Outdoor PTZ Camera

DVR / Camera Communication System Series

Please read instructions thoroughly before operation and retain it for future reference.

The image shown above may differ from the actual product appearance.

IMPORTANT SAFEGUARD

RoHS conform	All lead-free products offered by the company comply with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive, which means our manufacture processes and products are strictly “lead-free” and without the hazardous substances cited in the directive.
	The crossed-out wheeled bin mark symbolizes that within the European Union the product must be collected separately at the product end-of-life. This applies to your product and any peripherals marked with this symbol. Do not dispose of these products as unsorted municipal waste. Contact your local dealer for procedures for recycling this equipment.
CE	This apparatus is manufactured to comply with the radio interference requirements.

RISK OF ELECTRIC SHOCK

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture. Only operate this apparatus from the type of power source indicated on the label. The company shall not be liable for any damages arising out of any improper use, even if we have been advised of the possibility of such damages.

About this document

We reserve the right to revise or remove any content in this manual at any time. We do not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of this manual. For the actual display and operation, please refer to your camera in hand. The content of this manual is subject to change without notice.

Precautions

- Avoid the long-term activation for “Auto Tracking”, “Auto Pan”, and “Sequence” as it might accelerate the aging of the drive mechanism and optical lens. Three-month warranty applies only to certain parts related to these three functions.
- Do not shoot images that are extremely bright for a long time (For example, light sources, the sun, etc.).
- Don’t use or store the camera in the following conditions: (1) Extremely hot or cold places (operating temperature-10°C ~ 50°C (14°F ~ 122 °F). (2) Close to generators of powerful electromagnetic radiation such as radio or TV transmitters. (3) Where it is subject to fluorescent light reflections. (4) Where it is subject to unstable lighting (flickering, etc.) conditions. (5) Where it is subject to strong vibration. (6) Where it is near water or in contact with water.
- Installation should be made by qualified service personnel.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Features

- **Supports DVR / Camera Communication System (DCCS) Technology**
  - There's no need to additionally connect RS485 control wires for camera control because the control signals can be transferred by coaxial cables directly when your DVR supports DCCS technology.
  - Camera installation is highly simplified to lower labor cost and working hours.
- **Advanced Auto Tracking Accuracy**
  - To follow the moving object
- **Rigid & High-Speed Pan / Tilt Mechanism with Two-Million Rotation Test Passed**
  - for longer operating lifetime
- **Pelco-D & Pelco-P Support**
  - For fully compatibility
- **Flexible Color / Shutter Parameters Adjustment**
  - To adapt various light conditions
- **Hot Point**
- **Graphical On-Screen Display**
- **Excellent outdoor ID design with cable management**
- Easy Operation via Keyboard Controller
- Up to 256 preset points & eight preset groups, and Auto Scan

1.2 Package Contents

◎ **In the camera package:**
☐ camera module * 1
☐ User manual * 1
☐ Power / Video cable * 1
☐ Accessory Pack * 1

◎ **In the bracket package:**
☐ Housing * 1
☐ Dome Cover * 1
☐ Bracket * 1
☐ Accessory pack * 1

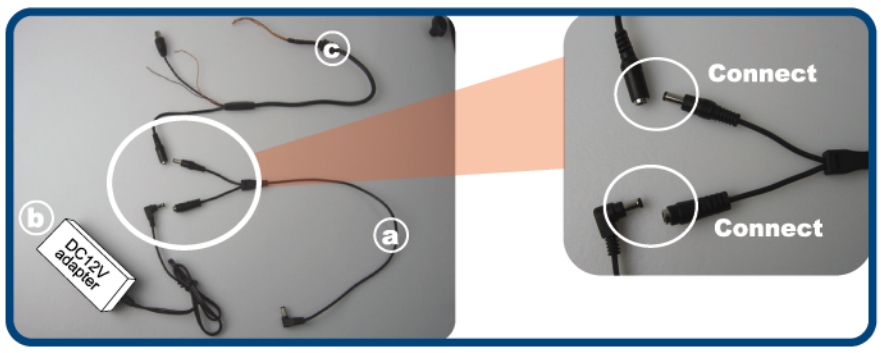
2. INSTALLATION AND SETUP

For the installation and connection of this speed dome camera, please check with qualified service personnel or installer.

2.1 Installation

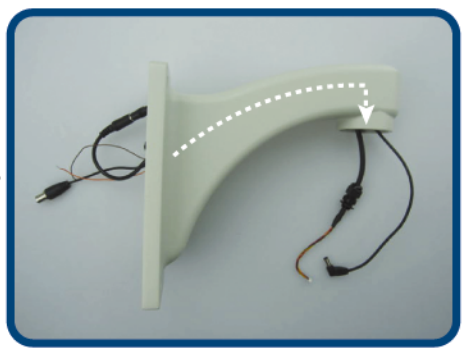
① Attach the bracket to the position where it will be installed, and mark four screw holes on the wall.

② Put cables through the bracket.



Find the three cables and connect as indicated above:
ⓐ Extension cable*.
ⓑ Adapter cable*.
ⓒ Video & power cable (In the camera package).

* The cable ⓐ & ⓑ are optional and needs to be purchased separately.



Then, put cable ⓐ and ⓒ through the bracket.

③ Fix the bracket to the wall and put cable ⓐ and ⓒ through the housing.

Based on your installation environment, arrange the cables to hide behind the wall by drilling a hole on the wall, or arrange the cables to walk along the wall.

Note: The adapter is not water-proof. To prevent it from moisure, hide the adapter to the bracket when the cable is arranged to walk along the wall.

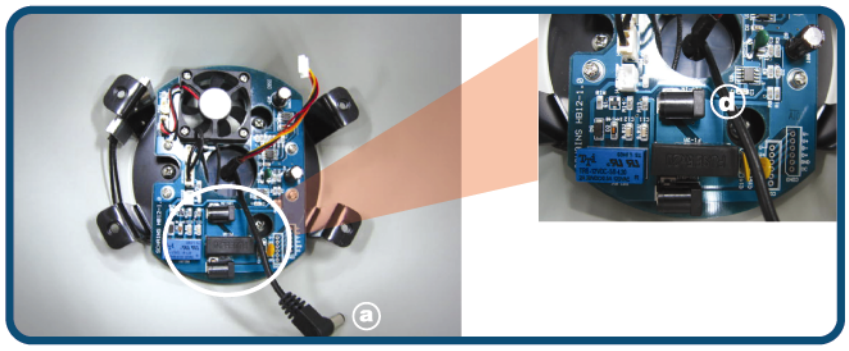
Then, secure the bracket to the wall with four screws (not supplied in the sales package).

Next, put cable ⓐ and ⓒ through the housing, and rotate the housing counterclockwise to fix.

④ Fasten the joint lock.

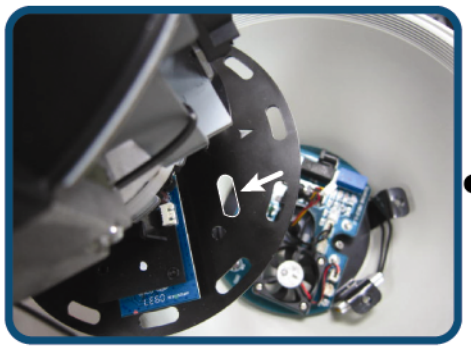
Find the supplied wrench in the bracket package, and fasten the joint lock as indicated above.

⑤ Connect to PCB board in the housing.

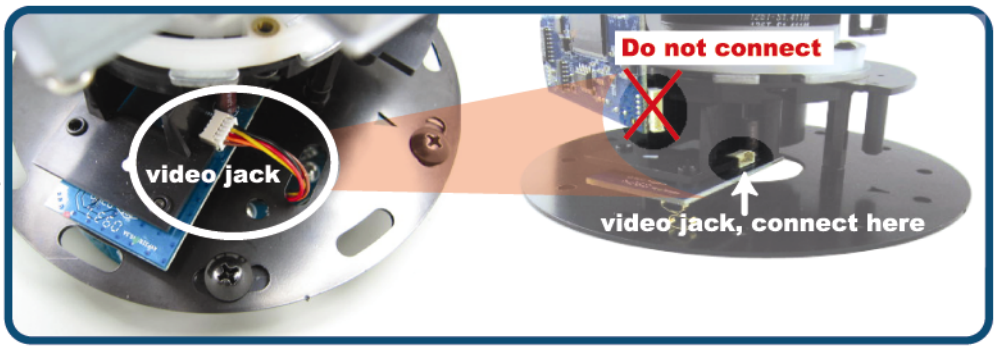


In the housing, connect cable ⓐ to jack ⓓ (12V-IN).

⑥ Put the camera module into the housing, and connect the video & power cable.

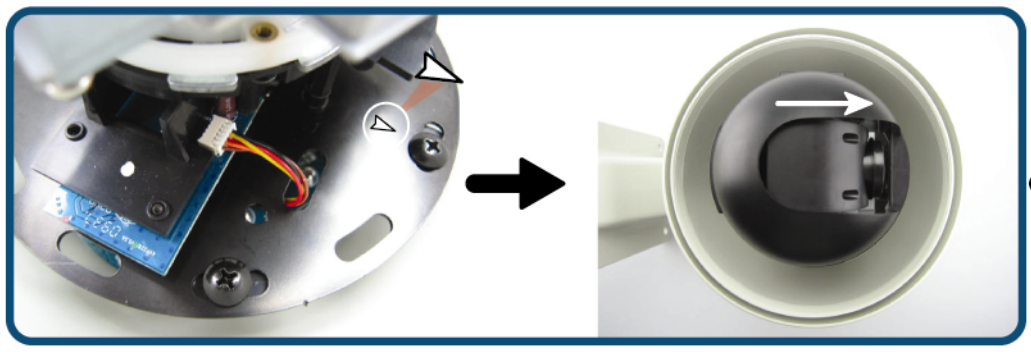


Put the camera module in the housing with the power & video cable through the reserved hole near the camera PCB board of the module as indicated above.



Find the video jack on the camera PCB board. Check the illlustration above and make sure you find the right jack, or the camera might be damaged after powered on. Then, plug the video & power cable to the jack.

⑦ Fix the camera module to the housing.



Find the mark "➤" on the iron plate of the camera module, and rotate the plate with the mark "➤" to face the direction opposite to the bracket.

Slightly rotate and adjust the plate to align its screw holes with the four screw holes on the four brackets in the housing.

Then, fix the module to the housing with the suplied four screw holes.

⑧ Install the dome cover.

Put the dome cover on the housing, and rotate it counterclockwise to fix.

⑨ Prevent the adapter from moisure.

The adapter is not waterproof. To prevent the adapter from moisure, it's recommended to seal the contact surface between the bracket and the wall, and also the screw holes with waterproof silicone sealants.

2.2 Connection

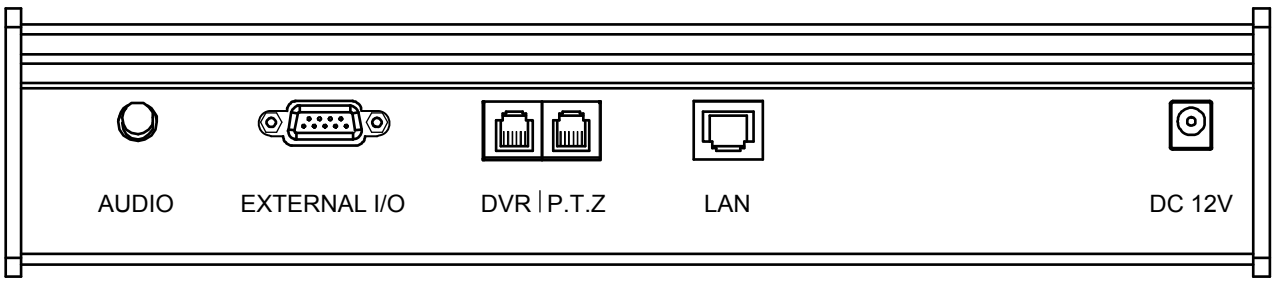
2.2.1 Connecting to Keyboard Controller (Optional)

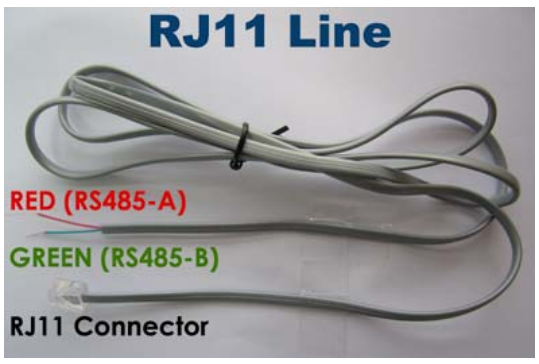
The optional peripheral (keyboard controller) allows you to accurately control the pan / tilt / zoom movement for a speed dome camera with the convenient 3D joystick and functional keypad design.

Note: It's highly recommended to purchase this device to work with your speed dome camera for accurate control.

The following connection illustration is an example. For detailed connection and operation guide, please refer to your keyboard controller manual.

