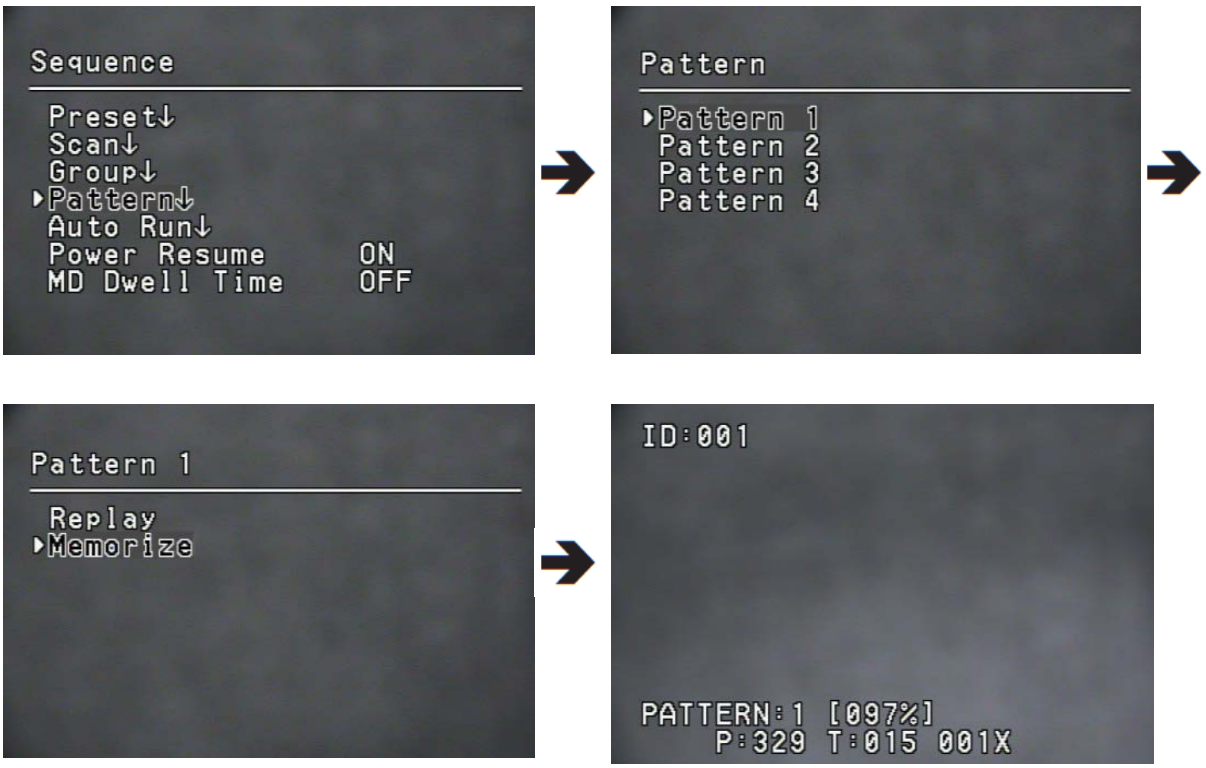
Maximum 4 patterns of the manual operation paths (Pan, Tilt, Zoom and Focus) are memorized and replayed.

- **Replay :**

  Replays a route saved by the Pattern. You can stop replay by using Any Key.

- **Memorize :**

  The time for storing the event differs depending on the complexity of PTZ operations of your choice. When the memory is up to 600 events, it will be stopped. You can stop Memorizing by using the OSD Key.



※ Using other protocols

Protocol	Representative Model	Stop saving the trace
CyberScan-I	GSC-3000J	Menu
PELCO-D/P	KDB300A	Ack, Iris Open
SAMSUNG-E	SSC-5000	OSD ON, Iris Open
PANASONIC	WV-CU161C	OSD ON
VICON	V1300X-DVC	Iris Open
HONEYWELL	HTX-3000	Iris Open
AD	-	OSD ON, Iris Open
GE	KTD-405	Iris Open
Bosch	-	Iris Open
Pelco-C	KBD9000	CameraON

Auto Run

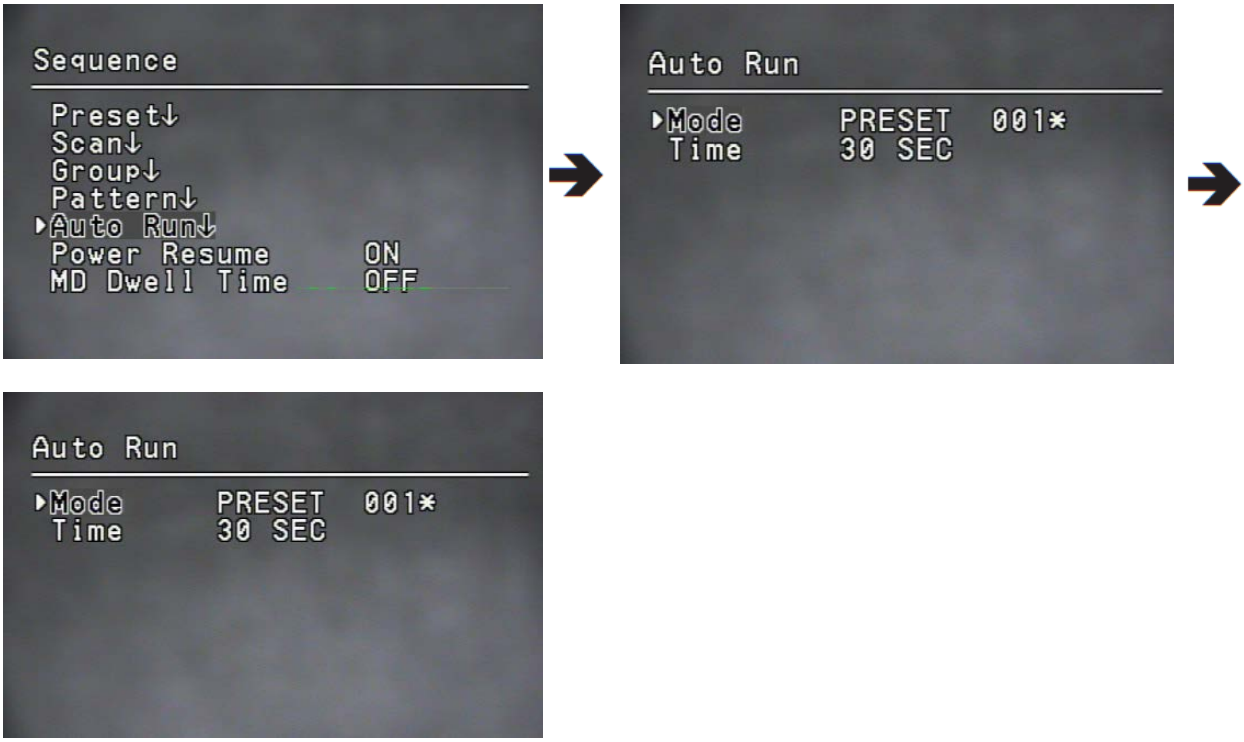
If there is no controller operation by the user for a certain time, the sequence operation designated by the user will be executed.

- **Mode :**

  - HOME : Auto run Home Position (Refer to the Preset Menu.)
  - PRESET : Auto run a selected preset number.
  - SCAN : Auto run a selected Swing mode.
  - GROUP : Auto run a selected Group mode.
  - PATTERN : Auto run a selected trace mode.
  - A-PAN : Auto run a 360-degree pan. To activate the panning command, you need to set up the camera's tilt angle and auto pan speed manually

- **Time :**

  Enables setup of Auto Run duration. (The duration can be 10~60 seconds, or 1~60 minutes)

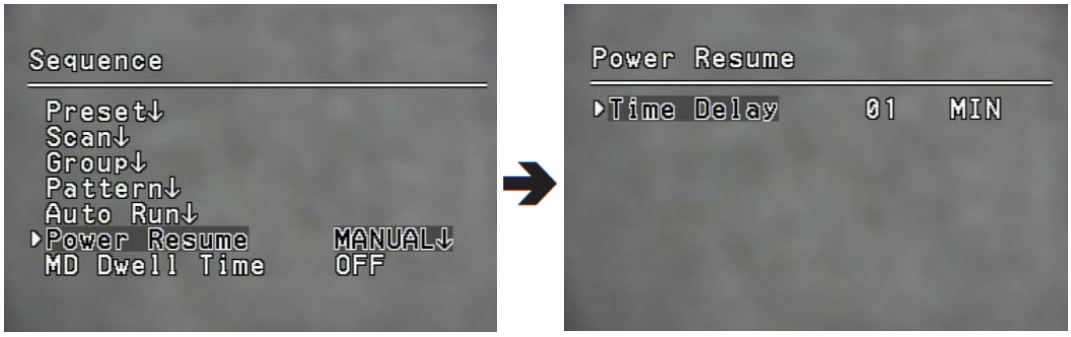


Power Resume & MD Dwell Time

- **Power Resume :**

  This is useful when the power is disconnected and reconnected due to power failures or other power interruptions. If the camera was performing a sequence action prior to a power disconnection, the camera automatically resumes the action when the power is reconnected.

  ON : Restore mode of the Sequence Function (Preset, Scan, Group, Pattern, A-PAN)
  MANUAL : After delaying time of sub-menu, saved current position.
  Even if power failure happens, the last position can be recovered.
  If it is at manual mode, Sequence Function restores mode works.



