

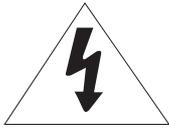
# Star-Light Plus™ 2.1MP/1080p PTZ Camera DWC-PTZ220XW



## ***User's Manual*** Ver. 04/20

Before installing and using the camera, please read this manual carefully.  
Be sure to keep it handy for future reference.

# 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

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

## Precaution

### Operating

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

### Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop the camera or subject it to shock or vibration as this can damage the camera.
- Clean the clear dome cover with extra care. Scratches and dust can ruin the quality of the camera image.

### Installation and Storage

- Do not install the camera in areas of extreme temperature, exceeding the allowed range.
- Avoid installing in humid or dusty environments.
- 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 or water.

# Important Safety Instructions

1. **Read these instructions.** - All safety and operating instructions should be read before installation or operation.
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 device near water.** - For example: near a bathtub, 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 surfaces. 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 instructions 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.
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 the 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 Old Appliances



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 in accordance to laws 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.

# Table of Contents

Chapter 1 – Introduction .....	5
1.1 Features.....	5
Chapter 2 – Installation and configuration .....	6
2.1 Package contents .....	6
2.2 Preparing the installation.....	6
2.3 Mounting the camera .....	7
2.4 Cabling the PTZ camera.....	8
2.5 Setting the camera’s DIP switch.....	9
2.6 Setting the camera’s ID .....	10
2.7 Connections.....	10
2.8 Getting Started.....	11
3.1 Camera selection .....	12
3.2 Accessing the on-screen menu.....	12
3.3 Control the on-screen menu .....	12
3.4 Auto scan .....	13
3.5 Preset.....	15
3.6 Tour.....	17
3.7 Pattern.....	19
3.8 Privacy Zone .....	20
3.9 Camera Menu .....	21
3.9.1 FOCUS CONTROL.....	21
3.9.2 WB (White Balance) CONTROL .....	22
3.9.3 AE CONTROL .....	22
3.9.4 CAMERA CONTROL .....	23
3.10 PTZ Communication .....	24
3.11 Alarm.....	25
3.12 PTZ Setup.....	26
3.12.1 HOME FUNCTION SETUP.....	26
3.12.2 VIEW ANGLE SETUP.....	27
3.12.3 ORIGIN OFFSET .....	28
3.12.4 FACTORY DEFAULT .....	28
3.12.5 PTZ RESET .....	28
3.12.6 OSD DISPLAY.....	29
3.12.7 SYSTEM SETUP.....	29
3.12.8 FUNCTION RUN.....	31
3.12.9 SYSTEM INFORMATION .....	32
Appendix A – Specifications .....	33
Appendix B – Troubleshooting .....	35
Limits and Exclusions .....	36
Warranty.....	37

# Chapter 1 – Introduction

## 1.1 Features

- Universal HD over Coax® technology with HD-Analog, HD-TVI and all legacy analog signal support
- Star-Light™ super low-light technology
- 2.1MP/1080p 1/2.8" Sony image sensor at real-time 30fps
- Analog legacy analog output (720x480)
- 4.7~94mm motorized zoom auto-focus lens
- True Wide Dynamic Range (WDR)
- OSD control via coaxial (UTC)
- 20x optical zoom + 16x digital zoom
- Smart DNR™ 3D digital noise reduction
- True day/night with mechanical IR cut filter
- Programmable privacy zones
- Auto gain control (AGC)
- Backlight compensation (BLC)
- Auto white balance (AWB)
- Motion detection
- Pan 0~360° endless, 180° per second pan speed
- Vector drive technology - pan/tilt motion in the shortest path
- 240 preset positions
- 8 patterns
- 8 tours
- RS-485 built-in
- Alarm sensor input
- Relay output
- IP66 environmental-rated dust-tight and water-resistant
- IK 10-rated impact-resistant

# Chapter 2 – Installation and configuration

## 2.1 Package contents

Make sure the following are included in the box with your camera:

- 1x PTZ camera
- 1x quick setup and download guides
- 1x mounting plate
- 1x mounting template
- 1x safety wire
- **Mounting accessory kit**
  1. 4x mounting screws (PH6 x 35.0)
  2. 4x plastic anchors
  3. 4x O-rings
  4. 1x hex Allen wrench
- **Cabling connectors**
  1. 1x 2-pin terminal block
  2. 1x 3-pin terminal block
  3. 1x 4-pin terminal block
  4. 1x 5-pin terminal block

**NOTE:** Check your package to make sure that you received the complete system, including all components listed above.

**NOTE:** Adaptor for 12VDC and 24VAC is not supplied.

**NOTE:** The camera requires a mounting accessory, sold separately.

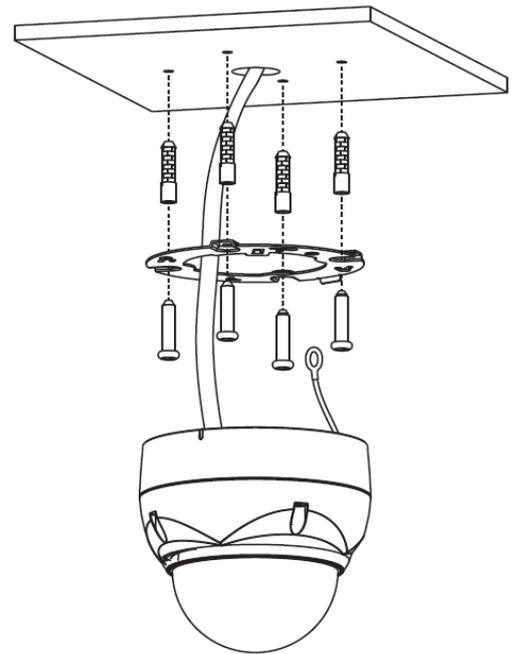
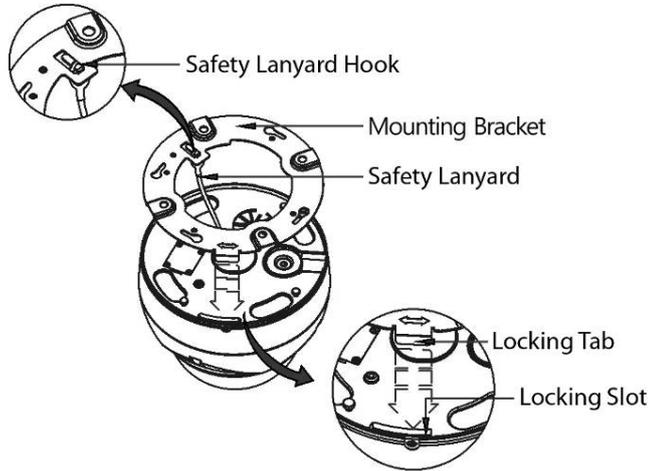
## 2.2 Preparing the installation

1. The mounting surface must withstand five times the camera weight.
2. Do not let the cables get caught in improper places or the electric line cover can be damaged. This may cause a short or fire.
3. Using the camera or mounting template, mark and drill the necessary mounting holes in the mounting surface.

**NOTE:** the camera requires a mounting accessory, sold separately.

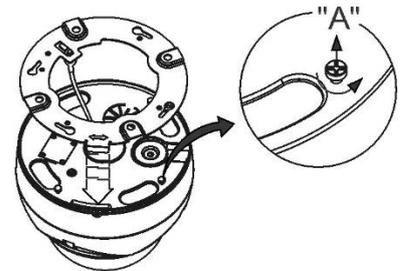
## 2.3 MOUNTING THE CAMERA

1. Fix the mounting bracket to the mounting surface using the included anchors and screws.
2. Connect the camera's safety wire to the mounting bracket. **A silicone rubber sealant must be applied to seal the housing to secure waterproofing.**

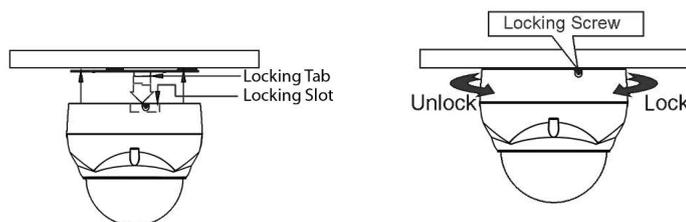


3. Pass wires through and make all necessary connections. See 2.4 for more information.
4. Before installing the camera's mounting bracket to the mounting surface, adjust the four mounting screws "A" on the base of the PTZ camera to match the mounting bracket locked position.