Rear panel of the keyboard controller:



RJ11 cable	RS485-A and RS485-B wires of the speed dome camera
RS485-A: **Red wire**	RS485-A: **Brown wire**
RS485-B: **Green wire**	RS485-B: **Orange wire**
	
The RJ11 cable is not supplied in the sales package.	

STEP 1: Get a RJ11 cable with the proper length to your connection.

Different RJ11 connector may have different wire layout, so the connection might be different. If you cannot control the speed dome camera after connection, please reverse the RJ11 cable connection with the speed dome camera.

STEP 2: Remove one end of the insulating coating of the RJ11 cable.

Remove one end of the insulating coating of the RJ11 cable to find the RS485-A and the RS485-B wires, and remove the insulating coating to reveal the naked wires for further connection.

STEP 3: Twist the RS485-A and RS485-B wires together.

Twist the RS485-A (red) and RS485-B (green) wires of the RJ11 cable to the RS485-A (brown) and RS485-B (orange) wires of the speed dome camera (as shown in the picture above). To protect the naked wires, use the insulation tape to cover on the twisted wires.

STEP 4: Connect the RJ11 connector to the "P.T.Z" port on the rear panel of the keyboard controller.

STEP 5: On the touch panel of the keyboard controller, click "Conf" to enter the configuration page, and click (P.T.Z) to make related settings as follows.

●

RATE	: Check and set the baud rate as 9600.
MODE	: Choose the proper camera protocol depending on the camera type.

STEP 6: Then, click "ESC" as many as needed to return to the main menu, and set the ID of the camera to 001.

STEP 7: Connect the camera video cable to the DVR for video output and recording, and connect the camera to power.

2.2.2 Connecting to DVR

You can also connect the camera directly to DVR for pan / tilt / zoom control, but the available camera control is limited. For details, please refer to "APPENDIX 3 CAMERA CONTROL VIA OUR DVR" at page 27.

DCCS DVR

This camera supports DVR Camera Communication System, DCCS, and users do not need to additionally connect RS485-A & RS485-B wires to transmit control signals.

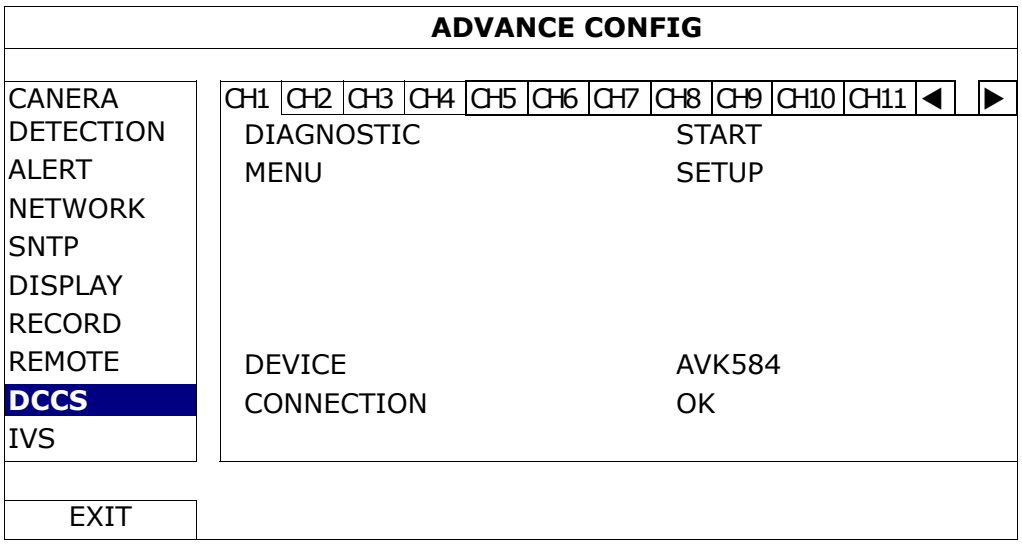
1. Video Output Connector (VIDEO OUT)
   Connect the camera video output with a 75Ω coaxial cable to DVR video input which supports DCCS technology.

Note: For details about DVRs supporting DCCS, please check with your distributor or reseller.

2. DC12V Input Terminal
   Connect the power terminal of the camera to a DC 12V regulated power supply.

NOTE: Please use the correct power adaptor, DC12V (regulated), to operate this unit. The power tolerance of this unit is DC12V ± 10%. Over maximum DC 12V power input will damage this unit.

3. DCCS Transmission Checking
   When the camera, monitor and other peripherals are connected to DVR and powered on, power on the DVR and wait for the initialization is completed.
   Then, right-click to show the main menu, and go to "ADVANCE CONFIG" → "DCCS" to examine the DCCS signal transmission.



a) Make sure the model number of your DCCS camera is shown in "DEVICE". If not, please check your camera connection.

b) Select the channel which connects to your DCCS camera, and click "START" in "DIAGNOSTIC" to examine the signal transmission between the DCCS camera and the DVR.

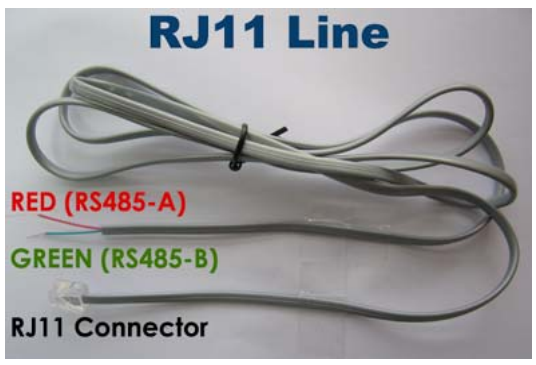
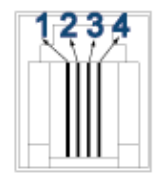
c) In “CONNECTION”, it shows the examining result for DCCS signal transmission between the DVR and camera. The message is as follows:

MESSAGE SHOWN	MEANING
CHECKING	The DVR is checking the DCCS signal transmission between the DVR and camera.
OK	The signal transmission is fine and the DCCS function works properly.
FAIL	The signal transmission is too weak or not available for the DCCS function to work properly.

Normal DVR

Note: For connecting this camera to the DVR that doesn’t support DCCS, a DCCS box should be separately purchased for camera parameter setting. For details, please check with your distributor or installer.

The following description is taking our brand’s DVR as an example. For detailed PIN / port connection and DVR setting to control the speed dome camera, please refer to your own DVR user manual.

RJ11 cable	RS-485 Port
RS485-A: **Red wire**	RS485-A: **PIN 2**
RS485-B: **Green wire**	RS485-B: **PIN 3**
	 2: RS485-A 3: RS485-B
The RJ11 cable is not supplied in the sales package.	*Example of RS485 port on the DVR rear panel.*

STEP 1: Get a RJ11 cable with the proper length to your connection.

Different RJ11 connector may have different wire layout, so the connection might be different. If you cannot control the DVR after connection, please reverse the RJ11 cable connection with the DVR.

STEP 2: Remove one end of the insulating coating of the RJ11 cable.

Remove one end of the insulating coating of the RJ11 cable to find the RS485-A and the RS485-B wires, and remove the insulating coating to reveal the naked wires for further connection.

STEP 3: Twist the RS485-A and RS485-B wires of the RJ11 cable and the speed dome camera together.

Twist the RS485-A (red) and RS485-B (green) wires of the RJ11 cable to the RS485-A (brown) and RS485-B (orange) wires of the speed dome camera (as shown in the picture above).

To protect the naked wires, use the insulation tape to cover on the twisted wires.

STEP 4: Connect the other end of the RJ11 cable to DVR.

When there’s an RS485 port on the DVR real panel

Connect the other end of the RJ11 cable without removing the insulating coating directly to the RS485 port on the DVR real panel.

When there’s an external I/O port on the DVR real panel

Solder the RS485-A (red) and RS485-B (green) wires of the RJ11 cable to the corresponding pins on the solder side of the D-Sub connector (as shown in the picture above). To protect the naked wires, use the insulation tape to cover on the twisted wires.

Note: For details about PIN configurations, please refer to the DVR user manual.

STEP 5: Set the speed dome camera at the DVR side.

Go to the “REMOTE” menu to set the speed dome camera.

a) Select the device to “PTZ”.

b) Set the ID of the camera to 001.

c) Select the protocol to “NORMAL”.

d) Set the baud rate to “9600”.

3. AUTO TRACKING

3.1 Overview

The camera will automatically aim and follow the largest movement in the monitoring view, making the camera pan (max. 360°) & tilt (max. 90°) within:

(1) the camera's pre-defined surveillance area;

(2) the pre-defined tracking timeout.

When the locked target is out of the pre-defined surveillance area or the aimed object stops moving longer than the pre-defined tracking timeout, the camera returns to the point it originally monitors. It's the best function to provide evidentiary recording.

3.2 Setup

Go to “MODE” → “Tracking Setup”, and set the surveillance area (=LIMIT=), tracking timeout (=TIME=), and the tracking mode. For details, please refer to “7.4 Tracking Setup” at page 21.

Then, go to “MODE” → “Auto Mode”, and select “Track”. For details, please refer to “7.9 Auto Mode” at page 23.

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MODE		
1	Reset Default	=LIMIT=
2	Pan / Tilt Speed	60°
3	Preset Setup	=TIME=
4	Tracking Setup	5 s
5	Home Position	=Mode=
6	Auto Focus	Normal
7	Calibration	
8	Auto Scan	
9	Auto Mode	

MODE		
1	Reset Default	Track
2	Pan / Tilt Speed	Pan
3	Preset Setup	Seq.
4	Tracking Setup	
5	Home Position	
6	Auto Focus	
7	Calibration	
8	Auto Scan	
9	Auto Mode	

3.3 Activation

When the camera is controlled via:

(1) Our brand’s keyboard controller --
Press “TRACK” on the controller to activate the auto tracking function, and press “STOP” to stop the function.

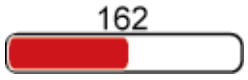
(2) Other brand’s keyboard controller --
Press “goto” + “90” on the controller to activate the auto tracking function, and press again to stop the function.

(3) Our brand’s DVR --
Press “PLAY” on the DVR front panel to activate the auto mode, and press again to stop. For details, please refer to “APPENDIX 3 CAMERA CONTROL VIA OUR DVR” at page 27.

4. QUICK MENU GUIDE

4.1 Menu Configuration

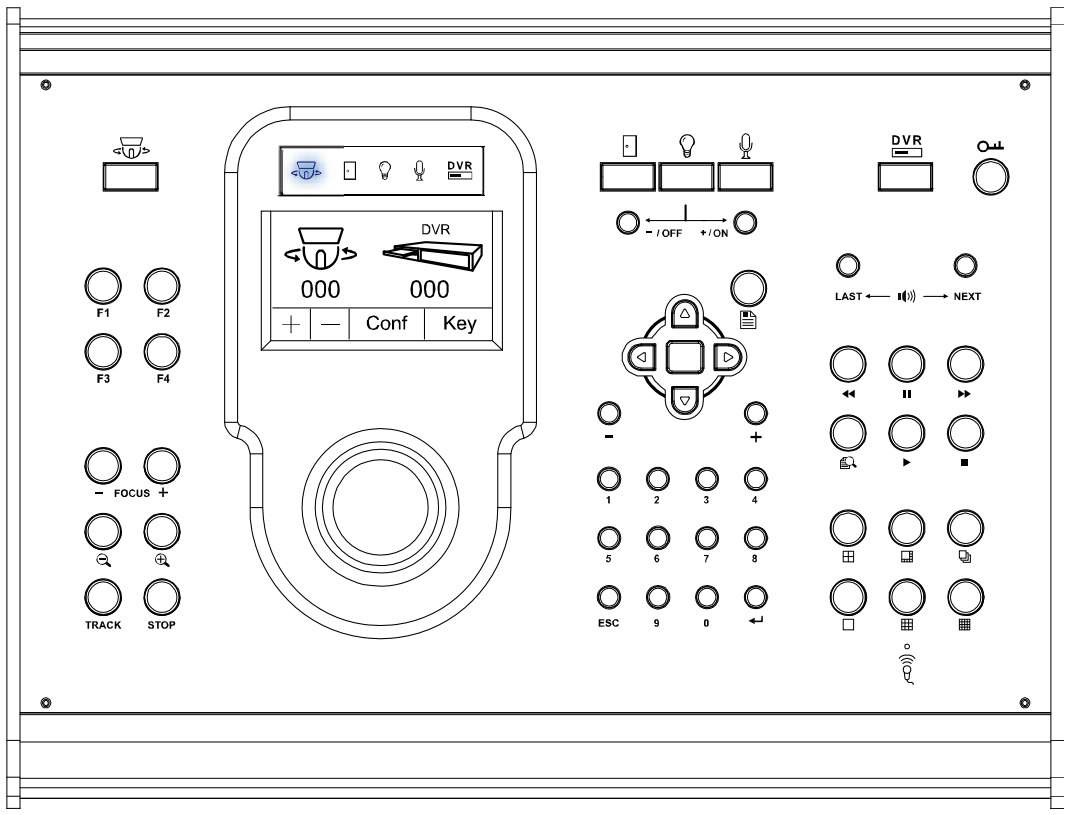
Setup menu is shown as below. You can customize the speed dome camera to your own requirements by setting up the respective items in these menus. For details, please refer to the corresponding pages.