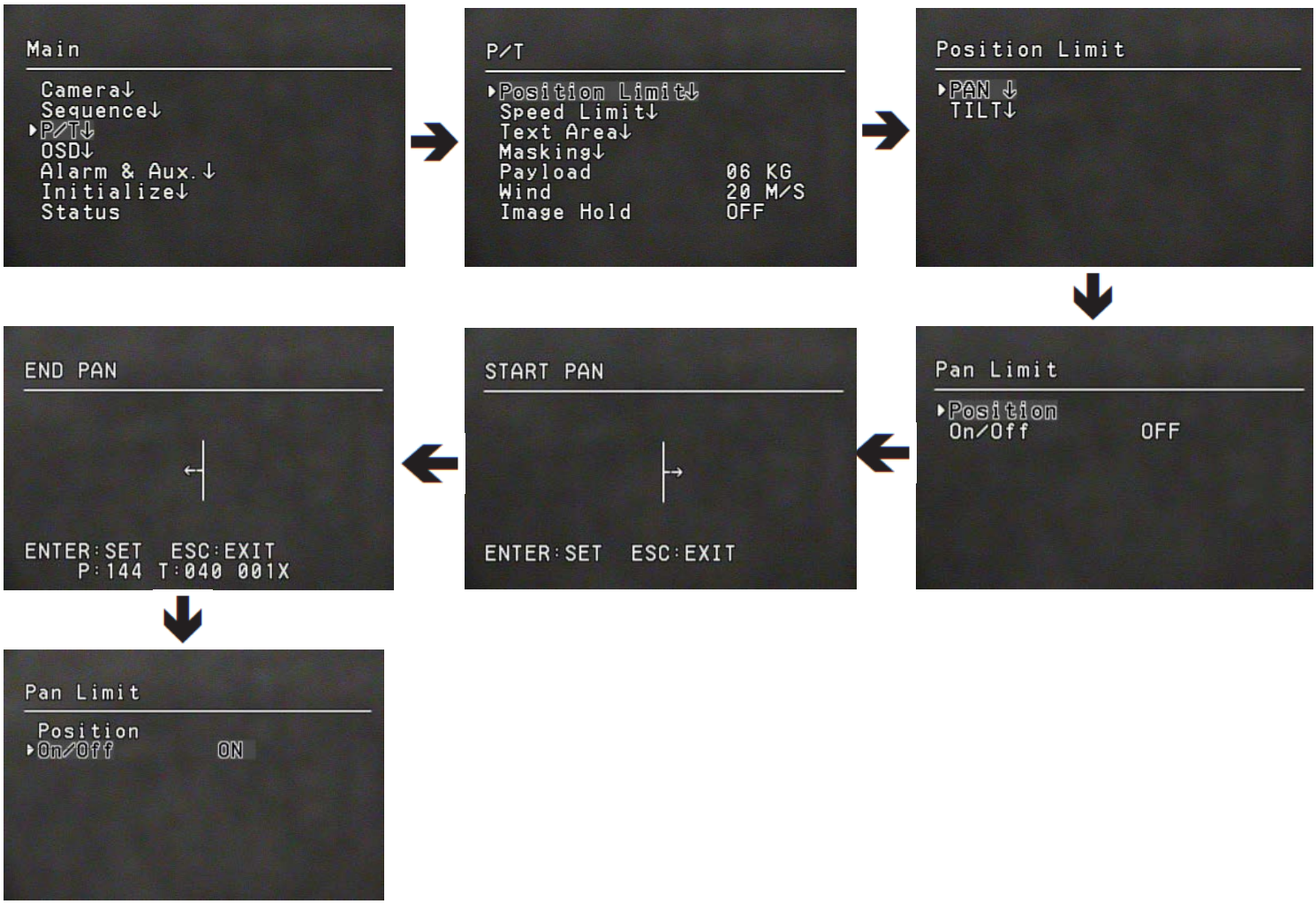
- **MD Dwell Time**

  This function is used when Motion Detection function is set under Preset Edit command, and operating Group function. While the camera is performing a sequence action, if motion is detected from a selected Preset location, the camera stops the sequence action and starts monitoring the location instead of a duration that is set under the MD Dwell Time menu. If the motion is no longer detectable or the duration expires, the camera aborts the monitoring operation and then resumes the sequence action.

P/T

Position Limit

The moving ranges in the Pan/Tilt directions can be limited.



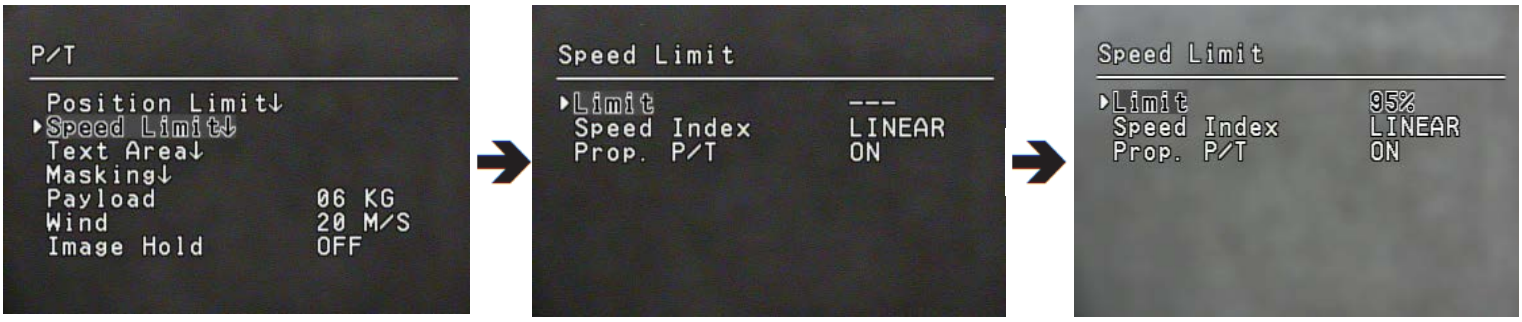
- **Position Limit:**

  Move the joystick left and right to select a movement range from the starting point to the end.

- **ON/OFF :** Configured Pan/Tilt Limit function to use or not.

Speed Limit

The moving speed of the Pan, Tilt can be limited.



● **Limit :** New Speed = Original Speed * Limit Value / 100

"---": no speed limit

● **Speed Index :** Only valid when absolute location command, relative location command, and sequence moving location command. If you select linear, Speed function is Step Speed = Max Speed * Speed Step / 64 [DPS]. = (max speed * speed step / 64 [DPS]

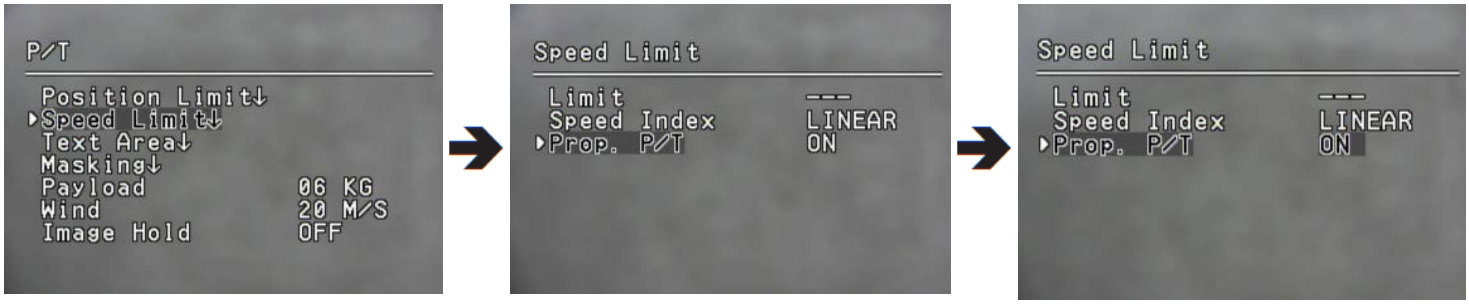
Refer to the chart below for Step Speed.