- a. Unscrew the locking screw on the side of the PTZ's base and fit the tab of the mounting bracket into the locking slot.
- b. Screws "A" should not be too tight or too loose when the PTZ is in the locked position.
- c. After setting the proper positions of screws "A", remove the mounting bracket and install it to the mounting surface.
- d. If it is too difficult to lock the PTZ in position after the mounting bracket has been installed, readjust the screws "A" by unscrewing them a little and try to install the camera again.

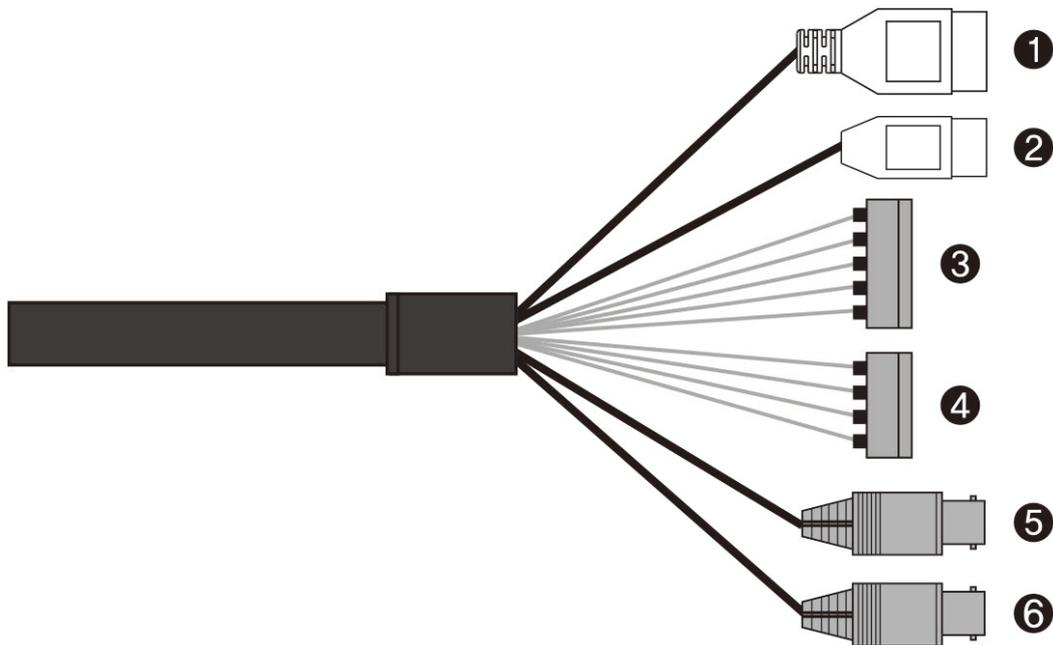


5. Mount the camera to the mounting bracket by twisting the camera clockwise to lock into position.



**NOTE: When installing the camera in a cold environment (colder than 14°F (-10°C)), reset the camera 30-60 minutes after the installation.**

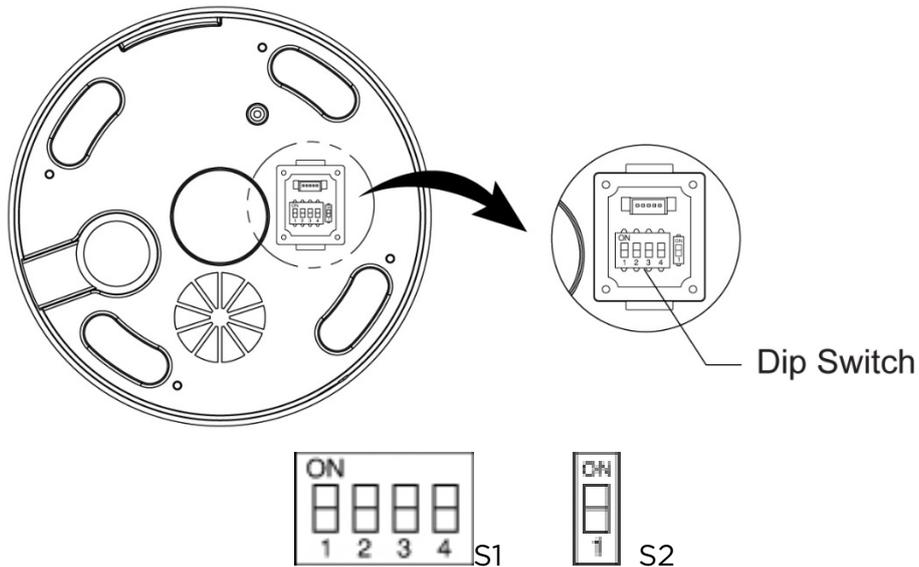
## 2.4 Cabling the PTZ camera



No.	Type	Description
1	3-pin terminal block	Camera power
2	2-pin terminal block	Tx+: RS485+ (A)
		TX-: RS485- (B)
3	5-pin terminal block	A1: alarm input 1
		A2: alarm input 2
		A3: alarm input 3
		A4: alarm input 4
		GND
4	4-pin terminal block	AO1: alarm output 1
		GND
		AO2: alarm output 2
		GND
5	BNC black	HD-TVI/ HD-Analog output
6	BNC yellow	CVBS output

## 2.5 Setting the camera's DIP switch

To access the camera's DIP switch, open the DIP switch cover at the bottom of the camera and change the setting of the DIP switch as needed. Once the settings are updated, close the cover tightly to ensure waterproofing.



- Control the camera's video signal and video type using D1 and D2, respectively, in the S1 switch.

S1-D1	Video signal
OFF	HD-TVI output
ON	HD-Analog Output

S1-D2	Video type
OFF	NTSC
ON	PAL

- Set the camera's CVBS output with D1 in the S2 switch.

S2-D1	WDR type	WDR off/on	CVBS output	HD output
Off	True WDR	Off	Enabled	Enabled
		On	Disabled	Enabled
On	Digital WDR	Off	Enabled	Enabled
		On	Enabled	Enabled

- Set the coaxitron protocols using D3 and D4 in the S1 switch.

S1-D3	S1-D4	HD-TVI output	HD-Analog output
OFF	OFF	HD-TVI-C	A_CP-PTZ
ON	OFF	Pelco-C	Reserved
OFF	ON	Reserved	Reserved
ON	ON	Reserved	Reserved

## 2.6 Setting the camera's ID

To prevent damage, each camera must have a unique address (ID).  
The factory default ID is 1.

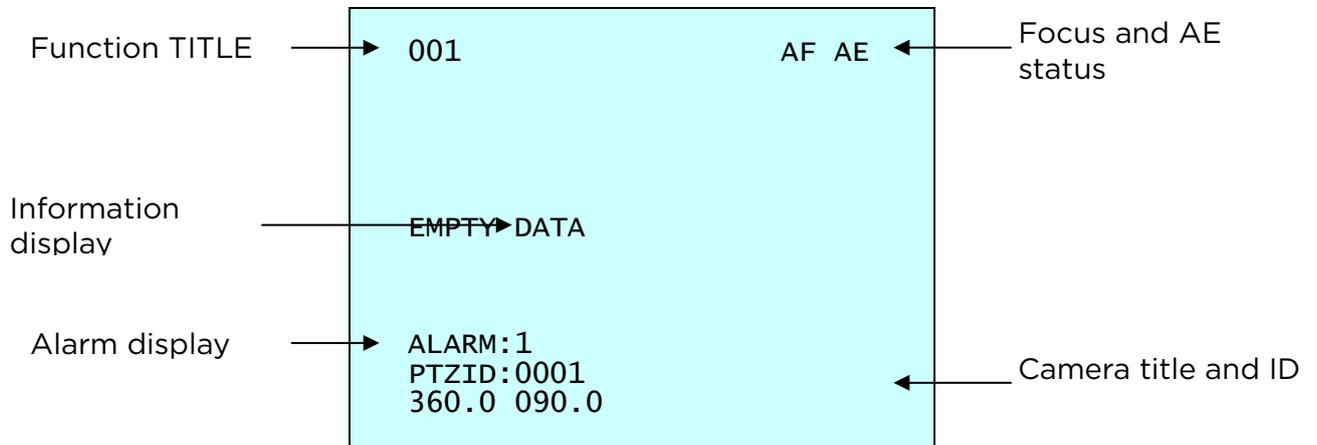
Refer to the “3.10 Camera Communication” section for detailed information.