	**CAMERA**	White Balance	Auto. Indoor 1. Indoor 2. Sun. Cloudv
		Shutter Speed	NTSC 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
			PAL 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
		Gain	Low, Medium, High
		IRIS	162 
		BLC	On, Off
		Sharpness	Auto, Low, Medium, High
	**TOOL**	Title Name	Modify, New
		Title Position	Up, Down, Off
		Pan / Tilt Angle	On, Off
		Pan / Tilt Graph	On, Off
		Zoom Ratio	On, Off
		Focus Window	On, Off
		ID Code No.	1
		ID Code Display	On, Off
		Tilt Limit	On, Off
	**MODE**	Reset Default	Set
		Pan / Tilt Speed	Slow, Fast, Super
		Preset Setup	Group 1 ~ Group 8
		Tracking Setup	LIMIT, TIME, Mode
		Home Position	Set
		Auto Focus	Always, PTZ, Z Only
		Calibration	Start
		Auto Scan	Set
		Auto Mode	Track, Pan, Seq.
	**EXIT**	SAVING	
		WITHOUT SAVING	

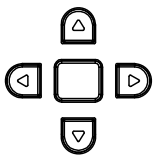
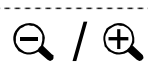
* The menu items are subject to change without notice.

4.2 Quick Programming Guide

The optional keyboard controller can be used to control this speed dome camera.



Note: **Please enter the camera control mode of the keyboard controller first.**

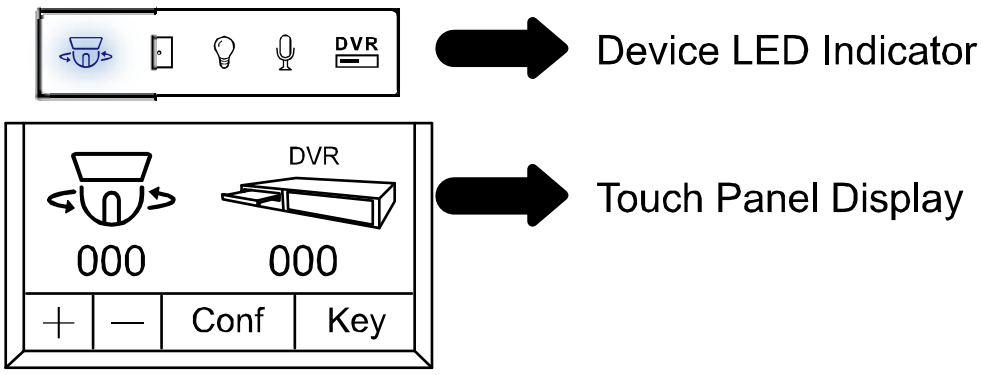
Enter the Camera Control Mode	(1)	Press "  " to enter the camera control mode. Or use the stylus to click the speed dome camera icon on the touch panel to enter the camera control mode.
	(2)	In the camera control mode, the LED indicator of the speed dome camera will be on.
KEYS	**OPERATIONS UNDER THE CAMERA CONTROL MODE**	
	Press to access the main menu of the speed dome camera.	
	Press the up or down key to make the selection.	
	Press the right key to enter the sub-menu. Press the left key to go the upper layer of the menu.	
	Press the enter key "  " to confirm the setting / enter the sub-menu	
F1, F2, F3, F4	HOME: Go to the home position	
	GOTO: Go to the preset point	
HOTKEY	SEQ: Start sequence function. Press "STOP" to exit the sequence mode.	
	AUTO PAN: Start the pan function. Press "STOP" to exit the pan mode.	
	NONE: Saved for future functions	
* For detailed hotkey function setup, please refer to the user manual of the keyboard controller.		
－ FOCUS ＋	Adjust the focus of the camera.	
	Press these keys to zoom out / zoom in.	
TRACK	Press to start the auto-tracking function.	
STOP	Press to stop the auto-tracking function.	
－ / ＋	Use the － / ＋ to modify the setting of the IRIS level / the ID code number / the auto tracking setting.	
0 ~ 9	Use this number pad to enter the camera ID, channel number and password, etc.	
ESC	Ignore the setting and exit.	
↵	Confirm the number / password entering.	
	Use the joystick to control the camera to move up / down / left / right. Turn the joystick clockwise to zoom in. Turn the joystick counter-clockwise to zoom out.	

5. MAIN MENU – CAMERA

Note: The following description assumes that users are using our brand's keyboard controller to control the speed dome camera.
For details about using the DVR or other brand's keyboard controller to control the speed dome camera, please refer to "APPENDIX 3 CAMERA CONTROL VIA OUR DVR" at page 27, or "APPENDIX 4 CAMERA CONTROL VIA OTHER KEYBOARD CONTROLLER" at page 29.

Press on the keyboard controller to enter the camera control mode, or use the stylus to click the speed dome camera icon on the touch panel of the controller to enter the camera control mode, as shown in the picture below.

Note: Make sure the camera ID shown on the main menu of the keyboard controller is the same as the ID set in the camera, or you will be unable to control the camera you want.



In the camera control mode, press on the controller to access the main menu of the speed dome camera. Move to CAMERA "", and you will see the following window:

	CAMERA	
1	White Balance	Auto
2	Shutter Speed	1/60
3	Gain	Medium
4	IRIS	
5	BLC	Off
6	Sharpness	Auto

Note: The current settings will be shown on the right hand side of this menu page.

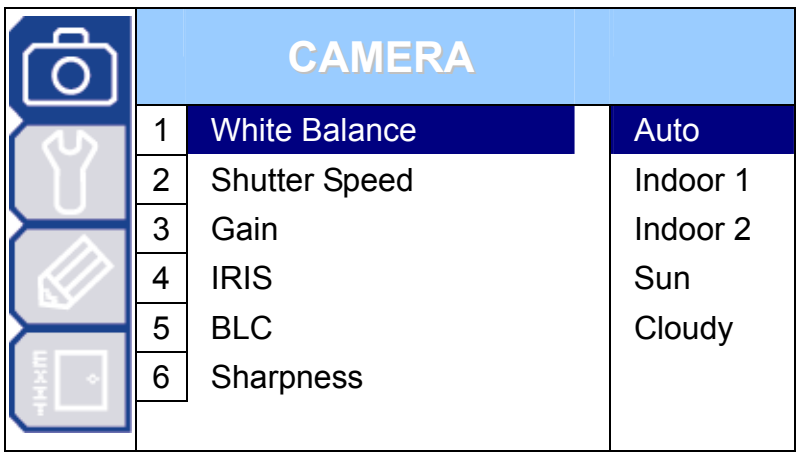
	Press to access the main menu of the speed dome camera.
	Press the up or down key to make the selection.
	Press the right key to enter the sub-menu. Press the left key to go the upper layer of the menu.
– / +	Press – / + to modify the setting of the IRIS level in the menu.

- Exit and Save the Settings / Exit without Saving the Settings:

Move to EXIT "", and press the right key to enter the sub-menu. Select "SAVING" to save the changes and exit, or "WITHOUT SAVING" to exit without saving the changes, and press . Then you'll see a pop-up message "Are your sure ?". Press again to confirm and exit the menu.

5.1 White Balance

The white balance function processes the current image to retain color balance over a color temperature range. According to different color temperatures and installation situations, set the white balance function to the suitable mode.



5.1.1 Auto

Adjust the color automatically depending on different color temperatures.

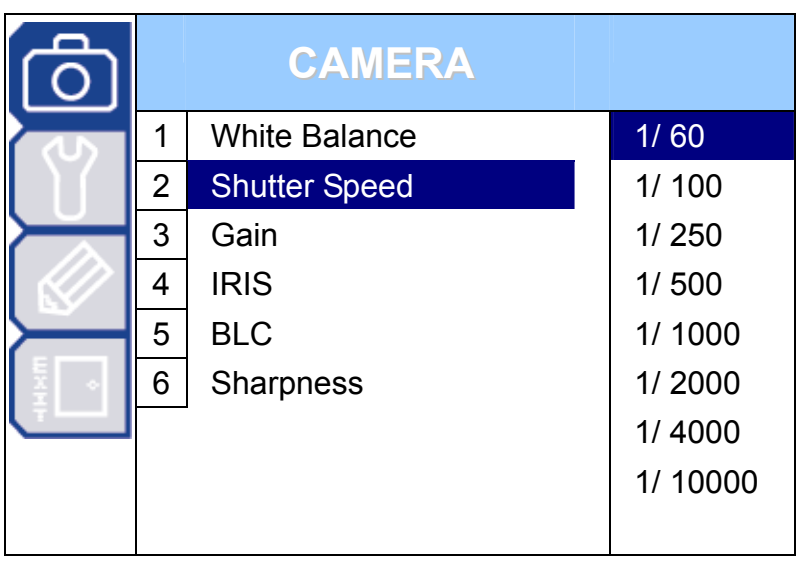
5.1.2 Indoor 1 / Indoor 2 / Sun / Cloudy

You can select different white balance modes provided here to adjust the image output. As you change the setting, you will see the color change on your monitor.

Mode	Color Temperature
Indoor 1	9000K
Indoor 2	3000K
Sun	5500K
Cloudy	7000K

5.2 Shutter Speed

Shutter speed is the duration of the electronic shutter. There are eight pre-defined shutter speed options for your choice.



5.2.1 Shutter Speed Options

NTSC: 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000

PAL: 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000

The camera has eight numerical shutter speed options. The higher the number, the faster the electronic shutter. Increasing the shutter speed will lower the amount of light passing through the lens.

The slowest shutter speed setting is 1/60 second (NTSC) or 1/50 second (PAL).

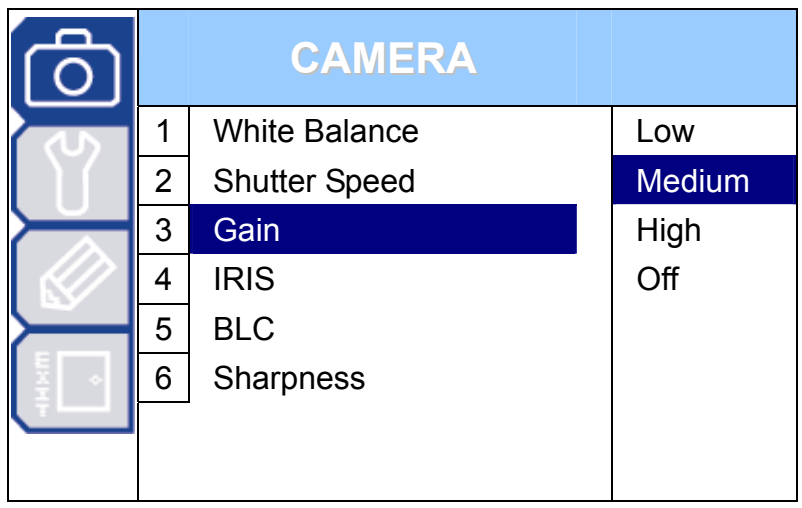
The fastest shutter speed setting is 1/10000 second.

Note: When you use a NTSC camera in the PAL system environment, set the shutter speed as 1/100, and the image output will be equal to the output under the flickerless mode.

Note: When you use a PAL camera in the NTSC system environment, set the shutter speed as 1/120, and the image output will be equal to the output under the flickerless mode.

5.3 Gain (Gain Control)

Gain control is a function to adjust the amplitude of the signal input according to different light conditions.



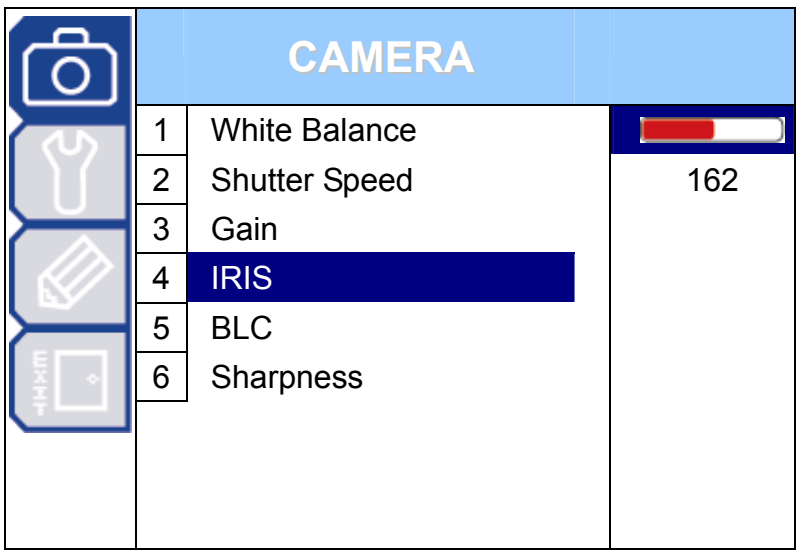
5.3.1 On (Low, Medium, High)

When the light condition is dark, you can select three kinds of sensitivities, Low / Medium (default) / High, to amplify the camera signal to get brighter display.

