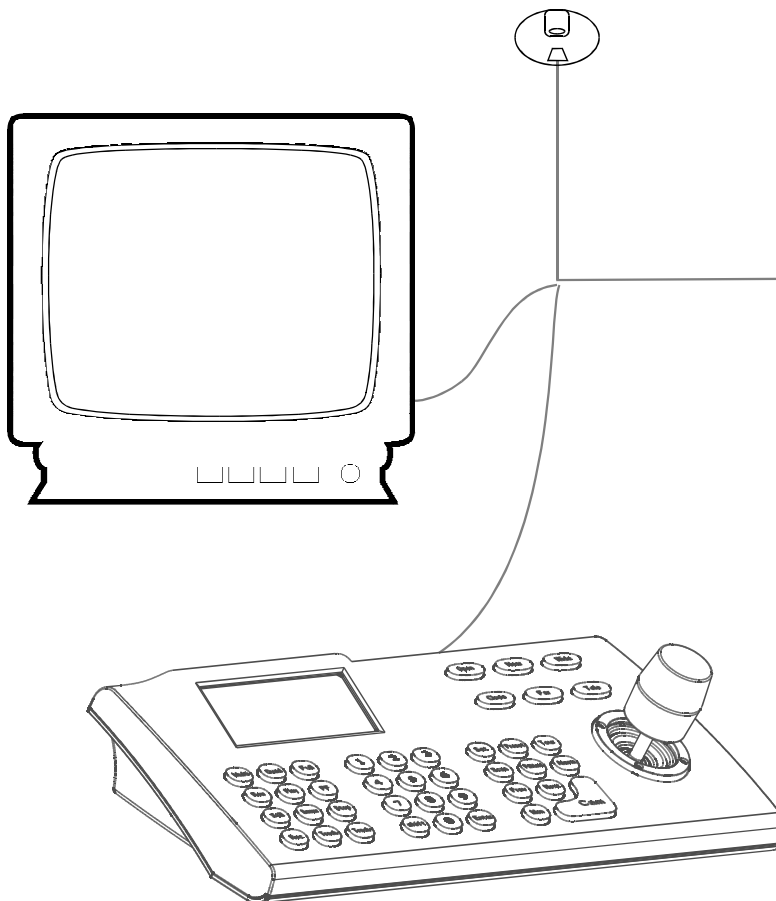


# **Infrared Intelligent High Speed Dome Operation and Installation Manual**

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# 1. Precaution

## Ø Electrical safety

Conform to country and local electrical safety standard when using or installing the product.

## Ø Transportation

The PTZ should be protected against extremes of pressure, vibration and humidity during storage installation and transportation. The infrared PTZ camera is transported by integrated packing.

## Ø Installation of care

Please refer to user installation manual when installation. Please pick up the Infrared parts gently and do not press it, or else, which will cause the malfunction of parts; the lens of Infrared belong to optional products, please do not touch it by your hand to avoid scraping it.

## Ø Requirements to service personnel

All the service work should be done by qualified technicians.

## Ø Do not disassemble the pan/tilt module

Do not disassemble screws, and don't maintain the parts in the Pan/Tilt by yourself. Only qualified and authorized personnel can undertake repairs.

## Ø Environmental requirements

= Requirements for PTZ:

Environmental temp: -40~+60℃

Humidity: <90%

Air pressure: 86~106Kpa

AC Power supply: 24V/2500MA, 50/60HZ

## Ø Don't place the camera to be shoot by strong light objects

Don't place the camera to be shoot by strong light objects. Don't point the PTZ to the sun or other bright objects when in use or not. It may affect image quality.

## Ø Function of waterproof

Our product has good water-proof, humidity-proof and dust-proof, which pass the standard of IP66. But it's not good to stay in the humidity environment, which will make some machinery parts broken.

## 2. 1 Technology parameter

Electrical:		Setting:	
Power supply	AC24V	Baud rate (RS485)	2400/4800/9600/19200bps
Consumption	(PTZ+IR light) 33w (PTZ+IR light+Heater) 53w	Protocol	Sixteen protocols, including Pelco, Kalatel, Philips, Diamond, etc.
Decoder	Built-in	Address setting	0-254
Operation:		Environmental:	
Pan rotation	360° continuously	Operational environment	-40 ~ +60°C
Tilt rotation	Tilt180° , with auto flip	Environmental humidity	0—95% no compensation
Rotation speed	Pan0.4~180°/S Tilt0.4~80°/S	Protection grade	IP66, Weather proof housing, 4000V lightning proof surge proof
Alarm function	7 alarm input/2 alarm output	Physical:	
Preset	128presets	Mount	wall mount/pendant mount
Surveillance	Preset、Tour、Scan、Pattern	Infrared night vision	Above 80 meters

## 2. 2 Camera parameter

Spec	Model	APS: 18 x Color	CPS:18X IR Cut Filter	DPS:26X IR Cut Filter	FPS:36X IR Cut Filter	GPH:23X IR Cut Filter	MPH:30X IR Cut Filter	LPH:35X IR Cut Filter
Signal system	NTSC / PAL							
Imaging element	1/4" Sony Super HAD CCD	1/4 " Sony Exview HAD CCD				1/4 " Sony Exview HAD CCD		
Scanning system	2: 1 Interlace							
Effective pixel (H×V)	NTSC: 758×504 / PAL: 752×582							
Scanning frequency	H:15.625 KHz / V:50.00 Hz							
Resolution	480TV Lines	NTSC: 470TV Lines PAL: 460 TV Lines	530TV Lines		540TV Lines	520TV Lines		
Minimum illumination	1.0 Lux	0.7Lux	2.0Lux	1.4Lux	0.05 Lux	0.5 Lux		
Zoom	18x optical, 12x digital		26 x optical 12 x digital	36 x optical 12 x digital	23 x optical 12 x digital	30 x optical 12 x digital	35 x optical 12 x digital	
Focus	4.1mm-73.8mm		3.5mm-91mm	3.4mm-122.4mm	3.6mm-82.8mm	3.4mm-102mm	3.4mm-119mm	
Angle Field of view	48.0° (Wide) to 2.8° (Tele)		54.2° (Wide) to 2.2° (Tele)	57.8° (Wide) to 1.7° (Tele)	54.0° (Wide) to 2.5° (Tele)	55.8° (Wide) to 2.0° (Tele)	55.8° (Wide) to 1.7° (Tele)	
IRIS Control	Auto/Manual							
Focusing system	Auto/Manual							
White balance	Auto/Manual ( R/B gain adjustable )							
Back-light compensation	Off/Auto							
S/N ratio	More than 50dB							
Electronic shutter speed	1/50 to 1/10,000s, 16 steps	1/1 to 1/10,000s, 22 steps			NTSC: 1/2 ~ 1/30,000s , PAL: 1/1.5 ~ 1/30,000s		1/2-1/30,000秒	
Video output	1.0±0.2Vp-p							
Video output port	Female BNC							
Wide Dynamic Range	NO			OFF/ON				
Privacy zone masking	8	24			8			

### **2.3 PTZ Performance and Feature**

The intelligent Pan/tilt was complete new design, compact structure, built-in constant temperature device and rapidly heat dissipation from chip; wiper function can retain full resolution picture in raining day; Infrared LED range more than 80 meters; Camera rotate flexibly with low noise, wide range capture and certain auto-functions can provide perfect quality of image for customer.

#### **Ø Built-in receiver**

- All configurable options stored in main control board to protect against power cuts
- Integrate design and high durability
- 1-80 preset support auto-tour, and each tour can store up to 24 presets.
- 4 pattern tours
- Built-in direction indicator
- Built-in clock setting function
- Rs485 Bus communication or American Dynamics Manchester code
- Support 24 masking zones at most ( This function is decide by the parameter of built-in camera, if the camera has not this function, this option is invalid. )
- 7 alarm input, 2 alarm output.
- 128 presets can be randomly stored
- 4 scan
- Built-in temperature indicator

#### **Ø Pan Tilt Feature**

- Aluminum alloy material and anti-violence design surface is well hidden and rapid heat removal; Level of protection achieves IP66.
- Precise stepping motor drives the pan to run smoothly and react sensitivity.
- Integrated design, compact structure, easy to disassemble.
- Exquisite mechanical drive, support to rotate pan 360° continuously and tilt 0° ~ +105° , and may rotate 180° with auto flip.
- Pan 0.4° /s to rotate slowly, and the image doesn't vibrate.

#### **Ø Built-in digital camera**

- High sensitivity, high resolution, and integrated digital processing
- Auto-focus
- Auto brightness control
- IR cut filter
- Auto slow shutter
- Auto-Iris
- Auto white balance
- Auto back light compensation

#### **Ø OSD menu**

- All English menu can be selected.
- Visual OSD menu. Revising the PTZ's information and parameter by keyboard and OSD menu, and it is easy to operate.
- Set park action function and set presets, or run scan, pattern, tour, etc during idle time.
- Auto-resume movement or carry out pointed movements after power up.

## Ø Internal temperature test

- Set time display
- When the temperature exceeds the limit, the screen will display alarm information.
- When the temperature is under the limit, the PTZ will delay to startup, and when the heat device is heated and got higher than low limit temperature to startup.
- According to the temperature, the fan measures if it is to start or not, and prolong the life of fan.

## Ø Time running

By the menu “Time running”, user may set time running function everyday, and set different four actions in four different time in one day, including preset, scan, pattern and tour.

## Ø Night View Function

Infrared LED range more than 80 meters, can manual control or auto-control infrared LED ON/OFF, manual control through keyboard can turn infrared LED ON/OFF. If auto-control working, image color will be switch to black and white when in low brightness, black and white will be switch to color when in high brightness.

## Ø Wiper function

Wiper function can be set ON/OFF by calling 63 preset or OSD menu. In the raining day, the wiper can not only ensure the high quality image, but also cleanup the dirtiness on the surface of lens.

### 3. Function Instruction

This passage mainly describes the main function and general principle of intelligence PTZ, and not refer to the concrete operation methods. Different system platform has different operation methods, generally, should according to the system manufactory's operation manual. Please contact dealer to get necessary information, there are some particular requirements and operations under specific condition.

#### 3.1 Camera ID

There are two 8digits code switch SW1 and SW2 under the right side cover, SW1 is for setting the address of the PTZ and SW2 is for setting communication baudrate and controlling protocol. (For detail setting, please refer to 10.5 DIP switch setting)

Besides the factory protocol(FACTORY), the PTZ is compatible with various popular protocols, such as PECLO-D, PECLO-P, ERNITEC, VCL, MOLYNX, VICON, SANTACHI, PANASONIC, SAMUNG, DIAMOND, KALATEL, LILIN, PHILIPS, VIDO B02, AD and so on.

Any controlling command must base on the objective camera address, and the camera only answer to the controlling command address which coincide with itself. There are three kinds of camera address:

- Common address: Use camera's switch number to set address 1-8 bits, the address range is 1-254.
- Debug address: (Only factory protocol and PELCO can be set) if camera ID is set 0, user may select any address to control the PTZ.

#### 3.2 Auto-run motion

##### Ø Focus/speed proportion pan

When manually adjusting, for far focus situation, the PTZ responds at a high-speed so that touching rocker slightly may make picture move rapidly, thus cause the picture to lose. To base on humanized design, the PTZ automatically adjust pan and tilt rotation according to zoom near and far, which make it is convenient to operate manually to make tracking for the object. In the menu, you may change system parameter setting proportion pan as ON to run this function.

##### Ø Auto flip

If user holds the joystick in the down position, the camera rotates pan 180 degrees, then the camera rotates tilts up to 180 degrees. In the menu, you may set the system parameter setting AUTO FLIP as ON to run this function.

##### Ø Park action

By the menu “ park time” and “park action” , user may set auto-call preset or run tour, pattern, and scan, etc after pointing a few minutes if the PTZ doesn't run any motions.

##### Ø Power up action

By the menu “ power up action” , after the PTZ powers up or restarts, user may set auto- resume movements before power up and auto- call preset or run tour, pattern, and scan etc .



### **3. 3 Camera control**

#### **Ø Magnification control**

The user can control “Wide/Tele” to adjust zoom far and near of the image by keyboard controller to obtain panoramic image or close view that you need. The PTZ support digital zoom and optical zoom.

#### **Ø Focus control**

System defaults Auto focus. When the lens changes, camera will auto-adjust focus according to the center of the image to get legible image; user can also manually focus to get desire image by operating keyboard “FAR/NEAR” . When operating keyboard joystick, camera resumes to auto focus.

The camera cannot auto focus in the following status:

- Target is not the center of the image
- Observation the target near and far at the same time, can not be clear at the same time.
- Target is a strong light object, such as neon light, spotlight , etc.
- Target moves too fast
- Target area such as wall
- Target is too dark or vague
- Target image is too small

#### **Ø Iris control**

System defaults Auto Iris. Camera can rapidly adjust size of Iris, through the automatically induct the changing of environment ray, and thus make the brightness of deferent image stable.

User may adjust Iris by controller keyboard “open/close” to get required brightness that you need. User also can resume auto Iris by joystick operation. When controlling the Iris manually, the PTZ locks current position you manually controlled; when operating joystick, the PTZ resume auto Iris.

#### **Ø Auto back light compensation**

Camera sub-area can carry out auto back light compensation. Under a strong light background, camera will auto compensate light for the darker object and adjust daylight to the bright background. In order to avoid making the image lack fidelity by the back line is too bright, and the object is unable to recognize because of darkness, thus gain legible image.

#### **Ø Auto white balance**

Camera can automatically adjust white balance in accordance with the alteration of background lightness to reach a true colour.

### **3. 4 Monitor function**

#### **Ø Set and call preset**

Preset function is that PTZ stores current pan/tilt angle, zoom and other position parameters into the memory. When necessary PTZ recalls these parameters and adjust camera to that position. User can store and recall presets easily and promptly by using keyboard controlling. The PTZ can store up to 128 presets.

#### **Ø Tour**

Auto tour is the built-in function in the PTZ, to make preset arranged in needful order in tour queue by programming in advance. To make camera tour between presets by inserting presets in cruise tour. It is feasible to program tour order, each time as you run tour, you can set the park time of preset. A tour can store 24 presets.

### **Ø Scan**

The operator can prompt set right limit and left limit in advance by keyboard and menu, so as to make the camera repeatedly scanned between right and left limit at a setting speed.

### **Ø Pattern**

Pattern is built-in function in camera; the PTZ can record tracks that are no less than 180s, when running pattern, the PTZ moves repeatedly according to the recorded tracks. A PTZ can set up to 4 pattern tours.

### **Ø Alarm input/output controlling function**

The PTZ receive an external alarm message, to implement the action that you preset, till the alarm release to resume, if abnormality, it will send another alarm message. The PTZ can set up to 7 alarm input and 2 alarm output.

### **Ø Privacy zone masking**

The user can set a black shadow to mask the area so that it will not appear on the monitor to protect privacy. ( This function is relative with the type of the PTZ, if zoom camera hasn't this function, it is invalid).

### **Ø Lens position display**

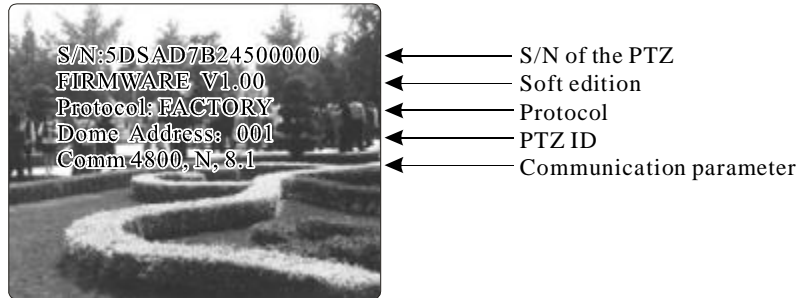
The position that the PTZ has finished to auto-checking as 0 point of pan movement and tilt movement. The pan range is 0-360° , and tilt range is 0° ~ +105° . According to the displayed information, to set the position of camera lens, and the position can display on the screen.

## 4. System setting

### 4.1 Basic operation

#### 4.1.1 Current-carrying to PTZ and Self-testing

The PTZ conducts self-testing after current-carrying , and it rotates slowly until displaying pan origin that is default setting, then moving to tilt origin, the lens is adjusted from far zoom to near zoom, then from near zoom to far zoom, when self-testing is finished, there is relevant system information displaying on the screen, as follow:



The information will not disappear until you stop to operate the system. If you set “power up action” , the PTZ will automatically activate motions after self-testing. How to operate the function? We will explain detail introduction in following passages.

#### 4.1.2 Call the main menu

The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. All the menu setting must enter into the main menu at first.

#### 4.1.3 Menu and keyboard operation

##### Ø Keyboard operation:

【OPEN】 when choosing pictures, it means to increase Iris; when setting menu, it means to enter into the next menu or setting, or means to save after setting .

【CLOSE】 when choosing pictures, it means to reduce Iris; when setting menu, it means to exit without saving setting.

【NEAR】 Focus to near

【TELE】 Increase magnification

【WIDE】 Reduce magnification

Joystick to up: When choosing menu, it means to choose the former one; when choosing picture, it means camera tilt up.

Joystick to down: when choosing menu, it means to choose the next one; when choosing picture, it means camera tilt down.

Joystick to left: when choosing menu, it is equal with 【CLOSE】 , when choosing picture, it means camera tilt left .

Joystick to right: when choosing menu, it is equal with 【OPEN】 , when choosing picture, it means camera tilt right.

Press 【TELE】 and 【WIDE】 at the same time, it means 3D joystick rotates joystick cap.

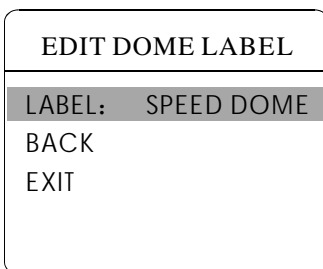
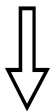
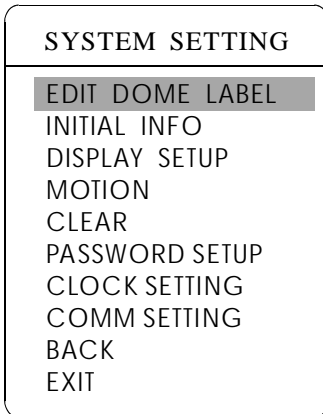
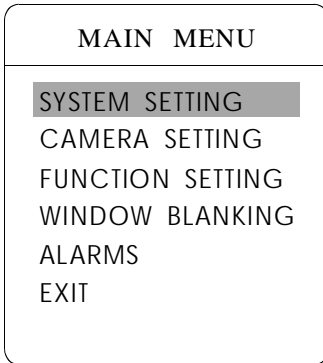
##### Ø Menu operation

“BACK” : Back to the former menu

“EXIT” : Exit to menu

“ON” : Open some setting

“OFF ” : Close some setting



## 4. 2 Edit dome label

When using a lot of PTZs' systems, in order to identify each PTZ, the systems support title setting. The setting ways as follow:

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Moving joystick up and down to move the cursor to **【SYSTEM SETTING】** , and pressing **【OPEN】** to enter into the next menu.
- 3、 Moving joystick up and down to move the cursor to **【EDIT PTZ LABEL】** , and pressing **【OPEN】** to enter into the label setting menu.
- 4、 Moving joystick up/down to move the cursor to **【LABEL】** , and pressing **【OPEN】** to edit current label.
- 5、 When the cursor is twinkling in the first character of the label, to move joystick to choose character, after editing, pressing **【OPEN】** to save.
- 6、 Moving joystick to **【BACK】** and pressing **【OPEN】** to back to the former menu.



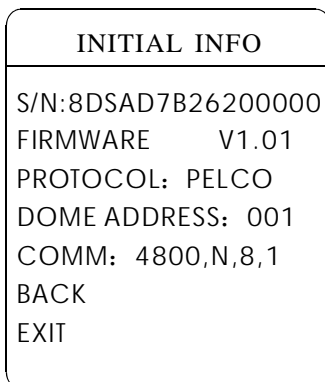
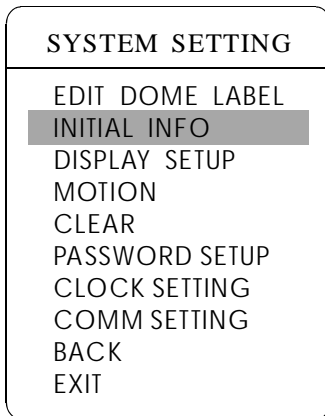
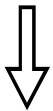
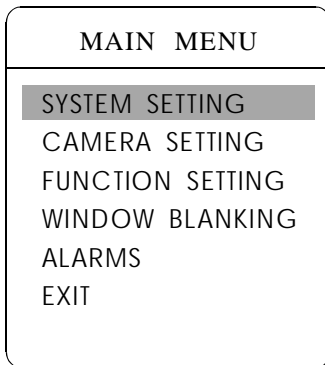
The label may set 16 characters, and doesn't need editing characters. Pressing **【OPEN】** continuously to jump over and using spacebar to replace the deleted characters. When you finish to edit a character, press **【OPEN】** to enter into the next editing character; when you editing the last character, pressing **【OPEN】** to save. Press **【Close】** to exit.

Characters of label available for choosing are as follow: 0-9, A-Z, : < > - ., Space.

Other labels' input ways are the same as above.

# System Setting

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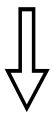


## 4. 3 Display initial information

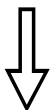
- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Tilt up/down joystick to **【SYSTEM SETTING】** , press **【OPEN】** to enter submenu.
- 3、 Tilt up/down joystick to **【INITIAL INFO】** , press **【OPEN】** to display initial information as below the left picture .

Initial information includes S/N of the PTZ, soft edition, Protocol, PTZ ID, communication parameter. System setting may change the numerical value of initial information.

MAIN MENU
SYSTEM SETTING
CAMERA SETTING
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



SYSTEM SETTING
EDIT DOME LABEL
INITIAL INFO
DISPLAY SETUP
MOTION
CLEAR
PASSWORD SETUP
CLOCK SETTING
COMM SETTING
BACK
EXIT



DISPLAY SETUP	
DOME LABEL	OFF
PRESET LABEL	OFF
ZOOM LABEL	ON
ZONE LABEL	OFF
DIRECTION LABEL	ON
TEMPERATURE LABEL	OFF
TIME LABEL	ON
DATE LABEL	ON
BACK	
EXIT	

## 4. 4 Display setup

1、The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2、Tilt up/down joystick to **【SYSTEM SETTING】** , press **【OPEN】** to enter submenu.