Speed Index

STEP	PAN [DPS]	TILT [DPS]	PAN speed limit 75%	TILT speed limit 75%	STEP	PAN [DPS]	TILT [DPS]	PAN speed limit 75%	TILT speed limit 75%
1	0.1	0.1	0.075	0.075	**33**	9	3.6	6.75	2.7
2	0.2	0.2	0.15	0.15	**34**	9.6	3.8	7.2	2.85
3	0.3	0.3	0.225	0.225	**35**	10.2	4	7.65	3
4	0.4	0.4	0.3	0.3	**36**	10.8	4.3	8.1	3.225
5	0.5	0.5	0.375	0.375	**37**	11.5	4.7	8.625	3.525
6	0.6	0.6	0.45	0.45	**38**	12.2	5	9.15	3.75
7	0.8	0.7	0.6	0.525	**39**	12.9	5.4	9.675	4.05
8	1	0.8	0.75	0.6	**40**	13.7	5.8	10.275	4.35
9	1.2	0.9	0.9	0.675	**41**	14.5	6.2	10.875	4.65
10	1.4	1	1.05	0.75	**42**	15.4	6.7	11.55	5.025
11	1.6	1.1	1.2	0.825	**43**	16.3	7.2	12.225	5.4
12	1.8	1.2	1.35	0.9	**44**	17.3	7.8	12.975	5.85
13	2	1.3	1.5	0.975	**45**	18.4	8.4	13.8	6.3
14	2.2	1.4	1.65	1.05	**46**	19.6	9.1	14.7	6.825
15	2.4	1.5	1.8	1.125	**47**	21.9	9.9	16.425	7.425
16	2.6	1.6	1.95	1.2	**48**	22.3	10.8	16.725	8.1
17	2.9	1.7	2.175	1.275	**49**	23.8	11.8	17.85	8.85
18	3.2	1.8	2.4	1.35	**50**	25.4	12.9	19.05	9.675
19	3.5	1.9	2.625	1.425	**51**	27.1	14.1	20.325	10.575
20	3.8	2	2.85	1.5	**52**	28.9	15.4	21.675	11.55
21	4.1	2.1	3.075	1.575	**53**	30.8	16.9	23.1	12.675
22	4.4	2.2	3.3	1.65	**54**	32.8	18.4	24.6	13.8
23	4.7	2.3	3.525	1.725	**55**	34.9	20	26.175	15
24	5	2.4	3.75	1.8	**56**	37.1	21.7	27.825	16.275
25	5.4	2.5	4.05	1.875	**57**	39.4	23.5	29.55	17.625
26	5.8	2.6	4.35	1.95	**58**	41.8	25.4	31.35	19.05
27	6.3	2.7	4.725	2.025	**59**	44.3	26.4	33.225	19.8
28	6.6	2.8	4.95	2.1	**60**	47.2	28.5	35.4	21.375
29	7	2.9	5.25	2.175	**61**	50.2	30.7	37.65	23.025
30	7.5	3	5.625	2.25	**62**	53.4	33	40.05	24.75
31	8	3.2	6	2.4	**63**	56.8	35.4	42.6	26.55
32	8.5	3.4	6.375	2.55	**64**	60	40	45	30

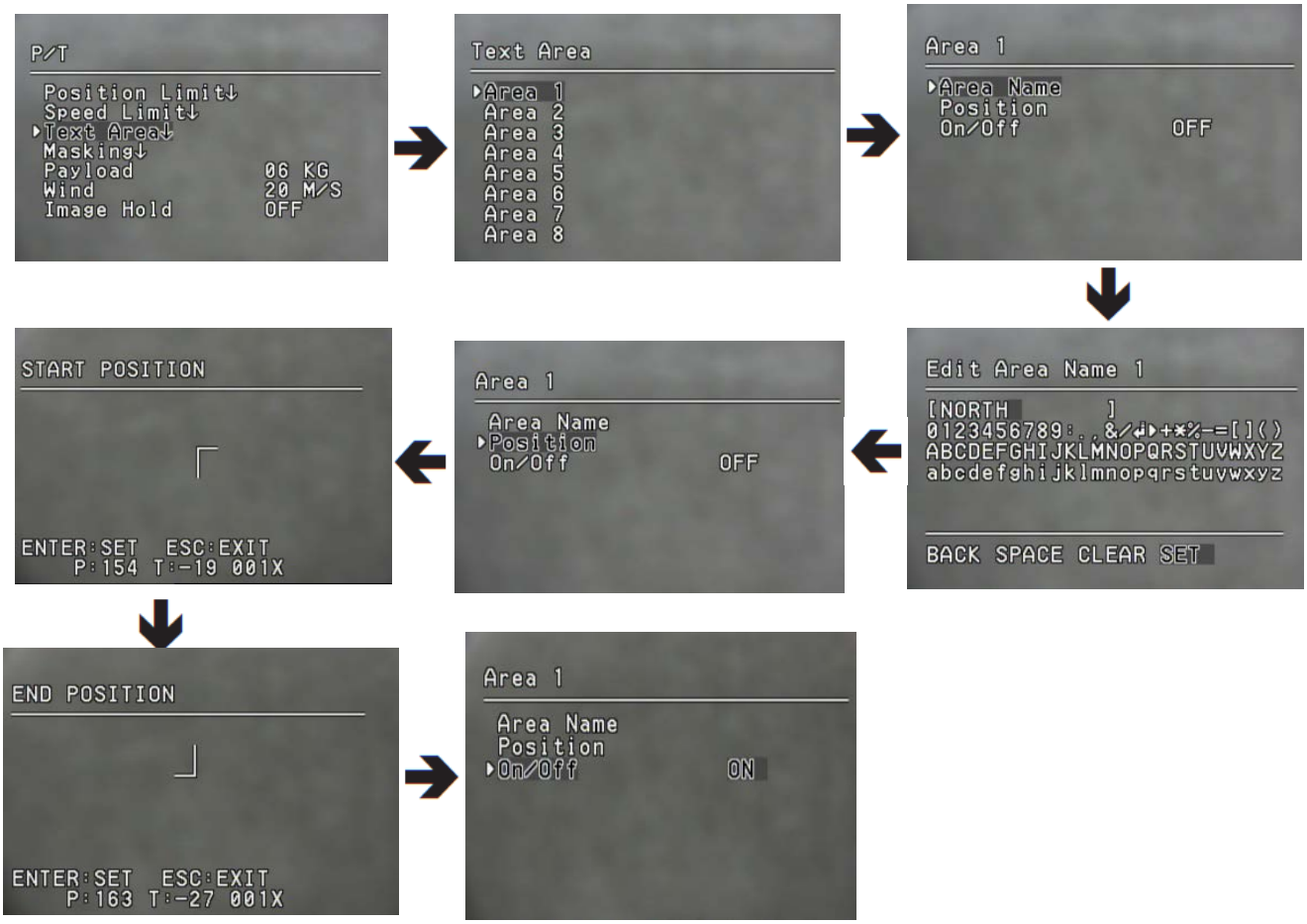
Prop. P/T

This commands the camera to change the Pan and Tilt speed automatically according to the current zoom ratio. Moving the joystick clockwise (Tele) slows down and counterclockwise (Wide) accelerates the Pan and Tilt speed, allowing detailed adjustments. Turning this "Off" executes the function the optical 1x zoom speed regardless of how far the lens is zoomed in



Text Area

The Area Setting menu enables selecting certain locations in the course of the Pan and Tilt operation, and then display the areas with the OSD texts when the camera passes through them. Up to 8 areas can be selected.



● **Area Name :**

You can add names to selected areas.

Names can be up to 12 characters and can be entered via joystick and the Enter key.

Once a name is entered, use the joystick and the Enter key to perform the Set command and save the name.

● **Position :**

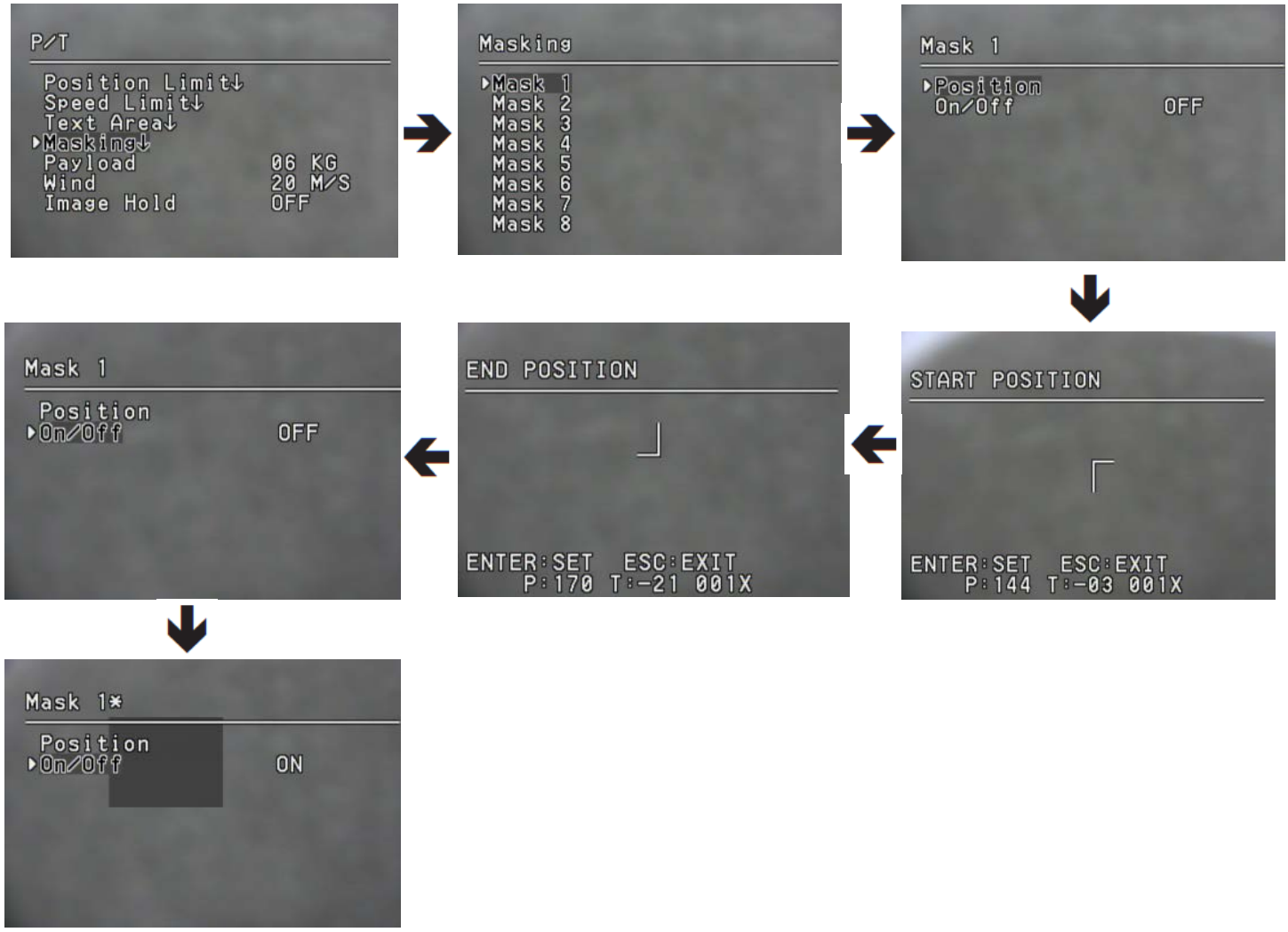
As shown in the picture below, move the joystick to select the upper left corner and lower right corner of an area.