Note: The higher the sensitivity is, the more the signal noise will be.

5.4 IRIS

Auto iris is the lens function that automatically opens and closes the iris in response to the changing light conditions.

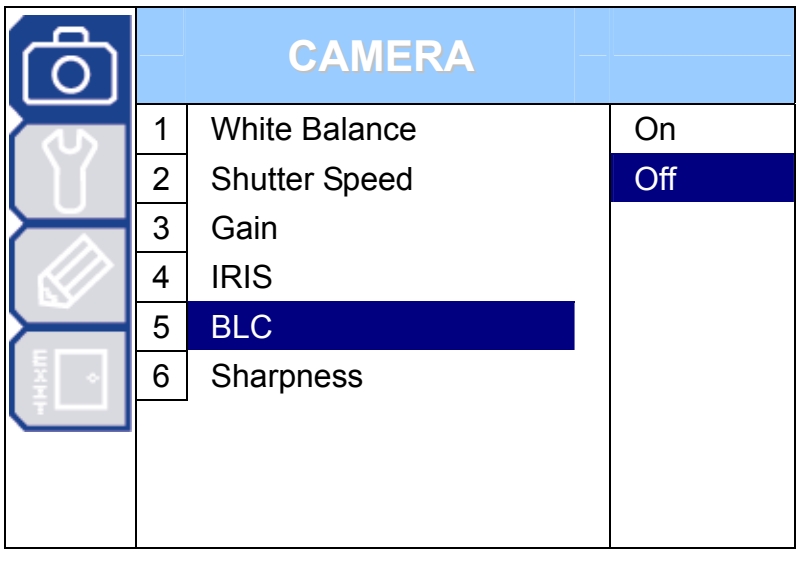


5.4.1 Auto IRIS Level (50 ~ 250)

Auto iris level is the numeric value the auto iris uses to maintain the brightness level of the camera. Use "＋" to increase the value to brighten the scene. Use "－" to decrease the level to darken the scene.

5.5 BLC (Backlight Compensation)

The BLC, or backlight compensation, is the function to adjust the image to compensate for an area that is overpowered by brightness because of excessive light. The image will be properly exposed for clearness.

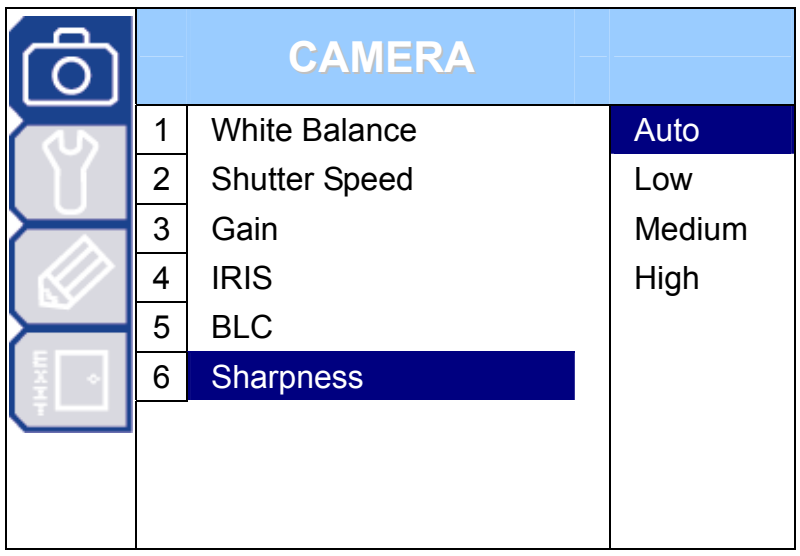


5.5.1 On / Off

The backlight compensation can be set on or off.

5.6 Sharpness

Auto sharpness enhances the clarity of image detail by adjusting the aperture and sharpening the edges in the pictures.



5.6.1 Auto

The camera automatically maintains a normal sharpness mode.

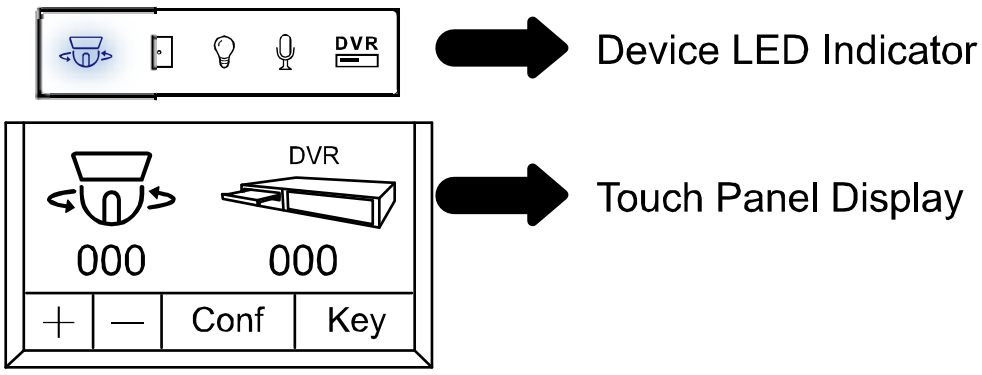
5.6.2 Sharpness Level

The image sharpness can be set to different sharpness levels (Low / Medium / High) as needed.

6. MAIN MENU – TOOLS

Note: The following description assumes that users are using our brand's keyboard controller to control the speed dome camera.
For details about using the DVR or other brand's keyboard controller to control the speed dome camera, please refer to "APPENDIX 3 CAMERA CONTROL VIA OUR DVR" at page 27, or "APPENDIX 4 CAMERA CONTROL VIA OTHER KEYBOARD CONTROLLER" at page 29.

Press on the keyboard controller to enter the camera control mode, or use the stylus to click the speed dome camera icon on the touch panel of the controller to enter the camera control mode, as shown in the picture below.

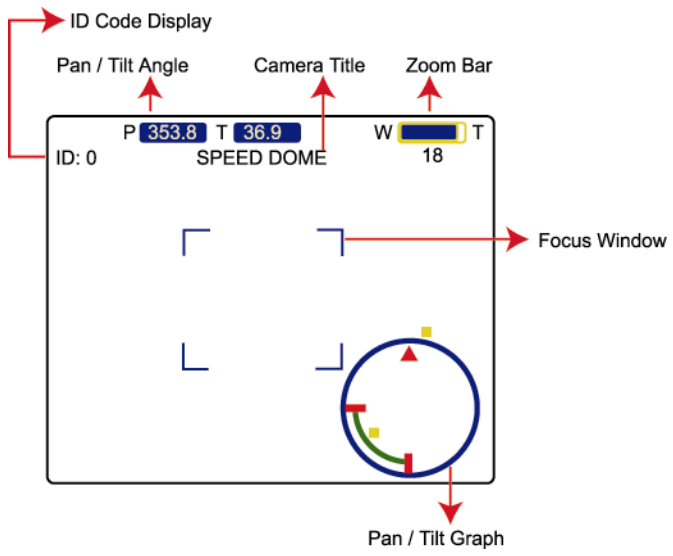


In the camera control mode, press on the controller to access the main menu of the speed dome camera.

Move to TOOLS "", and you will see the following window:

	TOOLS	
1	Title Name	Set
2	Title Position	Up
3	Pan / Tilt Angle	On
4	Pan / Tilt Graph	On
5	Zoom Ratio	On
6	Focus Window	On
7	ID Code No.	1
8	ID Code Display	On
9	Tilt Limit	On

Graphical Display



Note: **The current settings will be shown on the right hand side of this menu page.**

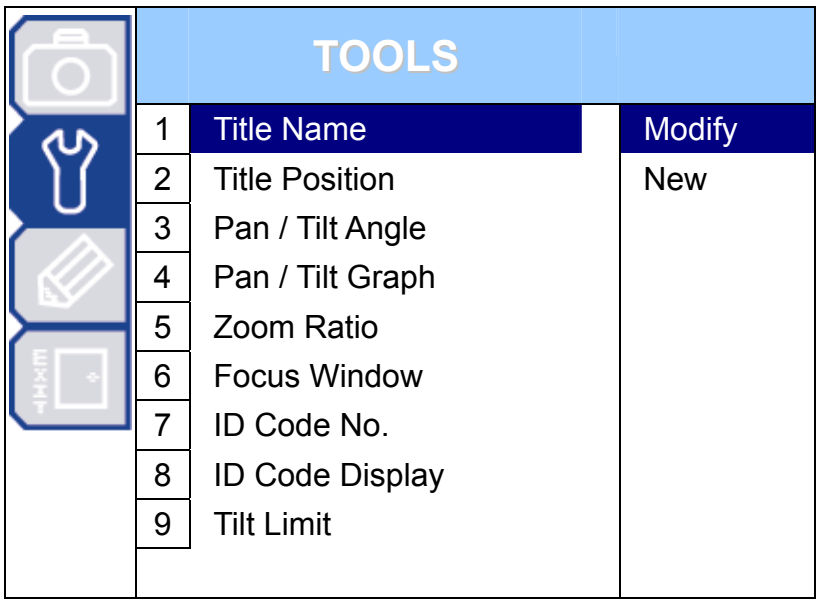
	Press to access the main menu of the speed dome camera.
	Press the up or down key to make the selection.
	Press the right key to enter the sub-menu. Press the left key to go the upper layer of the menu.
	Press the enter key "" to confirm the setting / enter the sub-menu
– / +	Press – / + to modify the ID code number.

- Exit and Save the Settings / Exit without Saving the Settings:

Move to EXIT "", and press the right key to enter the sub-menu. Select "SAVING" to save the changes and exit, or "WITHOUT SAVING" to exit without saving the changes, and press . Then you'll see a pop-up message "Are your sure ?". Press again to confirm and exit the menu.

6.1 Title Name

The title name is the label used to identify the camera viewed on the monitor. Up to 10 characters can be used for a title.

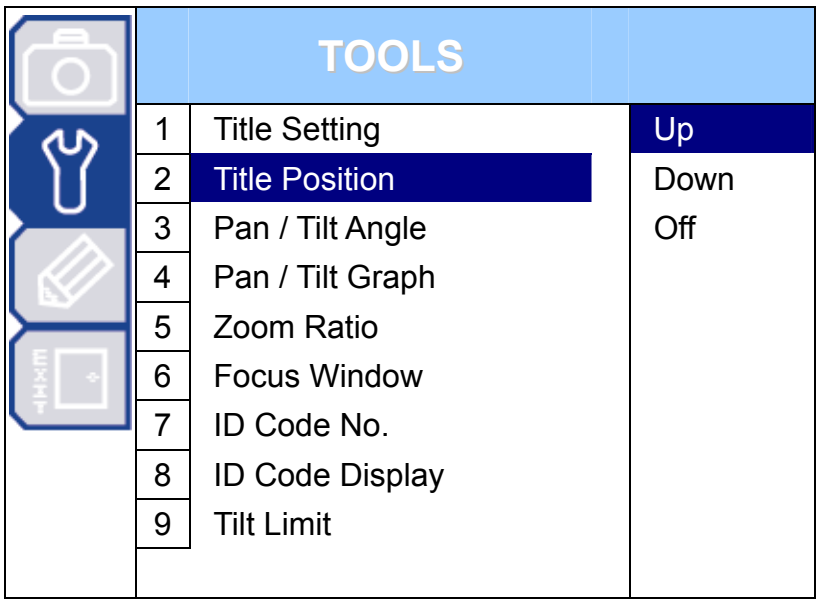


6.1.1 Modify / New

Move to “Modify” or “New”, and press ▢ to start editing the camera title. Use the up or down key to select the characters, numbers, or symbols. After setting, press ▢ to confirm the setting and exit.

6.2 Title Position

The position of the camera title viewed on the monitor can be selected by your own or can be switched off.

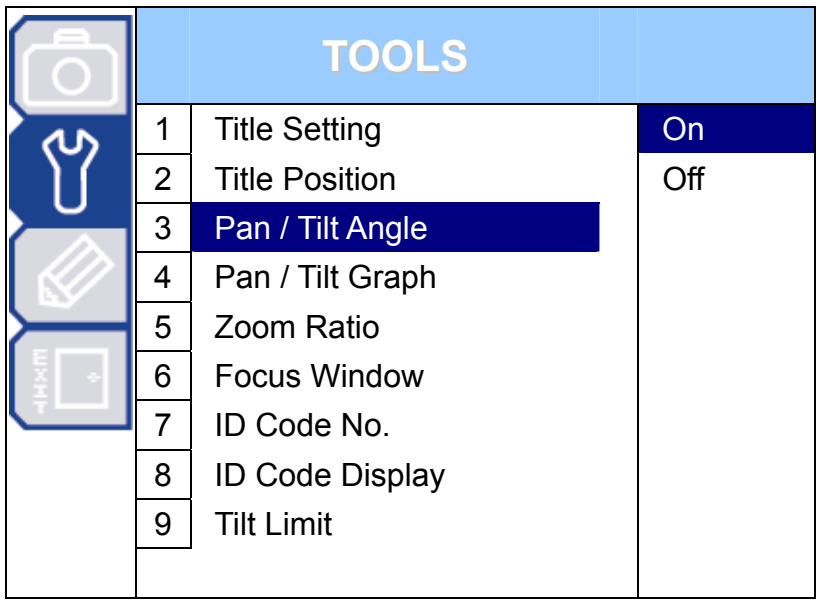


6.2.1 Up / Down / Off

Select to display the camera title name on the top of (Up) / at the bottom (Down) of the monitor, or choose not to display the title (Off).