3、Tilt up/down joystick to **【DISPLAY SETUP】** , press **【OPEN】** to enter “display setup” menu, May setting the content of the display setup as follow:

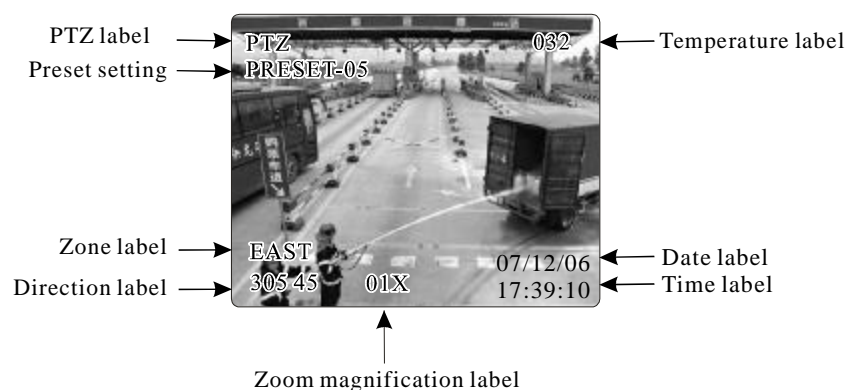
- **【DOME LABEL】**
- **【PRESET LABEL】**
- **【ZOOM LABEL】**
- **【ZONE LABEL】**
- **【DIRECTION LABEL】**
- **【TEMPERATURE LABEL】**
- **【TIME LABEL】**
- **【DATE LABEL】**

4、Taking display PTZ label as an example to explain the operation process. Tilt up/down joystick to move cursor to **【Dome LABEL OFF】** , press **【OPEN】** , there is a sign “⚙” besides **【Dome LABEL】** , the cursor is twinkling besides **【OFF】** , as left picture shows;

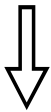
5、Joystick tilt up/down, setting number changes between ON/OFF, when setting **【ON】** , it means to display “PTZ label” ;when setting **【OFF】** , it means not to display “PTZ label” .when pressing **【OPEN】** , the cursor jump back in front of **【DOME LABEL】** , means label setting is finished, when moving the cursor to **【EXIT】** , it means exiting the menu setting.

The displaying information on the screen will change with the PTZ rotation; Through the information on the screen, user can see current PTZ inside temperature, magnification, display zone etc. When all the label are displayed, the PTZ works as the following picture shows,:

(In the picture “305” means pan angle, “45” means tilt angle. )



SYSTEM SETTING	
EDIT DOME LABEL	
INITIAL INFO	
DISPLAY SETUP	
<b>MOTION</b>	
CLEAR	
PASSWORD SETUP	
CLOCK SETTING	
COMM SETTING	
BACK	
EXIT	



MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

MOTION	
AUTO FLIP	ON
<b>PROPORTION PAN</b>	<b>ON</b>
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

## 4. 5 Systematic motion control

Systematic motion controlling may control a series of canonical movement of the PTZ, and play an important role in controlling the PTZ.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
2. Tilt up/down joystick to **【SYSTEM SETTING】** , press **【OPEN】** to enter submenu.
3. Tilt up/down joystick to **【MOTION】** , press **【OPEN】** to enter systematic motion controlling menu, as left picture shows.

### 4. 5. 1 Auto flip

1. Operate joystick, move the cursor to **【AUTO FLIP】** : press **【OPEN】** to enter “ auto flip ” setting, tilt up/down joystick, for example: choosing "ON" to open “ auto flip ” ; choosing "OFF" to close “auto flip” . Press **【OPEN】** to save.

**REMARK:** When opening the auto flip function, user holds the joystick in the down position, the camera rotates pan 180 degrees, after the camera rotates tilt up to 180 degrees.

### 4. 5. 2 Speed proportion pan

1. Operate joystick, move the cursor to **【PROPORTIONAL PAN】** ; press **【OPEN】** to enter “ proportion pan ” setting, tilt up/down joystick to choose, if choosing **【ON】** , it means to open proportion pan; if choosing **【OFF】** , it means to close proportion pan , press **【OPEN】** to save.



#### OPERATION KNACKS

When manually adjusting, for far focus situation, the PTZ responds at a high-speed so that touching joystick slightly may make picture move rapidly, thus cause the picture to lose. To base on humanized design, the PTZ automatically adjust pan and tilt rotation according to zoom near and far, which make it is convenient to operate manually run after object.

MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	


MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

### 4. 5. 3 Park action

This setting allows the PTZ to run an appointed action after it enters vacancy for a few time (1-240minutes). If default sets as 0, it means not to run this action automatically.

1、 Operate joystick, move the cursor to **【PARK TIME】** , press **【OPEN】** to tilt up/down joystick to set park time, the range is 0-240 (minute), press **【OPEN】** to save. **【PARK ACTON】** is running action at park time, when **【PARK TIME】** sets as 0, this item can't be set.

2、 Operate joystick, move the cursor to **【PARK ACTON】** , press **【OPEN】** there will be a sign  in the front of **【PARK ACTON】** , the cursor jump to right, after tilt up/down joystick to choose “ park action ” , there are options for choosing as follow, press **【OPEN】** to save.

- **【NONE】** - (default) none action
- **【PRESET】** -use preset 1-80
- **【SCAN】** -run scan
- **【PAT1】** - run pattern X
- **【TOUR】** - run tour

### 4. 5. 4 Power up action

The PTZ start to run actions after self-testing, if nobody intervenes it , it will repeatedly run this action continuously , if default sets as **【NONE】** .

1. Operate joystick, move the cursor to **【POWER UP ACTION】** : press **【OPEN】** to jump to the following choice, tilt up/down joystick to choose “power up action” , press **【OPEN】** to save.

- **【NONE】** - none action
- **【AUTO】** - the PTZ resumes the primary action and direction before power up.

before power up.

- **【PRESET】** - use preset 1
- **【SCAN】** - run scan
- **【PAT1】** - run pattern
- **【TOUR】** - run tour

### 4. 5. 5 Fan startup by temperature

The temperature of the PTZ will rise when it is in high temperature. The fan will open automatically when the temperature reaches to a very high degree value in order to make sure the stability of the PTZ.

Operate joystick, move the cursor to **【FAN ENABLED】** : press **【OPEN】** , the cursor will skip to the back option. The user can choose the fan to start up temperature, and press **【OPEN】** to save it in actual condition.

The default setting temperature of the fan startup is 50°C. The user also can enter into the fan startup setting to adjust the temperature of fan startup. As picture shows: the temperature range is 0-60°C. **【TEMP】** can switch the temperature between fahrenheit and centigrade.



MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	



ADVANCE SETTING	
EIS ENABLED	N/A
PRESET FREEZE	N/A
DEFOGGER	10
A D J SPEED	100
WIPER	
IR HEADLIGHT	
SPECIAL SETTING	
BACK	
EXIT	



IR HEADLIGHT	
MODE	MID
DELAY TIME	002
BW	AUTO
ACT. AUX1	OFF
LED 1	100
LED 2	200
LED 3	×
LIGHT	×
BACK	
EXIT	

SPECIAL SETTING	
GRID	ON
POS.MODE	MODE1
ZERO AZI	
BACK	
EXIT	

## 4.5.6 Advance setting

1. Operate joystick and move to **【ADVANCE SETTING】**, press **【OPEN】** to enter into "advance setting";

**【EIS ENABLED】** : Electronic Image Stabilizer function;

**【PRESET FREEZE】** : Function of Preset Freeze means during calling presets, the monitor displays the image before call presets, and releases the freeze image when camera arrives the appointed presets.

**【DEFOGGER】** : Lens of PTZ will be fogged when PTZ works in quite cold temperature. In order to get clear image, defogger will open automatically at the appointed temperature. Choosing **【DEFOGGER】** by operating the joystick, and press **【OPEN】**, then cursor leap to the optional. Choose the temperature to run the defogger, and press **【OPEN】** to save. Range of Temperature: 0~30℃.

**【ADJ SPEED】** : The rotation percentage of P/T, 100 means factory speed, 80 means 80% of factory speed.

**【WIPER】** : Wiper runs by calling 63 Preset.

**【MODE】** : Setting of Infrared light. Call 62 preset to run infrared light under the setting of **【MANUAL】**. Save 62 preset to close the infrared. The default setting of infrared light is Auto MID.

**【DELAY TIME】** : Setting the auto close time of IR light, ranging from 1-240 Minutes.

**【BW】** : Setting the imaging model after the IR light as ON, three modes for choice: Auto, Color, Black.

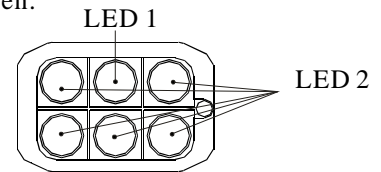
**【ACTIVATE AUX1】** Whether to link AUX 1 when open the IR light, "On" means Link. "OFF" means not to link.

**【LED 1】** For LED brightness adjustment, range:50-200, Brightness increase in proportion as bigger digits is chosen.

**【LED 2】** Same as the above

**【LED 3】** Temporarily unavailable

**【LIGHT】** Options of light sources (Temporarily unavailable)



## SPECIAL FUNCTION SETTING:

**【SPECIAL SETTING】** special function setting

**【GRID】** location function

**【POS.MODE】** Position mode, enable displaying the rotate direction. When Dome rotate in a clockwise direction, "MODE1" horizontal numerical value will decrease, "MODE2" horizontal numerical value will increase.

**【ZERO AZI】** Setting the "0" azimuth angle; call 180 preset to enable swiftly setting the "0" azimuth angle.

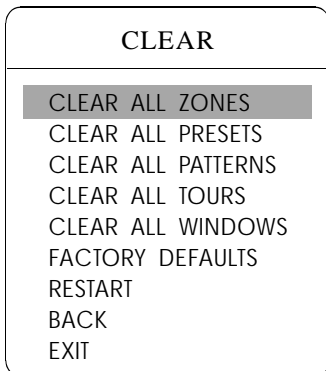
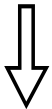
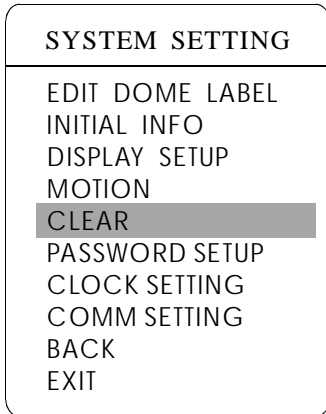
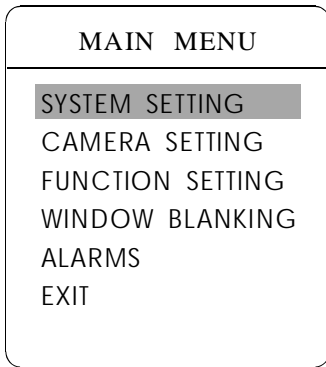


## OPERATION KNACKS

1. After the PTZ set the EIS function, if the PTZ wobble slight when running, the camera will shield the wobble picture and make the picture calm and smooth.
2. When start-up preset freeze, it can eliminate the sense of flash caused by calling presets when open function of Preset Freeze, which can reduce the storage space of DVR if image is stored by DVR.



These function in the advance setting menu depends on the models and parameters of built-in camera in PTZ, if the camera haven't this function, then this function is invalid. The option is useless (N/A) when the camera module has no such function.



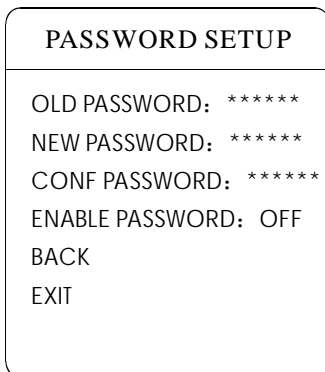
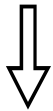
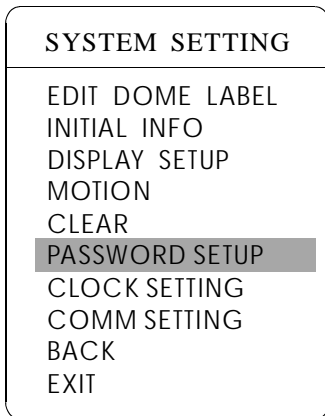
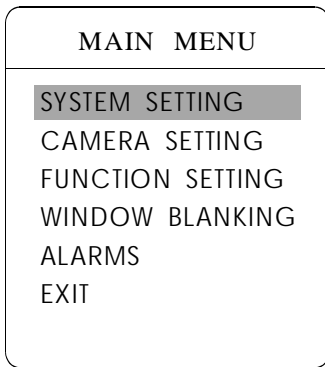
## 4. 6 Clear and restart

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
2. Tilt up/down joystick to **【SYSTEM SETTING】** , press **【OPEN】** to enter submenu.
3. Tilt up/down joystick to **【CLEAR】** , press **【OPEN】** to enter submenu, as left picture shows.
  - **【CLEAR ALL ZONES】**
  - **【CLEAR ALL PRESETS】**
  - **【CLEAR ALL PATTERNS】**
  - **【CLEAR ALL TOURS】**
  - **【CLEAR ALL WINDOWS】**
  - **【FACTORY DEFAULTS】** :resume the factory default. Run this function, the camera parameter and system parameter will resume to factory default, clear all windows and alarm setting. Please be cautious to use this function.
  - **【RESTART】**
4. Set clear zone as an example to explain the process. Tilt up/down joystick to **【CLEAR ALL ZONES】** , press **【OPEN】** to clear all zones.



Once clear all commands in the controlling menu, it can't resume, so please be careful of using it.

# System Setting



## 4.7 Password set

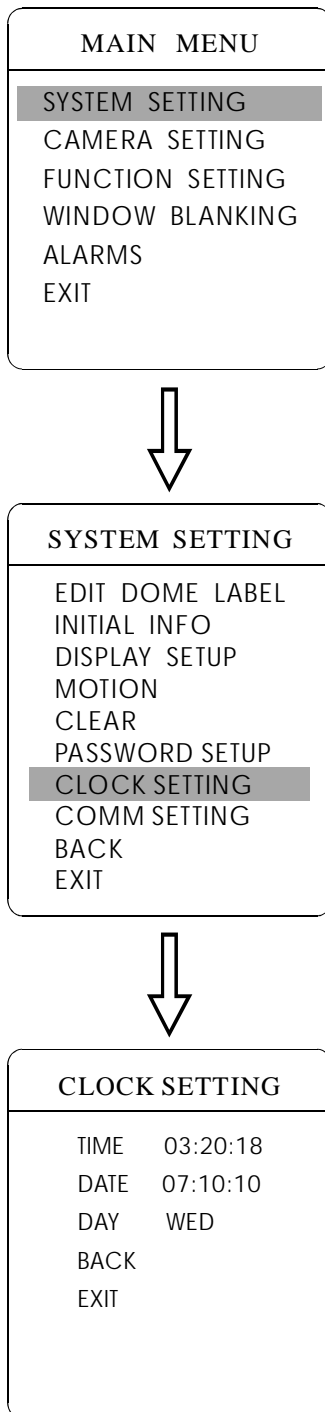
1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
2. Operate the joystick up and down, move the cursor to **【SYSTEM SETTING】**, press **【OPEN】** to call the submenu.
3. Operate the joystick up and down, move the cursor to **【PASSWORD SETUP】**, press **【OPEN】** to call the submenu. Please refer to the left picture.
4. Operate the joystick up and down, move the cursor to **【OLD PASSWORD】**, press **【OPEN】** to choose it, operate the joystick right and left to input the password, Tilt up and down to choose the number which you need.

- **【NEW PASSWORD】** Enter the new password
- **【CONFIRM PASSWORD】** Confirm the new password
- **【ENABLE PASSWORD】** Set PASSWORD off / on

(The password function is nonreflective under the PASSWORD OFF.) It means that users can enter into the main menu without password. (The password function is effective under the password ON.) It means that user enter into the main menu with password.



When user forgot the password and can not enter into the main menu, he can use the super password to enter, which is "892226", At this time, the password of PTZ will change to initial one, which is "000000", and then user may set the password by himself again.



### 4.8 Time set

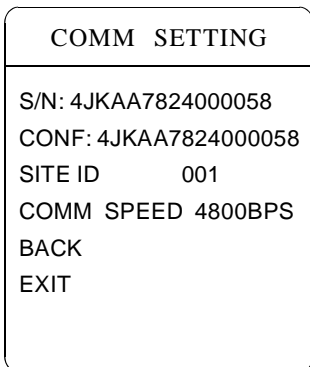
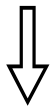
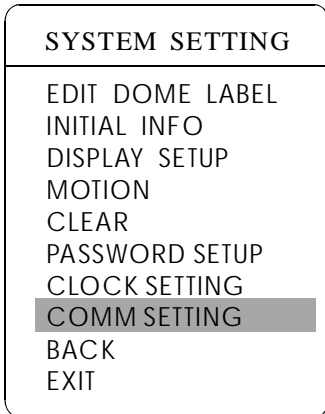
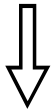
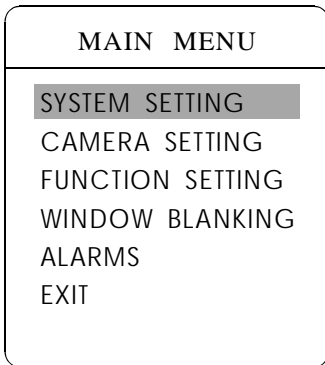
1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2. Operate the joystick up and down, move the cursor to **【SYSTEM SETTING】**, press **【OPEN】** to call the submenu.

3. Operate the joystick up and down, move the cursor to **【CLOCK SETTING】**, press **【OPEN】** to call the submenu. Please refer to the left picture.

4. Operate the joystick up and down, move the cursor to **【TIME】**, press **【OPEN】** to choose it, move the joystick up and down to choose the number you need, move the joystick right and left to set hour, minute, second.

- **【DATE】** set year, month, date;
- **【DAY】** set week;
- **【BACK】** return to the former menu;
- **【EXIT】** exit the main menu.



## 4. 9 Setup Dome parameter

1.The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2.Click the up and down button to move the cursor to **【SYSTEM SETTING】** , and click the right button to enter into the next menu.

3.Click the up and down button to move the cursor to **【COMM SETTING】** , and clicking the right button to enter into Dome parameter setup menu.

**S/N:** Show Series NO. of the dome ex-work.

**CONF:** Using to edit, the series NO. of the dome is the same as S/N series Number.

**SITE ID:** Setting up the ID Number of the dome, address scope (001-255).

**COMM SPEED:** Baud rate setup. The user can choose 4 kinds of Baud-rate (2400 BPS, 4800 BPS, 9600 BPS, 19200 BPS).

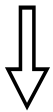


Notice: when you set the **【COMM SETTING】** ,all the code switch SW1 and SW2 are set to **【ON】** .



Remark: below operation can not be continue when above two series Number are not the same.


MAIN MENU
SYSTEM SETTING
<b>CAMERA SETTING</b>
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



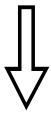
CAMERA SETTING	
<b>ZOOM SPEED</b>	<b>HIGH</b>
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5. Camera setting

### 5. 1 Zoom speed

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Tilt up/down joystick to **【CAMERA SETTING】** ,press **【OPEN】** to enter submenu;
- 3、 Operate joystick, move the cursor to **【ZOOM SPEED】** ; press **【OPEN】** will appear a sign "  in the front of **【ZOOM SPEED】** , the cursor moves to right, tilt up/down joystick to choose **【HIGH】** or **【LOW】** ;
- 4、 Press **【OPEN】** to save, press **【CLOSE】** to cancel.

MAIN MENU	
SYSTEM SETTING	
CAMERA SETTING	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5. 2 Digital zoom control

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Tilt up/down joystick to **【CAMERA SETTING】** ,press **【OPEN】** to enter camera setting;
- 3、 Operate joystick, move the cursor to **【DIGITAL ZOOM】** ,press **【OPEN】** to enter digital zoom setting, tilt up/down joystick, to choose ON means open digital zoom control which is digital zoom is pulled near, if pulling the digital zoom near again, the PTZ enters into “ digital zoom increase” ; to choose OFF means to close digital zoom control.
- 4、 Press **【OPEN】** to save.



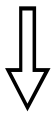
### OPERATION KNACKS

When digital zoom be set as ON, the maximum zoom magnification of the PTZ is digital zoom magnification times optical zoom magnification; when digital zoom be set as OFF, the maximum zoom magnification of the PTZ is optical zoom magnification.




The option of the digital zoom is ON/OFF when the camera module is SONY、LG、CNB、HITACHI.

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
<b>BLC MODE</b>	<b>OFF</b>
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5. 3 Back light compensation

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate joystick, move the cursor to **【CAMERA SETTING】** to enter submenu.
- 3、 Operate joystick, move the cursor to **【BLC MODE】** , press **【OPEN】** , There will be a sign  in the front of **【BLC MODE】** , the cursor jump to right, tilt joystick to open or close back light compensation function. If choosing ON means to open back light compensation mode; if choosing OFF means to close back light compensation mode;
- 4、 Press **【OPEN】** to save.



### OPERATION KNACKS

Strong background ray can make backlighting objects engender shadow, (back light compensation), the PTZ can auto-adjust iris to match with the changes of various ray, and auto-revise the main lightness to make the pictures more legible.



This function relates to models and parameters of the built-in camera in the PTZ, when open black compensation, it has two functions which are auto-adjust (when you choose ON) or manual adjust(0-255) according to the different of the camera.



Non-use back light compensation, in strong sunshine, the back light side is subject to dark.



Use back light compensation, the image is in gear.




MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
<b>SLOW SHUTTER</b>	<b>ON</b>
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5. 4 Slow shutter control

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate joystick, move the cursor to **【CAMERA SETTING】** to enter submenu.
- 3、 Operate joystick, move the cursor to **【SLOW SHUTTER】** , press **【OPEN】** , there will be a sign  in the front of **【SLOW SHUTTER】** , the cursor moves to right, tilt up/down joystick to “slow shutter” choice, if choosing ON means to open slow shutter function, if choosing OFF means close “slow shutter” function.
- 4、 Press **【OPEN】** to save.