● **ON/OFF :**

Cancels or activates the display function of selected areas.

Masking

If a monitoring location includes a highly private area, the area can be selectively excluded from monitoring.



- **Position :**

  As shown in the picture below, move the joystick to select the upper left corner and lower right corner of an area.

- **ON/OFF :**

  Cancels or activates the Area Masking function..

  If the tilt angle from zero increase or decrease, the masking has more error in accuracy
  The effective range is between -40° and 40° in the tilting angle.
  If your desired area does not being mask, enlarge mask area.

Payload

You can select a housing load of the camera module that will be installed on the housing.

Pan/Tilt movement speed depends on the camera module's weight.
For optimal speed control, set the weight of the camera module between 3 kg ~ 8 kg.
Depends On payload, Acceleration & deceleration time is increased.
Acc Time = 0.3 + (Payload-3)*0.1 [sec]
Max Panning Speed = 120 * (100-(Payload-3)*5)/100 [deg/sec]deg/sec]

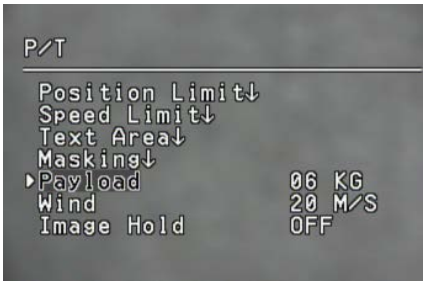
Wind

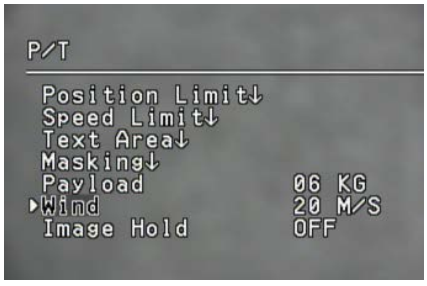
You can set Wind strength of installation site.

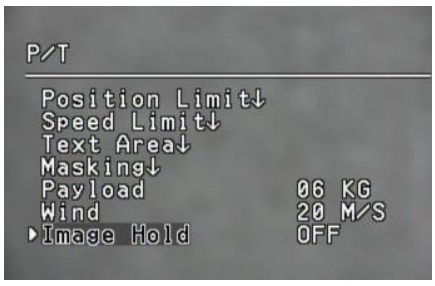
Tilt movement speed depends on the camera module's weight.
Optimal speed control, Set the weight of the camera module between 10 ~ 55 [M/S].
Depends on wind strength, holding torque of Motor is adjusted.
Acc Time = 0.3 + (Payload-3)*0.1 [sec]
Max Panning Speed = 120 * (100-(Payload-3)*5)/100 [deg/sec]

Image Hold

While in Group sequence, displays image of previous preset position as a freeze-frame until it gets to the next preset position. This feature is useful to prevent observer's perspective confusion.





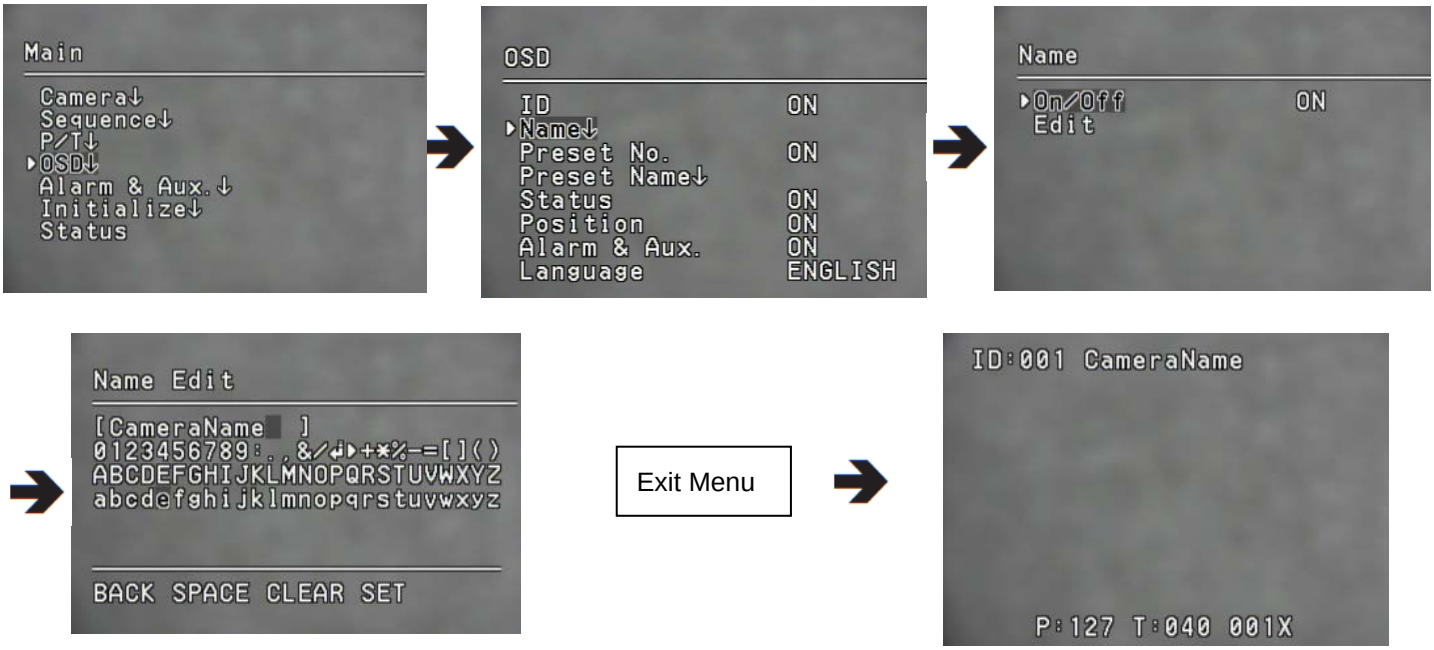


OSD Settings

In this menu, you can configure the OSD (On Screen Display) settings.

- **Camera ID :**
  Displays or hides Camera ID in the upper left of the screen.

- **Camera Name :**
  Add a name to the camera.



When selecting the Camera Name and Preset Name, the screen displays the Left keypad.
Names can be up to 12 characters and can be entered via the joystick and the Enter key.
Once a name is entered, use the joystick and the Enter key to perform the Set command and save the name.

- **Preset Name :**
  Using this function, you can add names to preset locations.

- **Preset Number :**
  Displays or hides Preset Numbers on the screen.

- **Preset Name :**
  Add names to preset locations. (First check the Note.).

- **Sequence Status :**
  Displays or hides the status of a sequence action that is in progress.

- **Position :**

  Displays or hides the status of the Pan, Tilt, and Zoom Operation that is in progress.

- **Alarm & Aux.**

  Displays or hides the alarm and aux. event signal

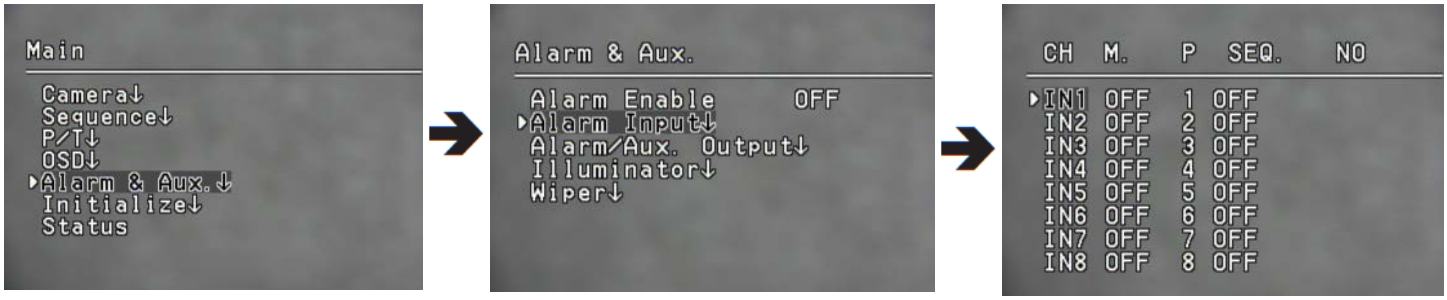
- **Language :**

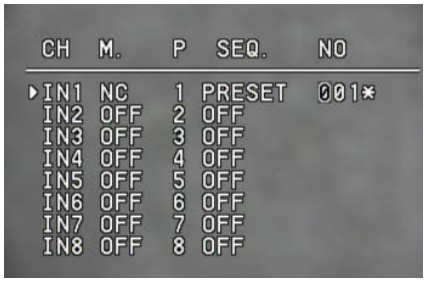
  Enable changing the system language.