6.3 Pan / Tilt Angle

The numeric value of the pan and tilt angle can be displayed on the monitor.

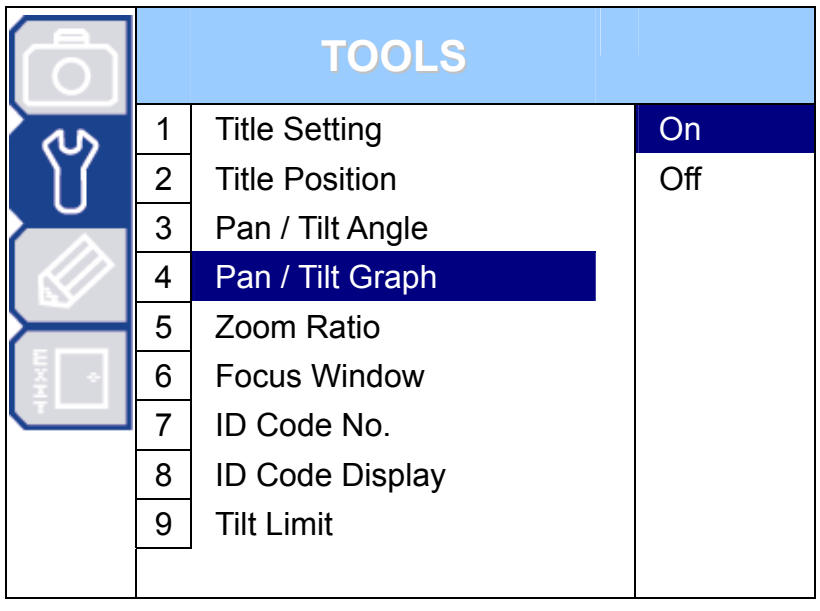


6.3.1 On / Off

Select whether to display the pan and tilt angle information (numeric value) on the monitor or not.

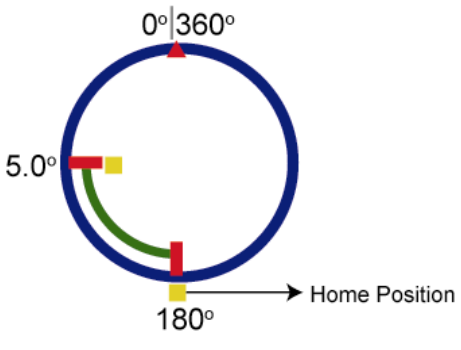
6.4 Pan / Tilt Graph

The pan / tilt position can be easily checked on this graphical display.



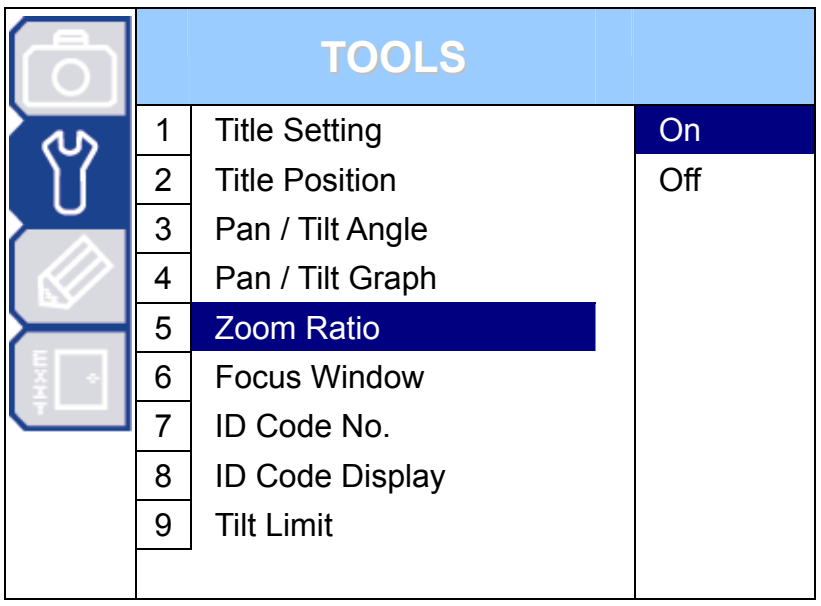
6.4.1 On / Off

Select whether to display the pan/ tilt graphical display on the monitor or not.



6.5 Zoom Ratio

The zoom ratio can be easily checked on this zoom ratio graph.

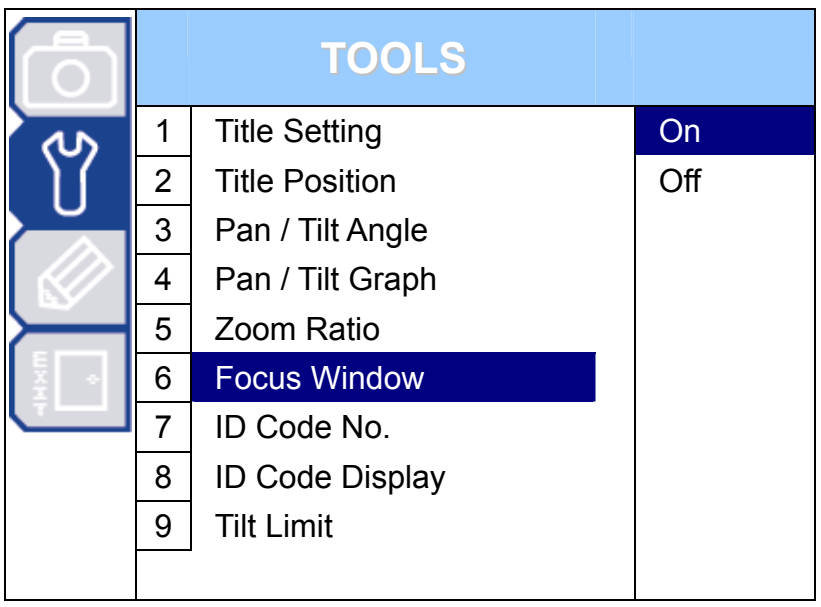


6.5.1 On / Off

Select whether to display the zoom ratio graph on the monitor or not.

6.6 Focus Window

The focus window can be showed on the monitor.

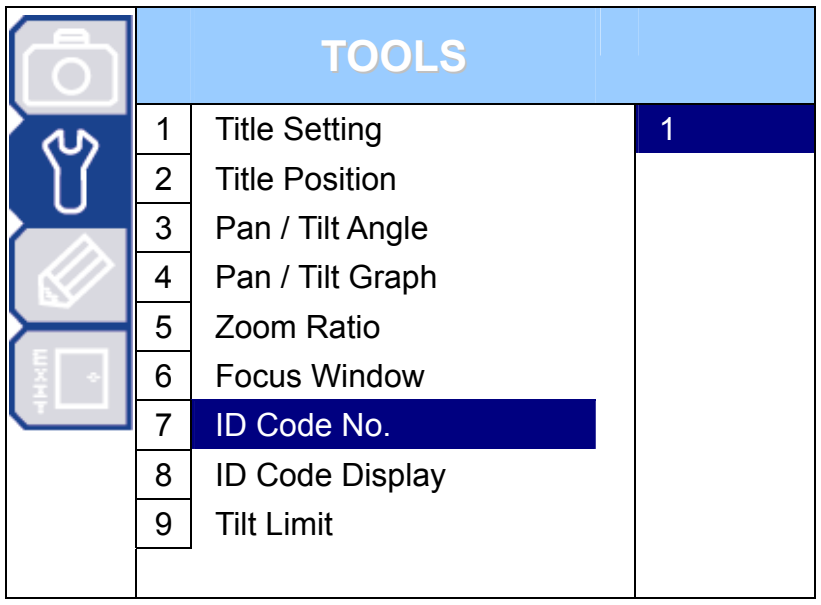


6.6.1 On / Off

Select whether to show the focus window on the monitor or not.

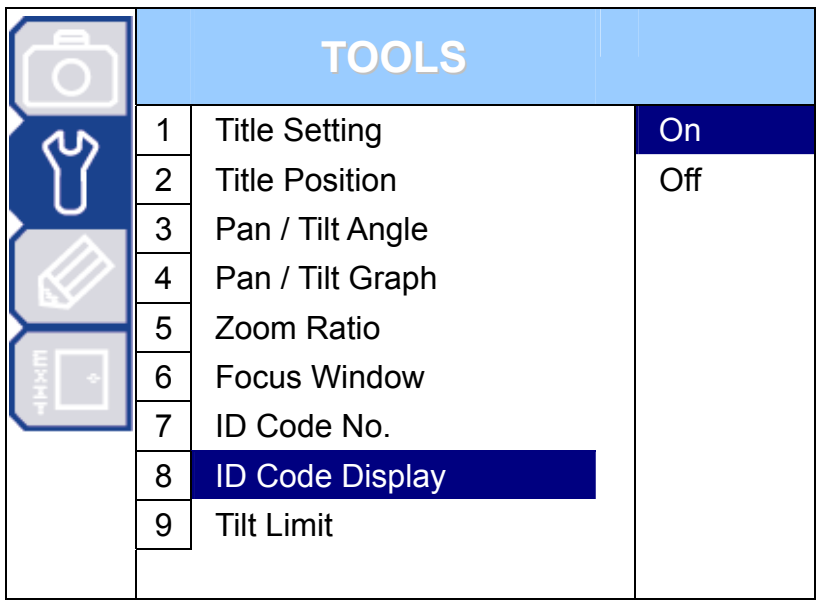
6.7 ID Code No.

The camera ID code number is always 1.



6.8 ID Code Display

The camera ID code number can be displayed on the monitor.



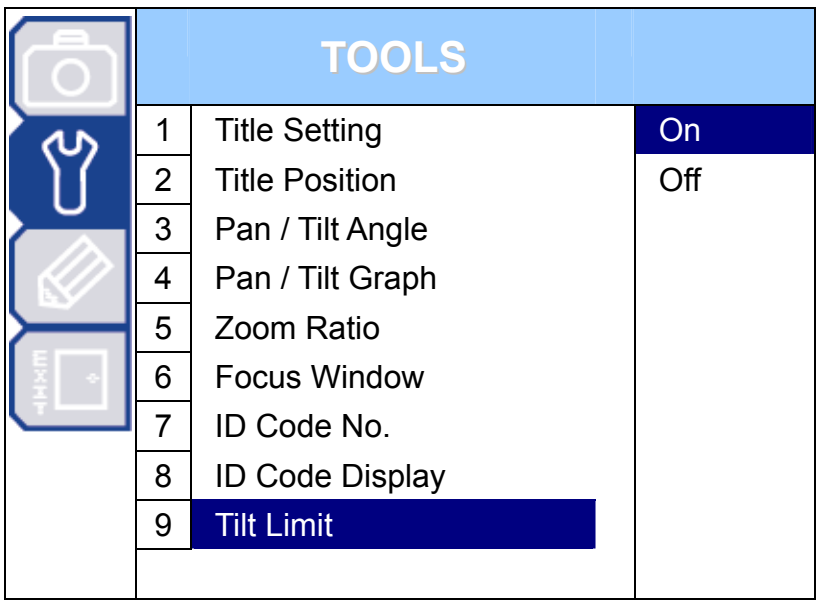
6.8.1 On / Off

Select to whether to display the ID number information on the monitor or not.

6.9 Tilt Limit

This function is used to limit the tilt angle of the

camera to prevent the camera view being slightly covered.



6.9.1 On / Off

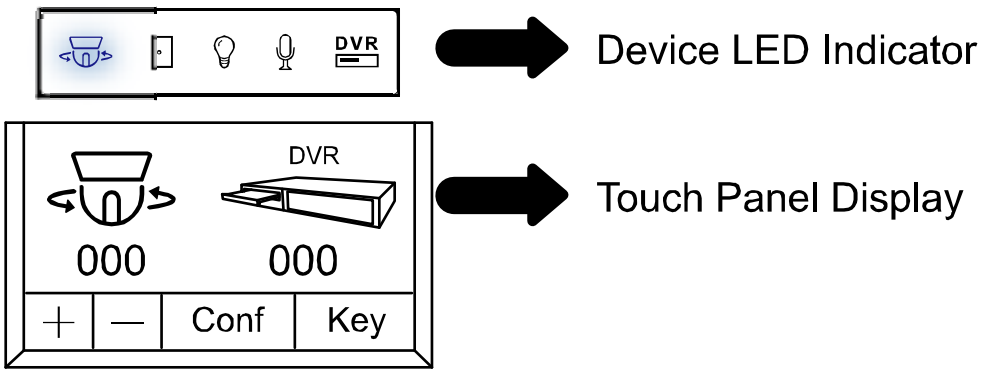
Select “On” to limit the tilt angle from 5º ~ 90º to prevent the camera view being slightly covered.