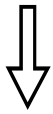
### OPERATION KNACKS

When the PTZ monitors at night or dark environment, because the ray is not enough, the image on the screen is too dark, setting slow shutter can lengthen the time of lighting so that make the picture that is shooted in dark more legible.



This function depends on the models and parameters of built-in camera in PTZ, if the camera haven't this function, then this function is invalid.

MAIN MENU
SYSTEM SETTING
CAMERA SETTING
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5.5 Line sync control

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate joystick, move the cursor to **【CAMERA SETTING】** , press **【OPEN】** to enter submenu.
- 3、 Operate joystick, move the cursor to **【LINE SYNC】** ; press **【OPEN】** , tilt up/down joystick to set line sync. Line sync can divide two kinds: internal/external, choose OFF is internal sync; choose ON is external sync; press **【OPEN】** to save.



### OPERATION KNACKS

When a lot of PTZs use a line in the same time, if the image is twinkling as switching, please set each PTZ as external line and adjust the numerical value of external line.



This function is relative with the model and parameter of the camera module which insert in the PTZ. The option is useless(N/A) when the camera module has no such function.

## 5.6 WDR Control

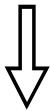
- 1、 Operate joystick, move the cursor to **【WDR MODE】** ,press **【OPEN】** , tilt up/down joystick to set WDR; Choose ON means open WDR, choose OFF means close WDR, Press **【OPEN】** to save.

**【WDR MODE】** : WDR is the function that features of image can be captured clearly by camera while the picture was cover with strong contrast background. For example: you can enable WDR function to sublime image quality when the two areas A and B exist simultaneously, A: High Intensity area under strong light exposure (source from daylight, lamp and so on), B: Low luminance area, like shadow, backlighting zone and so on.

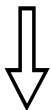


This function is relative with the model and parameter of the camera module which insert in the PTZ. The option is useless(N/A)when the camera module has no such function.

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
<b>ADVANCE SETTING1</b>	
ADVANCE SETTING2	
BACK	
EXIT	




ADVANCE SETTING 1	
IR CUT FILTER	AUTO
IR CUT ON TIME	N/A
IR CUT OFF TIME	N/A
THRESHOLD	10dB
MAX GAIN	28dB
EXPOSURECOMP	OFF
MIRROR	OFF
FLIP	OFF
SHARPNESS	00
BACK	
EXIT	

## 5. 7 IR cut filter

1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2、 Operate joystick, move the cursor to **【CAMERA SETTING】** to enter submenu.

3、 Operate joystick, move the cursor to **【ADVANCE SETTING1】** ; press **【OPEN】** , there will be a sign  in the front of **【ADVANCE SETTING1】** , the cursor jumps to right, move joystick to “ IR cut filter” , choices as follow, **【AUTO】** is default.

**【AUTO】** IR cut filter mode, it means the PTZ automatically transfers according to sensitivity.

**【COLOR】** set as color mode

**【BLACK】** set as black and white mode

**【TIME】** set ON time and OFF time of black and white mode

4、 Press **【OPEN】** to save.

When user choose **【TIME】** , **【IR CUT ON TIME】** and **【IR CUT OFF TIME】** will be effective. User may set ON time and OFF time of black and white mode, as follow:

1. Operate joystick, move the cursor to **【IR CUT FILTER】** , tilt up/down joystick to choose **【 TIME】** mode, press **【OPEN】** to save;

5. Operate joystick, move the cursor to **【 IR CUT FILTER】** , tilt up/down joystick to set the beginning time of black and white mode; move joystick to **【IR CUT OFF TIME】** to set the finish time of black and white mode, the same as setting the beginning time;

6. Operate the joystick and move the cursor to **【 MAX GAIN】** which is the max limits of automatic gain and ranges from 8 to 28dB. As the ray is dark, the more smaller value of **【MAX GAIN】** , the more darker, the noise of image is less; The more bigger value of **【MAX GAIN】** , the more brighter, but the noise of image is much.

**【THRESHOLD】** :sensitive of IR cut filter, the range from 0 to 28dB.

**【EXPOSURECOMP】** :exposure compensation function.

**【MIRROR】** : image mirroring function.

**【FLIP】** : 180° inversion imaging function of image.

**【SHARPNESS】** : Image sharpness (Range:00-15)

7. Press **【 OPEN】** to save.



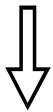
### OPERATION KNACKS

IR cut filter function uses color in day; use black and white at night. This function not only guarantees the quality of image, but also saves the room of storage.

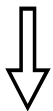


This function depends on the models and parameters of built-in camera in PTZ, if the camera haven't this function, then this function is invalid.(N/A)

MAIN MENU
SYSTEM SETTING
CAMERA SETTING
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	



ADVANCE SETTING2	
AE MODE	AUTO
SHUTTER	N/A
IRIS	N/A
BRIGHT	N/A
WB MODE	AUTO
R GAIN	N/A
B GAIN	N/A
HI-RESOLUTION	ON
BACK	
EXIT	

## 5. 8 Advance setting 2

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate joystick, move the cursor to **【CAMERA SETTING】** to enter submenu.
- 3、 Operate joystick, move the cursor to **【ADVANCE SETTING2】** ; press **【OPEN】** to enter submenu, as left picture shows;

### 5. 8. 1 AE mode

- 1、 Operate joystick, move the cursor to **【AE MODE】** , press **【OPEN】** , tilt up/down joystick to choose AE mode, modes for choosing as follow:
  - **【AUTO】** : default setting, auto Iris mode
  - **【BRIGHT】** : brightness priority mode
  - **【IRIS】** : iris priority mode
  - **【SHUTTER】** : shutter priority mode
- 2、 Choose Iris priority mode **【IRIS】** , press **【OPEN】** to save.
- 3、 Move joystick to the sub-choices of AE mode **【IRIS F1.4】** , press **【OPEN】** to choose adequate Iris, press **【OPEN】** to save.
  - **【SHUTTER 1/50】** it means shutter speed, when AE mode is shutter priority, this function can be set.
  - **【IRIS F1.4】** it means the size of iris, when AE mode is iris priority, this function can be set.
  - **【BRIGHT F2.0/ODB】** it means brightness, when AE mode is brightness priority, this function can be set.

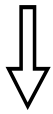


#### OPERATION KNACKS

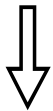
Quality of photo relates to exposure amount, that is to say how much light can make CCD receives legible image. Exposure amount is relative to the time of lighten (be up to shutter speed) and the area of lighten (be up to the size of iris).

The camera can automatically calculate suitable exposure amount according to brightness of scenery and CCD sensitivity, in the situation that the exposure amount is certain: **【SHUTTER】** (shutter priority) is to fix shutter speed, the camera will auto decide to use how much iris; **【IRIS】** (iris priority) is to fix the size of iris, and auto-decide to use shutter speed. **【BRIGHT】** (brightness priority) is point that the camera TTL check the light directly and control the brightness of image.

MAIN MENU	
SYSTEM SETTING	
CAMERA SETTING	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
LANGUAGE	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	



ADVANCE SETTING2	
AE MODE	AUTO
SHUTTER	N/A
IRIS	N/A
BRIGHT	N/A
WB MODE	AUTO
R GAIN	N/A
B GAIN	N/A
HI-RESOLUTION	ON
BACK	
EXIT	

## 5. 8. 2 White balance mode

System supports **【AUTO】**、indoor mode **【INDOOR】**、outdoor mode **【OUTDOOR】**、auto track mode **【ATW】**、single mode **【OPW】**、**【OPT】** mode、manual mode **【MANUAL】** and kinds of white balance modes, etc. Detail setting as follow:

1、The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. click each command enter into “ advanced setting2” menu according to the order in left picture .

2、Operate joystick, move the cursor to **【BW MODE】** to choose white balance mode, press **【OPEN】** to save.

Auto mode **【AUTO】** is the default mode of speed PTZ, which is auto-revert real color after the white balance sensor check the environment by camera. When choosing manual mode **【MANUAL】** , adjust the numerical value of **【R GAIN】** and **【B GAIN】** .

- **【R GAIN】** the range is 1-225; the numerical value is bigger, it means that adding red is more, the tone changes to be warm.
- **【B GAIN】** the range is 1-225; the numerical value is bigger, it means that adding green is more, the tone changes to be cold.

Indoor mode **【INDOOR】** , and the tone leans to cold.

Outdoor mode **【OUTDOOR】** , and the tone leans to warm.

**【HI-RESOLUTION】** high resolution is built-in function of camera ,This function is relative with the model of camera.



It is possible that different camera has not the setting of **【INDOOR】** , **【OUTDOOR】** , **【HI-RESOLUTION】** ; That means the current camera has no such function when the setting option shows N/A.

## 6. Function setting

### 6.1 Preset

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. Click each command to enter “preset menu” according to the order of the left picture. As follows:

- **【PRESET NUMBER】**
- **【SET PRESET】**
- **【SHOW PRESET】**
- **【CLEAR PRESET】**
- **【AUTO TARCKING】** (If the dome does not have this function, it won t display )
- **【EDIT PRESET LABEL】**

Define preset and call preset function can be set by keyboard operation, input preset number at first, then click the key “save /call preset” to carry out.

2. Define current preset number: move the cursor to **【PRESET NUMBER】** , press **【OPEN】** to choose preset number, the range is 1-128 as the left picture shows, here chooses number 5 as current preset, the following operations aim at the current preset.

3. Define current preset: move the cursor to **【SET PRESET】** ,press **【OPEN】** , by operating joystick to adjust magnification, to choose good objective image, press **【OPEN】** to save. If the image is very near, the Image is belong in digital zoom. When setting preset, the image will jump to maximal optical zoom.



#### OPERATION KNACKS

Preset function is that dome stores current pan/tilt angle, zoom and other position parameters into the memory. When necessary,dome recalls these parameters and adjust camera to that position.

4. Display current preset: move the cursor to **【SHOW PRESET】** , press **【OPEN】** , the screen will display the current preset;

5. Clear current preset: move the cursor to **【CLEAR PRESET】** , press **【OPEN】** , the current preset is cleared.

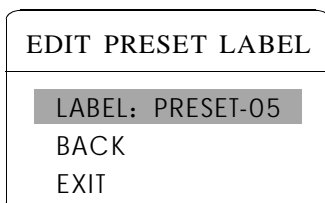
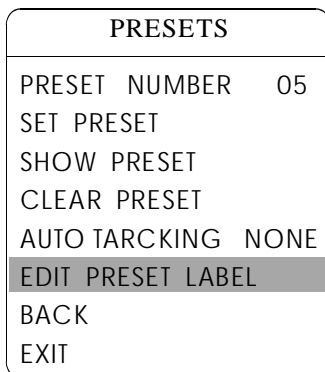
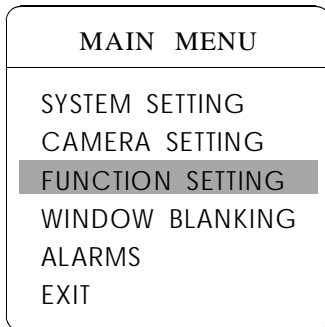
6. **【AUTO TRACKING】** : Call preset to Set auto-tracking ON/OFF; set as ON, call the current preset to open auto-tracking function; set as OFF, call the current preset to close auto-tracking function; Set as NONE, call the current preset has no effect in auto-tracking function.

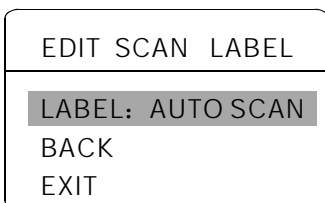
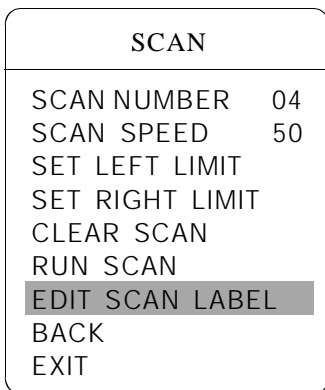
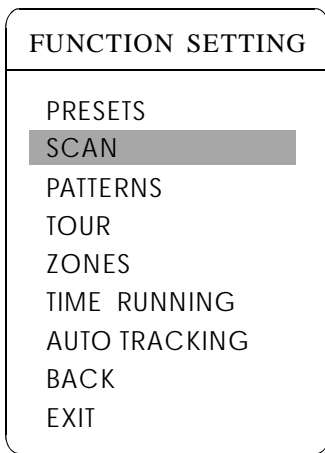
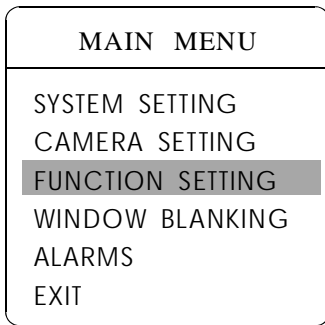
7. Edit current preset label: move the cursor to **【EDIT PRESET LABEL】** , press **【OPEN】** to enter into editing preset submenu, system auto-sets label as PRESET-XX, press **【OPEN】** to revise label.

1. When running to program, display, clear preset and edit label, should choose preset number at first.

2. The label may set up to 16 characters, and doesn't need editing characters. Press **【OPEN】** continuously to jump over and use spacebar to replace the deleted characters. When you finish to edit a character, press **【OPEN】** to enter into the next editing character; when you finish to edit the last character, pressing **【OPEN】** to save. Press **【CLOSE】** to exit. Character of label is suitable for choosing as follow: 0-9, A-Z, :<>- . , space.

3. As the submenu **【STATE】** in **【AUTO TRACKING】** is set as OFF, it is valid to Call preset to set auto-tracking ON/OFF. (Pls refer to the Paragraph 6.7)





## 6. 2 Scan

Scan is that preset two points , then the camera repeatedly scan between the two points at a stable speed, the same magnification and pan. A dome has four scan tour.

1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. click menu to enter “scan” menu, as the left picture shows.

- **【SCAN NUMBER】**
- **【SCAN SPEED】**
- **【SET LEFT LIMIT】**
- **【SET RIGHT LIMIT】**
- **【RUN SCAN】**
- **【CLEAR SCAN】**
- **【EDIT SCAN LABEL】**

2、 Define current scan number: operate joystick ,move the cursor to **【SCAN NUMBER】** ,press **【OPEN】** ,tilt up/downjoystick to choose scan number, press **【OPEN】** to save .the following operations aim at the current scan number.

3、 Scan speed setting: operate joystick to **【SCAN SPEED】** , press **【OPEN】** , tilt up/down joystick to adjust scan speed, press **【OPEN】** to save.

4、 Left limit setting: operate joystick to **【SET LEFT LIMIT】** , press **【OPEN】** , operate joystick to choose objective image, press **【OPEN】** to save. Right limit setting is the same as left limit setting

5、 Edit scan label: operate joystick, move the cursor to **【EDIT SCAN LABEL】** ,press **【OPEN】** to enter submenu “ edit label” , move the cursor to **【LABEL】** , the system will auto-set the label as AUTO SCAN, press **【OPEN】** to revise.



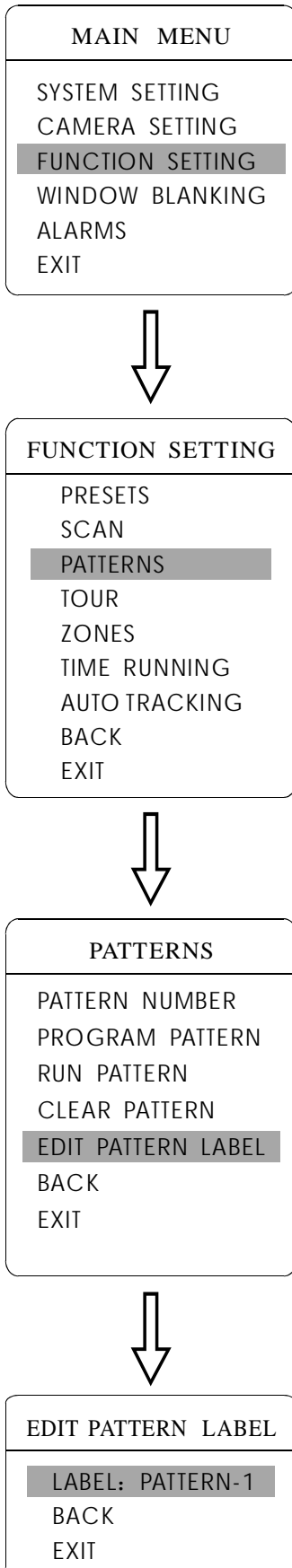
The label can set up to 16 characters, and doesn't need editing characters. Pressing **【OPEN】** continuously to jump over and using spacebar to replace the deleted characters. When you finish to edit a character, pressing **【OPEN】** to enter into the next editing character when you finish to edit the last character, pressing **【OPEN】** to save. Press **【CLOSE】** to exit.

Character of label is suitable for choosing as follow: 0-9、 A-Z、 : <>-、 , Space. The editing ways of other labels are the same as above.

6、 Run scan: operate joystick to **【RUN SCAN】** , press **【OPEN】** to exit the menu, and it starts to run scan.



1. left limit and right limit of scan can't be set the same point.
2. Under scan process, speed, magnification and tilt direction won't change, if the speed, magnification and tilt direction of the two limits are inconsistent, run scan is base on left limit.



## 6.3 Pattern

Pattern is built-in function in camera; the PTZ can record tracks that are no less than 180s. (A series of pan/tilt controlling and lens controlling command). A PTZ may set up to 4 pattern tours.

1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2、 Operate joystick, move the cursor to **【FUNCTION SETTING】** , press **【OPEN】** to enter submenu.

3、 Operate joystick to **【PATTERN】** , press **【OPEN】** to enter menu “Pattern” .

- **【PATTERN NUMBER】**
- **【PROGRAM PATTERN】**
- **【RUN PATTERN】**
- **【CLEAR PATTERN】**
- **【EDIT PATTERN LABEL】**

4、 Choose pattern number: move the cursor to **【PATTERN NUMBER】** , press **【OPEN】** , pattern you choose as current pattern, the following operations aim at the current pattern;

5、 Define current pattern tour: move the cursor to **【PROGRAM PATTERN】** , press **【OPEN】** to set pattern track, move the image random, and draw the focus. The PTZ has a tour that is no less than 180s, a series of park time, magnification, focus will be recorded, press **【OPEN】** to save.

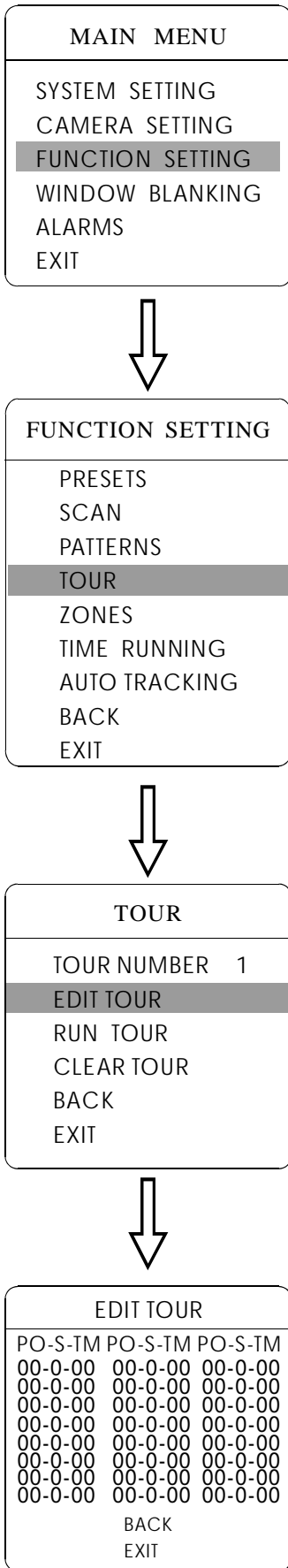
6、 Run pattern: operate joystick to **【RUN PATTERN】** , press **【OPEN】** to run, the PTZ will continuously and repeatedly record the specific track.



When carry out program, run, clear pattern and edit label, should choose pattern number at first.



# Function setting



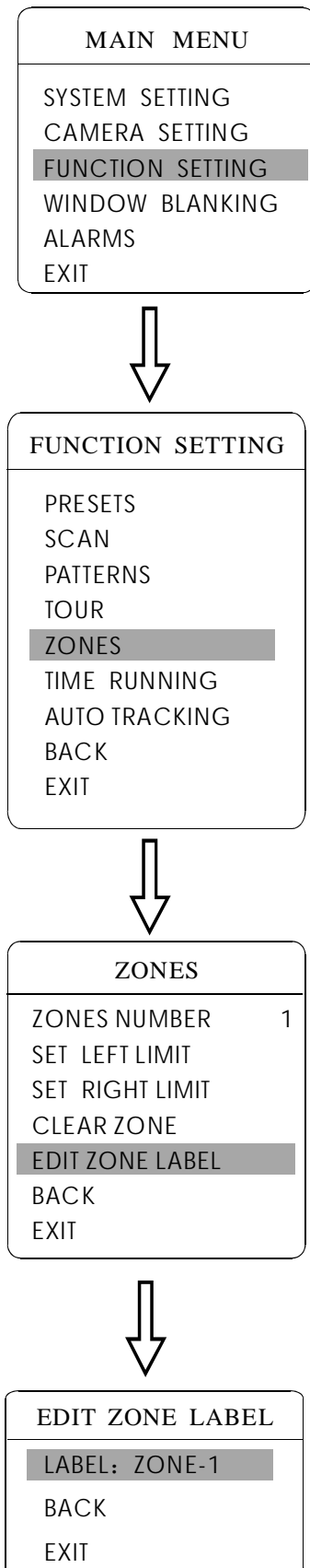
## 6. 4 Tour

Tour is the built-in function in the PTZ, it will arrange the presets into the queue of auto-tour, and can set how long it will park at preset. Operate auto-tour is a process of incessantly transfer each preset. One tour can store 32 presets at most.