## 2.7 Connections

- **Connecting to the RS-485** – The camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS-485 half-duplex serial communications signals.
- **Connecting HD output connector** – Connect the HD output (BNC) connector to the video input in the recorder.
- **Connecting CVBS output connector** – Connect the CVBS output (BNC) connector to the video input in the recorder.
- **Connecting alarms**
  - **A1, A2, A3, A4 (alarm input 1, 2, 3, 4)** – You can use external devices to signal the camera to react to events. Mechanical or electrical switches can be wired to the A1, A2, A3, A4 (Alarm Input 1, 2, 3, 4) and G (Ground) connectors. See ‘3 – Program and Operation’ for more information.
  - **G (Ground)** – **NOTE: All the connectors marked G or GND are common.** Connect the ground side of the alarm input and/or alarm output to the G (Ground) connector.
  - **AO1, AO2 (5VTTL alarm output 1, 2)** – The camera can activate external devices such as buzzers or lights. Connect the devices to the AO1, AO2 (alarm output 1, 2), and G (Ground) connectors. See ‘3 – Program and Operation’ for more information.
- **Connecting the power** – Connect a 12VDC or 24VAC power source for the camera. When using a 12VDC adapter, connect the positive (+) pole to the ‘+’ position and the negative (-) pole to the ‘-’ position. Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.

## 2.8 Getting Started

Once the camera is mounted, turn the power on to the camera. The camera will start a configuration sequence.



**OSD position**

# Chapter 3 – Program and Operation

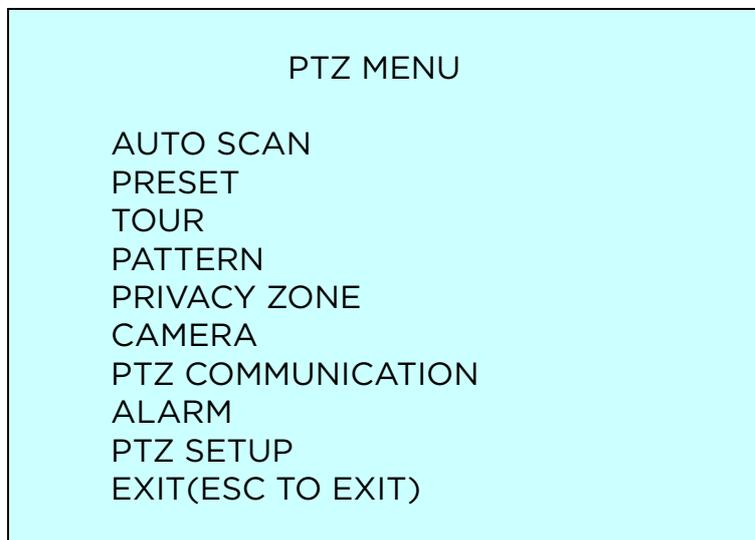
## 3.1 Camera selection

IF you use a keyboard, before you program or operate the camera, select the camera by pressing **No.** + **CAM** keys.

**Example:** Pressing **1**, **0** + **CAM** keys will select camera 10. The selected camera ID will be displayed on the keyboard's LCD monitor.

## 3.2 Accessing the on-screen menu

You can call up the on-screen menu utility on your monitor by pressing the **MENU** key on the keyboard or DVR, the following on-screen menu utility will appear:



## 3.3 Control the on-screen menu

Function	Button
Call the on-screen menu.	<b>MENU</b>
Navigate through the menu items.	<b>Up</b> or <b>Down</b>
Go into the sub-menu items.	<b>Right</b> , <b>Left</b> or <b>IRIS Open</b>
Change value. Enter the editing title mode.	<b>Right</b> , <b>Left</b> , <b>Tele</b> or <b>Wide</b>
Enter the changing angle mode.	<b>IRIS Open</b>
Exit the changing angle mode.	<b>IRIS Close</b>

### 3.4 Auto scan

The 'auto-scan' feature supports up to 17 programmed angles at user-programmable speeds.

AUTO SCAN SETUP	
NUMBER	: 01
TITLE	: A01
MODE	: NORMAL
SPEED	: 5 STEP
START ANGLE	: -----
END ANGLE	: -----
SCAN DIR	: CCW
SWAP	: OFF
DWELL	: 03 SEC
FOCUS	: AUTO
SAVE AND EXIT(ESC TO CANCEL)	

- **NUMBER** 01 ~ 08, 10 ~ 17, **09**: auto-pan mode (endless panning).
- **TITLE** Up to 6 characters.
- **MODE** Normal, vector, random (auto-pan mode: normal, random only).
  - **NORMAL** Move from the start point to endpoint in panning only.
  - **VECTOR** Move from the start point to endpoint including tilt and zoom simultaneously and linearly.
  - **RANDOM** Move randomly between the start point and the endpoint.
- **SPEED** 1 ~ 13, the lower the number the slower the speed.
- **SCAN DIR** Set the scan direction, CCW (counter-clockwise) or CW (clockwise).
- **SWAP** Swap the start point for the endpoint.
- **DWELL** Set the dwell time at both ends, 01 ~ 99 seconds.
- **FOCUS** Set to auto or manual.

To program the camera to 'Auto Scan':

1. Press the **MENU** key to display the camera's menu options. Select the 'Auto Scan' sub-category and press the **Right** key.
2. Select "NUMBER" and set the desired number by pressing the **Right** or **Left** key.
3. Select "TITLE" and press the **Tele** or **Wide** key to enter the title edit mode.
4. Press the **Tele** or **Wide** key to change the alphanumeric characters and move the next position by pressing the **Right** or **Left** key. Or move down to the character table and press the **IRIS Open** key at the desired character then the cursor position moves to the next position automatically. Press the **Right** or **Left** key at the "ALL DELETE" field to delete all characters. Press the **Right** or **Left** key at the "EXIT" field to finish the title edit menu.

```
TITLE EDIT MENU
      (CTRL KEY)

A01
$

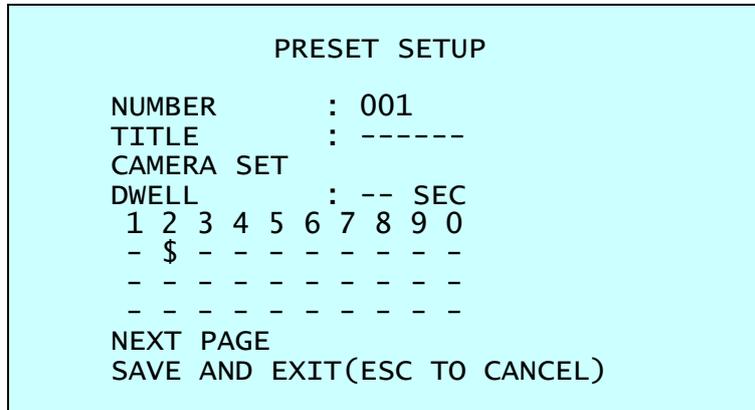
A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z 0 1 2 3
4 5 6 7 8 9 ( )
ALL DELETE
EXIT(ESC TO EXIT)
```

5. Select “MODE” and “SPEED”.
6. Select “START ANGLE”. Press the **IRIS Open** key then the “CONTROL” displays. Move the desired position and the zoom position. Press the **IRIS Close** key then the “CONTROL” disappears. To adjust at the 0.1-degree interval, press the **Tele** or **Wide** key at the pan field and the tilt field. To adjust at the one zoom interval, press the **Tele** or **Wide** key at the zoom field.
7. Select “END ANGLE”. Press the **IRIS Open** key then the “CONTROL” displays. Move the desired position and the zoom position. Press the **IRIS Close** key then the “CONTROL” disappears. To adjust at the 0.1-degree interval, press the **Tele** or **Wide** key at the pan field and the tilt field. To adjust at the one zoom interval, press the **Tele** or **Wide** key at the zoom field.
8. Set “SCAN DIR” to CCW or CW.
9. Select “SWAP”, Set to ON to exchange the start angle and the end angle.
10. Set “DWELL time”.
11. Set “FOCUS”.
12. Select “SAVE AND EXIT” and press the **Right** or **IRIS Open** key. Press the **IRIS Close** key to exit the program without saving.