Select “OFF” to free the tilt angle from 0º ~ 90º, but the camera view might get slightly covered when the camera angle is from 0º ~ 4º.

7. MAIN MENU – MODE

Note: The following description assumes that users are using our brand's keyboard controller to control the speed dome camera.
For details about using the DVR or other brand's keyboard controller to control the speed dome camera, please refer to "APPENDIX 3 CAMERA CONTROL VIA OUR DVR" at page 27, or "APPENDIX 4 CAMERA CONTROL VIA OTHER KEYBOARD CONTROLLER" at page 29.

Press on the keyboard controller to enter the camera control mode, or use the stylus to click the speed dome camera icon on the touch panel of the controller to enter the camera control mode, as shown in the picture below.



In the camera control mode, press on the controller to access the main menu of the speed dome camera.

Move to MODE "", and you will see the following window:

	MODE		
	1	Reset Default	Set
	2	Pan / Tilt Speed	Fast
	3	Preset Setup	Group_1
	4	Tracking Setup	60° 5s
	5	Home Position	Set
	6	Auto Focus	PTZ
	7	Calibration	Start
	8	Auto Scan	Set
	9	Auto Mode	Track

Note: The current settings will be shown on the right hand side of this menu page.

	Press to access the main menu of the speed dome camera.
	Press the up or down key to make the selection.
	Press the right key to enter the sub-menu. Press the left key to go the upper layer of the menu.
	Press the enter key "" to confirm the setting / enter the sub-menu.
– / +	Press – / + to modify the auto tracking angle.

- Exit and Save the Settings / Exit without Saving the Settings:

Move to EXIT "", and press the right key to enter the sub-menu. Select "SAVING" to save the changes and exit, or "WITHOUT SAVING" to exit without saving the changes, and press . Then you'll see a pop-up message "Are your sure ?". Press again to confirm and exit the menu.

7.1 Reset Default

To restore all camera settings to the factory default settings, move to “Set”, and press ▢ to confirm. When you see the message “Initial…OK” on the monitor, all the camera settings are reset to default settings. To exit the message window, press the left key.

MODE		
1	Reset Default	Set
2	Pan / Tilt Speed	
3	Preset Setup	
4	Tracking Setup	
5	Home Position	
6	Auto Focus	
7	Calibration	
8	Auto Scan	
9	Auto Mode	

7.2 Pan / Tilt Speed

The pan / tilt speed can be set to Slow / Fast / Super (super fast).

MODE		
1	Reset Default	Slow
2	Pan / Tilt Speed	Fast
3	Preset Setup	Super
4	Tracking Setup	
5	Home Position	
6	Auto Focus	
7	Calibration	
8	Auto Scan	
9	Auto Mode	

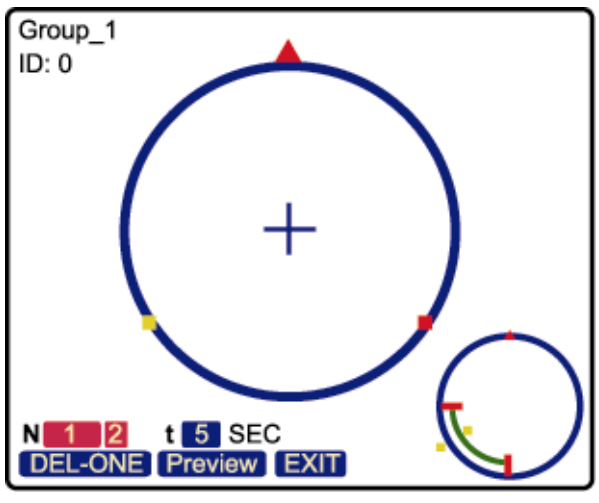
7.3 Preset Setup

The preset point setting is used to specify the camera position (pan and tilt) and the lens zoom setting. You can set up to 256 preset points (8 groups, each group has 32 preset points).

MODE		
1	Reset Default	Group_1
2	Pan / Tilt Speed	Group_2
3	Preset Setup	Group_3
4	Tracking Setup	Group_4
5	Home Position	Group_5
6	Auto Focus	Group_6
7	Calibration	Group_7
8	Auto Scan	Group_8
9	Auto Mode	

7.3.1 Set the Preset Points

Move to “Group_1”, and press ▢ to enter the setting mode. You will see a similar preset point window as shown in the picture below.

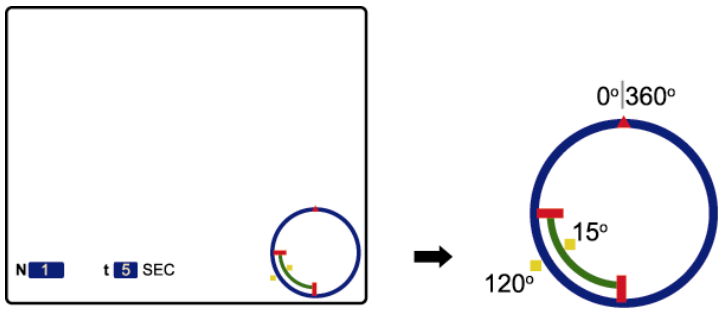


7.3.2 Factory Default Preset Points

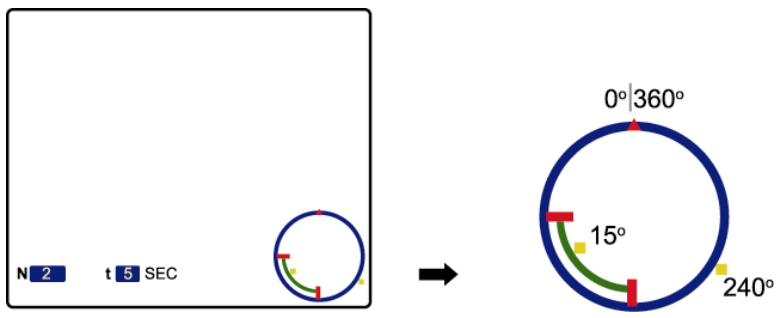
For convenience, there are two factory-default preset points within each preset group. The first position is “Pan: 120° ; Tilt: 15° ”. and the second position is “Pan: 240° ; Tilt: 15° ”.

The preview graphs of the factory-default preset points are shown as below.

Factory-default preset point 1:



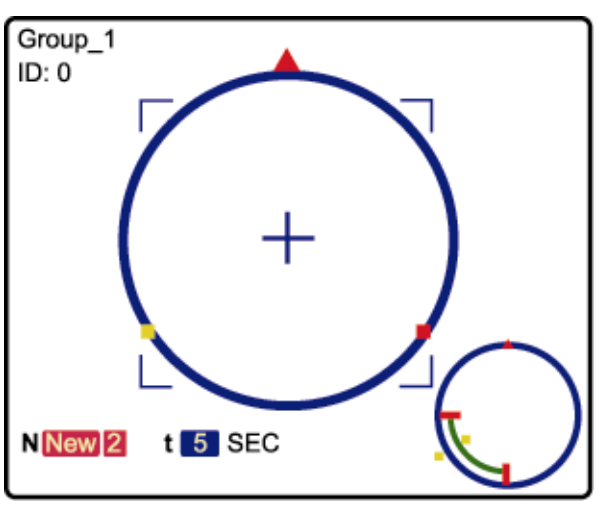
Factory-default preset point 2:



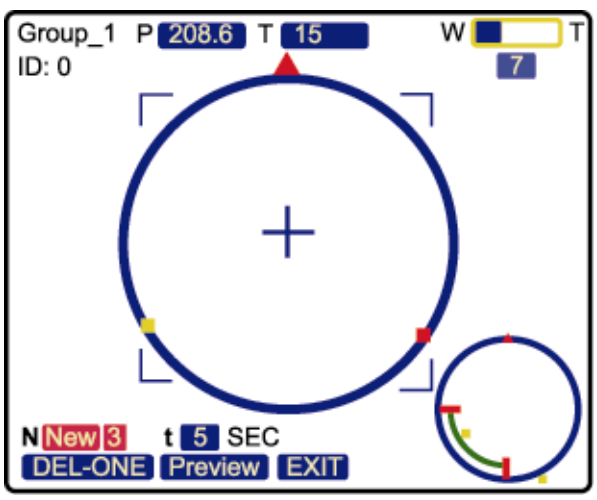
Note: Each preset group needs to have at least two preset points.

7.3.3 Add New Preset Points

Step 1: Use the left / right key to move to "N 1 2", and use the up / down key to select "N New 2", and press ▢. You will see a similar window as follows.



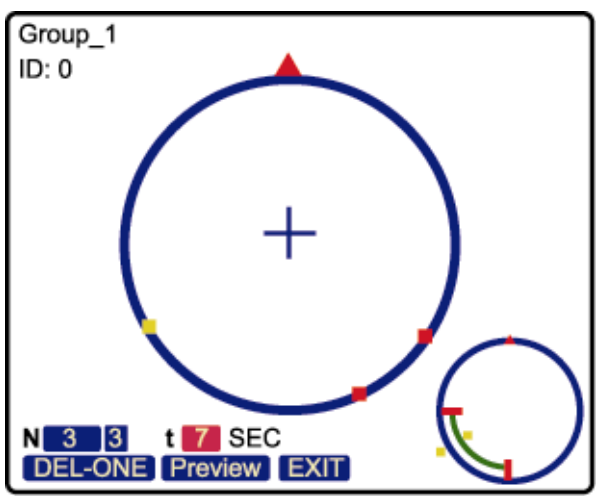
Step 2: Use the joystick to specify the camera position (pan and tilt) and the lens zoom setting. For example, set the 3rd preset point as "Pan: 208.6° ; Tilt: 15° ; Zoom: 7X ". After setup, press ▢ to record the setting, and you will see the similar window as follows.



Tips: Use the joystick to control the speed dome camera to move up / down / left / right. Turn the joystick clockwise to zoom in. Turn the joystick counter-clockwise to zoom out.

7.3.4 Set Duration Time of the Preset Points

Move to "t 5 SEC", and use the up / down key to select the duration second. For example, set the duration second as 7, and you will see the similar window as follows.



7.3.5 Deleting the Preset Points

Use the left / right key to move to "DEL-ONE", and use the up / down key to select "DEL-ONE" or "DEL-ALL". Then, press ▢ to confirm.

7.3.6 Preview the Preset Points

Use the left / right key to move to "Preview", and press ▢ to start previewing the preset points. The interval time between each point is one second for your quick checking.

Note: **The sequence of all the preset points will follow the order of the minimal panning route.**

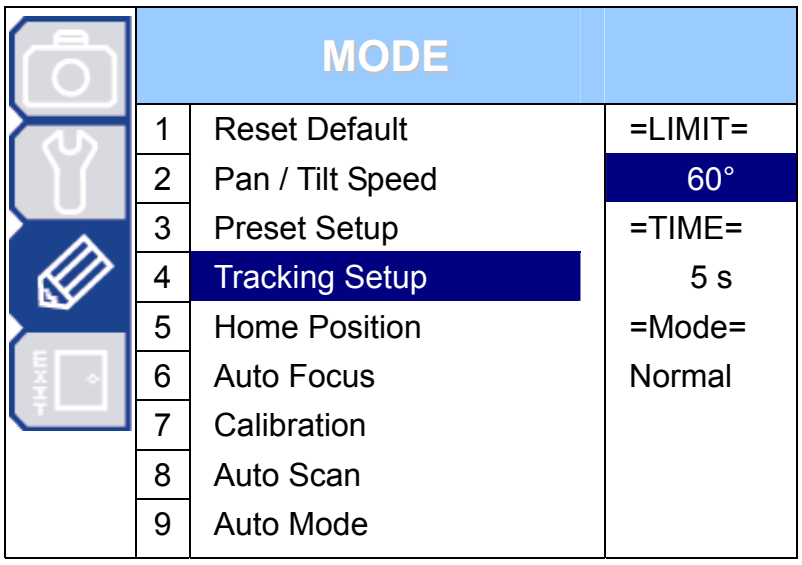
7.3.7 Exit the Preset Point Setting Menu

Move to "EXIT", and press ▢ to exit the preset point setting menu.

Note: You can set up to 256 preset points (8 groups, each group has 32 preset points).

7.4 Tracking Setup

The speed dome camera will automatically aim and follow the largest movement in the monitoring view, making the camera pan (max. 360º) & tilt (max. 90º) within: (1) the camera's pre-defined surveillance area / (2) the pre-defined tracking timeout.



7.4.1 Set the Pre-defined Surveillance Area (=LIMIT=)

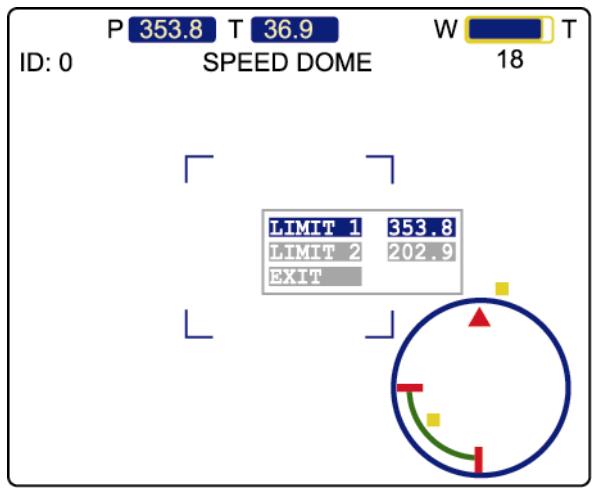
When the locked target is out of the pre-defined surveillance area, the camera returns to the point it originally monitors after the preset tracking timeout.