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate joystick, move the cursor to **FUNCTION SETTING** , press **OPEN** enter submenu.
- 3、 Operate joystick, move the cursor to **TOUR** , press **OPEN** to enter menu “tour” ;
- 4、 Set the park time of preset: Operate joystick, move the cursor to **TOUR DWELL** , press **OPEN** , there will be a sign ⚙ in the front of **TOUR DWELL** , the cursor jumps to right, tilt up/down to set park time, and the range is 000-255(s)
- 5、 Set tour :move the cursor to **EDIT TOUR** ,press **OPEN** to set tour interface, **PO-S-TM** set preset ,speed and time ,press **OPEN** , the first dwell is activated , tilt up/down joystick to choose preset number, the preset numerical value should be within 1-80 preset , a tour can set up to 24 presets .press **OPEN** ,the cursor jump to the next dwell ,tilt up/down joystick to choose current arrival preset speed ,total 8 level of speed ,increasingly from level 1 to level 8;Press **OPEN** ,the cursor jumps to the next dwell , tilt up/down joystick to set current preset maintaining time,60 seconds maximum . If set the presets of the second line ,move the cursor to the second line , press **OPEN** to continue edit .press **OPEN** to save after setting ,press **CLOSE** to exit.
- 6、 Run tour: Operate joystick, move the cursor to **RUN TOUR** , press **OPEN** to exit the menu, it stars to run tour.



the system will leap over the preset automatically when the stay time of one item setting up on 0; The PTZ will not run the tour of latter preset when preset or movement speed setting up on 0 .

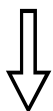
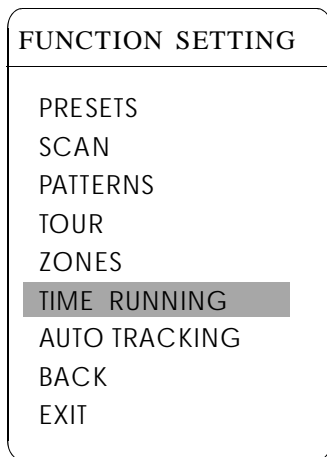
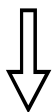
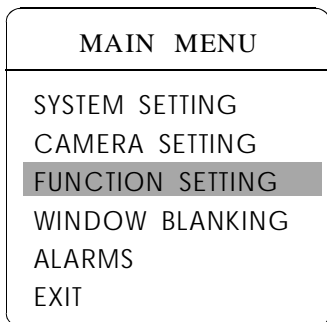


### 6.5 Zone

A PTZ may be set up to 8 zones; the regional scene can't be overlapped. User can set label for each zone. When setting **【ZONE LABEL】** as ON, the PTZ will display zone label as it runs some zone. It is convenient to know the zone that the camera shoots by setting zone label.

- 1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
- 2、 Operate the joystick, move the cursor to **【FUNCTION SETTING】** , press **【OPEN】** to enter submenu.
- 3、 Operate the joystick, move the cursor to **【ZONES】** , press **【OPEN】** to enter submenu, as the left picture shows.
  - **【ZONES NUMBER】**
  - **【SET LEFT LIMIT】**
  - **【SET RIGHT LIMIT】**
  - **【CLEAR ZONE】**
  - **【EDIT ZONE LABEL】**

Regard the left/right limit as the demarcation line, and set the middle part as a zone. Various operational ways are the same as other settings in the menu. Therefore we won't explain it again.



## 6.6 Time running

User can set the time of preset, scan, tour and pattern.

1. Call 95 preset or call 9 preset twice within 3 seconds to enter into the main menu.

2. Operate the joystick, move the cursor to **【FUNCTION SETTING】**, press **【OPEN】** to call the submenu.

3. Operate the joystick, move the cursor to **【TIME RUNNING】**, press **【OPEN】** to enter into the menu setting. Please refer to the left picture.

**【DAY】** set the date

**【TIME CHANNEL】** 4 channels can be set.

**【START TIME】** Set the start time

**【END TIME】** Set the end time

**【RUNNING】** User can set the preset, scan, tour, pattern to every channel.(1-4)

4. This channel will not conflict with other channels when you set **【RUNNING】** as close.

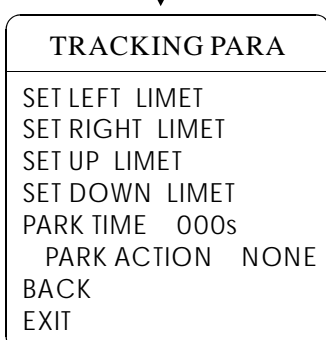
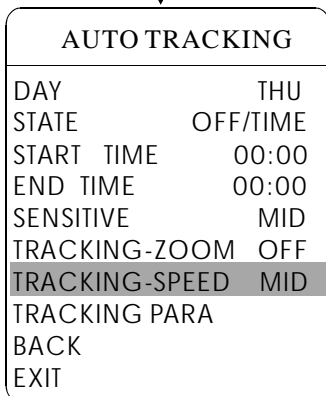
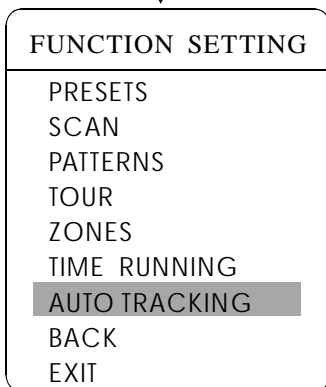
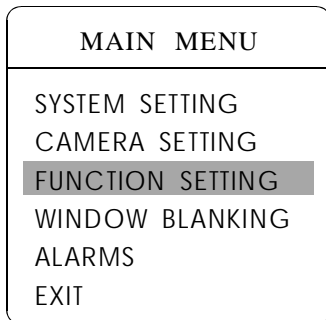
1. When user do the action of scan, tour or pattern, if time is over, then the PTZ will execute park action, the user's action will stop. After the time, the PTZ will resume the action and preset which is set before the park time. (Before the park time, if the PTZ is on some preset, the PTZ will resume the preset, if PTZs execute the action of scanning, tour or pattern, the PTZ will resume original action. If users handle some action with keyboard, PTZ will also resume the action which users are going on with keyboard.)



2. During the timing period of movement function, it is not allowed that there is no action. When users handle the PTZ, the timing movement function will interrupt. If there is no any action during 30 seconds, it will be in the state of timing function, and return to the timing movement function. Or if there is idle function, it will be do the action of idle time function.

3. Timing function will close while user setting presets, right and left limit, menu status, recording scan and setting any other function.

4. When the PTZ execute alarm, timing, idle function, the priority for alarm is the highest, for timing is the second, for idle is the lowest.



## 6.7 Set auto-tracking

When initiate Auto tracking function, the speed dome automatically captures the picture of the moving object, thus real-timely tracking.

1. Call 95 preset or call 9 preset twice within 3 seconds, input password to enter the main menu.

2. Operate the joystick to move the cursor to **【FUNCTION SETTING】**, press **【OPEN】** to enter the next menu.

3. Operate the joystick to move the cursor to **【AUTO TRACKING】**, press **【OPEN】** to enter the next menu, as showed on the left picture.

4. Set left limit of the motion detection area: operate the joystick to **【SET LEFT LIMIT】**, press **【OPEN】**, operate joystick to the target position, then press **【OPEN】** to save. Set right limit of the motion detection area: operate the joystick to **【SET RIGHT LIMIT】**, press **【OPEN】**, operate joystick to the target position, then press **【OPEN】** to save. When the left & right limit is set at the same point, the speed dome will track the moving object with pan 360° area.

5. Set upper limit of the motion detection area: operate the joystick to **【SET UP LIMIT】**, press **【OPEN】**, operate joystick to the target position, then press **【OPEN】** to save. Set down limit of the motion detection area: operate the joystick to **【SET DOWN LIMIT】**, press **【OPEN】**, operate joystick to the target position, then press **【OPEN】** to save. When the up & down limit is set at the same point, the speed dome will track the moving object within tilt 360° area.

6. **【PARK TIME】** The setting allows PTZ to execute the next designated action after it is in idle state (for 1-240 seconds) on condition that it is under the “Auto Tracking” Mode. The default setting is 000, which means no action.

A) Under the “Auto Tracking” Mode.

b) TRACKING PARA → PARK TIME, which setting is not “0”

c) TRACKING PARA → PARK TIME, which setting is not “none”

When reaching the above 3 conditions at the same time:

It will execute the function under **【TRACKING PARA → PARK TIME 000S PARK ACTION NONE】**, but it won't execute the function under **【MOTION → PARK TIME 000 PARK ACTION NONE】**. When can't reach the above 3 conditions at the same time: It will execute the function under **【MOTION → PARK TIME 000 PARK ACTION NONE】**, but but it won't execute the function under **【TRACKING PARA → PARK TIME 000S PARK ACTION NONE】**

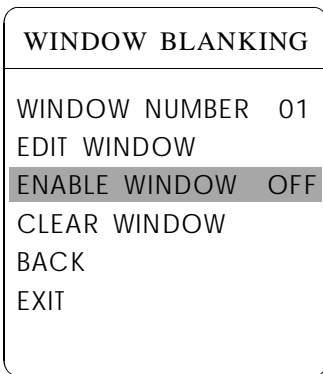
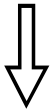
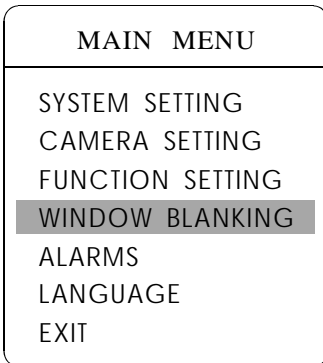
Call 250 preset to set the Auto Tracking function ON. Call 251 preset to set the Auto Tracking function OFF. The speed dome will not resume keeping the Auto Tracking function when it power on.

Call 250 preset to set the Auto Tracking function ON. Call 251 preset to set the Auto Tracking function OFF. The speed dome will not resume keeping the Auto Tracking function when it power on.



The speed dome will track the moving object at random when there are too many objects in tracking area. Too light or too dark will influence the effect of auto tracking.

The function relates to the speed dome and build-in camera modules; the item will not be showed or “N/A” when the camera doesn't have such function.



## 7. Privacy zone masking

Privacy function can show someone piece of regional shielding while protecting. For example, protect the window of bedroom or ATM of bank. A PTZ can set up to 24 privacy windows. (Masking setting function is relative with the model of camera module. The masking numbers will be different according to the different cameras.)

**Hitachi Camera:** It can be set 8 masking at most in 360° surveillance range, can set 2 masking at most per screen. The screen will note " please move " when the position can not be set. It can not set masking when the PTZ rotates down  $\geq 45^\circ$  .

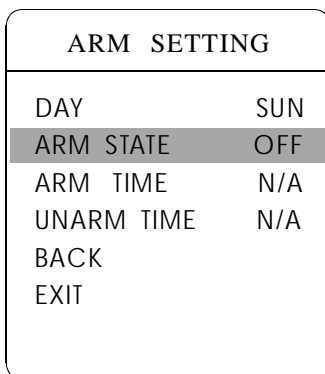
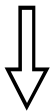
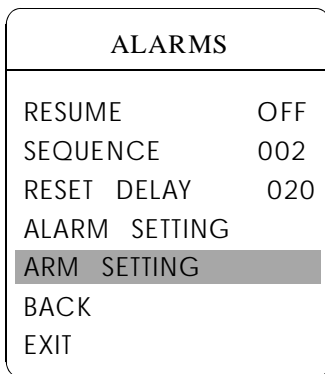
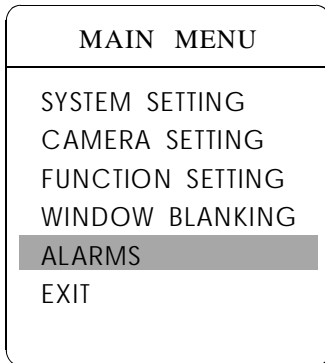
**Sony Camera:** It can be set 24 masking at most in 360° surveillance range. ( Sony 45 series can be set 8 masking at most ). It can not set masking when the PTZ rotates down  $\geq 20^\circ$  . LG, CNB Camera module have no masking function.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.
2. Operate the joystick to **【WINDOW BLANKING】** , press **【OPEN】** to enter menu " window blanking" .
  - **【WINDOW NUMBER】** choose window number as current privacy window, other choices in the menu just aim at current privacy window;
  - **【EDIT WINDOW】** program current window;
  - **【ENABLE WINDOW】** permit/prohibit current privacy window, there are two choices: ON---permit current privacy window/OFF---prohibit current privacy window
    - **【CLEAR WINDOW】** clear current privacy window, after clearing it, the window will auto- change as OFF.
3. Program current privacy window: Firstly choose window number, then do the following operations:
  - a. Operate the joystick, move the cursor to **【EDIT WINDOW】** , press **【OPEN】** to move the image that need privacy window to display in the screen.
  - b. Press **【OPEN】** , there will be a square displaying in the center of the screen, operate the joystick, and move the square to the central place that need to conceal.
  - c. Press **【OPEN】** , operate the joystick to adjust the size of privacy zone: joystick to up, the height is increased; joystick to down, the height is reduced; joystick to right, the width is increased; joystick to left, the width is reduced.
  - d. Press **【OPEN】** to save the current privacy zone setting, and the window will auto-change as ON at the same time.

Privacy zone masking



This function is decide by the parameter of built-in camera, if the camera has not this function, this option is invalid. (N/A)



## 8. Alarm function

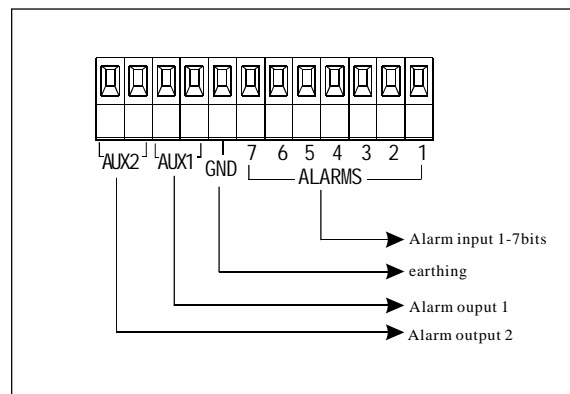
The PTZ may connect with 7 alarm input, 2 alarm output, and support alarm linkage. The external alarm message sends to the PTZ, then the PTZ sends to alarm point shoot (to call preset, auto scan, auto cruise and auto pattern), and choose that to run alarm output or not.

1、 The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. click each menu according to the left picture, then enter menu alarm, choices as follow:

- **【RESUME】** resume mode after relieving alarm input, there are two choices: ON---clear alarm output, the PTZ will stop.  
OFF---just clear alarm output.
- **【SEQUENCE】** The park time between two alarm in the same priority, the range is 1-60s.
- **【RESET DELAY】** set alarm reset and delay the time (1-225s), how long to relieve and run **【RESUME】** after the PTZ receives alarm message.
- **【ALARM CONTACT】** set state of the relay. N/C---often close the state, N/O---often hold the state. If setting as often closing the state, the relay is in closing the state when there is no alarm to output; when there is alarm to output, the relay is in holding the state.
- **【ALARM SETTING】**
- **【ARM SETTING】**

2、 Operate joystick, move the cursor to **【ALARM SETTING】**, press **【OPEN】** to enter the menu alarm setting

- **【ALARM NUMBER】** alarm number is corresponding with 12 bits plug in the external switching board of the PTZ (as below shows). 001 priority is the highest, 007 priority is the lowest. The two lines alarm input at the same time, the PTZ run alarm that the highest priority.
- **【ALARM ACTION】** as current alarm input, to run the action. Choices for choosing as follow. NONE---none action/SCAN/PAT X---run a pattern tour /TOUR---run tour/PRESET---call preset, when the PTZ number is set as 1, to call preset 1; when the PTZ number is set as 2, to call preset2.
- **【ACTIVATE AUX】** as current alarm input, to run alarm output or not. NO---none alarm output/AUX 1---the first alarm output/AUX 2---the secondary alarm output/BOTH--- two alarms output.
- **【ALARM PRIORITY】** alarm priority can be defined as three grades: high, middle, low.

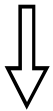


# Alarm Function

MAIN MENU	
SYSTEM SETTING	
CAMERA SETTING	
FUNCTION SETTING	
WINDOW BLANKING	
<b>ALARMS</b>	
EXIT	



ALARMS	
RESUME	OFF
SEQUENCE	002
RESET DELAY	020
ALARM CONTACT	N/C
ALARM SETTING	
<b>ARM SETTING</b>	
BACK	
EXIT	



ARM SETTING	
DAY	SUN
<b>ARM STATE</b>	<b>OFF</b>
ARM TIME	N/A
UNARM TIME	N/A
BACK	
EXIT	

## 8.1.ARM Setting

1. Call 95 preset or call 9 preset twice within 3 seconds and then input the password to enter the main menu.

2. Operate the joystick up and down, move the cursor to **【ALARMS】** , press **【OPEN】** to call the submenu.

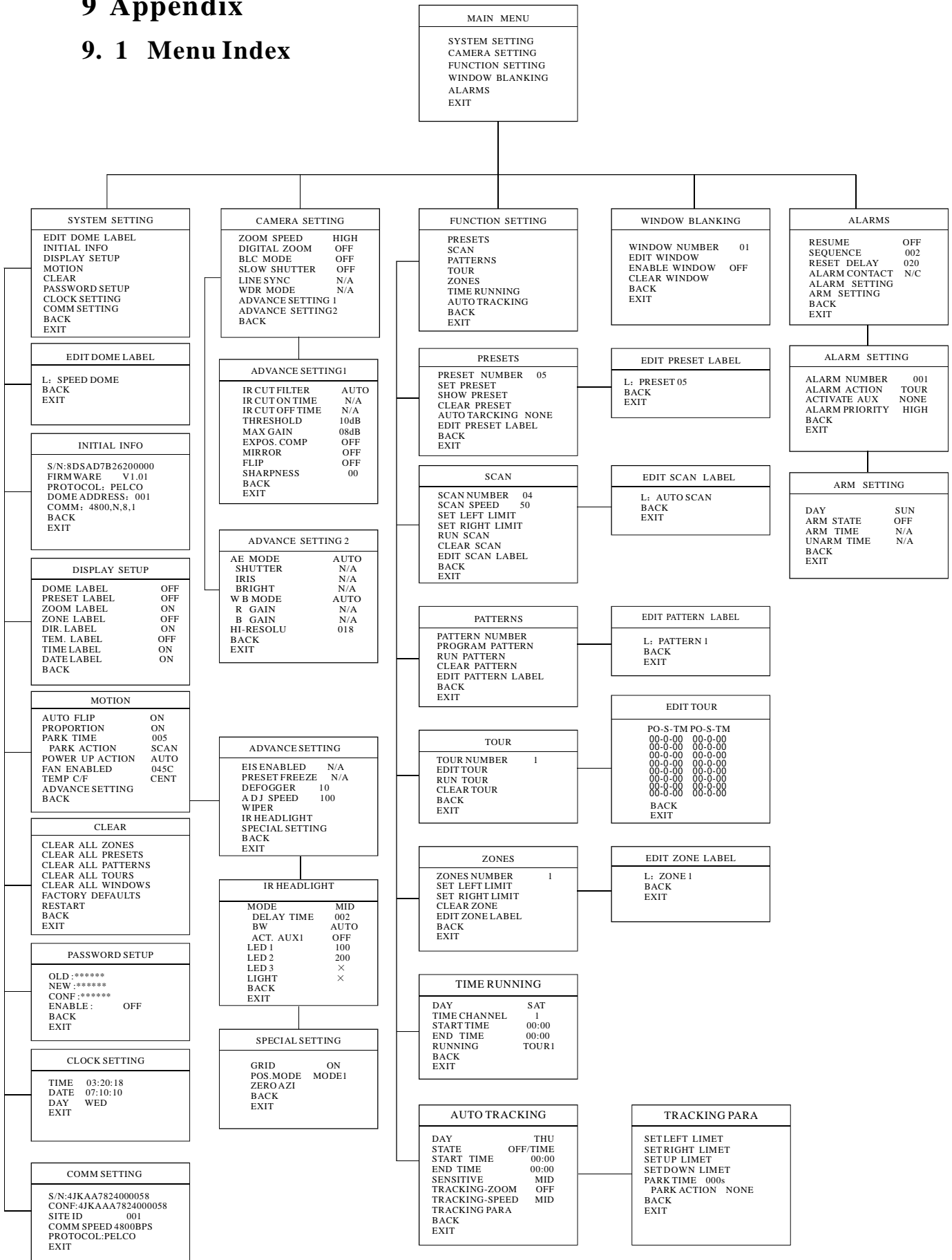
3. Operate the joystick up and down, move the cursor to **【ARM SETTING】** , press **【OPEN】** to call the submenu. Please refer to the left picture.

4. Operate the joystick up and down, move the cursor to **【DAY】** , Press **【OPEN】** to choose it , Operate the joystick up and down to set date, set the date according to the week. To set the Alarm state and Alarm date based on the time.

- **【ARM STATE】** Alarm off /Alarm on  
(Alarm Setting is noneffective under Alarm off. Alarm Setting is effective under Alarm on)
- **【ARM TIME】** : User can set the alarm time.
- **【UNARM TIME】** : User can set the alarm off time.
- **【BACK】** : back to the former menu.
- **【EXIT】** : Exit the menu.

# 9 Appendix

## 9.1 Menu Index





## 9.2 24VAC Wire Diameter and Transmission Distance Comparison chart

The transmission distances listed below are farthest ones recommended for each giving wire diameter when the 24VAC voltage loss ratio is below 10% (for equipment powered by AC, the allowed maximum voltage loss ratio is 10%).

The rating power of PTZ is 50W, need a wire with a minimum diameter of 1.0mm.