  Supports : Korean/ English/ Chinese/ French/ German/ Spanish/ Italian/ Portuguese.

ALARM & Aux Output Setup

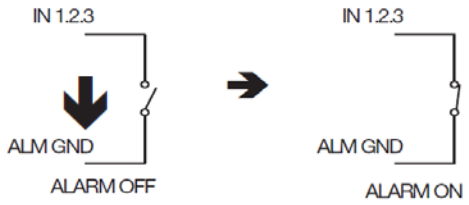
Alarm Input



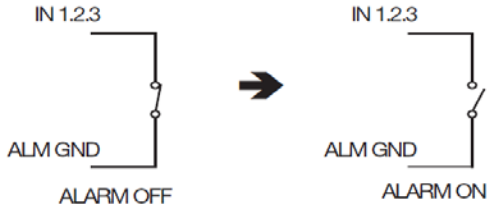


- **Alarm Enable :** On/Off : Enables or disables the Alarm function..
- **M.(Mode) :** Enables and selecting an Alarm Input method.

- NO (Normally Open)- NC (Normally Closed)



< Alarm input when N.O. is enabled >



< Alarm input when N.C. is enabled >

As shown in the picture above,
the Alarm Input must be entered by Open or Closed type signal through switching.

Don't supply any power. If so, it may damage the product and cause electric shock.

- **P(Priority) :**

Set the priority of Alarm Inputs. If more than one alarm is simultaneously activated, the alarm with the highest priority activates before the others. Once the alarm is canceled, the next highest priority alarm activates.

- **SEQ. :**

Enable setting up a sequence action for the camera in response to an alarm.
Available sequence actions are Preset, Group, Pattern and A-Pan

- **NO. :**

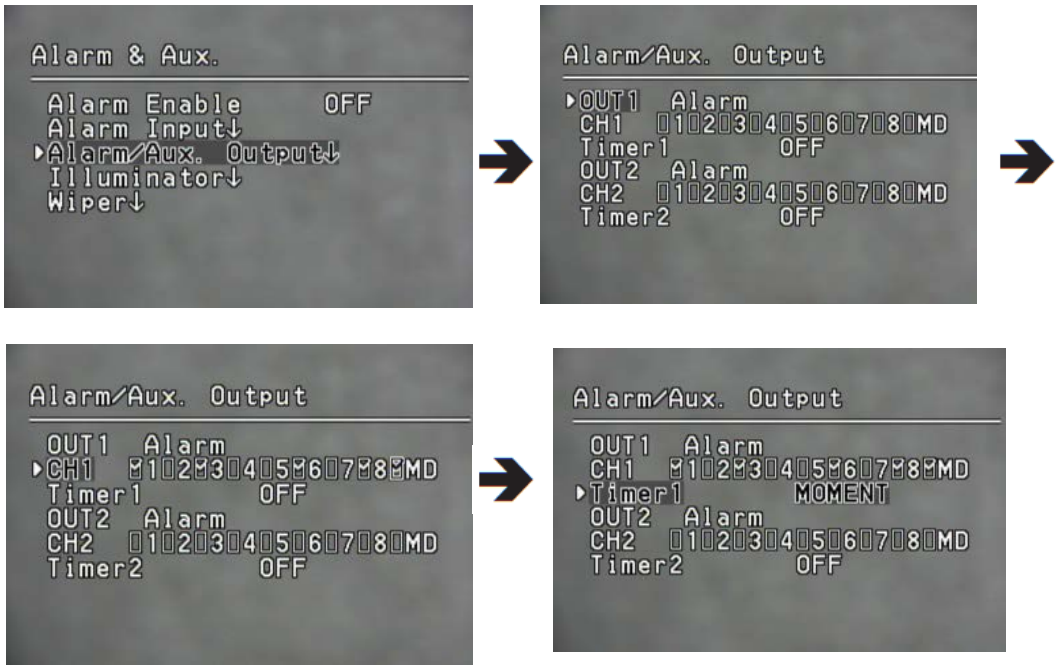
Enable setting up a sequence action for the camera in response to an alarm. Available sequence actions are Preset, Group, Pattern and A-Pan.

As soon as exiting OSD menu, refresh alarm processing. and work alarm processing.

Alarm/Aux. Output

- **Alarm Out / Aux**

  You can select Alarm out or Aux each channel.



- **Setting 1,2**

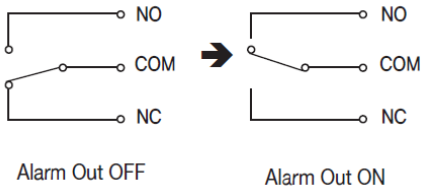
  Enable selecting an Alarm Output method.

  - Each of 1~8, and MD indicates the relevant alarm input and the motion.
  - For each alarm input and MD, you can set the alarm output. You can also assign more than one alarm input and MD to one alarm output port.

- **Timer 1, 2**

  - On : Retains an alarm output for a set duration from a minimum of 1 second to a maximum of 60 hours upon the alarm occurrence.
  - MOMENT : Retains an alarm output only until the alarm is canceled.

- The Alarm Output is equipped with a relay circuit. The operation of the alarm output port is as shown in the diagram below. (Default : Normal Open)



Connecting the power and GND incorrectly to the NC/NO and COM ports may cause a short circuit and fire, which may damage the camera

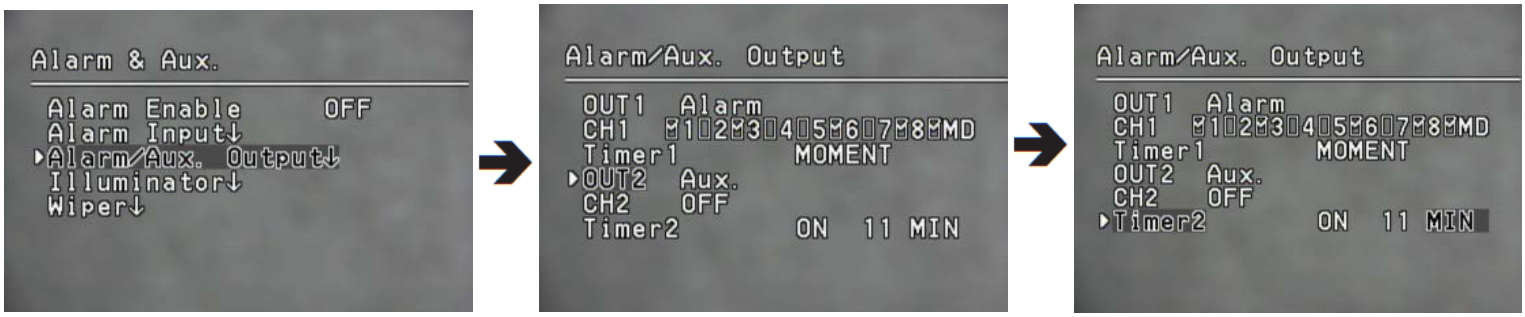
The maximum power capacity of the relay is 30VDC/2A, 125VAC/0.5A, and 250VAC/0.25A.

Operating the camera beyond the capacity, damage it and cause electric shock.

- **Aux Out**

AUX Output is to operate the camera's peripheral devices such as water pump and sirens through the controller and switches as well as through network communications.

Aux Out has a relationship wiper pump. If both aux. is alarm output, you cannot enable wiper pump.

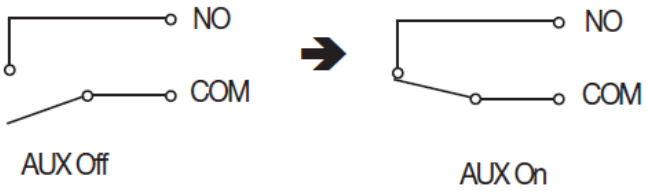


- **On/Off :**

Cancels or activates the Aux function.

- **Time :**

Enables setting up the duration for the Aux output when
The Aux command is transmitted from the controller.
The duration can be selected from a minimum of 1 second



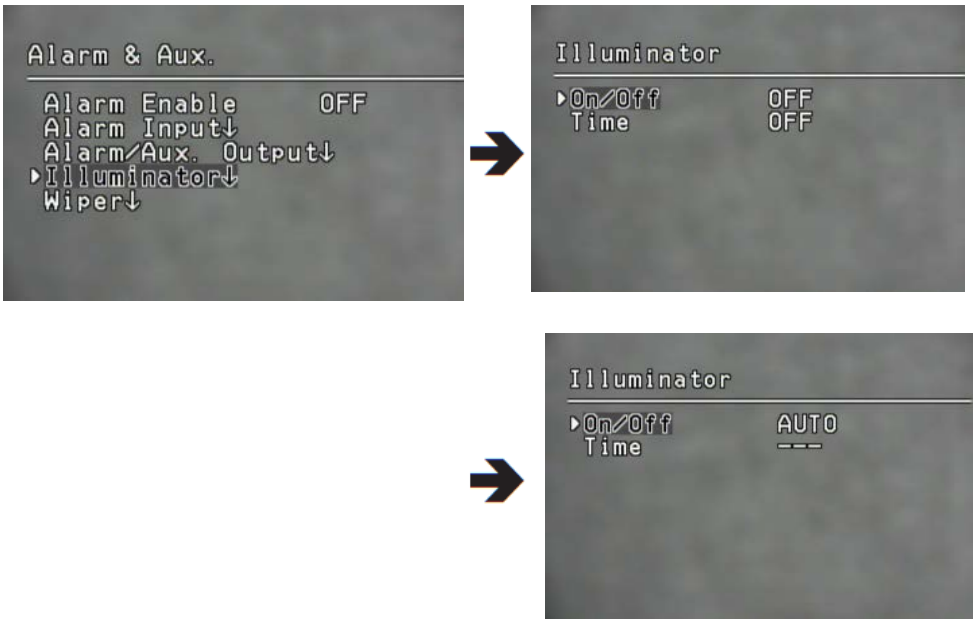
Connecting the power and GND incorrectly to the Aux terminal's NO and COM ports, may cause a short circuit and fire, damaging the camera..