Move to “=LIMIT= ”, and use the right key or － / ＋ on the keyboard controller to set the tracking surveillance area angle (60° / 120° / 180° / Full / Manual). The default surveillance angle is 60°.

You can choose the pre-defined surveillance area angle, 60° / 120° / 180° / Full (360°). For example, when 60° is selected and the auto tracking is activated, the surveillance area will be the area starting from the center of the focus, 30° to the left, and 30° to the right.

You can also customize the surveillance area by selecting “Manual”. Move to “Manual”, and press ▢ to enter the setting page.

1) Move to one point as the start of the surveillance area, and press ▢ to set as “LIMIT1”.
2) Move to another point as the end of the surveillance area, and press ▢ to set as “LIMIT2”.
3) Move to “EXIT” and press ▢ to leave the setting page.



7.4.2 Set the Pre-defined Tracking Timeout (=TIME=)

When the locked target stops moving longer than the pre-defined tracking timeout, the camera returns to the point it originally monitors after the preset tracking timeout.

Move to “=TIME= ”, and use the right key or － / ＋ on the keyboard controller to set the tracking time-out in seconds (5 s / 10 s / 15 s / 20 s / 25 s / 30 s / 35 s / 40 s / 45 s / 50 s / 55 s / 60 s / ∞ s). The default tracking timeout is 5 seconds.

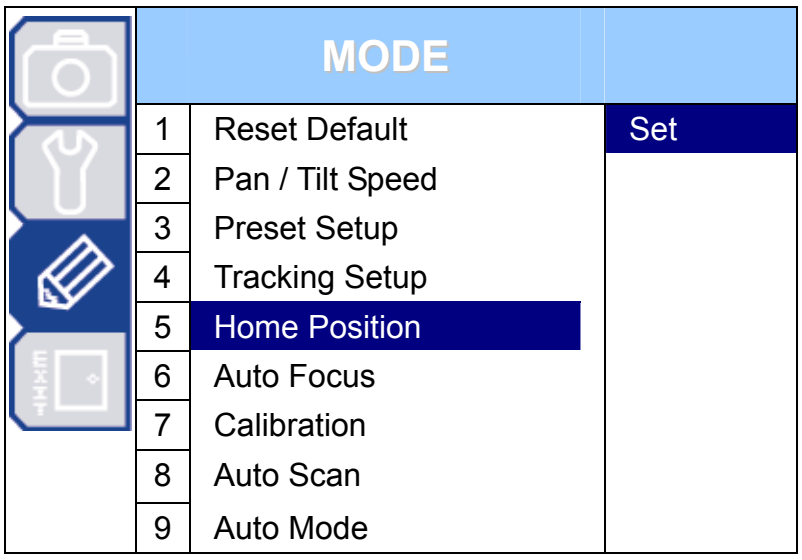
7.4.3 Select the Auto Tracking Mode (Mode)

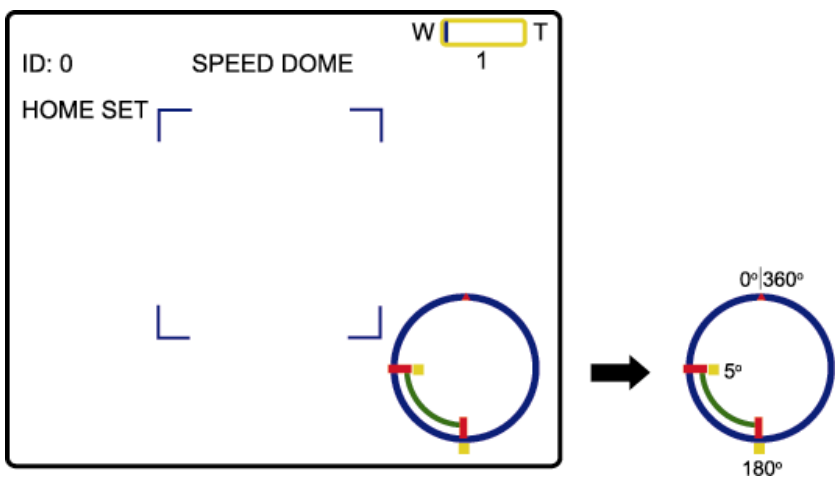
Two options are available: Normal and P Only.

(1) When “Normal” is selected, the auto tracking function will be activated with pan and tilt movements.
(2) When “P Only” is selected, the auto tracking function will be activated with only the pan movement.

7.5 Home Position

An auto mode is a memorized, repeating series of pan, tilt and zoom. In the home position setting mode, you will see the message “HOME SET” on the monitor of the speed dome camera. The default home position is “Pan: 180° ; Tilt: 5° ”.



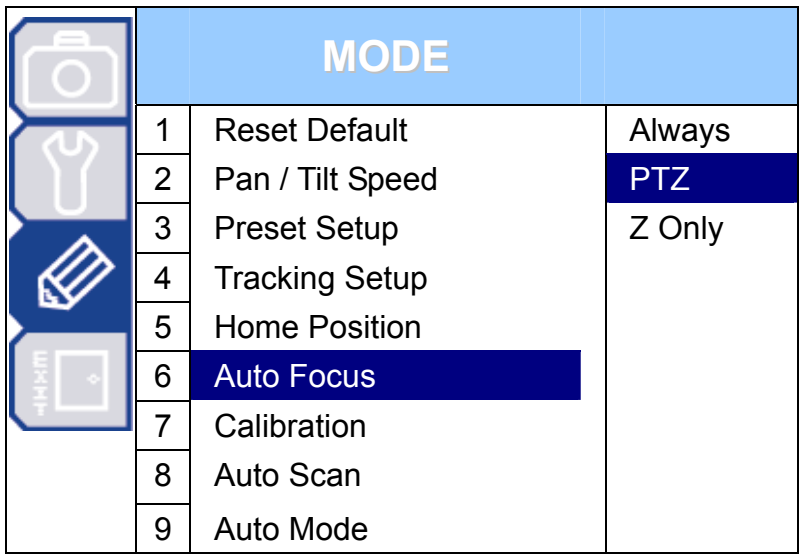


7.5.1 Set the Home Position

In the mode of the home position setting mode, use the joystick to specify the camera home position (pan and tilt) and the lens zoom setting. After setup, press the enter key on the keyboard controller to exit the setting mode. Then, move to “  ” (EXIT) submenu to save the setting.

7.6 Auto Focus

There two types of the auto focus mode. You can select the mode depending on your need.



7.6.1 Select the Auto Focus Mode

(1) Always:

When the auto focus mode is set to “Always”, the camera will always focus automatically no matter the camera is still or under panning, tilting, and zooming operation.

(2) PTZ:

When the auto focus mode is set to “PTZ”, the camera will focus automatically only during the panning, tilting, and zooming operation.

(3) Z Only:

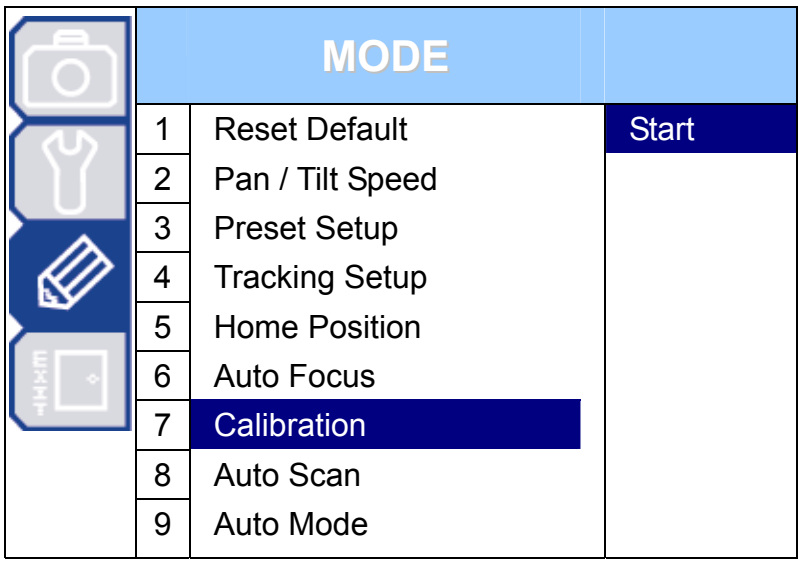
When the auto focus mode is set to “Z Only”, the camera will focus automatically only during the zooming operation.

7.7 Calibration

This function is used when you’re not satisfied with the current focus in each or certain zoom ratio and would like to adjust the focus again.

Note: Before using this function, you need to zoom in maximally on one object first.

Move to “Start”, and press “ENTER” to start focus calibration from zoom ratio 1 to the maximum ratio.



7.7.1 Select the Calibrating Result

When the calibration is completed, you will see three options:

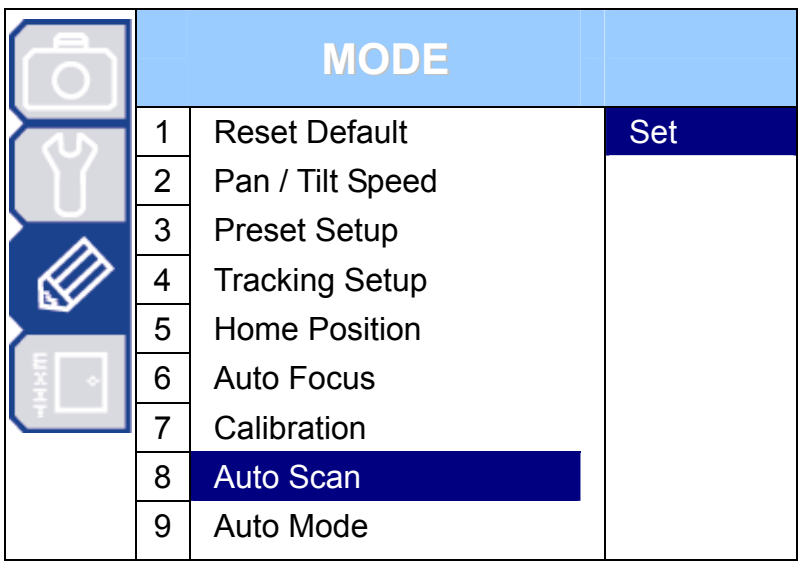
(1) OK – Accept the calibrating result.
(2) NG – Reject the calibrating result and re-calibrate.
(3) EXIT – Exit without saving.

Move to the option you want, and press ▢ to confirm.

7.8 Auto Scan

Select to set the limit of the pan angle.

Move to “Set”, and press ▢ to enter the pan angle setting page. Then, move up / down / right / left to set the right and left limit.

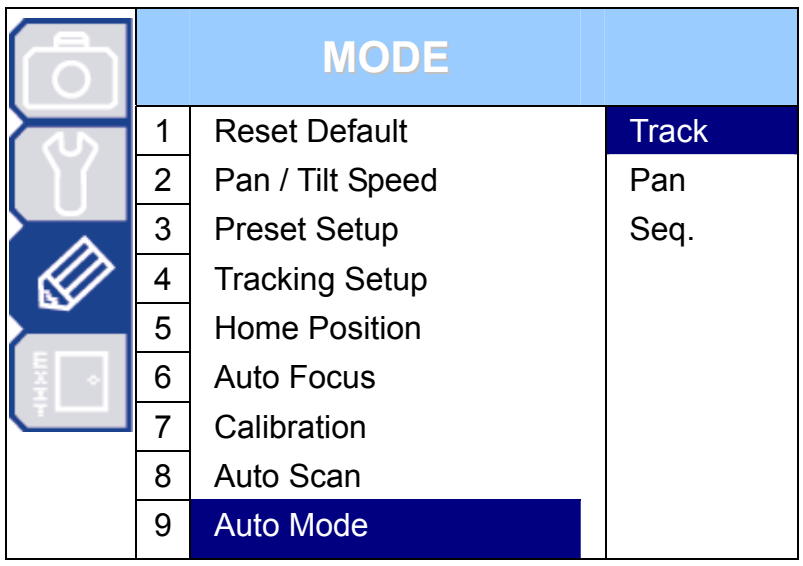


7.8.1 Set the Pan Angel Limit

(1) LIMIT 1 – Set the right limit, and save or quit without saving.
(2) LIMIT 2 – Set the left limit, and save or quit without saving.

7.9 Auto Mode

Select to set the mode when the “Auto” function of this camera is activated.