### 3.5 Preset

If you need to view specific places routinely, you should program Presets. A Preset is a programmed video scene with automatic pan, tilt, zoom, focus, and AE settings. Also, Presets may be assigned the “home” position for the PTZ camera. As many as 240 Presets, whose positions are saved in the PTZ camera’s firmware, may be programmed.

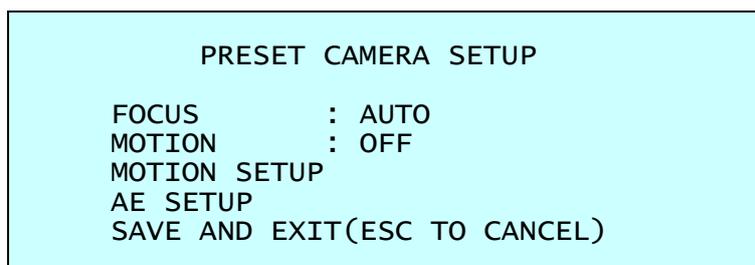
There are eight pages in the preset menu. Each page has 30 Presets. Pages can be scrolled by pressing the **Right** or **Left** key on the first or last No. of Preset.



- Blank Preset position
- \$ Position has the Preset
- ! Current cursor position

Follow steps below to store the Preset positions:

1. Press the **MENU** key to display the main menu on the monitor. Scroll to Preset and press the **Right** key.
2. Select the blank Preset position to be stored by pressing the **Up**, **Down**, **Right**, or **Left** key.
3. After selecting a blank position, press the **IRIS Open** key. Use the **Up**, **Down**, **Right**, **Left**, **Tele**, or **Wide** key to controlling the direction of the camera and lens.
4. After aiming the camera (view direction and lens control), press the **IRIS Close** key. The cursor will be on the “TITLE” after saving data then press the **Tele** or **Wide** key to edit the Preset title. Follow the procedure of the Auto Scan above to edit titles.
5. Select “CAMERA SET” and press the **Right** or **Left** key. Then the Preset camera setup displays.



- Set **FOCUS**     AUTO, MANUAL, ONE PUSH
- Set **MOTION**   OFF, ON

Select "MOTION SETUP" and press the **Right** or **Left** key. Then the MOTION setup displays.

```
MOTION SETUP
SENSITIVITY      : 10
POSITION         : ALL
DELAY            : 00 SEC
OUTPUT           : OFF
HOLD TIME        : 03 SEC
EXIT(ESC TO EXIT)
```

```
Set SENSITIVITY  00 ~ 20
Set POSITION      ALL, CENTER
Set DELAY        00 ~ 05 seconds
Set OUTPUT       OFF, OUT1, OUT2
Set HOLD TIME    03 ~ 99 seconds
```

Select "AE SETUP" and press the **Right** or **Left** key. Then the AE setup displays. Refer to the AE SETUP in the camera setup.

6. Set "DWELL time". (03 ~ 99 seconds)
7. To select the next page of Presets, scroll the page by pressing the **Right** or **Left** key on the first or last columns of the menu.
8. Repeat steps 2 through 7 for each additional Preset position.
9. Select "SAVE AND EXIT" and press the **Right** or **IRIS Open** key. Press the **IRIS Close** key to exit the program without saving.

### 3.6 Tour

There are 8 programmable Tours. Each Tour consists of up to 40 Preset positions, Patterns, Scans, or other Tours (second-level). Using second-level Tours, it can be expanded to over 300 functions in a single Tour.

```

          TOUR SETUP

NUMBER      : 01
TITLE       : T01
SCAN TYPE   : NORMAL
SPEED       : -- STEP
TOUR FUNCTION
SAVE AND EXIT(ESC TO CANCEL)
    
```

```

          TOUR FUNCTION SETUP
          (CTRL KEY)
DWELL      : -- SEC
003 A04 --- --- ---
--- --- --- --- ---
--- --- P01 --- ---
--- T02 --- --- ---
--- --- --- --- ---
--- --- --- --- ---
--- --- --- --- ---
EXIT(ESC TO EXIT)
    
```

---	Blank position
SCAN TYPE	NORMAL, VECTOR
DWELL	03 ~ 99 seconds
003	Preset (1 ~ 240)
A04	Auto Scan (1 ~ 8, 10 ~ 17)
P01	Pattern (1 ~ 8)
T02	Tour (1 ~ 8)

Follow the steps below to program the Tours:

1. Press the **MENU** key to display the main menu on the monitor. Scroll to Tour and press the **Right** key to enter the Tour menu.
2. Select "NUMBER" and set the desired number by pressing the **Right** or **Left** key.
3. Select "TOUR FUNCTION" and press the **Right** key to enter the Tour Function Setup menu.
4. Choose a blank position to be programmed by pressing the **Up**, **Down**, **Right**, or **Left** key.
5. To add a stored Preset, press the **Tele** or **Wide** key then the stored Preset number displays.
6. To place functions other than Preset, press the **IRIS Open** key to scroll for Tour, Pattern, or Auto-Scan respectively.
7. You can also overwrite the programmed number and remove a stored number from the Tour, press the **IRIS Open** key until '---' is displaying in the position.

8. Repeat steps 2 through 6 for each desired position. Each title will be displayed on top of the line.
9. To edit the "TITLE", follow the procedure of the Auto Scan above to edit titles.
10. Select "SAVE AND EXIT" and press the **Right** or **IRIS Open** key. Press the **IRIS Close** key to exit the program without saving.

You can expand the Tour sequence by calling other programmed Tours.

**NOTE: The speed applies in vector mode only.**

**NOTE: In Tour mode, you can make the camera travel from a Preset position to another Preset position at a specific speed.**

**Example:** Preset 001>002>003>004>005>006, Auto Scan 01 starts at Preset 002, ends at Preset 003, Auto Scan 02 starts at Preset 005, ends at Preset 006; Tour 001, 002, A01, 004, A02.

1 → 2   2-3 → 4 → 5-6, repeat where → : Quick move, ~ : Programmed speed

**To assign functions other than a Preset in the Tour when the function key does not exist:**

1. Move the cursor to a stored Preset position.
2. Pressing the **IRIS Open** key will change the Preset number to other functions (Auto Scan, Pattern, Tour, or Preset) with the first programmed number.
3. To change the number, press the **Tele** or **Wide** key.

### 3.7 Pattern

The Pattern feature records user control of the selected PTZ camera. Up to 8 Patterns can be stored and played back by pressing **No.** + **PTRN** keys subsequently.

PATTERN SETUP (CTRL KEY)			
NO	TITLE	SEC	PERCENT
1	: P01	000	00.0%
2	: P02	000	00.0%
3	: P03	000	00.0%
4	: P04	000	00.0%
5	: P05	000	00.0%
6	: P06	000	00.0%
7	: P07	000	00.0%
8	: P08	000	00.0%
SAVE AND EXIT(ESC TO CANCEL)			

Follow steps below to program the Pattern:

1. Press the **MENU** key to display the main menu on the monitor. Scroll to Pattern and press the **Right** key to enter the Pattern menu.
2. Select the desired Pattern to be programmed by pressing the **Up** or **Down** key. If the Pattern is not 000, a Pattern has already been recorded. Patterns can be overwritten.
3. Press the **IRIS Open** key then the "CONTROL" displays. Move the position and the zoom position. Press the **IRIS Close** key then the "CONTROL" disappears.
4. To edit the "TITLE", follow the procedure of the Auto Scan above to edit titles.
5. Select "SAVE AND EXIT" and press the **Right** or **IRIS Open** key. Press the **IRIS Close** key to exit the program without saving.

**NOTE:** If Pattern recording time reaches 500 seconds, it will automatically stop for a moment.

### 3.8 Privacy Zone

Hide up to 16 unwanted scenes in a camera.

There are four pages of the Privacy Zone menu. Each page has 4 Privacy Zones.