Wire Diameter (mm)	0.800	1.000	1.250	2.000
Transmission Distance feet(m)				
Power(va)				
10	283 (86)	451 (137)	716 (218)	1811 (551)
20	141 (42)	225 (68)	358 (109)	905 (275)
30	94 (28)	150 (45)	238 (72)	603 (183)
40	70 (21)	112 (34)	197 (54)	452 (137)
50	56 (17)	90 (27)	143 (43)	362 (110)
60	47 (14)	75 (22)	119 (36)	301 (91)
70	40 (12)	64 (19)	102 (31)	258 (78)
80	35 (10)	56 (17)	89 (27)	226 (68)
90	31 (9)	50 (15)	79 (24)	201 (61)
100	28 (8)	45 (13)	71 (21)	181 (55)
110	25 (7)	41 (12)	65 (19)	164 (49)
120	23 (7)	37 (11)	59 (17)	150 (45)
130	21 (6)	34 (10)	55 (16)	139 (42)
140	20 (6)	32 (9)	51 (15)	129 (39)
150	18 (5)	30 (9)	47 (14)	120 (36)
160	17 (5)	28 (8)	44 (13)	113 (34)
170	16 (4)	26 (7)	42 (12)	106 (32)
180	15 (4)	25 (7)	39 (11)	100 (30)
190	14 (4)	23 (7)	37 (11)	95 (28)
200	14 (4)	22 (6)	35 (10)	90 (27)

### 9.3 Domestic and Abroad Wire Gauge Conversion Chart

Bare Wire Diameter Metric Size(mm)	AWC (Approximate)	SWC (Approximate)	Bare Wire Cross-Sectional Area (mm <sup>2</sup> )
0.050	43	47	0.00196
0.060	42	46	0.00283
0.070	41	45	0.00385
0.080	40	44	0.00503
0.090	39	43	0.00636
0.100	38	42	0.00785
0.110	37	41	0.00950
0.130	36	39	0.01327
0.140	35		0.01539
0.160	34	37	0.02011
0.180	33		0.02545
0.200	32	35	0.03142
0.230	31		0.04115
0.250	30	33	0.04909
0.290	29	31	0.06605
0.330	28	30	0.08553
0.350	27	29	0.09621
0.400	26	28	0.1257
0.450	25		0.1602
0.560	24	24	0.2463
0.600	23	23	0.2827
0.710	22	22	0.3958
0.750	21		0.4417
0.800	20	21	0.5027
0.900	19	20	0.6362
1.000	18	19	0.7854
1.250	16	18	1.2266
1.500	15		1.7663
2.000	12	12	3.1420
2.500			4.9080
3.000			7.0683

## 9. 4 Rs485 Bus Basic Knowledge

### Ø Characteristics of Rs485 Bus

As specified by Rs485 standard, Rs485 Bus is of half-duplexed data transmission cables with characteristic impedance as 120Ω. The maximum load capacity is 32 unit loads (including main controller and controlled equipment.)

### Ø Transmission distances of Rs485 Bus

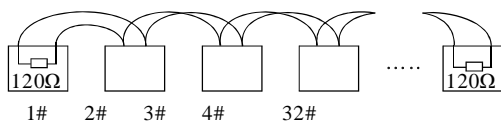
When user selects the 0.56mm(24AWG)twisted pair wires as data transmission cable, the maximum theoretical transmitting distance are as follows:

Baud rate	Max distance
2400BPS	1800m
4800BPS	1200m
9600BPS	800m
19200BPS	600m

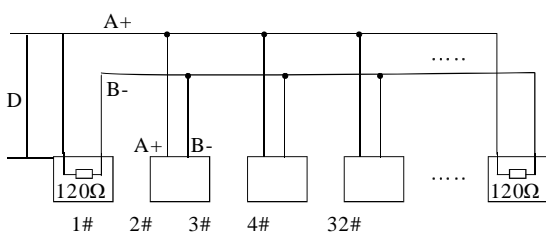
If user selects thinner cables, or installs the PTZ in an environment with strong electromagnetic interference, or connects lots of equipment to the Rs485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

### Ø Connection and termination resistor

The Rs485 standards require a daisy-chain Connection between the equipment. There must be termination resistors with 120Ω (as the picture 9-2.1). Please refer to picture 9-2.2 for simple connection. “D” should not exceed 7m.



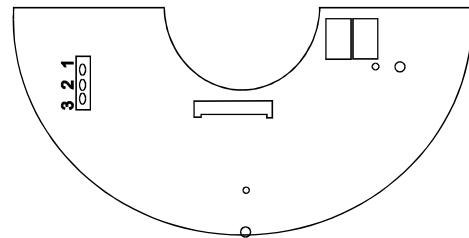
Picture 9-4.1



Picture 9-4.2

### Ø The connection of 120Ω termination resistor:

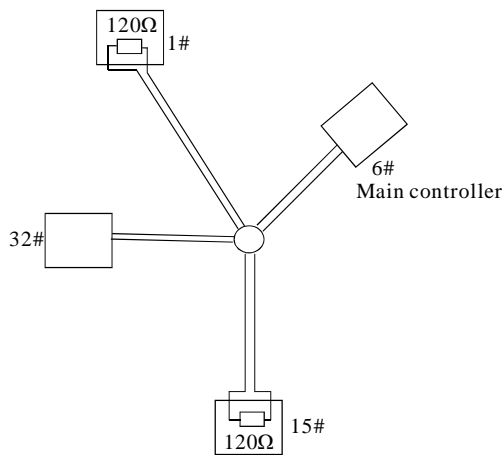
Connection mode for 120 Ω resistance of equipment terminal. Setting connection of terminal resistance 120Ω in the base cover. (Refer to Picture 9-4.3): Default of factory (No.8 digit of SW2 is set “OFF” on code switch)No.8 digit of SW2 is set “ON” on code switch if needed to connect 120 resistance.



Picture9-4.3

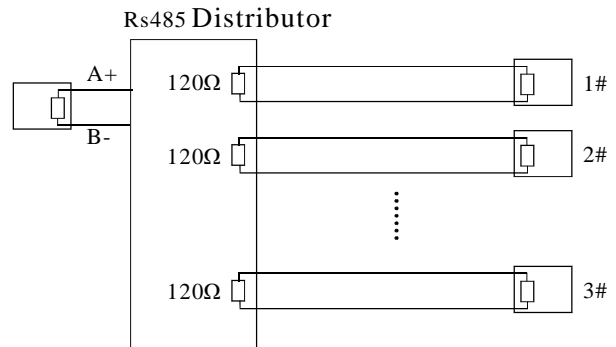
**Ø Problems in practical connections**

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment 1# and 5# in Picture 9-4.4. As the star configuration is not in conformity with the requirements of RS485 standards, problems such as signal reflections, lower anti-interference performance arise when the cables are long in the connection. The reliability of control signals is decreased with the phenomena that the PTZ does not respond to or just responds at intervals to the controller, or does continuous operation without stop.



Picture 9-4.4

In such circumstances the factory recommends the usage of RS485 distributor. The distributor can change the star configuration connection to the mode of connection stipulated in the RS485 standards. The new connection achieves reliable data transmission. (Refer to Picture 9-4.5).



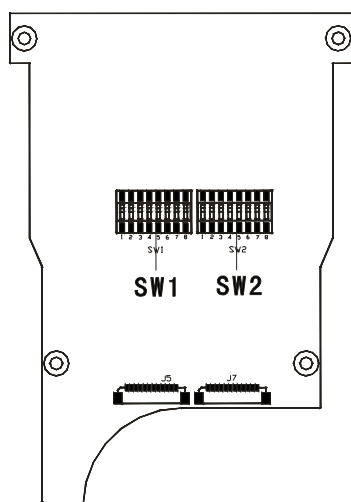
Picture9-4.5

**Ø Rs485 Bus troubleshooting**

Trouble	Possible cause	Solution
PTZ can do self-testing but cannot be controlled	A、 The address and baud rate setting of PTZ are not in conformity with those of controller. B、 The "+" and "-"connection of Rs485 Bus is incorrect. C、 The PTZ is very far away from controller. D、 There are too many PTZs connected in the System.	A、 Change the address and baud rate of controller or PTZ B、 Replace Rs485 Bus wires C、 Make sure the connections are fully seated
The PTZ can be controlled but the operation is not smooth.	A、 The Rs485 Bus line is not in good contact with the connectors. B、 One wire of the Rs485 Bus is broken. C、 The PTZ is very far from controller. D、 There are too many PTZ connected in the system.	A、 Secure the connection; B、 Replace Rs485 Bus Wires C、 Add termination resistors to the system D、 Install Rs485 distributor

## 9. 5 DIP switch setup

Open the right side cover, there are two 8digits code switch, SW1 and SW2. SW1 is for setting of PTZ ID; SW2 is for settings of control protocol, baud rate, terminal resistance connect.



Picture 9-5.1

In the following list, “1” set DIP as “ON” 0 set DIP as “OFF”

### 9. 5. 1 Baud rate setup (SW2) :

Please according to "AppdienxRS485 Bus Basic knowledge", to check whether Baud rate is satisfied with the demand of transmission distance.

Baud rate	Switch number(Sw2)
	(Bit)7 8
2400bps	0 0
4800bps	1 0
9600bps	0 1
19200bps	1 1

### 9. 5. 2 Protocol setup (SW2)

PROTOCOL	SWITCH NUMBER ( SW2 )					
	(Bit) 1	2	3	4	5	6
FACTORY (FACTORY PROTOCOL)	0	0	0	0	0	0
PELCO	1	0	0	0	0	0
SAE	0	1	0	0	0	0
VAC	1	1	0	0	0	0
MOLYNX	0	0	1	0	0	0
VICON	1	0	1	0	0	0
SANTACHI	0	1	1	0	0	0
PANASONIC	1	1	1	0	0	0
SAMSUNG	0	0	0	1	0	0
DIAMOND	1	0	0	1	0	0
KALATEL	0	1	0	1	0	0
LILIN	1	1	0	1	0	0
VIDO B02	0	0	1	1	0	0
HUNDA	1	0	1	1	0	0
ISO	0	1	1	1	0	0
DYNACOLOR	1	1	1	1	0	0
ST-SD	1	0	0	0	1	0
PHILIPS	0	0	0	0	0	1
AD	1	0	0	0	0	1
RESERVED	OTHERS					

### 9. 5. 3 ID setting (SW1)

The ID switch in decoder and the ID setting of the PTZ as follow, in the picture, "1" set DIP switch as "NO", "0" set DIP switch as OFF.

ID	Switch number (SW1)								ID	Switch number (SW1)							
	(Bit)1	2	3	4	5	6	7	8		(Bit)1	2	3	4	5	6	7	8
Factory defaults set as debug address	0	0	0	0	0	0	0	0	34	0	1	0	0	0	1	0	0
1	1	0	0	0	0	0	0	0	35	1	1	0	0	0	1	0	0
2	0	1	0	0	0	0	0	0	36	0	0	1	0	0	1	0	0
3	1	1	0	0	0	0	0	0	37	1	0	1	0	0	1	0	0
4	0	0	1	0	0	0	0	0	38	0	1	1	0	0	1	0	0
5	1	0	1	0	0	0	0	0	39	1	1	1	0	0	1	0	0
6	0	1	1	0	0	0	0	0	40	0	0	0	1	0	1	0	0
7	1	1	1	0	0	0	0	0	41	1	0	0	1	0	1	0	0
8	0	0	0	1	0	0	0	0	42	0	1	0	1	0	1	0	0
9	1	0	0	1	0	0	0	0	43	1	1	0	1	0	1	0	0
10	0	1	0	1	0	0	0	0	44	0	0	1	1	0	1	0	0
11	1	1	0	1	0	0	0	0	45	1	0	1	1	0	1	0	0
12	0	0	1	1	0	0	0	0	46	0	1	1	1	0	1	0	0
13	1	0	1	1	0	0	0	0	47	1	1	1	1	0	1	0	0
14	0	1	1	1	0	0	0	0	48	0	0	0	0	1	1	0	0
15	1	1	1	1	0	0	0	0	49	1	0	0	0	1	1	0	0
16	0	0	0	0	1	0	0	0	50	0	1	0	0	1	1	0	0
17	1	0	0	0	1	0	0	0	51	1	1	0	0	1	1	0	0
18	0	1	0	0	1	0	0	0	52	0	0	1	0	1	1	0	0
19	1	1	0	0	1	0	0	0	53	1	0	1	0	1	1	0	0
20	0	0	1	0	1	0	0	0	54	0	1	1	0	1	1	0	0
21	1	0	1	0	1	0	0	0	55	1	1	1	0	1	1	0	0
22	0	1	1	0	1	0	0	0	56	0	0	0	1	1	1	0	0
23	1	1	1	0	1	0	0	0	57	1	0	0	1	1	1	0	0
24	0	0	0	1	1	0	0	0	58	0	1	0	1	1	1	0	0
25	1	0	0	1	1	0	0	0	59	1	1	0	1	1	1	0	0
26	0	1	0	1	1	0	0	0	60	0	0	1	1	1	1	0	0
27	1	1	0	1	1	0	0	0	61	1	0	1	1	1	1	0	0
28	0	0	1	1	1	0	0	0	62	0	1	1	1	1	1	0	0
29	1	0	1	1	1	0	0	0	63	1	1	1	1	1	1	0	0
30	0	1	1	1	1	0	0	0	64	0	0	0	0	0	0	1	0
31	1	1	1	1	1	0	0	0	65	1	0	0	0	0	0	1	0
32	0	0	0	0	0	1	0	0	66	0	1	0	0	0	0	1	0
33	1	0	0	0	0	1	0	0	67	1	1	0	0	0	0	1	0

# Appendix

ID	Switch number (Sw1)							
	(Bit)1	2	3	4	5	6	7	8
68	0	0	1	0	0	0	1	0
69	1	0	1	0	0	0	1	0
70	0	1	1	0	0	0	1	0
71	1	1	1	0	0	0	1	0
72	0	0	0	1	0	0	1	0
73	1	0	0	1	0	0	1	0
74	0	1	0	1	0	0	1	0
75	1	1	0	1	0	0	1	0
76	0	0	1	1	0	0	1	0
77	1	0	1	1	0	0	1	0
78	0	1	1	1	0	0	1	0
79	1	1	1	1	0	0	1	0
80	0	0	0	0	1	0	1	0
81	1	0	0	0	1	0	1	0
82	0	1	0	0	1	0	1	0
83	1	1	0	0	1	0	1	0
84	0	0	1	0	1	0	1	0
85	1	0	1	0	1	0	1	0
86	0	1	1	0	1	0	1	0
87	1	1	1	0	1	0	1	0
88	0	0	0	1	1	0	1	0
89	1	0	0	1	1	0	1	0
90	0	1	0	1	1	0	1	0
91	1	1	0	1	1	0	1	0
92	0	0	1	1	1	0	1	0
93	1	0	1	1	1	0	1	0
94	0	1	1	1	1	0	1	0
95	1	1	1	1	1	0	1	0
96	0	0	0	0	0	1	1	0
97	1	0	0	0	0	1	1	0
98	0	1	0	0	0	1	1	0
99	1	1	0	0	0	1	1	0
100	0	0	1	0	0	1	1	0
101	1	0	1	0	0	1	1	0

ID	Switch number (Sw1)							
	(Bit)1	2	3	4	5	6	7	8
102	0	1	1	0	0	1	1	0
103	1	1	1	0	0	1	1	0
104	0	0	0	1	0	1	1	0
105	1	0	0	1	0	1	1	0
106	0	1	0	1	0	1	1	0
107	1	1	0	1	0	1	1	0
108	0	0	1	1	0	1	1	0
109	1	0	1	1	0	1	1	0
110	0	1	1	1	0	1	1	0
111	1	1	1	1	0	1	1	0
112	0	0	0	0	1	1	1	0
113	1	0	0	0	1	1	1	0
114	0	1	0	0	1	1	1	0
115	1	1	0	0	1	1	1	0
116	0	0	1	0	1	1	1	0
117	1	0	1	0	1	1	1	0
118	0	1	1	0	1	1	1	0
119	1	1	1	0	1	1	1	0
120	0	0	0	1	1	1	1	0
121	1	0	0	1	1	1	1	0
122	0	1	0	1	1	1	1	0
123	1	1	0	1	1	1	1	0
124	0	0	1	1	1	1	1	0
125	1	0	1	1	1	1	1	0
126	0	1	1	1	1	1	1	0
127	1	1	1	1	1	1	1	0
128	0	0	0	0	0	0	0	1
129	1	0	0	0	0	0	0	1
130	0	1	0	0	0	0	0	1
131	1	1	0	0	0	0	0	1
132	0	0	1	0	0	0	0	1
133	1	0	1	0	0	0	0	1
134	0	1	1	0	0	0	0	1
135	1	1	1	0	0	0	0	1

ID	Switch number (SW1)								ID	Switch number (SW1)							
	(Bit)	1	2	3	4	5	6	7		8	(Bit)	1	2	3	4	5	6
136	0	0	0	1	0	0	0	1	170	0	1	0	1	0	1	0	1
137	1	0	0	1	0	0	0	1	171	1	1	0	1	0	1	0	1
138	0	1	0	1	0	0	0	1	172	0	0	1	1	0	1	0	1
139	1	1	0	1	0	0	0	1	173	1	0	1	1	0	1	0	1
140	0	0	1	1	0	0	0	1	174	0	1	1	1	0	1	0	1
141	1	0	1	1	0	0	0	1	175	1	1	1	1	0	1	0	1
142	0	1	1	1	0	0	0	1	176	0	0	0	0	1	1	0	1
143	1	1	1	1	0	0	0	1	177	1	0	0	0	1	1	0	1
144	0	0	0	0	1	0	0	1	178	0	1	0	0	1	1	0	1
145	1	0	0	0	1	0	0	1	179	1	1	0	0	1	1	0	1
146	0	1	0	0	1	0	0	1	180	0	0	1	0	1	1	0	1
147	1	1	0	0	1	0	0	1	181	1	0	1	0	1	1	0	1
148	0	0	1	0	1	0	0	1	182	0	1	1	0	1	1	0	1
149	1	0	1	0	1	0	0	1	183	1	1	1	0	1	1	0	1
150	0	1	1	0	1	0	0	1	184	0	0	0	1	1	1	0	1
151	1	1	1	0	1	0	0	1	185	1	0	0	1	1	1	0	1
152	0	0	0	1	1	0	0	1	186	0	1	0	1	1	1	0	1
153	1	0	0	1	1	0	0	1	187	1	1	0	1	1	1	0	1
154	0	1	0	1	1	0	0	1	188	0	0	1	1	1	1	0	1
155	1	1	0	1	1	0	0	1	189	1	0	1	1	1	1	0	1
156	0	0	1	1	1	0	0	1	190	0	1	1	1	1	1	0	1
157	1	0	1	1	1	0	0	1	191	1	1	1	1	1	1	0	1
158	0	1	1	1	1	0	0	1	192	0	0	0	0	0	0	1	1
159	1	1	1	1	1	0	0	1	193	1	0	0	0	0	0	1	1
160	0	0	0	0	0	1	0	1	194	0	1	0	0	0	0	1	1
161	1	0	0	0	0	1	0	1	195	1	1	0	0	0	0	1	1
162	0	1	0	0	0	1	0	1	196	0	0	1	0	0	0	1	1
163	1	1	0	0	0	1	0	1	197	1	0	1	0	0	0	1	1
164	0	0	1	0	0	1	0	1	198	0	1	1	0	0	0	1	1
165	1	0	1	0	0	1	0	1	199	1	1	1	0	0	0	1	1
166	0	1	1	0	0	1	0	1	200	0	0	0	1	0	0	1	1
167	1	1	1	0	0	1	0	1	201	1	0	0	1	0	0	1	1
168	0	0	0	1	0	1	0	1	202	0	1	0	1	0	0	1	1
169	1	0	0	1	0	1	0	1	203	1	1	0	1	0	0	1	1



ID	Switch number (Sw1)							
	(Bit)1	2	3	4	5	6	7	8
204	0	0	1	1	0	0	1	1
205	1	0	1	1	0	0	1	1
206	0	1	1	1	0	0	1	1
207	1	1	1	1	0	0	1	1
208	0	0	0	0	1	0	1	1
209	1	0	0	0	1	0	1	1
210	0	1	0	0	1	0	1	1
211	1	1	0	0	1	0	1	1
212	0	0	1	0	1	0	1	1
213	1	0	1	0	1	0	1	1
214	0	1	1	0	1	0	1	1
215	1	1	1	0	1	0	1	1
216	0	0	0	1	1	0	1	1
217	1	0	0	1	1	0	1	1
218	0	1	0	1	1	0	1	1
219	1	1	0	1	1	0	1	1
220	0	0	1	1	1	0	1	1
221	1	0	1	1	1	0	1	1
222	0	1	1	1	1	0	1	1
223	1	1	1	1	1	0	1	1
224	0	0	0	0	0	1	1	1
225	1	0	0	0	0	1	1	1
226	0	1	0	0	0	1	1	1
227	1	1	0	0	0	1	1	1
228	0	0	1	0	0	1	1	1
229	1	0	1	0	0	1	1	1
230	0	1	1	0	0	1	1	1
231	1	1	1	0	0	1	1	1
232	0	0	0	1	0	1	1	1
233	1	0	0	1	0	1	1	1
234	0	1	0	1	0	1	1	1
235	1	1	0	1	0	1	1	1
236	0	0	1	1	0	1	1	1
237	1	0	1	1	0	1	1	1
238	0	1	1	1	0	1	1	1
239	1	1	1	1	0	1	1	1
240	0	0	0	0	1	1	1	1
241	1	0	0	0	1	1	1	1
242	0	1	0	0	1	1	1	1
243	1	1	0	0	1	1	1	1
244	0	0	1	0	1	1	1	1
245	1	0	1	0	1	1	1	1
246	0	1	1	0	1	1	1	1
247	1	1	1	0	1	1	1	1
248	0	0	0	1	1	1	1	1
249	1	0	0	1	1	1	1	1
250	0	1	0	1	1	1	1	1
251	1	1	0	1	1	1	1	1
252	0	0	1	1	1	1	1	1
253	1	0	1	1	1	1	1	1
254	0	1	1	1	1	1	1	1
255	1	1	1	1	1	1	1	1



**Notice:** Debug address: (Only factory protocol and Pelco can be set): if the camera address is set as 0, user can select any protocols to control the PTZ.

## 10.Installation

### 10.1 Caution

- l Please refer to user manual before installation.
- l Power: AC220V/110V-AC24V, for actual needs, please refer to label of product.
- l Precise optical and electronic parts inside of product. Avoiding severe press, hard vibration etc non-correct operation methods, which may cause damage to product when transportation and installation.
- l Please do not disassemble parts inside of product at random, which may cause negative influence on use of product. No additional parts available.
- l Please comply with standards of Electrify Safety and use our own power transformer of product. Enough distance must be ensured between RS-485 cable, Video signal cable and equipments of high voltage when transmission. Thunder-proof, surge-proof and wave-proof , etc protection measures are needed.
- l Do not use product beyond the rated temperature, humidity or specifications of power. Do not place camera point to Sun or shining objects.
- l Do not use cleansers with abrasion to clean product. Please use dry cloth to clean up dirt; Neutral cleanser is needed when not easy to clean.
- l Handle product with care so as to avoid crash or vibration; Damage is caused when incorrect usage.
- l Please fix product to the position which is solid and firm.
- l Please use special paper of lens to clean up dirt on Lens.