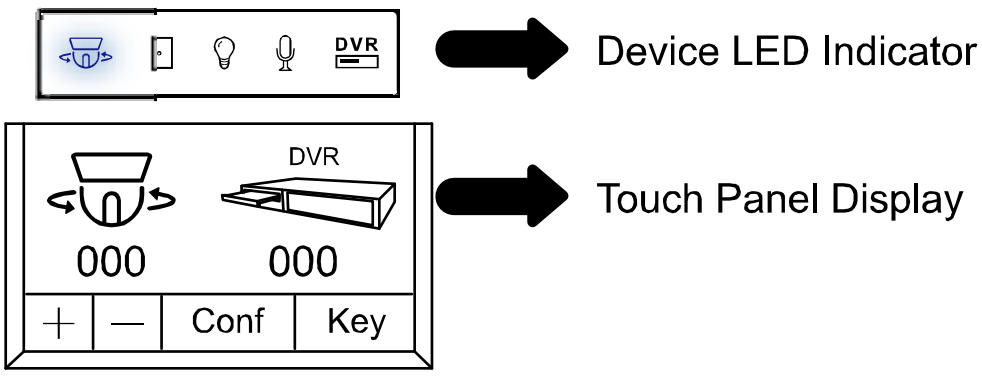
7.9.1 Set the Auto Mode

(3) Track – Activate the Auto-Tracking function.
(4) Pan – Start to pan in the range you set in “Auto Scan”.
(5) Seq. – Start the sequence function.

8. MAIN MENU – EXIT

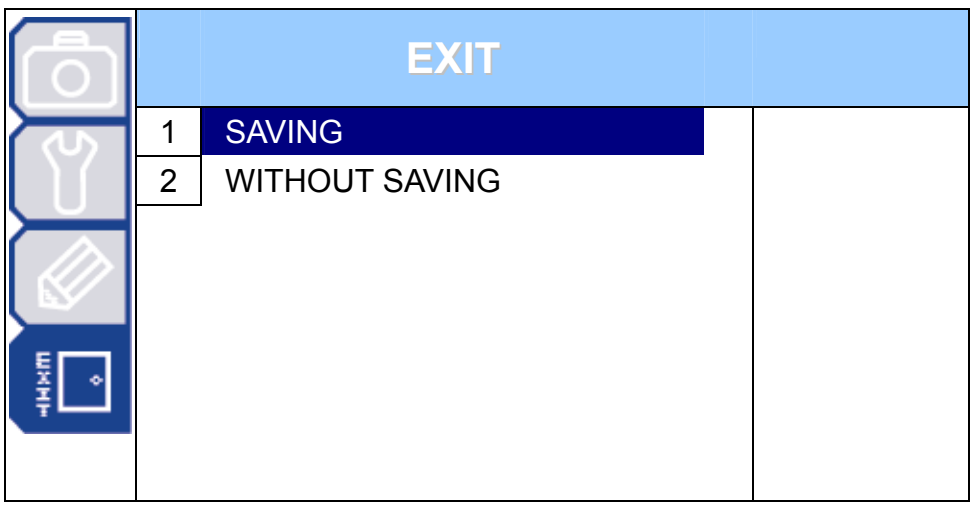
Note: The following description assumes that users are using our brand's keyboard controller to control the speed dome camera.
For details about using the DVR or other brand's keyboard controller to control the speed dome camera, please refer to "APPENDIX 3 CAMERA CONTROL VIA OUR DVR" at page 27, or "APPENDIX 4 CAMERA CONTROL VIA OTHER KEYBOARD CONTROLLER" at page 29.

Press on the keyboard controller to enter the camera control mode, or use the stylus to click the speed dome camera icon on the touch panel of the controller to enter the camera control mode, as shown in the picture below.



In the camera control mode, press on the controller to access the main menu of the speed dome camera.

Move to EXIT "", and you will see the following window:



8.1 Exit & Save the Changes

Move to "SAVING" and press . You'll see a pop-up message "Are your sure ?" on the monitor. Press again to confirm and exit the menu.

8.2 Exit Without Saving the Changes

Move to "WITHOUT SAVING" and press . You'll see a pop-up message "Are your sure ?" on monitor. Press again to confirm, and exit the menu without saving the changes.

APPENDIX 1 SPECIFICATIONS

	22X Model	35X Model
■ GENERAL		
Signal System	NTSC or PAL	
Pick-up Element	1/4" Sony Color Super HAD CCD image sensor	
Number of Pixels	768(H)*494(V)<NTSC> / 752(H)*582(V)<PAL>	
Resolution	High Resolution	
Min. Illumination	0.6 Lux / F1.6	
S/N Ratio	More than 48dB (AGC off)	
Video Output	1.0 Vp-p. 75Ω	
BLC	On / Off	
Gain Control	Low, Medium & High / Off	
Sharpness	Auto / Low / Medium / High	
White Balance	Auto / Indoor 1 / Indoor 2 / Sun / Cloudy * Indoor1 = 9000K; Indoor2 = 3000K; Sun = 5500K; Cloudy = 7000K	
Camera Title	10 characters or symbols	
Preset Points and Sequence	Total 8 groups, 256 programmable preset points * The sequence of all the preset points will follow the order of the minimal panning route.	
Auto Tracking	Yes	
Baud Rate	9600	
■ LENS		
Focal Length	f3.9 ~ 85.9mm	f3.43 mm ~ f120 mm
F-number	F1.6 (Wide) ~ 3.7 (Tele)	
Viewing Angle	4° ~ 60°	2.2° ~ 75.2°
Auto Electronic Shutter	1 / 60 (1/50) to 1 / 100,000 sec.	
Auto Focus	Always / PTZ / Z Only / P Only	
■ MECHANISM		
Pan Range	360°	
Pan Speed	360° / 1 sec * The pan speed can be adjusted according to the different pan speed mode.	
Tilt Range	90°	
Tilt Speed	0° ~ 90° under 1 sec	
Zoom Ratio	22X optical zoom	35X optical zoom
Zoom Speed	Approx. 7s (Tele ~ Wide)	Approx. 10s (Tele ~ Wide)
■ OTHERS		
IP Rating	IP66	
Ambient Operating Temperature	-20°C ~ 50°C (-4°F ~ 122 °F) Fan: 40°C on, 30°C off Heater: 5°C on, 15°C off	
Power Source (±10%)	DC12V	
Current Consumption	3A (max)	
Dimensions (mm)**	323(W) x 339(H) (bracket included)	
Optional Device	Keyboard controller	

* The specifications are subject to change without notice.

** Dimensional Tolerance: ±5mm

APPENDIX 2 DEFAULT VALUE

Items	Default Value
White Balance	Auto
Shutter Speed	1/60
Gain	Medium
IRIS Level	162
BLC	Off
Sharpness	Auto
Title Display Position	Up
Pan / Tilt Angle	On
Pan / Tilt Graph	On
Zoom Ratio	On
Focus Window	On
ID Code No.	1
ID Code Display	On
Baud Rate	9600
Tilt Limit	On
Pan / Tilt Speed	Fast
Factory Default Preset Points	The first preset position is “Pan: 120° ; Tilt: 15° ”. The second preset position is “Pan: 240° ; Tilt: 15° ”.
Tracking Setup	The default pre-defined surveillance area is 60° .
	The default pre-defined tracking timeout is 5 seconds.
Default Home Position	The default home position is “Pan: 180° ; Tilt: 5° ”.
Auto Focus Mode	The default auto focus mode is “PTZ”. * When the auto focus mode is set to “PTZ”, the camera will focus automatically only during the panning, tilting, and zooming operation.
Auto Mode	TRACK

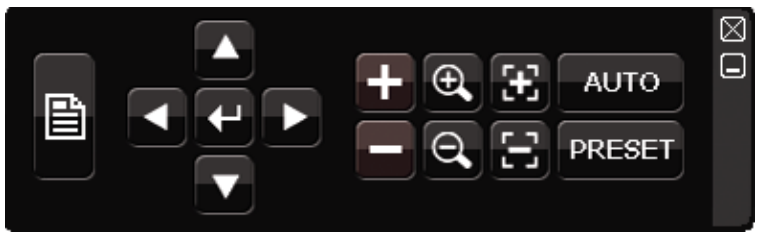
APPENDIX 3 CAMERA CONTROL VIA OUR DVR

Rather than controlling via our keyboard controller, it's also available to control via our brand's DVR and IR remote controller (if the IR remote controller is supported).

- **From DVR's Mouse Control Panel**

Note: This function is available when your DVR supports mouse control.

Switch to the channel which connects to your PTZ camera, and click "" on the quick menu bar to display the PTZ control panel.



	Camera Menu	Click to enter the camera main menu. For details about each camera menu, please refer to its own user manual.
	Enter	Click to confirm your selection / enter the menu.
/ / /	Up / Down / Left / Right	Click to move your selection up / down / left / right, or change settings.
/	Zoom in / out max	Click to zoom in on the image to the largest / zoom out on the image to its original size.
/	Zoom in / out	Click to zoom in / out the image.
/	Focus near / far	Click to adjust the focus of the image.
AUTO	Auto mode	Click to activate the auto function. Before using it, you need to assign a specific function that will be enabled when "AUTO" is clicked. For details, please refer to the user manual of the PTZ camera.
PRESET	Preset point	Click to enter the PTZ preset point you want to see.

- **From DVR's Front Panel**

If You Want To …	Press ….
Enter the speed dome camera mode	+ SEQ
Enter camera's menu	MENU
Confirm your selection / enter the submenu	ENTER
Zoom in	SEQ
Zoom out	
Zoom Max	ZOOM
Zoom Min	ZOOM
Focus near	SLOW
Focus far	SLOW + ZOOM
Move up	▲
Move down	▼
Move left	◀
Move right	▶
Activate the "Auto" mode	PLAY

- **From IR Remote Controller**

If You Want To …	Press ….
Enter the speed dome camera mode	PTZ or CAMERA
Enter camera's menu	or Camera Menu
Confirm your selection / enter the submenu	or ENTER
Zoom in	Zoom +
Zoom out	Zoom -
Zoom Max	Zoom max
Zoom Min	Zoom min
Focus near	or Audio CH+
Focus far	or Audio CH-
Move up	▲ or UP
Move down	▼ or DOWN
Move left	◀ or L
Move right	▶ or R
Activate the "Auto" mode	▶ or Play
Activate the tracking function	AUTO or Auto
Stop the tracking function	AUTO or Auto

APPENDIX 4 CAMERA CONTROL VIA OTHER KEYBOARD CONTROLLER

When this camera is connected to the keyboard controller other than our brand, you can control the camera via the protocol of Pelco-P or Pelco-D.

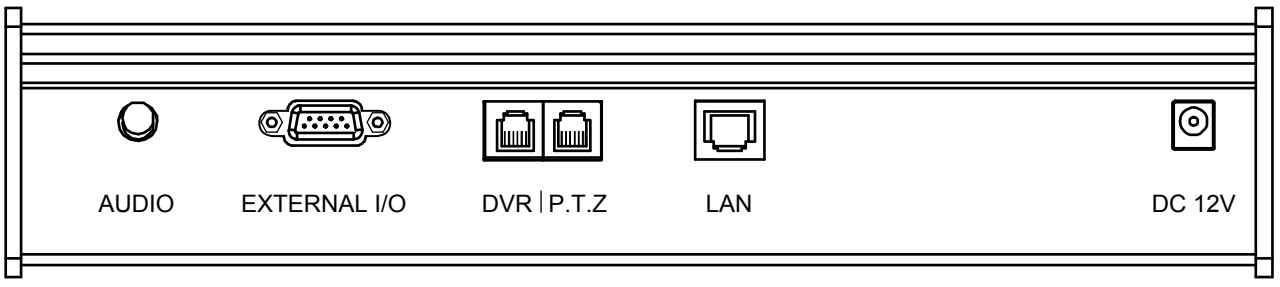
If You Want To …	**Press ….**
Enter camera's menu	goto 95
Confirm your selection / enter the submenu	goto 91
Zoom in	Left turn (joystick)
Zoom out	Right turn (joystick)
Focus near	Focus +
Focus far	Focus -
Move up	Up
Move down	Down
Move left	Left
Move right	Right
Activate the "Auto" mode	AutoPan
Activate the tracking function	goto 90
Stop the tracking function	Any arrow key

APPENDIX 5 FIRMWARE UPGRADE

Note: 1). Before upgrading the camera firmware, please get the upgrade file from your distributor.
2). The upgrade must be implemented with a PC / laptop and our brand's keyboard controller.

STEP 1: Connect the keyboard controller to your PTZ camera, and make sure the controller can control the camera correctly.

STEP 2: Find the LAN port on the controller rear panel (as shown below), and connect the controller to a PC or laptop with a RJ-45 network cable.



STEP 3: Change the IP address of the PC or laptop to "192.168.1.xx". "xx" should be 1~255 except 90 because the default IP address of the controller is 192.168.1.90.

STEP 4: Unzip the upgrade file you received from your distributor on your PC or laptop, and execute the exe file named "updata321_FB76.exe". The upgrade process will start automatically.

STEP 5: When the upgrade is completed, the camera will restart automatically and show the new firmware version.

Note: Please do not disconnect the connection between the controller and the camera, and the connection between the controller and the PC / laptop while the upgrade is in progress. Otherwise, the upgrade will be failed.