The maximum power capacity of the relay is 30VDC/2A, 125VAC/0.5A, and 250VAC/0.25A.

Operating the camera beyond the capacity, damage it and cause electric shock.

Illuminator

With Illuminator, you can control the red-infrared lighting.



- **On/Off :**

  ON/ OFF : Turns on / off the Illuminator.

  .

  Depending on the surrounding environment, it may work not work properly or restricted.

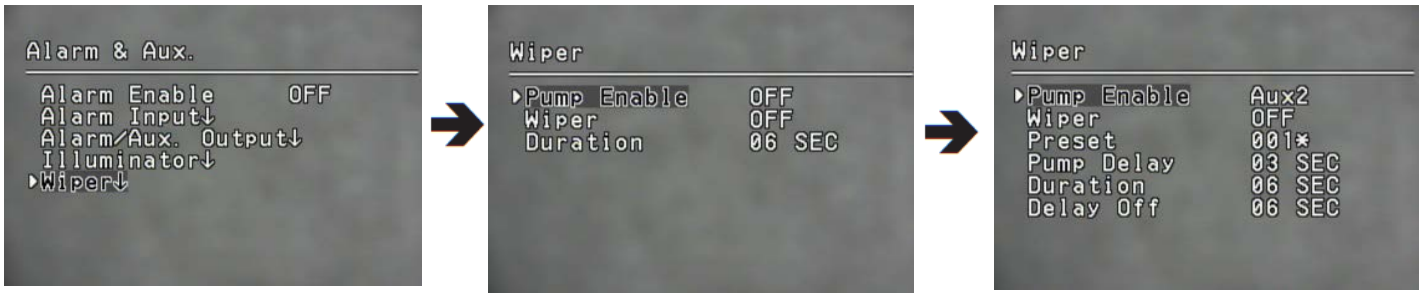
- **Time:**

  Operates Infrared Illuminator for the time specify by user. (1 second ~ 60 hours).

  Infrared Illuminator is an optional accessory (sold separately)

Wiper Settings

You can use Wiper to wipe out the front glass of the housing so as to secure a clear view. To activate Wiper, set the menus below to your preference.



- **Pump Enable:** Activate or deactivate the pump function.

  - On: Activate the pump function that is connected to the wiper. Creates detailed submenu items related to the Pump function.

  - Off: Deactivate the pump function that is connected to the wiper.

  The Pump Enable function will not be activated if it is set to Alarm / Aux out mode.

- **Wiper :** Activate the wiper function.

- **Preset :** Select a Preset as the water pumping position .

  Set the preset to face the pump's water outlet.

- **Pump Delay :** Operating time of the pump. (1 ~ 30 seconds)

- **Duration :** Operating time of the pump and wiper. (6 ~ 30 seconds)

  If the pump is turned off, means operating time of the wiper.

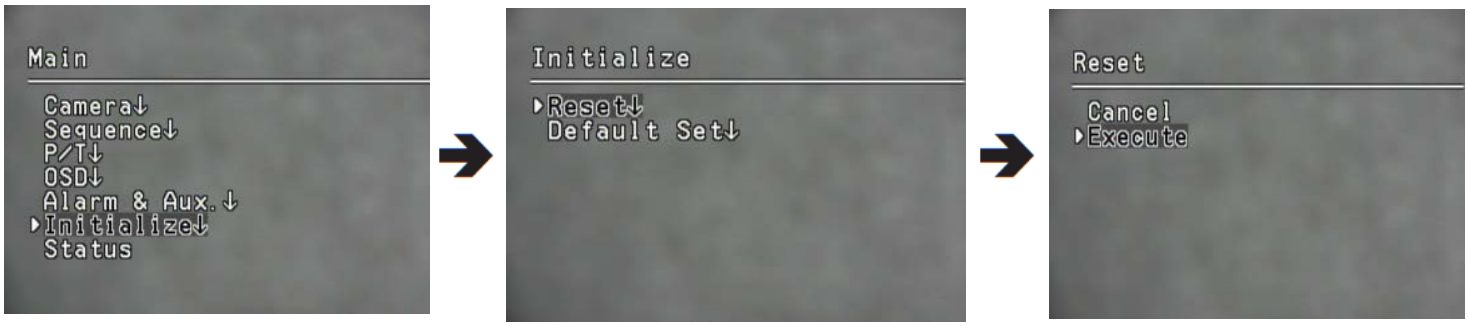
- **Delay Off :**Operating time of the wiper. (6 ~ 30 seconds)

Pump Delay	Duration	Delay Off
: Pumps water towards the housing's front glass.	: Wiper clears the housing during the pumping.	: Wiper clears out remaining water.

(Wiper& Pump Order of Operation)

INITIALIZE Settings

- **Reset :** Restarts the product.

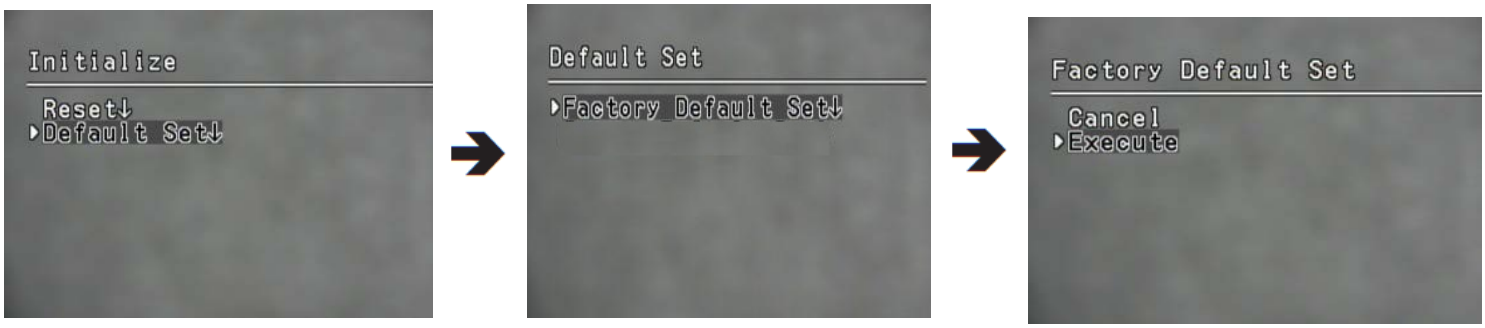


- **Factory Default Set :**

  Enables resetting the camera to its factory default settings.
  When the mode is selected, all custom data such as preset locations is deleted from the camera.
  Use this function if it is necessary to reset the settings of the camera.

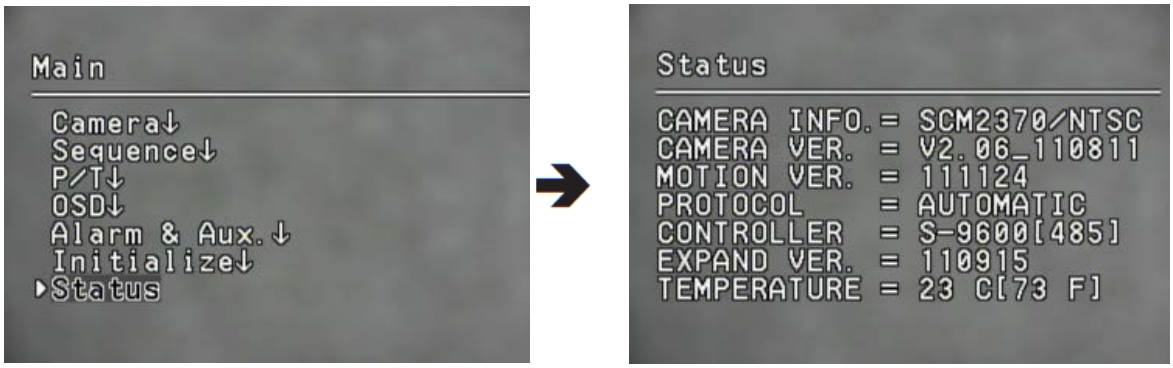
- **Camera Default Set**

  This mode can be used if the camera module has been replaced and you want to keep the camera's existing settings for the new module. To reset the camera, first replace the old module with a new camera module. When the replacement is properly installed, turn on the module, then execute this command



STATUS Settings

Display the settings and version of the camera.



- **CAMERA INFO :** Display the model and zoom factor of the connected camera.
  SCM2370 : ZC-PT437
  SCM3370 : ZC-PTW437

- **CAMERA VER. :** Display Software version of the connected camera.

- **MOTION VER. :** Main MCU F/W version.