### 10.2 Distributing the Line in Security

Please refer to right picture 11.1-1

= It is necessary to keep 50 meters distances at least between the high voltage unit and the high voltage cable with signal transmission line.

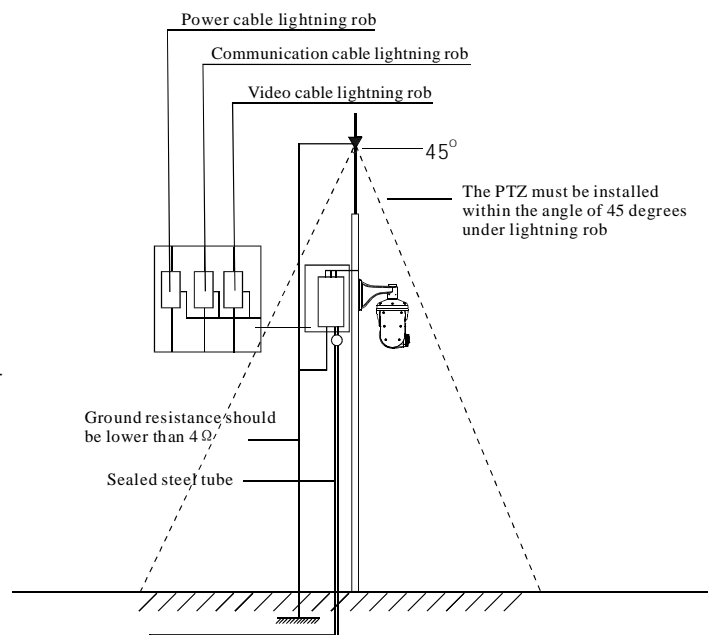
= Outdoor wiring is best to along under the eave of the house.

= Wiring at void place must adopt by way of sealed steel tube bury underground, and sealed steel tube should be grounded by one Bus. It is absolutely forbidden to adopt wiring without holder.

= Under thunderstorm or high inductive voltage region (e.g.: high voltage transformer substation), you must add extra high power lightning proof equipment and install lightning rob.

= Outdoor equipment, routes of lighting proof and ground design must consider according to the request of construction lightning proof, and coincide with connection requests of country and industry standard.

- The system must equipotential ground. Grounding equipment must satisfy the anti-jamming and electrical safety requirements and must not short circuited or mix connection with high voltage electricity net. When the system is grounded separately, the ground resistance should be not more than  $4\Omega$  and section of the grounding conducting wire should be less than  $25\text{ mm}^2$ .



Picture11-1.1

## 10.3 Lightning Proof and Surge Proof

This product uses TVS lightning Proof technology, can prevent from the damage of the equipment caused by kinds of pulse signal such as instant lightning strike of power below 4000V, the surge and so on.

At the same time, you must adopt the essential protective measure according to the actual situation regarding outdoor installation under the guarantee electricity security. (Refer to chapter 1.3 Distributing the line in security)

## 10.4 Water Proof

Outdoor PTZ has well waterproof、moisture-proof、dustproof performance, has achieved the IP66 international standard. The indoor PTZ doesn't allowed to install in outdoor environment which is full of moisture and possibly enter water. You should prevent the product and the internal components from damage that caused by the long time water-drop or spatter.

## 10.5 The preparation of installation

### Ø The request of the quality of installation person and maintainer:

- All installation and maintenance work related this product should complete by technical personnel who have qualification of installation and maintenance.

### Ø Basic requirements

- Please refer to this handbook for detail.
- All electrical work must be observe local latest electricity laws, regulation on fireproof as well as the related laws and regulations:
- Checking everything is completed according to packing list. Make sure the application place and the way of installation for PTZ is coincide with the request. If not, please contact your supplier.
- Please use this product according to the working conditions request.
- Please handle with the pan/tilt module carefully, do not extrude various structure parts; The down cover belongs to the senior optics part, do not touch with hand; Please do not get through power except for the electrifying inspection in process of installation.

### Ø Check the structure intensity for installation space and installation site.

- Make sure you have enough space to hold this product and it's parts of installation in the site.
- Make sure the bearing capacity of ceiling, wall, bracket that installs the PTZ support the gross weight of the PTZ and the structural parts of installation. It is necessary to have the safe coefficient of 4 times or above.

## Ø Stuff Preparation

Please select the type of cables based on transmitting distance:

- Minimum video coaxial cable requirements:

- 1)75 Ω impedance
- 2)All copper conductor wire
- 3)95% copper net structure

Domestic Gauge	International Gauge	Maximum Distance(ft/m)
RG59/U	RG59/U	750ft (229m)
5C-2V	RG6/U	1,000ft (305m)
7C-2V	RG11/U	1,500ft (457m)

- RS485 Communication cables (Refer to manual appendix)
- 24VAC Power supply cable (Refer to manual appendix)

## Ø Keep All the Original Package Materials

Please preserve the mode original package material properly after opening the PTZ packing, in order to mail the PTZ that is wrapped with original package material to the agent or return it to the factory to repair if problem occur.

It is likely to bring on the damage that caused by the transport accident on the way if the mode uses the non-original package material, and extra cost may arise accordingly.

## Ø Brief introduction of mounting way

**Mounting way of pan/tilt: wall mount, pendant mount.**

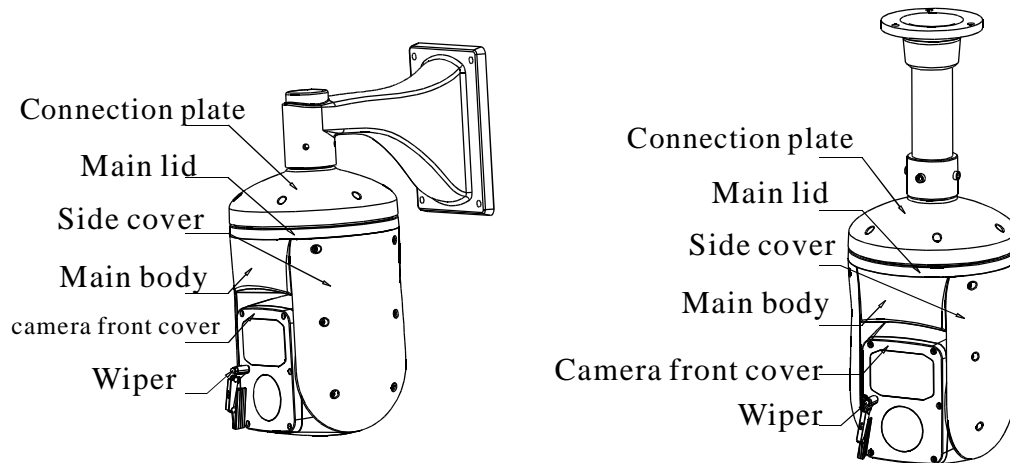


**Bracket Installation** Installation position must enable to undertake high weight pressure, which must be 4times of the total weight of PTZ and bracket.

The wall must be strong and stable, bracket must be ensure to install on the real wall but not the surface coating of the wall.

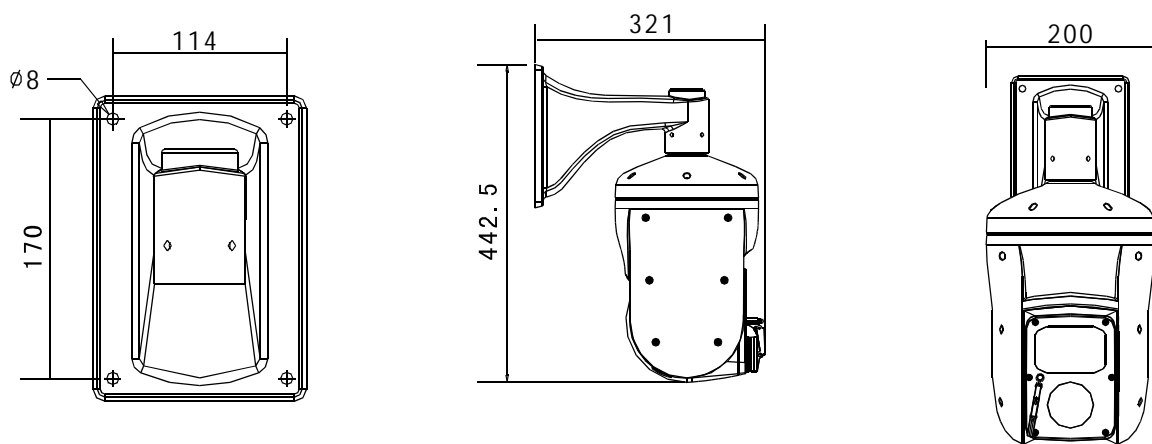
### 10.6 Structure Introduction

The total PTZ consist of Connection plate,Main lid,Side cover,Main body,camera front cover, Wiper, original integrated packing )



Picture10.6-1

### 10.7 Basic Size graph



Picture10.7-1

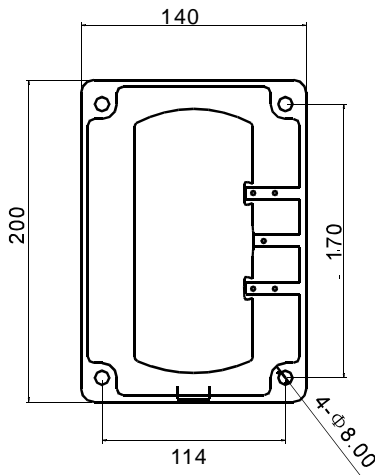
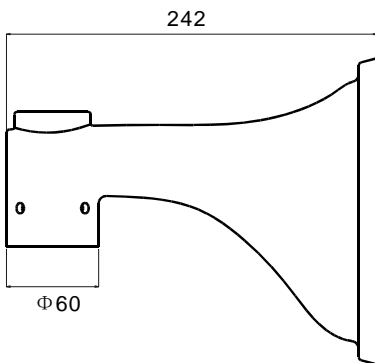
## 10.8. Installation

### 10.8.1 Wall mount



1. The installation site must be able to support the sum of weight such as the dome, the bracket and the pedestal four times.
2. The chosen wall of installation site must be solid and have no delaminated phenomenon, must make sure the bracket installs on the wall but not in the superficial slipcover.

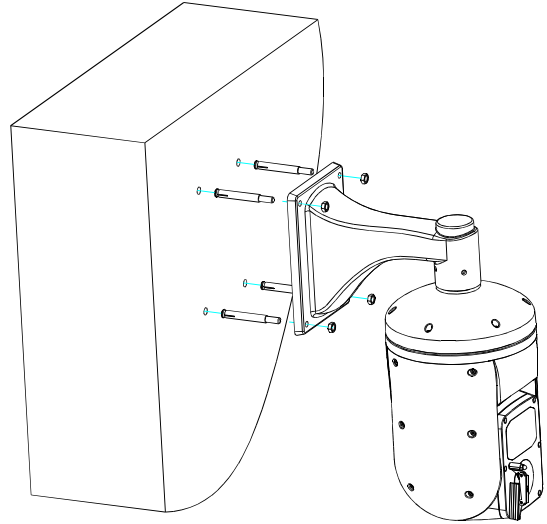
On the installation wall, use wall bracket as a templet to mark the center position of the hole (as picture 10-8.1-1 shows).



Picture 10-8.1-1

User use the electric drill to drill four M6 holes on the installation surface. The length is around 75mm and then install M6 screw.

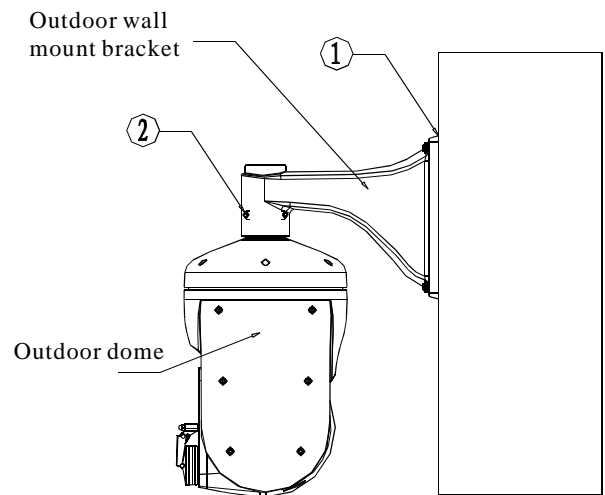
Using the 4pcs M6\*12 screws to lock the PTZ and the wall bracket together, then fix them on the wall. As shown in figure 10-8.1-2



Picture 10-8.1-2

Please see NO.① in the picture, smear the sealed glue on the brim of the bracket and the dome will be prevented the water entering. (as picture 10-8.1-3):

- (1) All sides interface between wall mount bracket and the wall.



Picture 10-8.1-3



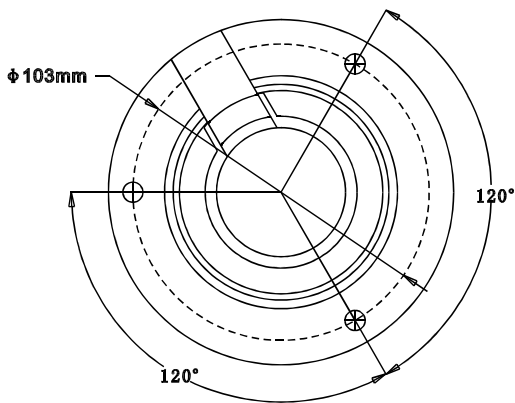
The user must install the outdoor bracket according to below requirement strictly. It does not belong to our maintenance scope if the dome was damaged causing by disobey the requirement to install.

## 10.8.2 Pendant mount



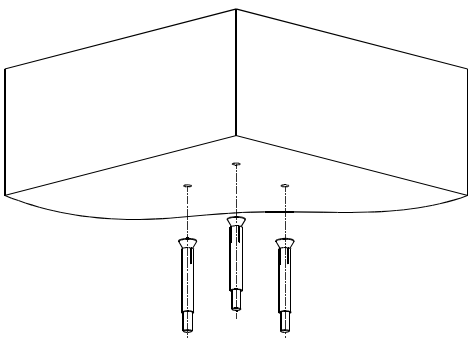
1. The installation site must be able to support the sum of weight such as the dome, the bracket and the pedestal four times.
2. The chosen wall of installation site must be solid and have no delaminated phenomenon, must make sure the bracket installs on the wall but not in the superficial slipcover.

On the installation wall, use pendant bracket as a templet to mark the center position of the hole (as picture 10-8.2-1 shows).



Picture 10-8.2-1

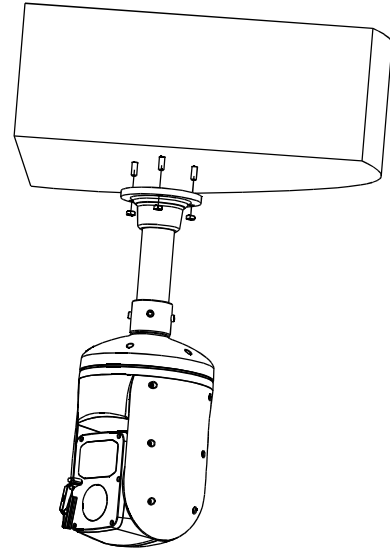
User use the electric drill to drill three M6 holes on the installation surface. The length is around 75mm and then install M6 screw. (as picture 10-8.2-2 shows)



Picture 10-8.2-2

Wind close one side of the connector (G1-1/2") into the base, then use M4\*10 fasten screw to lock the connector.

Using the 4pcs M6\*12 screws to lock the PTZ and the pendant bracket together, then fix them on the wall. As shown in figure 10-8.2-3



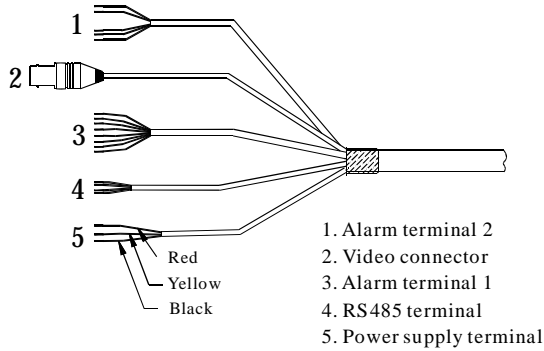
Picture10-8. 2-3



The user must install the outdoor bracket according to below requirement strictly. It does not belong to our maintenance scope if the dome was damaged causing by disobey the requirement to install.

## 10.9 Cabling Connection

According to different night-vision function, you can refer to the following connection drawing:



**Connection drawing of Infrared LED**

Picture10.9-1

Please connect cables refer to the attached tag. Detail connection refer to below list.

**Alarm terminal 1 :**

RED:ALM1  
 PINK:ALM2  
 YELLOW:ALM3  
 GREEN:ALM4  
 BLACK:COM  
 WHITE:NO  
 BLUE:NC

**Alarm terminal 2 :**

AQUA:NC2  
 BROWN:NO2  
 GRAY:ALM7  
 PURPLE:ALM6  
 ORANGE:ALM5

**RS485 terminal:**

YELLOW:RS485-  
 GREEN:RS485+

**Power supply terminal:**

RED:AC24V+  
 YELLOW: GROUNDING  
 BLACK:AC24V-

## 10.10 Electrification inspection

Connect video cable and control cable to the other equipments; Electrify 24VAC power.

The PTZ carries on self-checking and executes replacement procedure after power-on.

In the process of self-checking, camera will rotate horizontally and slowly for one and half cycle to the default original horizontal point which is set by factory, then upwardly turn to original vertical point, then downwardly to original horizontal point. Lens will be pulled from far focus to near focus to complete self-checking. The whole camera is absolutely steady means PTZ completed self-checking and ready to be controlled. If unstable, please refer to the troubleshooting in the operation manual appendix.

## 11. Maintenance service terms

### 1. Range of warranty

- The product will be maintained free for one year.
- The product will be obtained the free maintenance service if the same malfunction appears again within three months.
- Malfunction of products caused by force majeure (such as war, earthquake, lightning strike and so on ), abuse, non-standard operation, change of construction, non-normal wear or accident are non-free of warranty.
- Please prevent from the damage which is caused by heavy pressure , the fierce vibration and soaks in the process of transportation and storage, which does not belong to the free maintenance scope.
- Please adopt the way of fission package or original package to transport because the product damage dose not belong to the free maintenance scope if you use the whole packing way , not the original packing way.
- The maintenance services will not be free when the pan/tilt module is disassembled or serviced by the user voluntarily.
- Our company implements the lifetime payable service if the product in malfunction has surpassed the warranty period.
- To the products with defect :if it's in the period of warranty, please fill in the form of warranty information correctly, describe the trouble in details, and provide original sales. invoice or its copy.
- For the damage and loss which was caused by the user's specifically application, factory won't bear any risk and responsibility. The factory compensation made by breach of faith, negligence or tortious won't exceed the amount of the products. The factory won't bear any responsibility for the special, unexpected and continue damage caused by any other reasons.
- Our company has the final right of explanation for the above terms.

### 2. Warranty terms

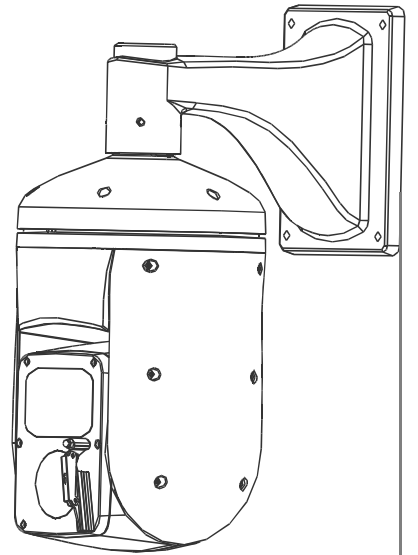
- If the products are within the warranty time, the buyer should fill in the warranty card and send back together with the products.

### 3. Shipping

- If the product needs repaired , you can return it to the manufacturer through the supplier or directly. If you choose the later , please contact us in order to speed up the process. And our company only undertake the one-way freight from manufacturer to customer after maintenance.