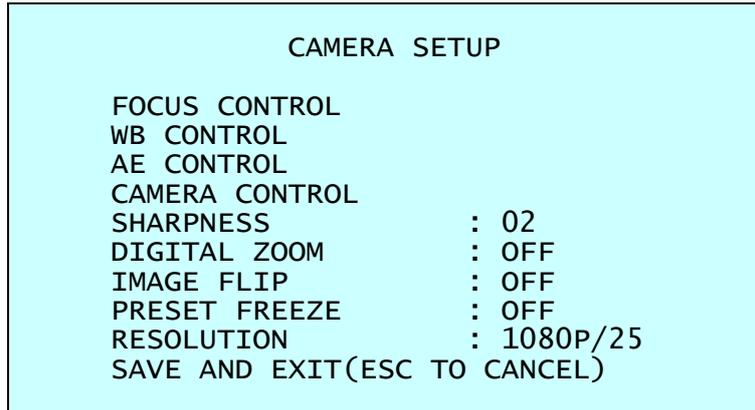
PRIVACY ZONE SETUP (CTRL KEY)			
NO		METHOD	COLOR
01	ON	BLOCK	BLACK
02	ON	BLOCK	BLACK
03	OFF	-----	BLACK
04	OFF	-----	BLACK
NEXT PAGE			
SAVE AND EXIT(ESC TO CANCEL)			

1. Place the cursor in the field.
2. Press the **IRIS Open** key then the privacy area menu displays. Move the desired position. Press the **IRIS Close** key then the "CONTROL" disappears. To adjust the size, press the **Tele** or **Wide** key. Returns to the previous menu.

PRIVACY AREA MENU (CTRL KEY)	
NUMBER 01	
354.8	344.8
EXIT(ESC TO EXIT)	

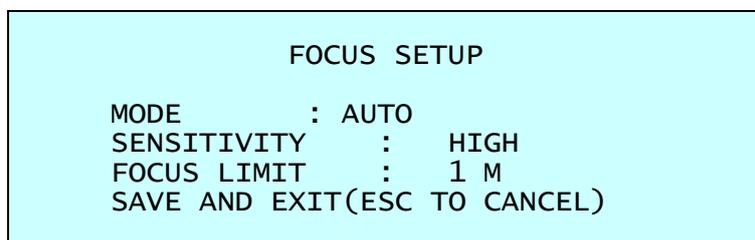
3. To turn the stored zone ON or OFF, press the **Tele** or **Wide** key.
4. Set the "COLOR": "BLACK", "WHITE", "YELLOW", "CYAN", "GREEN", "MAGENTA", "RED" or "BLUE".
5. Select "SAVE AND EXIT" and press the **Right** or **IRIS Open** key. Press the **IRIS Close** key to exit the program without saving.

### 3.9 Camera Menu



FOCUS CONTROL	See section 3.9.1.
WB CONTROL	See section 3.9.2.
AE CONTROL	See section 3.9.3.
CAMERA CONTROL	See section 3.9.4.
SHARPNESS	The higher the value, the more edges in the picture will be enhanced. (0 ~ 10)
DIGITAL ZOOM	OFF: The zoom range is limited to the optical. 2X: Zoom is extendable up to 2X of the digital range. 4X: Zoom is extendable up to 4X of the digital range. 8X: Zoom is extendable up to 8X of the digital range. MAX: Zoom is extendable up to the Max digital range.
IMAGE FLIP	This function turns the video output from the camera upside down and reverses it horizontally. <b>This option is helpful to install on the opposite side.</b>
PRESET FREEZE	ON: the image is frozen during calling Preset.
RESOLUTION	HD-TVI output: 1080P/30, 1080P/25, 720P/60, 720P/50, 720P/30, 720P/25 HD-Analog output: 1080P/30, 1080P/25

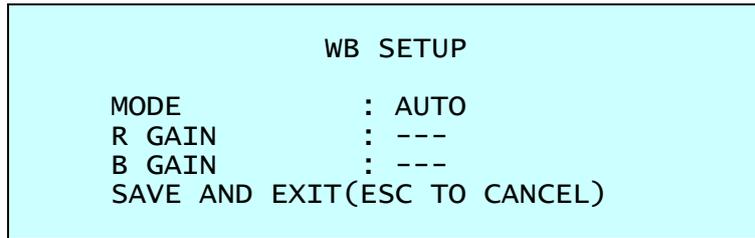
#### 3.9.1 FOCUS CONTROL



MODE	AUTO, MANUAL, ONE PUSH, CONSTANT MANUAL Use manual mode in normal use.
SENSITIVITY	LOW, LOW.MID, MID, MID.HIGH, HIGH
FOCUS LIMIT	This distance is an approximate value and the focus operates from the setting value.

**CAUTION:** Avoid continuous, 24-hour use of the autofocus. This will shorten the lifespan of the lens.

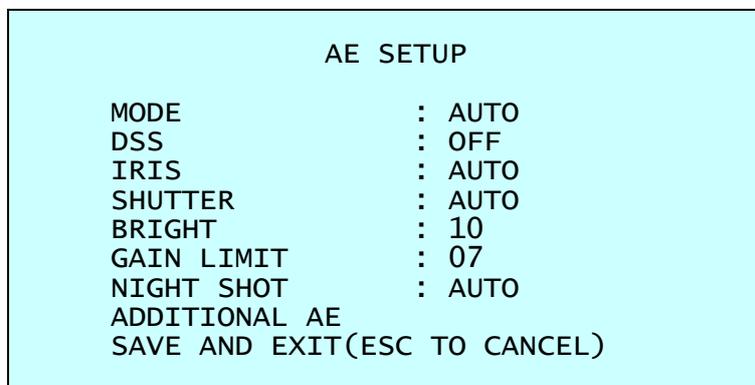
### 3.9.2 WB (White Balance) CONTROL



<b>MODE</b>	AUTO, MANUAL, INCANDESCENT, FLUORESCENT, OUTDOOR
AUTO	Computes the white balance value output using color information from the entire screen automatically.
INCANDESCENT	Auto white balance mode that is compatible with incandescent lamps.
FLUORESCENT	Auto white balance mode that is compatible with fluorescent lamps.
OUTDOOR	Outdoor white balance mode
MANUAL	Manual mode, you can change R and B Gain manually.
R GAIN	0 ~ 255
B GAIN	0 ~ 255

R GAIN / B GAIN modes are controllable only in MANUAL Mode.

### 3.9.3 AE CONTROL



<b>MODE</b>	AUTO, MANUAL, I.PRIO, S.PRIO
AUTO	Auto exposure mode
MANUAL	Variable Iris, Shutter speed
I.PRIO	Variable Iris, Auto Shutter speed
S.PRIO	Variable Shutter speed, Auto Iris
DSS	OFF, x2 ~ x8
IRIS	F1.8 ~ F32
SHUTTER	1/25 (30) ~ 1/30000
BRIGHT	0 ~ 20
GAIN LIMIT	0 ~ 7
NIGHT SHOT	AUTO, ON, OFF, GLOBAL

**NOTE: Values in ( ) are for NTSC Camera.**

The NIGHT SHOT option removes the IR cutoff filter of the camera and makes the camera sensitive to near-infrared.

- AUTO** Camera goes into B&W mode at low light.
- GLOBAL** Controlled by the keyboard  
**(NOTE: GLOBAL function operates F2E protocol only)**  
 The operator can enable NIGHT SHOT for all PTZ cameras at the same time.  
 If the NIGHT SHOT mode is set to GLOBAL, "999" + **ENTER** will turn Off the NIGHT SHOT mode, and "888" + **ENTER** will turn On the NIGHT SHOT mode.
- ON** B/W mode
- OFF** Color mode

**NOTE: AUTO in the NIGHT SHOT function is not applied in the "MANUAL" mode of AE Control.**

**ADDITIONAL AE**

```

          ADDITIONAL AE SETUP

WDR           : OFF
WDR WEIGHT    : --
BLC           : OFF
HLC           : OFF
HLC LEVEL     : --
HLC COLOR     : ---
DEFOG        : OFF
EXIT(ESC TO EXIT)
    
```

- WDR** OFF, ON, NIGHT OFF (NOTE: When ON, BLC will be disabled.)
- WDR WEIGHT** LOW, MID, HIGH
- BLC** OFF, ON (NOTE: When ON, WDR will be disabled.)
- HLC** OFF, ON
- HLC LEVEL** 0 ~ 20
- HLC COLOR** BLACK, WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE
- DEFOG** OFF, ON

**3.9.4 CAMERA CONTROL**

```

          CAMERA CONTROL

D/N LEVEL     : MID
D/N DELAY     : 03 SEC
CHROMA        : 06
GAMMA         : 2
DNR           : MID
DIS           : OFF
SAVE AND EXIT(ESC TO CANCEL)
    
```

- D/N LEVEL** LOW, MID, HIGH
- D/N DELAY** 1 ~ 60 seconds

CHROMA	0 ~ 20
GAMMA	0 ~ 4
DNR	OFF, LOW, MID, HIGH
DIS	OFF, ON

### 3.10 PTZ Communication

Each PTZ camera must have a unique address (ID). The factory default setting is 1.

```

PTZ COMMUNICATION

PTZ ID          : 0001 $
PROTOCOL        : AUTO
BAUDRATE        : 9600
PARITY          : NONE
TERMINATION     : OFF
SAVE AND EXIT(ESC TO CANCEL)

```

PTZ ID	1 ~ 3999
PROTOCOL	AUTO, F2/F2E, PELCO-PD
BAUDRATE	2400, 4800, 9600, 19200, 38400 bps
PARITY	NONE, EVEN, ODD
TERMINATION (RS-485)	OFF, ON

The device connected at end of the line, whether it is a PTZ camera or keyboard, must have the cable for communication terminated by setting the appropriate DIP switch. If the DIP switch is not set properly to the right ID, control signal errors may occur. The total length of the cable for communication should not exceed 4,000 ft (1,200 m).