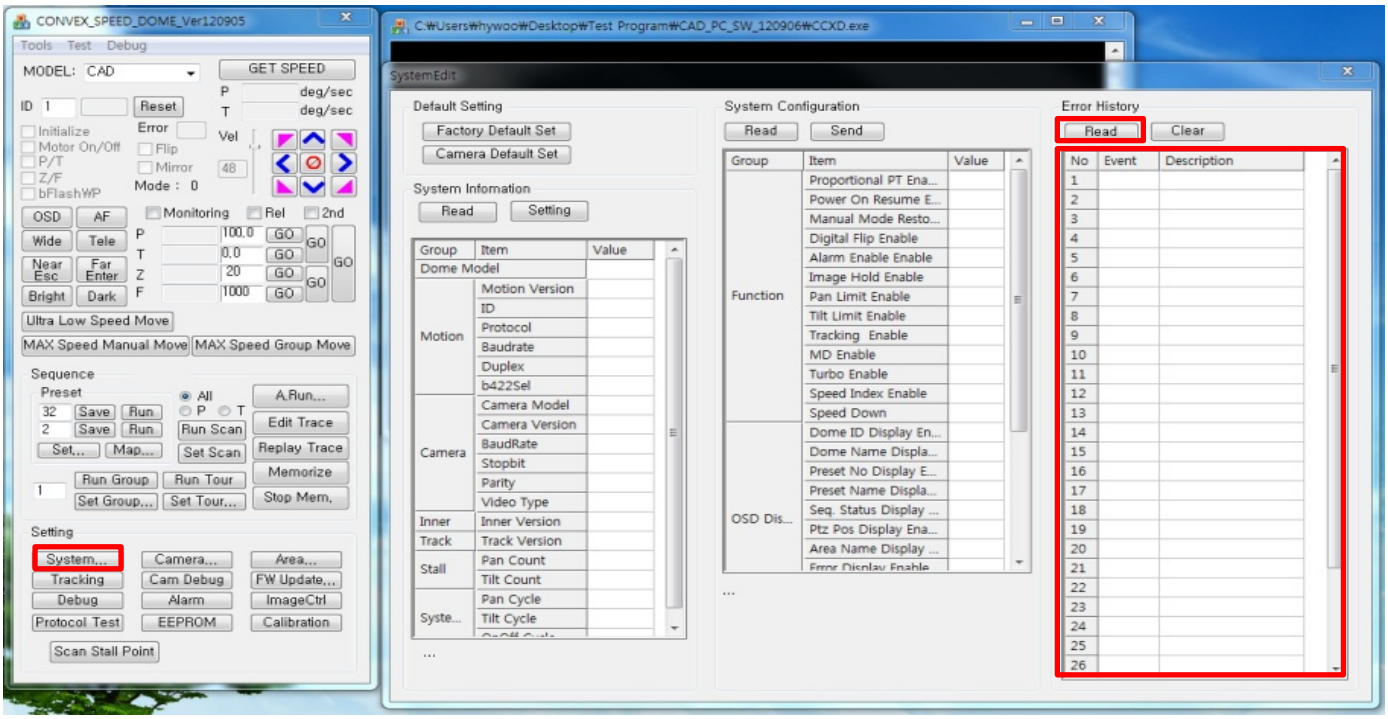
- **PROTOCOL:** Protocol Setting

- **CONTROLLER :**Communication mode setting
  D : Duflex– Any Command has some ack. But, According to Protocol, It is different.
  S : Simplex – Jog Command has no ack.

- **EXPAND VER. :** Base Expand Board MCU F/W version

- **TEMPERATURE :** Current main body temperature

Self-diagnosis



1. After activating CSNP, click System, and then click Error History.

Event	Description	Event	Description
1	HOMING_FAIL	14	FACTORY_SET
2	MOTOR_PAN	15	CLEAR_EVENT_HISTORY
3	MOTOR_TILT	16	ERROR_SENSOR_PAN
4	POWER_RESET	17	ERROR_SENSOR_TILT
5	COMM_RESET	18	EXPAND_COMM_FAIL
6	CAM_COMM	19	CANNOT_FIND_SDZM
7	CAM_RESET	20	VIDEO_LOSS
8	WRITE_EEPROM	21	SPI_FLASH
9	READ_EEPROM	22	LOWTEMP_ESCAPE_SHORY_TIME
10	FW_UPDATE_MOTION	23	LOWTEMP_ESCAPE_NO_CHANGE
11	FW_UPDATE_INNER	24	LOWTEMP_ESCAPE_RETURN_DEICE
12	ERROR_HOME_PAN	25	LOWTEMP_ESCAPE_FORCE_WAKE_UP
13	ERROR_HOME_TILT		

Troubleshooting

If the product does not function properly, please refer to the chart below.
If the problem continuous to occur, please contact the service center.

Problems	Cause and Solution	Note
Controller does not work.	►Check if the camera and other devices are properly connected.	19~21
	► Verify the setups of ID, protocol, and baud rates.	15~18
No picture is displayed on the monitor.	►Check if power cable is securely connected to the camera and the monitor. ►Check if the video cable is properly connected. Consult the operation manual of the system controller connected to the camera.	10~18
	► Check if the lens IRIS is closed. Adjust the lens IRIS menu.	30
	► Check/Adjust the Shutter speed.	30
The picture is too Bright/Dark.	► Check/Adjust the Brightness menu.	30
White image displayed on the monitor.	► Check if the IRIS is open and adjust the menu.	30
The video is out of Focus.	► Check if the cover or the camera lens is spoiled, if so, clean them.	-
	► Check the distance, environment between the object and the camera. If the background is white, it may get difficult to focus.	-
	► Set the Focus Mode to Manual, if it is hard to use the Auto Focus.	27
	► Reset the camera from the menu.	-
	► Adjust the Sharpness level.	37
Digital noise appears in the video.	► Check if the video cable is correctly connected.	-
	► Make sure that the power cable and video cable do not exceed the recommended maximum lengths.	19~21
	► Adjust the Sharpness level.	37

Problem	Cause and the Solution	참조
Video's color quality is low.	► Check the White Balance settings.	29
	► Adjust the Color menu from Image Adj.	-
	► Check if the cover or the camera lens is spoiled, if so, clean them.	-
The Video is flickering.	► Check if the camera is pointing directly at a fluorescent light or sunlight. If so, change the camera's direction.	-
After image appears on the video.	► Check the Sens-Up settings.	30
The camera switches between color and B/W frequently.	► Adjust the Duration and Dwell Time from the Day & Night Menu.	36
Pan, Tilt, Zoom, or Focus is not working.	► Check if the camera and monitor power is correctly connected. Check if the video cable is correctly connected and check the system controller manual.	10~18
	► Check if the Pan Limit or the Tilt Limit is set.. Deactivate the setting.	47
	► Motor or lens might be overheated, contact the service manager.	-
The camera's position differs from the set preset position.	► This may happen, since the motors have a margin error of ± 0.1˚.	-
The Sequence setting is not working.	► Check if the Preset or other mode is set.	47~51
Camera suddenly moves or moves to Preset position.	► Check the Auto Run settings. This function activates saved sequence if the user does not control the camera for certain time.	45
The screen suddenly appears from the Dark Screen.	►Such symptom may occur when the internal Temp. has increased from under -20° to over -20°.	-
"Auto Refresh(Wait)" appears and the lens resets.	► Such symptoms may occur if the camera's temperature increases from under -10° to over -10°. From under -24°, it increases over -24°.	-

Problem	Cause and the Solution	참조
"HOMING FAIL" appears.	► The product initialization has been abnormally finished. ► Check if installation site has enough free space for proper product operation. ► Do not operate the product by force, turn off and consult your dealer.	-
"ALARM [0xXX,0xXX]" appears.	► First hex value : pan part error code Second hex value : tilt part error code 0x01 : Motor driver controller detect stalling 0x02 : Detect position error over 1.5deg. 0x04 : Motor driver controller detect over temperature 0x08 : Detect home sensor error 0x10 : Motor driver controller detect over current ► Contact your dealer and inform error-code if displayed over two times consecutively.	
"CAN NOT FIND CAMERA" appears.	► Open housing, check SCM-X370 module camera cable. ► consult your dealer	
Coaxial communication is not working.	► Make sure that the camera and coaxial controller are installed within Max. 500 m. (According to intalling condition, working range is different)	
	► Use the video amplifier equivalent to coaxitron if the (recommended) installation distance is exceeded	

Check the Power Cords		
▶ The Power cord's coating has been damaged. **▶ The power cord is hot to touch when the product is in operation.** **▶ The power cord gets hot after being folded or pulled on.**	▶ The Power cord's coating has been damaged. ▶ The power cord is hot to touch when the product is in operation. ▶ The power cord gets hot after being folded or pulled on.	-