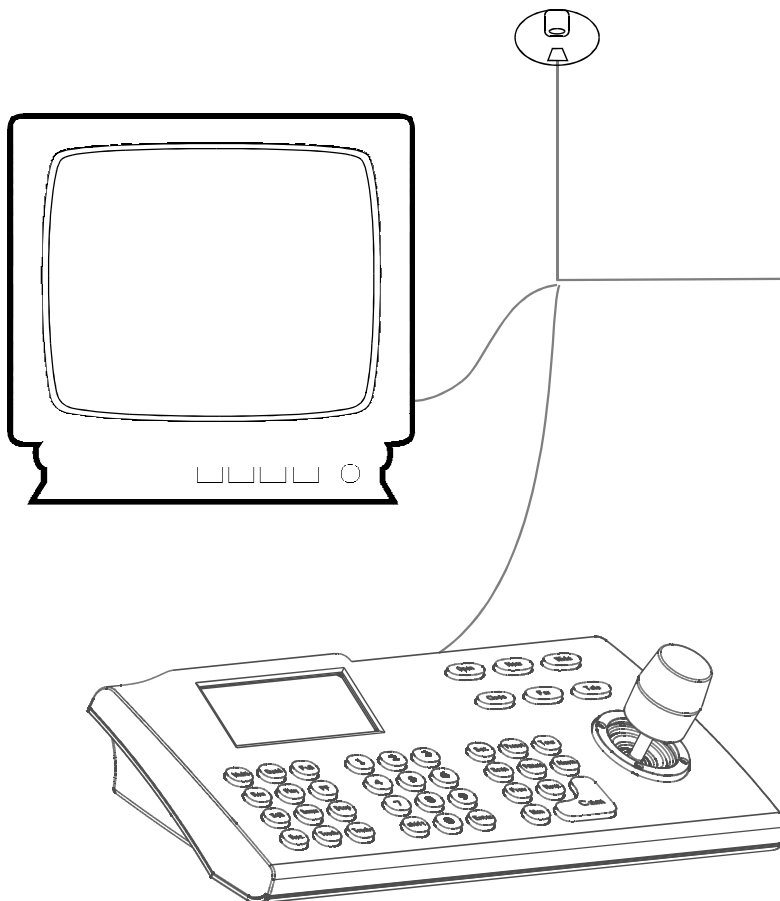




# 红外智能高速球

## 用户使用安装手册

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## 1. 注意事项

### Ø 电气安全

在本产品安装使用中必须严格遵守国家和地区各项电气安全标准。

### Ø 小心运输

运输、保管及安装过程中要防止重压、剧烈震动、浸泡等对产品造成的损坏；本产品采用整体包装形式运输。

### Ø 小心安装

安装时请仔细参照用户安装手册。对云台部件要轻拿轻放，勿用力挤压各结构部件，否则可能引起机械故障；云台透镜属于高级光学产品，避免用手直接触摸，以免透镜划伤，影响图像质量。

### Ø 对维修人员的素质要求

有关本装置的所有安装维修工作均应由有资格的维修技术人员或系统安装人员来完成。

### Ø 不要擅自拆卸摄像机

不要拆下云台的螺钉或防护盖，云台内并无用户可自行维修的零件，应由有资格的维修人员进行检修。

### Ø 环境要求

= 云台的使用环境要求：

环境温度：-40℃ ~ +60℃

湿度：<95%

气压：86~106Kpa

交流电源：24V/2500MA, 50/60HZ

### Ø 不要将摄像头瞄准强光物体

不要将摄像头瞄准光亮的物体。无论是使用中或非使用中，绝不可以使其瞄准太阳或其它的光亮物体，否则可能造成图像模糊或产生光晕。

### Ø 防水性能

本产品具有良好的防水、防潮、防尘性能，达到IP66国际标准。但不能长时间在水滴或水溅的环境中，这样容易造成内部元件损坏。

## 2.1 云台参数

电气:		设置:	
额定电压	AC24V	波特率 (RS485)	2400/4800/9600/19200bps
功率	(云台+红外) 33W (云台+红外+加热) 53W	通讯协议	PELCO/KALATEL/SAMSUNG/DIAMOND 等16种可选
解码器	内置	地址设置	0~254
操作:		环境:	
水平旋转	360° 连续	操作环境	-40 ~ +60°C
垂直旋转	垂直180°, 带自动翻转	环境湿度	0~95%无冷凝
旋转速度	水平0.4~180° /S 垂直0.4~80° /S	防护等级	IP66、全天候防护罩, 4000V防雷, 防突波和浪涌
报警功能	7个输入, 2个输出	物理:	
预置点	128个	安装方式	壁挂支架安装 吊装支架安装
监控方式	预置点/巡航/水平扫描/花样扫描	红外灯夜视距离	80m以上

## 2.2 摄像机参数

规格	型号	APS: 18x 彩色	CPS:18X 彩色/黑白转换	DPS:26X 彩色/黑白转换	FPS:36X 彩色/黑白转换	GPH:23X 彩色/黑白转换	MPH:30X 彩色/黑白转换	LPH:35X 彩色/黑白转换
制式	PAL							
成像元素	1/4" Sony Super HAD CCD	1/4" Sony Exview HAD CCD				1/4" Sony Exview HAD CCD		
扫描系统	2: 1 隔行扫描							
有效像素 (H*V)	752x582							
扫描频率	水平15.625KHz / 垂直50Hz							
分辨率	彩色480TVL	彩色480TVL,黑白570TVL			彩色480TVL 黑白570TVL	彩色540TVL 黑白570TVL	彩色480TVL,黑白570TVL	
最低照度	0.9Lux	彩色 0.7Lux, 黑白 0.01Lux				彩色 0.05 Lux 黑白 0.01Lux	彩色 0.1 Lux, 黑白 0.01Lux	
镜头倍数	18倍光学变焦, 12倍数字变焦			26倍光学变焦 12倍数字变焦	36倍光学变焦 12倍数字变焦	23倍光学变焦 12倍数字变焦	30倍光学变焦 12倍数字变焦	35倍光学变焦 12倍数字变焦
焦距	4.1mm-73.8mm			3.5mm-91mm	3.4mm-122.4mm	3.6mm-82.8mm	3.4mm-102mm	3.4mm-119mm
视角	广角48.0° /远角2.8°			广角54.2° /远角2.2°	广角57.8° /远角1.7°	广角54.0° /远角2.5°	广角55.8° /远角2.0°	广角55.8° /远角1.7°
光圈	自动/手动							
聚焦	自动/手动							
白平衡	自动/手动 (R/B增益可调)							
背光补偿	关/自动							
信噪比	≥50dB							
电子快门	1/50 ~ 1/10,000 秒	1/1 ~ 1/10,000秒				1/1.5 ~ 1/30,000秒		1/2 ~ 1/30,000秒
视频输出幅度	1.0±0.2Vp-p							
视频输出接口	Female BNC							
宽动态	无				有			
隐私保护	8块	24块				8块		

## 2.3 云台性能特点

本智能云台采用全新设计，整机结构紧凑，内置恒温装置，机芯散热迅速；外部配有雨刷，雨天画面依然清晰、细腻；配有红外灯夜视功能；摄像机转动灵活，噪声小，拍摄范围广，摄像机多项自动功能，为顾客提供完美优质的画面。

### Ø 内置解码器

- 全数码设计，所有数据均存贮在机芯内部，断电时不会丢失
- 一体化集成设计，可靠性高
- 128个预置位随意储存
- 1-80号预置位支持自动巡航功能，1条巡航路径可存储24个预置位
- 4条花样扫描
- 4条水平扫描
- 内置方向指示器
- 内置温度传感器
- 内置实时时钟功能
- 采用RS485总线、曼彻斯特码控制
- 最多支持24个隐私保护区域设置。(本功能与摄像机型号有关,摄像机无此功能时,该项无效)
- 7路报警输入，2路报警输出。

### Ø 云台特性

- 云台采用全铝合金防暴外壳设计，具有很好的屏蔽和散热作用，防护等级达IP66。
- 精密步进电机驱动，运转平稳、反应灵敏，定位准确。
- 一体化集成设计，结构紧凑，快速装卸。
- 精巧的机械驱动装置，支持水平360°连续旋转，垂直0° ~+ 105° 度旋转，并可进行180°自动翻转。
- 每秒0.4°的水平慢速旋转，图像不抖动。

### Ø 内置数码摄像机。

- 高灵敏度、高分辨率的一体化数字处理
- 自动聚焦
- 自动亮度控制
- 自动光圈
- 自动彩色/黑白图像转换
- 自动白平衡
- 自动慢快门
- 自动背光补偿

### Ø OSD屏幕菜单

- 全英文菜单选项。
- 可视化OSD屏幕菜单，通过键盘和屏幕菜单显示更改云台信息及参数，操作简单直观。
- 可设置定时自动激活功能，云台空闲时，可设定自动调用预置点或启动巡航、花样扫描、水平扫描等。
- 可设定通电后自动恢复通电前动作或执行指定动作。

### Ø 内部温度检测

- 可设置实时温度显示。
- 温度超过上限时，屏幕弹出报警信息。
- 温度低于下限时，云台延时启动，待发热器加热到高于下限温度时再启动。
- 风扇根据实时温度检测确定是否启动，可延长风扇使用寿命。

### Ø 定时运行功能

通过菜单"TIME RUNNING", 可设置云台每天的定时运行功能, 且在一天中有4个时间段分别设置不同的运行动作, 包括预置点、扫描、巡航、花样扫描.

### Ø 夜视功能

红外灯夜视距离80米以上,可手动和自动控制红外灯的开与关。通过控制键盘可手动开启和关闭红外灯。自动控制时, 当亮度比较低时自动开启, 图像切换为黑白, 当亮度比较高时自动关闭, 图像切换为彩色。

### Ø 雨刷功能

调用63号预置点或通过系统设置菜单可开启雨刷功能, 在雨天雨刷能让画面品质得到保证, 同时可清除云台透镜表面污垢。



## 3. 功能说明

本节文字主要描述了一体化智能云台的主要功能及其实现的通用原则，未涉及具体的操作方法。不同的系统平台的具体操作方法不尽相同，一般应以系统制造商的操作手册为准，某些情况下会有某些特殊要求和操作方法，请与经销商联系获取必要的信息。

### 3.1 设置摄像机编码

球机侧面有两个8位拨码开关SW1和SW2，SW1用来设置云台地址，SW2用来设置通讯波特率和云台控制协议。（具体设置参见“附录-拨码开关设置”）

云台除了有厂家协议（FACTORY），还兼容多种主流控制协议，如PELCO-D、PELCO-P、SAE、VCL、MOLYNX、VICON、SANTACHI、PANASONIC、SAMSUNG、DIAMOND、KALATEL、LILIN、VIDO B02、ISD、DYNACOLOR、KTD410等。

任何控制命令都必须基于目标摄像机地址，摄像机只响应与其自身地址一致的控制命令。摄像机地址分为三类：

- 普通地址：利用摄像机转接板的拨码开关（SW1）第1~8位进行地址设置，地址范围1~254。
- 广播地址（仅厂家协议和PELCO可设置）：如果用户选择广播地址进行控制，则系统连接的所有摄像机都会执行相同动作；系统“255”为广播地址。
- 调试地址（仅厂家协议和PELCO可设置）：如果摄像机的地址为0，则无论用户选择任何地址都可控制该云台。

### 3.2 自动执行动作功能

#### Ø 焦距/转速自动匹配技术

手动调节时，对焦距较远的情况，云台高速反应使得轻微触动摇杆可能使画面迅速移动，从而造成画面丢失。基于人性化设计，智能云台根据焦距的远近自动调整云台水平和垂直转速，使手动跟踪目标操作更为简便易行。在屏幕菜单中，将系统参数设置中PROPORTIONAL PAN项设为ON，即可实现该功能。

#### Ø 自动翻转

操作者将镜头拉到底部（垂直）后若仍压住摇杆，此时镜头自动水平旋转180°后随即向上翻转180°。在屏幕菜单中，将系统参数设置中AUTO FLIP项设置为ON，即可实现该功能。

#### Ø 定时自动激活功能

通过菜单“PARK TIME”和“PARK ACTION”，如果云台未执行任何动作，用户可以设定指定一段时间后，自动调用预置点或启动巡航、花样扫描、水平扫描等。

#### Ø 通电后自动激活功能

通过菜单“POWER UP ACTION”用户可设定云台通电或重新启动后自动恢复通电前动作或自动调用预置点或启动巡航、花样扫描、水平扫描等。

## 3.3 摄像机控制

### Ø 放大倍数控制

用户可以通过控制键盘“WIDE/TELE”调整画面的远近，得到所需的全景画面，或是近景视图。云台支持数字变焦和光学变焦。

### Ø 聚焦控制

系统默认为自动聚焦。镜头变化时，摄像机会以物景画面的中心自动聚焦，保持清晰图像；用户也可以通过操作键盘“FAR/NEAR”，实现手动聚焦，达到理想的图像效果。当操作键盘摇杆时，摄像机恢复自动聚焦。

摄像机在下列情况下将不能对所摄目标自动聚焦：

- 目标不在画面的中心
- 同时观察远处和近处的目标时，不能同时保证前后都清晰
- 目标为强光物体，如氙灯、聚光灯等发光物体
- 目标移动太快
- 大面积单调的目标，如墙壁
- 目标太黑暗或本来就模糊
- 目标画面太小

### Ø 光圈控制

系统默认为自动光圈。通过自动感测周围环境光线变化，迅速做出调整光圈大小，使得输出的图像亮度稳定。

用户可以通过控制键盘“Open/Close”，手动调整光圈的大小，得到所需的画面亮度。用户也可以通过摇杆操作恢复自动光圈。当手动控制光圈时，云台便锁定当前的手动控制的位置；当操作键盘摇杆时，云台恢复自动光圈。

### Ø 自动背光补偿

摄像机分区实现自动背光补偿。在强光背景下，自动对较黑暗的目标进行亮度补偿，对光亮的背景进行采光调整。避免因背景亮度过高而造成整个画面一团光亮，目标却因黑暗而不可辨别，从而不能获得清晰的图像。

### Ø 自动白平衡

根据环境光线的变化，自动调节，再现真实色彩。

## 3.4 监控功能

### Ø 设置及调用预置点

预置点功能是云台能将当前状态下云台的水平角度、倾斜角度和摄像机镜头焦距等位置参数储存在存储器中，需要时可以迅速调用这些参数并将云台和摄像头调整至该位置。操作者可方便快捷地通过键盘等设备调出预置点，本智能云台能支持128个预置点。

### Ø 自动巡航

自动巡航是本智能云台内置的功能，指可通过预先编程，将预置点按所需顺序编排到自动巡航队列中。通过在巡航路径中插入预置点，可以实现摄像机在预置点之间的自动巡航。巡航顺序可编程，每次启动巡航时，可设定预置点速度、停留的时间。4条巡航路径，可存储24个预置点。支持4条巡航路径。

### ∅ 水平扫描

操作者可方便快捷地通过控制键盘和菜单预先设定左限位和右限位，实现摄像机在左右限位之间以设定的速度水平往复扫描。支持4条水平扫描路线。

### ∅ 花样扫描

花样扫描（PATTERN）功能是本智能云台摄像机内置的功能，云台能够连续记录至少180秒的运行轨迹，运行花样扫描时，云台按照记录的运行轨迹重复地运动。一个云台最多可设置4条花样路径。

### ∅ 隐私保护区域设置（本功能与摄像机型号有关，摄像机若无此功能时，该项无效。）

用户可通过该设置将需要隐私保护的区域用黑色阴影覆盖起来。

### ∅ 报警输入输出控制功能

云台接收到一个外部报警讯号，执行预先设定的动作，直到报警解除后复位，如有异常，再发出给一个报警讯号。云台最多可设置7路报警输入，2路报警输出。

### ∅ 摄像机镜头位置的显示

以云台自检后的位置作为水平运转和垂直运转的0点，水平位置在0-360°之间，垂直位置在0° ~+ 105°之间。根据显示信息设置的摄像机镜头位置可以在屏幕上显示出来。

## 4. 系统设置菜单

### 4.1 基本操作

#### 4.1.1 云台上电与自检

云台上电后执行自检程序，云台将缓慢地水平旋转至出厂默认设置的水平原点，然后向下运动到垂直原点，镜头由远焦拉到近焦，又从近焦拉到远焦，自检完毕，屏幕会出现系统相关信息，如下所示：



- ← 云台出厂系列号
- ← 云台型号
- ← 本云台控制协议
- ← 云台地址编号
- ← 通讯参数

该信息会一直显示直到对系统进行操作为止。如果设置了“通电后自动激活功能”，则云台自检完毕后执行自动激活动作。具体如何操作我们会在后面的章节中详细介绍。

#### 4.1.2 调用主菜单

系统通过调用95号预置点或3秒内连续两次调用9号预置点，调出系统的主菜单。所有菜单设置都必须先调用主菜单。

#### 4.1.3 菜单与键盘的基本操作

##### Ø 键盘基本操作：

**【OPEN】** 图像选择时表示加大光圈，菜单设置时表示进入下一级菜单或进入设置，或设置完毕后保存设置。

**【CLOSE】** 图像选择时表示减小光圈，菜单设置时退出或不保存设置。

**【FAR】** 聚焦到远处。

**【NEAR】** 聚焦到近处。

**【TELE】** 增加放大倍数。

**【WIDE】** 减小放大倍数。

摇杆向上：图像选择时表示摄像头向上旋转，菜单设置时表示选择上一个。

摇杆向下：图像选择时表示摄像头向下旋转，菜单设置时表示选择下一个。

摇杆向左：图像选择时表示摄像头向左旋转，菜单设置时功能同**【CLOSE】**键。

摇杆向右：图像选择时表示摄像头向右旋转，菜单设置时功能同**【OPEN】**键。

三维摇杆旋转摇杆帽功能同按**【TELE】**和**【WIDE】**键。

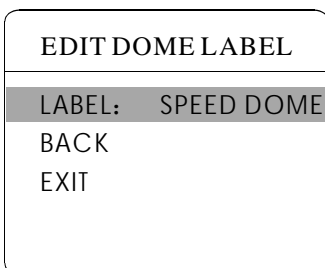
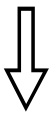
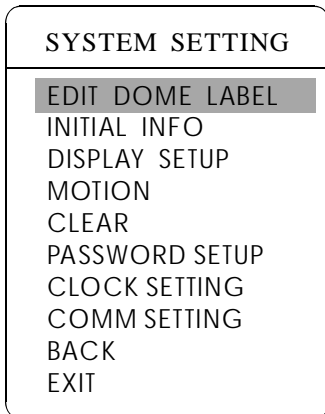
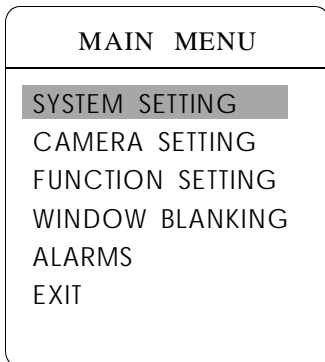
##### Ø 菜单基本操作：

“BACK”：返回上一级菜单。

“EXIT”：退出菜单。

“ON”：打开某一项设置。

“OFF”：关闭某一项设置。



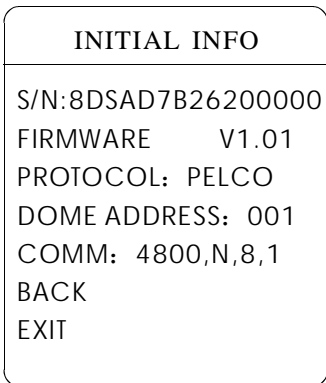
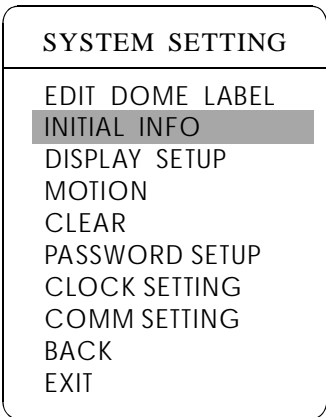
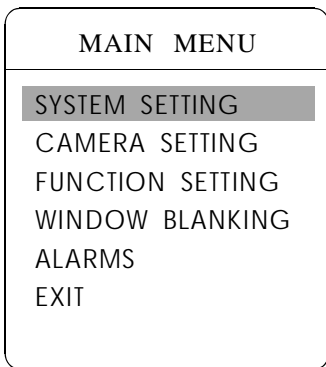
## 4.2 编辑云台标签

在使用多个云台系统时,为了对各个云台作标识,系统提供云台标题设置功能。设置方法如下:

- 1、调用95号预置点或3秒内连续两次调9号预置点,进入主菜单。
- 2、上下摆动摇杆将光标移动到系统设置【SYSTEM SETTING】,按【OPEN】键调出下一级菜单;
- 3、上下摆动摇杆将光标移动到【EDIT DOME LABEL】,按【OPEN】键调出云台标签编辑菜单。
- 4、上下摆动摇杆将光标移动到【LABEL】,按【OPEN】键编辑当前云台标签。
- 5、光标在云台的第一位字符处闪烁,移动摇杆选择字符,编辑完后,按【OPEN】键保存。
- 6、移动摇杆到【BACK】,按【OPEN】键返回上一级菜单。



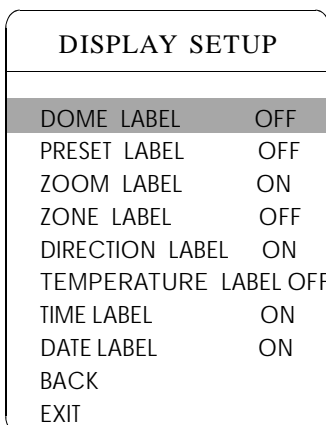
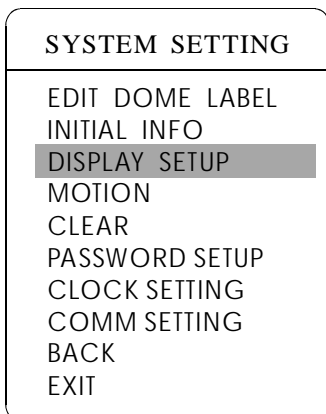
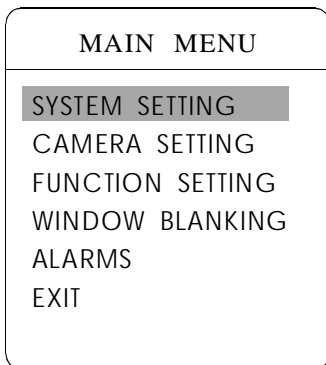
标签可设置16位字符,不需要编辑的字符,连续按【OPEN】键跳过,要删除的字符用空格取代,每编辑完一个字符按【OPEN】键进入下一位字符的编辑,编辑到最后一个字符时,按【OPEN】键保存。按【CLOSE】键中止编辑。可供选择的标签字符有:0-9、A-Z、:<>-.,空格。其它标签输入方式同上。



### 4.3 显示初始化信息

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单。
- 2、上下摆动摇杆将光标移动到系统设置【SYSTEM SETTING】，按【OPEN】键调出下一级菜单；
- 3、上下摆动摇杆将光标移动到【INITIAL INFO】，按【OPEN】屏幕显示云台初始化信息，如左下方所示。

初始化信息包括云台出厂系列号、云台版本号、云台控制协议、云台地址编号、通讯参数。系统设置可以改变初始化信息的显示数值。



## 4.4 显示设置

- 1、调用95号预置点或3秒内连续两次调9号预置点,进入主菜单;
- 2、上下摆动摇杆将光标移动到系统设置【SYSTEM SETTING】,按【OPEN】键调出下一级菜单;
- 3、上下摆动摇杆将光标移动到显示设置【DISPLAY SETUP】,按【OPEN】键调出显示设置菜单。可设置屏幕显示内容如下:

- 【DOME LABEL】: 云台标签显示设置
- 【PRESET LABEL】: 预置点扫描标签显示设置
- 【ZOOM LABEL】: 放大倍数显示设置
- 【ZONE LABEL】: 区域指示标签显示设置
- 【DIRECTION LABEL】: 方向指示标签显示设置
- 【TEMPERATURE LABEL】: 温度标签显示设置
- 【TIME LABEL】: 时钟显示设置
- 【DATE LABEL】: 日期显示设置