### 3.11 Alarm

```

                ALARM SETUP
                (CTRL KEY)
NO PRI FUN IN  OUT  HOLD LATCH
1  1  001 NO  OUT1 03  OFF
2  1  --- OFF OFF  03  OFF
3  1  --- OFF OFF  03  OFF
4  1  --- OFF OFF  03  OFF
DWELL          : 03 SEC
ALARM OUT SETUP
SAVE AND EXIT(ESC TO CANCEL)
    
```

- NO (Number)**      Alarm input number
- PRI (Priority)**    The lower number has a higher priority. (0 ~ 4)
- FUN (Function)**    Stored function number to be called by an alarm.
- IN (Input)**        NO/NC - normally open/closed, OFF - ignore
- OUT (Output)**      OUT1 ~ OUT2 - 5VTTL output, OFF - no output
- HOLD**              Alarm will be held for the programmed time. (03 to 99 seconds)
- LATCH**             ON - Alarm message will remain on the screen even though the  
alarm input is deactivated.  
OFF - Alarm message will disappear from the screen after  
programmed hold time when alarm input is deactivated.
- DWELL**             Means the dwell time during multiple alarms, 03 to 99 seconds.

```

                ALARM OUT SETUP

OUT1  : ALARM
OUT2  : 1 MIN
EXIT(ESC TO EXIT)
    
```

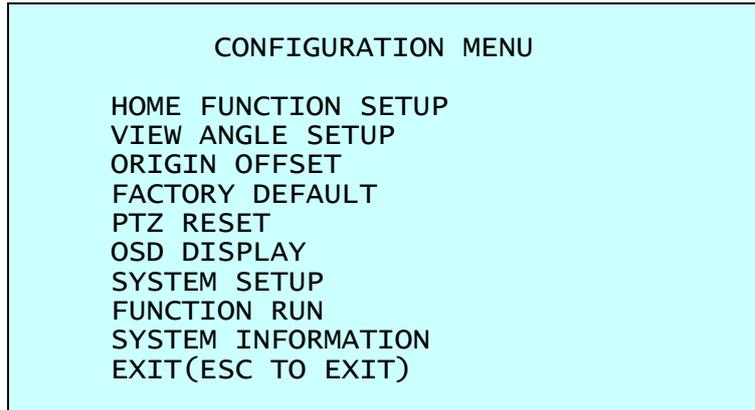
**ALARM:** Alarm output is operated during an alarm operation or by the short key of the keyboard.

**1 ~ 5 MIN (minute):** Alarm output is operated during this set time only by the function run of the PTZ menu or the short key of the keyboard.

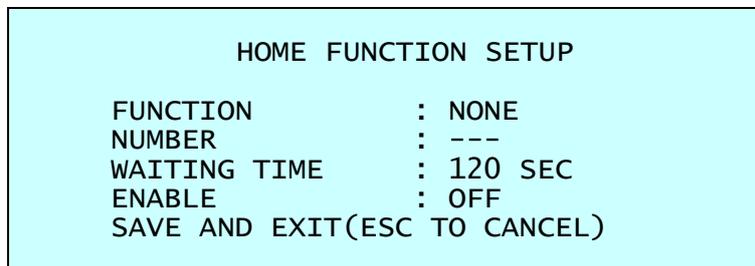
**NOTE:** This 1 ~ 5 MIN setting is not operated by an alarm.

There are 5 priority levels. The function can be a Preset, Auto scan, Pattern, or Tour. "0" is the highest priority. Lower priority alarms will not be serviced until the higher priority alarms are completed. Alarms with equal priority will be serviced repeatedly with the set dwell time.

## 3.12 PTZ Setup



### 3.12.1 HOME FUNCTION SETUP



<b>FUNCTION</b>	NONE, TOUR, PATTERN, AUTO SCAN, PRESET
<b>NUMBER</b>	---
<b>WAITING TIME</b>	10 ~ 240 seconds
<b>ENABLE</b>	ON, OFF

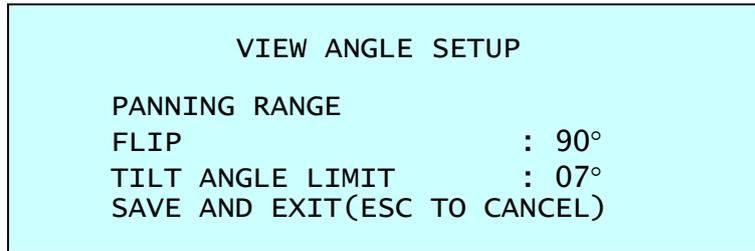
The Home Function can be set so that the camera automatically goes to Tour, Pattern, Auto Scan, or Preset after the keyboard or DVR has been idle for a specified amount of time.

For example, if the controller is idle for 120 seconds, the camera goes to Preset 1.

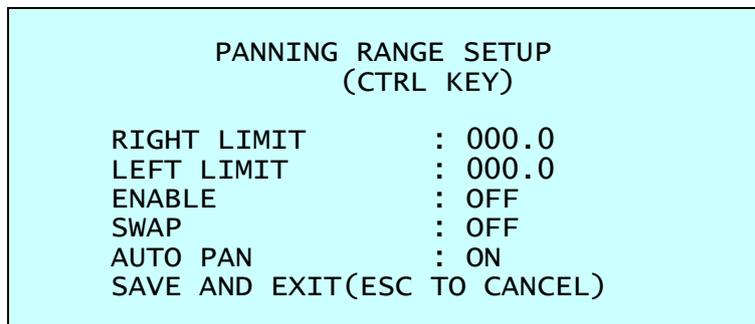
Follow these steps to program the Home position:

1. Select “**FUNCTION**” by pressing the **Right** or **Left** key to scroll through the None, Tour, Pattern, Auto Scan, or Preset functions.
2. Select “**NUMBER**” and press the **Right** or **Left** key. The recorded function number will scroll.
3. Select “**WAITING TIME**” and press the **Right** or **Left** key to select from 10 to 240 seconds.
4. Select “**ENABLE**” and turn to ON or OFF by pressing the **Right** or **Left** key.

### 3.12.2 VIEW ANGLE SETUP



- FLIP** OFF, AUTO, 90°, 100°, 110°, 120°
- OFF:** The PTZ camera moves until 90° vertically.
- AUTO:** When the camera reaches the floor directly above the moving object, it will stop. At that time, release the controller instantly and pull it down again to run the auto-flip function. When you use the panning range, it is recommended to use the flip mode to AUTO.
- 90°, 100°, 110°, 120°:** Allows the image to flip digitally when the camera moves over the setting angle vertically.
- TILT ANGLE LIMIT** -10° ~ 10°
- This option is designed to limit the view angle as there is some obstruction in zooming out on specific areas of the tilt angle.
- NOTE: Focus issues may occur in certain conditions.**
- PANNING RANGE** When the camera is installed near a wall, the panning range can be limited by the user.



1. Place the PTZ camera under 90 degrees vertically.
2. Set the “**RIGHT LIMIT**” by pressing the **Right** key.
3. Set “**LEFT LIMIT**” by pressing the **Left** key.
4. Set “**ENABLE**” to ON to use.