Product Specification

<ZC-PT437, ZC-PTW437>

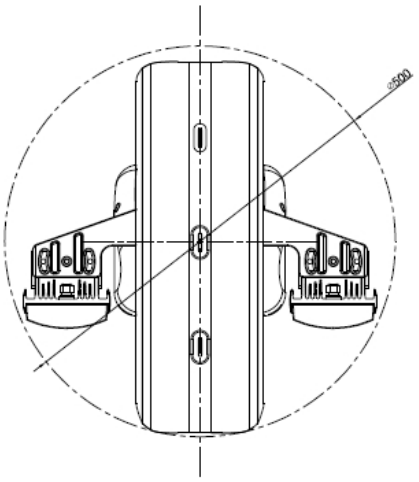
	NTSC	PAL
Imaging Device	1/4"Exview HAD CCD	
TV Format	NTSC	PAL
Max. Pixels	811(H) x 508(V)	795(H) x 596(V)
Effective Pixels	768(H) x 494(V)	752(H) x 582(V)
Scanning System	2:1 Interlace	
Sync.	Internal / Line Lock	
Horizontal Frequency	15.734 KHz	15.625 KHz
Vertical Frequency	59.94 Hz	50 Hz
Horizontal Resolution	600 TV Line(Color)/700 TV Line(B/W)	
Min. Illumination	Color: 0.4 Lux/F1.6 (50 IRE) B/W: 0.02 Lux/F1.6 (50 IRE)	
S/N (Y Signal)	52 dB	
Video Output	CVBS : 1.0Vp-p/75Ω	
Zoom Ratio	37X(Optical), 16X(Digital)	
Focal Length	3.5~129.5mm (F1.6 ~3.9)	
Min. Object Distance	1,500mm	
Angular Field of View	H : Appr. 55.5°(Wide) to 1.59°(Tele) V : Appr. 42.5°(Wide) to 1.19°(Tele)	
Focus	AUTO / MANUAL / ONE-SHOT	
Zoom Speed	2.8 sec	
IRIS	AUTO/MANUAL	
Lens Reset	Built-In	
Pan Range	360° Endless	
Pan Speed	Preset: 0.05° ~120°/sec, Manual: 0.1°/sec ~ 60°/sec (Turbo: 120°/sec)	
Tilt Range	-90° ~ 40°	
Tilt Speed	Preset: 0.05° ~40°/sec, Manual: 0.1°/sec ~ 40°/sec	
Preset Position	Max. 319 Point (depend on protocol)	
Preset Accuracy	± 0.1°	
Camera ID	1~255	
Day & Night	AUTO / COLOR / BW	
Backlight	BLC / HLC / OFF / WDR	
Motion Detection	ON/OFF	
Stabilizer	ON/OFF	
Privacy Mask	ON/OFF (8 Areas)	

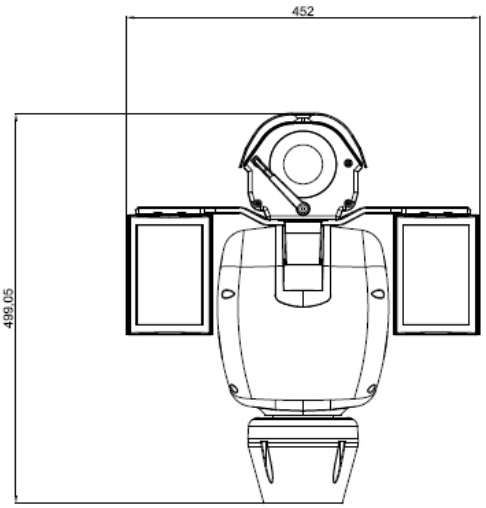
<ZC-PT437, ZC-PTW437>

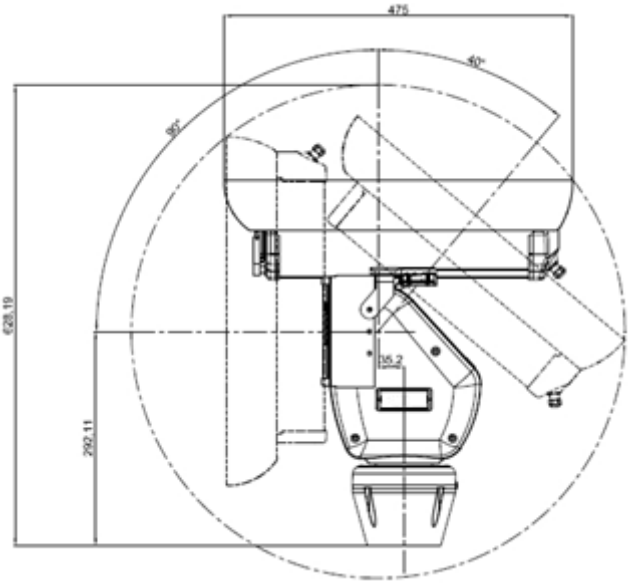
	NTSC	PAL
SSNR	LOW/MEDIUM/HIGH/OFF	
Sens-up	On/Off (Selectable limit ~ 512X)	
Gain Control	LOW/MEDIUM/HIGH/MANUAL/OFF	
White Balance	ATW / INDOOR / OUTDOOR / Manual / AWC	
Electronic Shutter	AUTO(1/60~120,000sec)/MANUAL/A.FLK	AUTO(1/50~120,000sec)/
Communication	RS-422/485, coaxial communication (Pelco-C)	
Protocol	CyberScan I, SAMSUNG-T, SAMSUNG-E, Pelco-D, Pelco-P, PelcoCoaxitron, Panasonic, Honeywell, AD,Vicon, GE, Bosch	
Alarm	8 In, 2 Out	
Aux	2 Out (If Alarm Out is not used)	
Operating Temp./Humidity	-45°C to +50°C / Less than 90% RH	
Storage Temp./Humidity	-50°C to +60°C / 20% to 95% RH	
Input Voltage	AC24V±10%	
Power Consumption	40W (max. 144W while the heater is operating)	
Dimensions (WxHxD)	217.3mm x 587.5mm x 500mm	
Weight	10Kg	

※ The specification may change without prior notice due to product improvements.

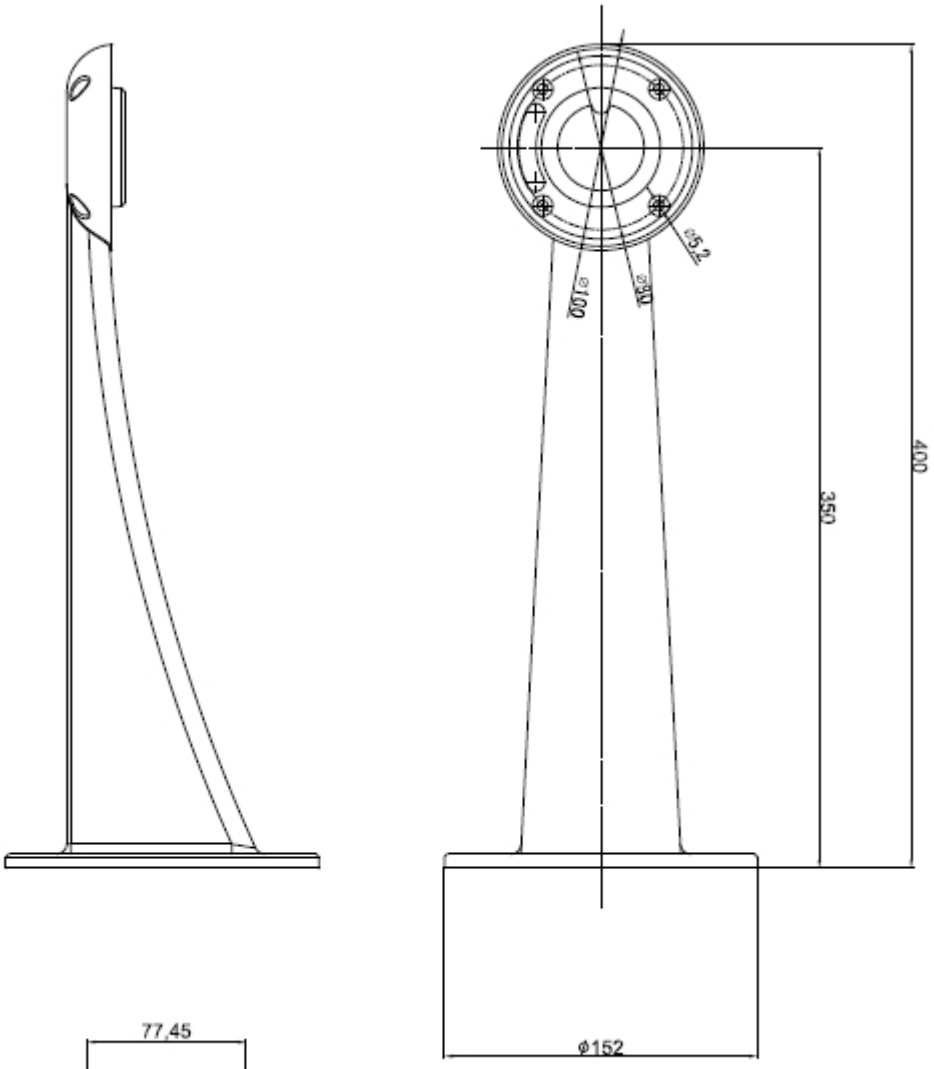
DIMENSIONS (ZC-PT437, ZC-PTW437)

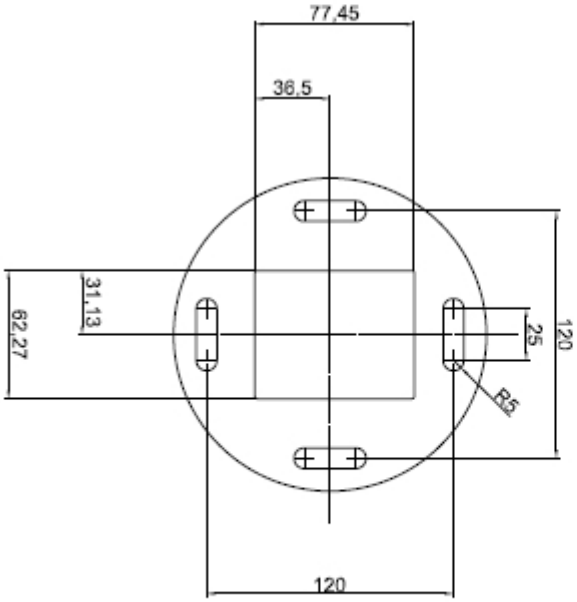






- **Wall Mount**





- **Pole Mount**