To exchange the right and the left limit, set “**SWAP**” to ON.  
To apply limits on the auto pan (endless panning), set “**AUTO PAN**” to ON.

**NOTE:** When the flip mode is at 90°, 100°, 110° or 120° and you move the camera over 90° vertically, the panning range operates on the opposite side.

### 3.12.3 ORIGIN OFFSET

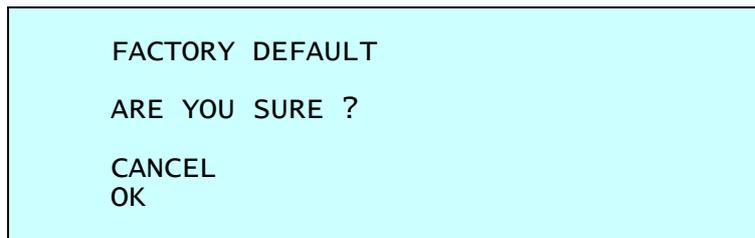


This feature is useful to align a new PTZ camera the same as the previously installed PTZ camera.

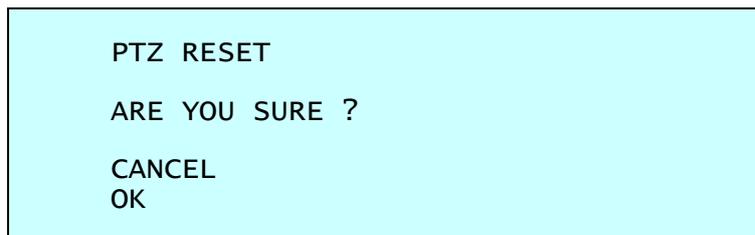
PTZ camera's origin set and all data initialize option do not override offset values. Only the default settings option in this menu will set the offset value to zero. This can be used to avoid ceiling obstructions.

### 3.12.4 FACTORY DEFAULT

Select "FACTORY DEFAULT" to initialize the data.

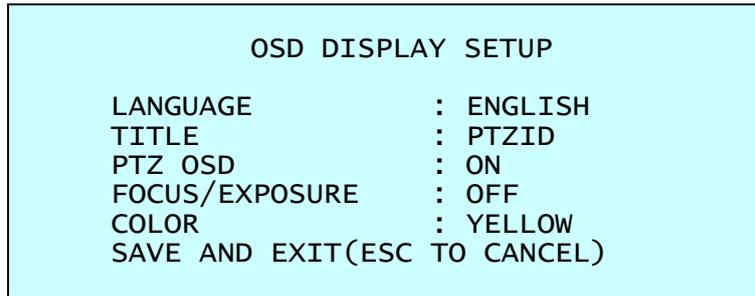


### 3.12.5 PTZ RESET



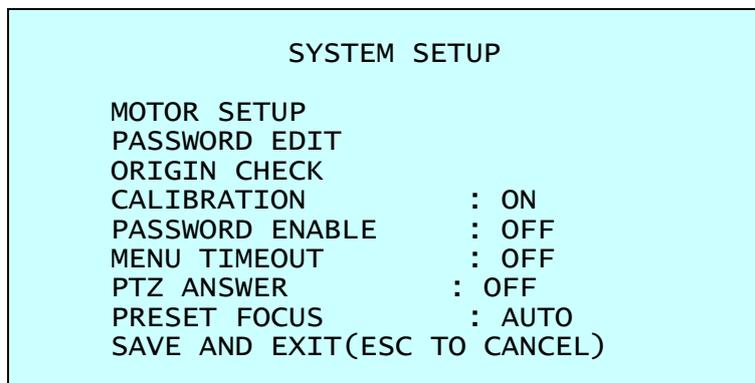
This feature is used to re-calibrate the orientation of a selected PTZ camera. The origin offset value is not affected by this function. (Offset is still valid after origin set.)

### 3.12.6 OSD DISPLAY



- LANGUAGE** Select the desired language.
- TITLE** up to 6 characters
- PTZ OSDON,** POSITION, ON (ZOOM), ZOOM, TILTE&ID, OFF  
All display or title will disappear when PTZ OSD DISPLAY is set to OFF.
- FOCUS/EXPOSURE** ON, OFF  
ON: FOCUS and EXPOSURE displays. (AF AE)
- COLOR** YELLOW, GREEN, BLUE

### 3.12.7 SYSTEM SETUP



- CALIBRATION** ON (Auto origin check), OFF
- PASSWORD ENABLE** ON (requires the password to enter menu), OFF
- MENU TIMEOUT** ON (5 minutes), OFF (always menu display)
- PTZ ANSWER** ON, OFF (no acknowledge command from the PTZ)  
This option is helpful to avoid conflicting commands when using some DVRs.
- PRESET FOCUS** AUTO, MANUAL, ONE PUSH  
This option sets the camera's default focus mode when you save the Preset.

## MOTOR SETUP

Motor setup menu provides the pan and tilt speed of a camera. Users can set the desired speed by pressing the **Right** or **Left** key.

MOTOR SETUP	
PROPORTIONAL P/T	: ON
P/T MODE	: NORMAL
SLOW PAN MAX	: 40
SLOW TILT MAX	: 40
NORMAL PAN MAX	: 90
NORMAL TILT MAX	: 90
TURBO PAN MAX	: 360
TURBO TILT MAX	: 100
SAVE AND EXIT(ESC TO CANCEL)	

PROPOTIONAL P/T ON, OFF

P/T MODE SLOW, NORMAL, TURBO

SLOW PAN Maximum speed 19° ~ 90°/second  
SLOW TILT Maximum speed 19° ~ 90°/second  
NORMAL PAN Maximum speed 40° ~ 360°/second  
NORMAL TILT Maximum speed 40° ~ 200°/second  
TURBO PAN Maximum speed 200° ~ 380°/second  
TURBO TILT Maximum speed 90° ~ 300°/second

## PASSWORD EDIT

PASSWORD EDIT SETUP (CTRL KEY)	
INPUT PASSWORD	
PASSWORD:	
A B C D E F G H I J	
K L M N O P Q R S T	
U V W X Y Z 0 1 2 3	
4 5 6 7 8 9 ( )	
SAVE AND EXIT(ESC TO CANCEL)	

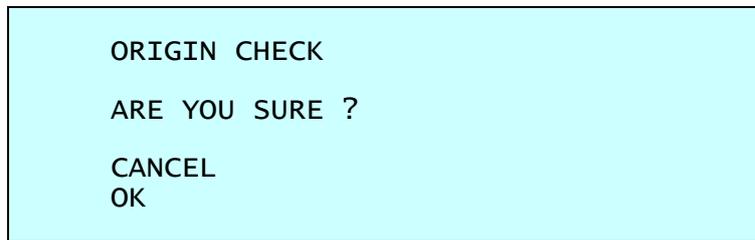
You can change the password with a 6-digit character on this menu.

The default password is **555555**.

When the password enables is on, the input password window displays to enter the menu. At this time, move the cursor to the desired character with the controller and press the **IRIS Open** key.

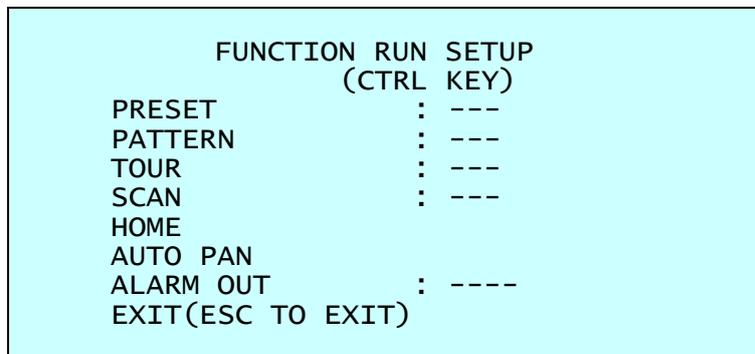
## ORIGIN CHECK

If you find the PTZ camera in the wrong position during operation, execute this origin check and the PTZ camera will return to the right position after the origin check operation.



## 3.12.8 FUNCTION RUN

This Function Run menu allows you to execute the function when you use the keyboard or DVR without the function keys (Preset, Pattern, Tour, and Scan).



1. Select the desired function by pressing the **Up** or **Down** key.
2. Select the number by pressing the **Tele** or **Wide** key in PRESET, PATTERN, TOUR, and SCAN.
3. Press the **IRIS Open** key to execute.

**NOTE:** To execute a function, you must have at least one PRESET, PATTERN, TOUR, and SCAN setup first.

- **HOME**
  - Select "HOME" and press the **IRIS Open** key. The PTZ camera goes to the default position that it returns to after an assigned period of inactivity passes. The default position may be a Preset, Tour, Pattern, or no action.
- **AUTO PAN**
  - You can execute the endless auto-pan to turn in one direction continuously by selecting Auto-Pan.
- **ALARM OUT**
  - This function can operate only when the alarm out setup has the time in the alarm menu.

Ex)

```
ALARM OUT SETUP

OUT1 : ALARM
OUT2 : 1 MIN
EXIT(ESC TO EXIT)
```

You press the **IRIS Open** key then that alarm out operates during the setting time only.

### 3.12.9 SYSTEM INFORMATION

```
SYSTEM INFORMATION

CAMERA TYPE      : xxxx-Vx.xx
H/W VERSION      : Vx.xx-xxxx
ROM VERSION      : Vx.xxxxxx
PROTOCOL         : xxxx
BAUDRATE         : 9600(NONE)

EXIT(ESC TO EXIT)
```

The system information provides essential information about the PTZ camera if service is required. This screen displays the camera type and ROM version. The information on this screen cannot be modified.

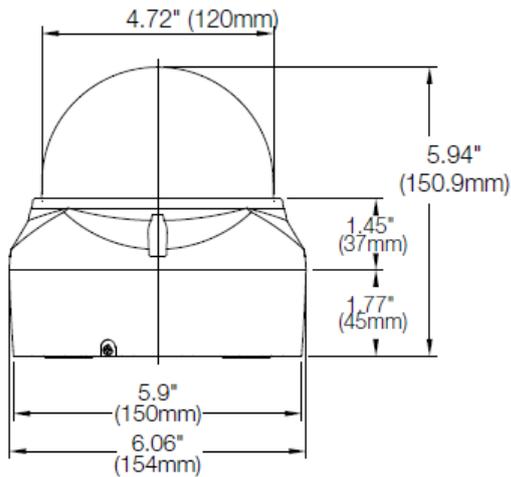
# Appendix A – Specifications

IMAGE	
Image sensor	2.1MP/1080p 1/2.8" CMOS sensor
Active pixels	1945 (H) x 1097 (V)
Scanning system	Progressive scan
Synchronization	Internal
Resolution	HD-TVI: 2.1MP/1080p at 30fps, 720p at 30/60fps
	HD-Analog: 2.1MP/1080p at 30fps
	CVBS: 720 x 480 at 30fps
Minimum scene illumination	0.35 lux (color), 0.013 lux (B/W)
LENS	
Focal length	4.7-94mm, F1.6
Lens type	Vari-focal lens with motorized zoom and auto-focus
Angle of view	55.5 ~ 3°
Digital zoom / zoom	20x optical zoom, 16x digital zoom
Alarm input/ output	4/1
OPERATIONAL	
Shutter mode	Auto, manual
Shutter speed	1/30,000 ~ x 8sec.
Backlight	On / off
De-fog	On / off
Wide dynamic range (WDR)	True WDR, on, off, night off, 100dB
Smart DNR™ 3D digital noise reduction	Off, low, middle, high
White balance	Auto, fluorescent, incandescent, outdoor, manual
Day and night	Auto, day (color), night (B/W)
Mirror / flip	Yes
Privacy zones	16 programmable privacy masks
PTZ FUNCTION	
Pan range and speed	360° endless, max. 380°/sec. (preset)
Tilt range and speed	-10-190°, max. 380°/sec. (preset)
Auto calibration	0.1-6°
Preset	240
Tour	8
Pattern	8
Home function	Yes
ID (camera address)	1-3999
Control	RS-485, baud rate: 2,400 ~ 38,400bps (default: 9,600bps)

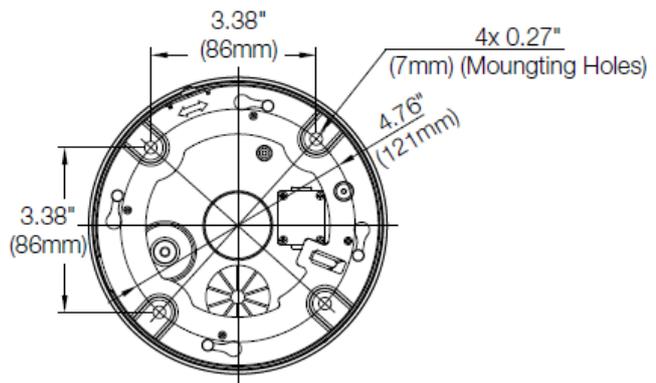
ENVIRONMENTAL	
Operating temperature	14°F - 122°F (-10°C - 50°C)
Operating humidity	0-90% RH (non-condensing)
IK rating	IK-10 impact-resistant
IP rating	IP66 rated weather and tamper-resistant
Other certifications	FCC, CE, ROHS
ELECTRICAL	
Power requirement	12VDC, 24VAC
Power consumption	Max. 1A (12W) @ 12VDC, 24VAC
MECHANICAL	
Material	Aluminum PTZ, polycarbonate PTZ
Dimensions	6.06" x 5.9" (154 x 150 mm)
Weight	Approx. 3.5 lbs. (1.6kg)

\* Specifications are subject to change without notice \*

### Dimension



Front View



Bottom view

## Appendix B – Troubleshooting

If problems occur, verify the installation of the camera with the instructions in this manual and with other operating equipment. Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

Problem	Possible Solution
No video.	Verify that power is connected to all pieces of equipment in the system. Verify that the power switches are in the ON position. Check the video connections.
Poor video quality.	Check that the BNC connectors are inserted properly. Check the voltage level of the PTZ camera. Cable for video is shielded.
PTZ cameras lose their positions.	Reset the cameras using the PTZ configuration menus. Check that the PTZ cameras are inserted properly in the base. Check the voltage level of the PTZ camera.

# Limits & Exclusions

---

There are no express warranties except as listed above. The Warrantor will not be liable for incidental or consequential damages (including, without limitation, damage to recording media) resulting from the use of these products or arising out of any breach of the warranty. All express and implied warranties, including the warranties of merchantability and fitness for particular purpose, are limited to the applicable warranty period set forth above.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights from vary from state to state.

If the problem is not handled to your satisfaction, then write to the following address:

Digital Watchdog, Inc.  
ATTN: RMA Department  
16220 Bloomfield Ave  
Cerritos, CA 90703

Service calls which do not involve defective materials or workmanship as determined by the Warrantor, in its sole discretion, are not covered. Cost of such service calls are the responsibility of the purchaser.

# Warranty Information

---

**Digital Watchdog** (referred to as “the Warrantor”) warrants the Camera against defects in materials or workmanships as follows:

**Labor:** For the initial two (2) years from the date of original purchase if the camera is determined to be defective, the Warrantor will repair or replace the unit with new or refurbished product at its option, at no charge.

**Parts:** In addition, the Warrantor will supply replacement parts for the initial two (2) years.

To obtain warranty or out of warranty service, please contact a technical support representative at 1+ (866) 446-3595, Monday through Friday from 9:00AM to 8:00PM EST.

A purchase receipt or other proof of the date of the original purchase is required before warranty service is rendered. This warranty only covers failures due to defects in materials and workmanship which arise during normal use. This warranty does not cover damages which occurs in shipment or failures which are caused by products not supplied by the Warrantor or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, setup adjustments, improper antenna, inadequate signal pickup, maladjustments of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, rental use of the product or service by anyone other than an authorized repair facility or damage that is attributable to acts of God.



*Complete Surveillance Solutions*

DW® East Coast office and warehouse: 5436 W Crenshaw St, Tampa, FL 33634

DW® West Coast office and warehouse: 16220 Bloomfield Ave., Cerritos, California, USA 90703

PH: 866-446-3595 | FAX: 813-888-9262

[www.Digital-Watchdog.com](http://www.Digital-Watchdog.com)

[technicalsupport@dwcc.tv](mailto:technicalsupport@dwcc.tv)

Technical Support PH:

USA & Canada 1+ (866) 446-3595

International 1+ (813) 888-9555

French Canadian 1+ (514) 360-1309

Technical Support hours: Monday-Friday 9:00am to 8:00pm Eastern Standard Time