4、以显示云台标签为例讲解操作过程。上下摆动摇杆将光标移动到【DOME LABEL OFF】,按【OPEN】键,【DOME LABEL】旁边多了一个“⚙️”,光标在【OFF】旁边闪烁。

5、上下摆动摇杆,设置值在ON/OFF之间转换,当设定【ON】时,表示在屏幕上显示云台标签,当设定为【OFF】时,表示在屏幕上不显示云台标签,按【OPEN】键,光标跳回到【DOME LABEL】前,标签显示设置完毕,将光标移到【EXIT】,退出菜单设置。

屏幕上显示的信息随着云台的旋转动态变化,用户通过屏幕信息可了解到当前云台的内部温度、放大倍数、显示区域等。所有的标签都显示时,云台工作时如下图所示:(图中“305”表示水平方向角度,“45”表示垂直方向角度。)





SYSTEM SETTING	
EDIT DOME LABEL	
INITIAL INFO	
DISPLAY SETUP	
<b>MOTION</b>	
CLEAR	
PASSWORD SETUP	
CLOCK SETTING	
COMM SETTING	
BACK	
EXIT	



MOTION	
<b>AUTO FLIP</b>	<b>ON</b>
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

MOTION	
AUTO FLIP	ON
<b>PROPORTION PAN</b>	<b>ON</b>
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

## 4.5 系统动作控制

系统动作控制可以设置云台的一系列规范动作，对控制云台有很重要的作用。

1、调用95号预置点或3秒内连续两次调9号预置点,进入主菜单;

2、上下摆动摇杆将光标移动到系统设置【SYSTEM SETTING】，按【OPEN】键调出下一级菜单;

3、上下摆动摇杆将光标移动到【MOTION】，按【OPEN】键调出系统动作控制菜单，如左图。

### 4.5.1 自动翻转

1、操作摇杆，移动光标到【AUTO FLIP】项：按【OPEN】键，进入自动翻转功能设置，上下摆动摇杆，如选择ON，打开自动翻转功能，选择OFF，则关闭自动翻转功能。按【OPEN】键保存设置。



自动翻转功能打开时，操作者将镜头拉到底部（垂直）后若仍压住摇杆，此时镜头自动水平旋转180°后随即向上翻转180°。

### 4.5.2 速度匹配

1、操作摇杆，移动光标到【PROPORTIONAL PAN】项；按【OPEN】键，进入速度匹配功能设置，上下摆动摇杆进行选择，如选择【ON】，打开速度匹配功能；选择【OFF】，则关闭速度匹配功能，按【OPEN】键保存设置。



#### 操作小窍门

手动调节时，对焦距较远的情况，云台的高速反应使得轻微触动摇杆时可能使画面迅速移动，从而造成画面丢失，当近焦看画面时，容易出现画面抖动。基于人性化设计，智能云台能根据焦距的远近自动调整云台水平和垂直转速，使手动跟踪目标更为简便易行。



MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

### 4.5.3 定时自动激活动作

该设置允许云台进入空闲状态一段时间（1--240分钟）后执行一个指定的动作。缺省设置为0，表示不自动执行动作。

1、操作摇杆，移动光标到【PARK TIME】项，按【OPEN】键，上下摆动摇杆设置自动激活时间，选择范围在0-240（分钟），按【OPEN】键保存设置。

【PARK ACTION】即激活后运行的动作，当【PARK TIME】设置为0时，对该项进行设置无效。

2、操作摇杆，移动光标【PARK ACTION】项，按【OPEN】键，

【PARK ACTION】前多了一个“⚙️”，光标跳到右边，上下摆动摇杆选择自动激活后的动作，按【OPEN】键保存设置。有以下选项供选择：

- 【NONE】（缺省） - 无动作
- 【PRESET】1-80 - 调用预置点
- 【SCAN】1-4 - 运行水平扫描
- 【PAT 1】1-4 - 运行花样扫描
- 【TOUR】1-4 - 运行巡航

MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

### 4.5.4 通电后自动激活动作

云台通电自检后开始执行的动作，如果没有人工干预，云台会不断地重复运行该动作，缺省值为【NONE】。

1、操作摇杆，移动光标到【POWER UP ACTION】项：按【OPEN】键，光标跳到后面的选项，上下摆动摇杆选择通电后运行的动作，按【OPEN】键保存设置。

- 【NONE】 - 无动作
- 【AUTO】 - 云台恢复断电前的动作或方向
- 【PRESET】1-80 - 调用预置点
- 【SCAN】1-4 - 运行水平扫描
- 【PAT1】1-4 - 运行花样扫描
- 【TOUR】1-4 - 运行巡航

MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	

### 4.5.5 风扇启动温度

当云台在温度偏高的环境下使用，云台自身温度会升高，为保证云台整体稳定性，风扇会在温度升高到一定程度后自动打开，1、操作摇杆，移动光标到【FAN ENABLED】项：按【OPEN】键，光标跳到后面的选项，用户根据实际情况选择风扇开启温度，按【OPEN】保存。

厂家默认设置风扇启动温度为50℃，用户也可进入风扇启动设置菜单调整风扇启动温度，如图所示：温度选择范围0~60℃。【TEMP】可将温度在华氏与摄氏之间进行切换。

MOTION	
AUTO FLIP	ON
PROPORTION PAN	ON
PARK TIME	005
PARK ACTION	SCAN
POWER UP ACTION	AUTO
FAN ENABLED	050
TEMP C/F	CENT
ADVANCE SETTING	
BACK	
EXIT	



ADVANCE SETTING	
EIS ENABLED	N/A
PRESET FREEZE	N/A
DEFOGGER	10
A D J SPEED	100
WIPER	
IR HEADLIGHT	
SPECIAL SETTING	
BACK	
EXIT	



IR HEADLIGHT	
MODE	MID
DELAY TIME	002
BW	AUTO
ACT. AUX1	OFF
LED 1	100
LED 2	200
LED 3	×
LIGHT	×
BACK	
EXIT	

SPECIAL SETTING	
GRID	ON
POS.MODE	MODE1
ZERO AZI	
BACK	
EXIT	

## 4.5.6 高级设置

1. 操作摇杆移动到【ADVANCE SETTING】项，按【OPEN】键进入高级设置；

【EIS ENABLED】：电子防抖动功能；

【PRESET FREEZE】：冻结预置点功能。冻结预置点功能指在调用预置点时，摄像机图像画面冻结在调用预置点启动前的画面图像。直到摄像机完全到达预置点位置才释放冻结画面的功能。

【DEFOGGER】：当云台在温度偏低的环境下使用，云台透镜会起雾，为保证图像的清晰度，除雾器会在一定温度自动打开，1、操作摇杆，移动光标到【DEFOGGER】项：按【OPEN】键，光标跳到后面的选项，用户根据实际情况选择除雾器开启温度，按【OPEN】保存。

温度选择范围0~30° C。

【A D J SPEED】：云台运转速度的百分比，如选择100，当前的云台运转速度为出厂速度，选择80当前的云台运转速度是出厂速度的80%。

【WIPER】：雨刷功能，调63号预置点开启雨刷功能。

【IR HEADLIGHT】：红外灯设置。当处于【MANUAL】手动设置状态时，调用62号预置点可开启红外灯，存储62号预置点可关闭红外灯；红外灯默认设置为MID自动模式；

【DELAY TIME】可设置红外灯的自动关闭时间，设置范围为0-240分钟；

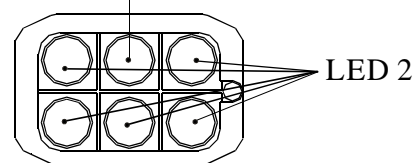
【BW】可设置红外灯开启后的图像模式，有AUTO、COLOUR、BLACK三种模式。

【ACTIVATE AUX1】在开红外灯的同时，是否需要联动第1路开关量报警输出（AUX1）。

【LED 1】LED灯亮度调节功能，选择范围：50-200，数值越大，LED灯越亮；【LDE2】介绍如上

【LDE3】该功能暂未开放使用

【LIGHT】灯源选择功能（暂未开放使用） LED 1



特殊功能设置：

【SPECIAL SETTING】特殊功能设置

【GRID】十字架功能

【POS.MODE】位置模式，设置方向标签的显示；当球机按顺时针方向转动时，“MODE1”水平值减少；“MODE2”水平值增加。

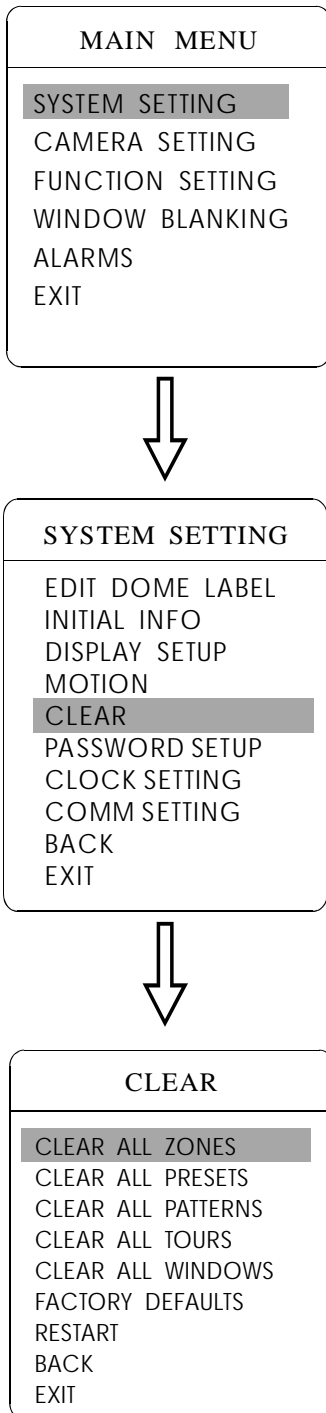
【ZERO AZI】设置零方位角；调用180号预置点快捷设置零方位角。

### 操作小窍门

- 1.云台如果设定了电子防抖动功能在运行当中如果遇到轻微抖动，摄像机会屏蔽抖动画面使云台图像平稳、流畅。
- 2.当启动冻结预置点后，可消除在调用预置点时产生的屏幕闪烁感觉，如果图像经过DVR存储，此功能亦可减少DVR存储空间。



高级设置菜单所有功能与内置摄像机型号及参数有关，根据摄像机型号不同，高级设置菜单选项可能略有差异。当设置项显示是N/A时，表示目前摄像机无该项功能。

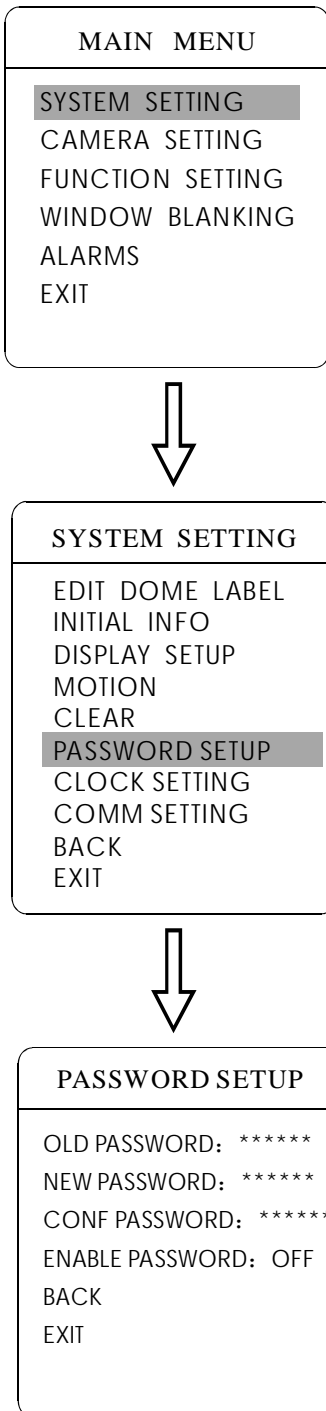


## 4.6 清除及重启

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、上下摆动摇杆将光标移动到【SYSTEM SETTING】，按【OPEN】键调出下一级菜单；
- 3、上下摆动摇杆将光标移动到【CLEAR】，按【OPEN】键调出下一级菜单，如左图。
  - 【CLEAR ALL ZONES】:清除所有区域指示
  - 【CLEAR ALL PRESETS】:清除所有预置点
  - 【CLEAR ALL PATTERNS】:清除所有花样扫描
  - 【CLEAR ALL TOURS】:清除所有巡航线路
  - 【CLEAR ALL WINDOWS】:清除所有隐私保护窗口
  - 【FACTORY DEFAULTS】:恢复厂家缺省设置。执行此功能，会将摄像机参数和系统参数恢复为出厂前状态，清除所有隐私窗口和报警设置。请谨慎使用此功能。
  - 【RESTART】:云台重新启动
- 4、以清除区域指示为例讲解操作过程。上下摆动摇杆将光标移动到【CLEAR ALL ZONES】，按【OPEN】所有设置的区域指示被清除。



清除控制菜单中所有的命令一旦执行，就不能恢复，请小心使用。



## 4.7 密码设置

- 1、调用95号预置点或3秒内连续两次调9号预置点，后进入主菜单；
- 2、上下摆动摇杆将光标移动到【SYSTEM SETTING】，按【OPEN】键调出下一级菜单；
- 3、上下摆动摇杆将光标移动到【PASSWORD SETUP】，按【OPEN】键调出下一级菜单，如左图。
4. 上下摆动摇杆将光标移动到【OLD PASSWORD】按【OPEN】键选定【OLD PASSWORD】项，左右摆动摇杆分别输入6位数密码，上下摆动摇杆选择所需要的数字。

【NEW PASSWORD】输入新密码；

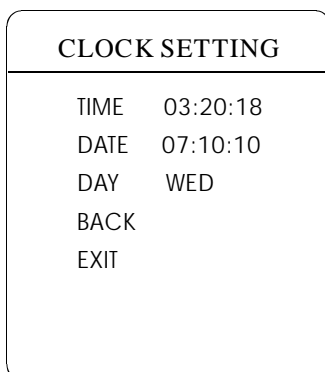
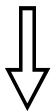
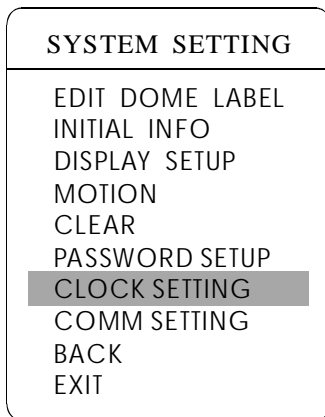
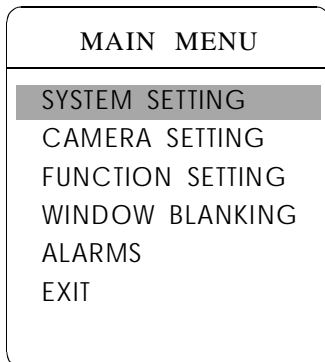
【CONF PASSWORD】确认新密码。

【ENABLE PASSWORD】功能模块控制开关。

（当该设置处于OFF状态时密码设置功能无效），即进入云台主菜单无需密码；（当该设置处于状态ON时密码设置功能有效），即进入主菜单先要输入密码才能操作菜单。



当用户忘记密码不能进入主菜单时，可用超级密码进入菜单，云台密码将会变为初始密码，用户需重新设置密码，云台的初始密码为：“000000”，超级密码为“892226”。



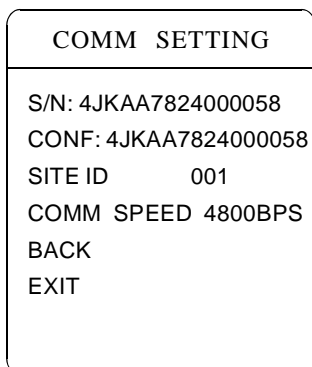
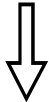
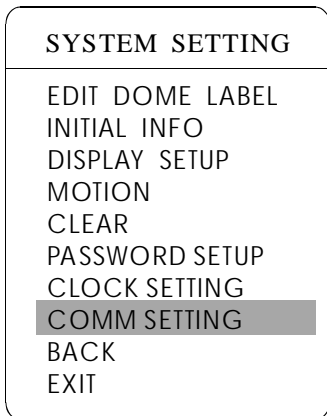
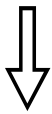
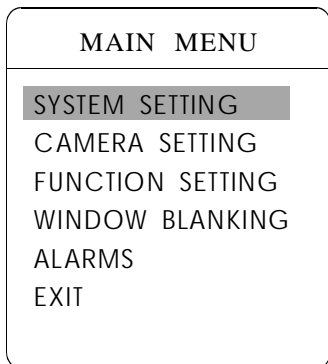
## 4.8 时钟设置

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、上下摆动摇杆将光标移动到【SYSTEM SETTING】，按【OPEN】键调出下一级菜单；
- 3、上下摆动摇杆将光标移动到【CLOCK SETTING】，按【OPEN】键调出下一级菜单，如左图。
- 4.上下摆动摇杆光标移动到【TIME】按【OPEN】键选中，上下摆动摇杆选择所需的数字，左右摆动摇杆分别设置时、分、秒。

【TIME】当前时间时、分、秒设置；

【DATE】年、月、日设置；

【DAY】星期设置；



## 4.9 球机地址号设置

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、上下摆动摇杆将光标移动到系统设置【SYSTEM SETTING】，按【OPEN】键调出下一级菜单；

- 3、上下摆动摇杆将光标移动到【COMM SETTING】，按【OPEN】键调出球机参数设置菜单。

**S/N:** 表示球机出厂系列号

**CONF:** 用于确认球机系列号，应与S/N系列号一致

**SITE ID:** 设置球机地址号，地址范围（001-255）

**COMM SPEED:** 波特率设置，有以下四种波特率可供用户选择（2400BPS、4800BPS、9600BPS、19200BPS）。



注意：设置【COMM SETTING】时，SW1、SW2拨码全部为ON；

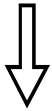
**PROTOCOL:** 协议设置，有以下16种协议可供用户选择（PELCO、FACTORY、DYNACOLOR、ISD、HUNDA、VIDO B02、LILIN、KALATEL、DIAMOND、SAMSUNG、PANASONIC、SANTACHI、VICON、MOLYNX、VCL、SAE）。



注意：两个系列号不一致，以上操作无法进行

## 5. 摄像机设置菜单

MAIN MENU
SYSTEM SETTING
<b>CAMERA SETTING</b>
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



CAMERA SETTING	
<b>ZOOM SPEED</b>	<b>HIGH</b>
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

### 5.1 镜头推拉速度设置

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、上下摆动摇杆将光标移动到【CAMERA SETTING】，按【OPEN】键调出下一级菜单；
- 3、操作摇杆，移动光标到【ZOOM SPEED】项；按【OPEN】键，出现一“⚙”在【ZOOM SPEED】前，光标移到右边，上下摆动摇杆选择高速【HIGH】或低速【LOW】；
- 4、按【OPEN】键，保存设置，如果不保存设置按【CLOSE】键。

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
<b>DIGITAL ZOOM</b>	<b>ON</b>
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5.2 数字变焦控制功能

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、上下摆动摇杆将光标移动到【CAMERA SETTING】，按【OPEN】键调出摄像机设置菜单；
- 3、操作摇杆，移动光标到【DIGITAL ZOOM】项，按【OPEN】键，进入数字变焦功能设置，上下摆动摇杆，选择ON,表示打开数字变焦控制，即当光学变焦拉到最大倍数时，继续按拉近镜头命令，云台进入数字变焦状态；如选择OFF，则关闭数字变焦控制。
- 4、按【OPEN】键，保存设置。



### 操作小窍门

当打开数字变焦设置时，云台的最大变焦倍数为光学变焦倍数与数字变焦倍数的乘积；当关闭数字变焦时，云台的最大变焦倍数为光学变焦倍数。



当选择项显示是N/A时，表示目前摄像机无该项功能；



MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
<b>BLC MODE</b>	<b>OFF</b>
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5.3 背光补偿

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、操作摇杆，移动光标到【CAMERA SETTING】项，调出下一级主菜单；
- 3、操作摇杆，移动光标到【BLC MODE】项，按【OPEN】键，【BLC MODE】前出现一“⚙️”，光标跳到右边，摆动摇杆，选择打开或关闭背光补偿功能。如选择**ON**，打开背光补偿模式；选择**OFF**，则关闭背光补偿模式；

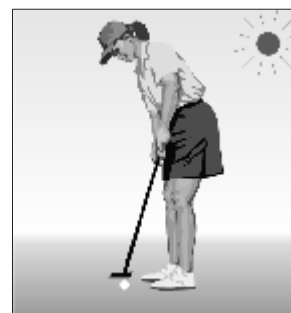


注：当选择项显示是N/A时，表示目前摄像机无该项功能；

- 4、按【OPEN】键，保存设置。



未使用背光补偿，在强烈的阳光下，逆光面偏暗。



使用背光补偿，图像正常



### 操作小窍门

强烈的背景光线使逆光物体产生阴影，背光补偿功能使智能云台可自动调节光圈来配合不同的光线变化，自动校正图像主体亮度，使图像呈现清晰。



此功能与云台内置摄像机型号及参数有关，当打开背光补偿，根据摄像机差异，背光补偿会有自动调节（当选择**ON**）及手动调节（0-255）两种不同功能。

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
<b>SLOW SHUTTER</b>	<b>ON</b>
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5.4 慢快门控制

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、操作摇杆，移动光标到【CAMERA SETTING】项，调出下一级菜单；
- 3、操作摇杆，移动光标到【SLOW SHUTTER】，按【OPEN】键，出现一“⚙”在【SLOW SHUTTER】前，光标移到右边，上下摆动摇杆进入慢快门控制功能选择，如选择ON，打开慢快门功能；选择OFF，则关闭慢快门功能。
- 4、按【OPEN】键，保存设置。



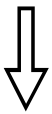
### 操作小窍门

当云台在夜晚或在黑暗的环境中监视时，由于光线不够，显示屏上的图像也很黑，设置慢快门，加长采光的时间，使在黑暗中拍摄的图像更清晰。



此功能与云台内置摄像机型号及参数有关，摄像机若无此功能时，该选项无效（N/A）。

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
<b>LINE SYNC</b>	N/A
WDR MODE	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
<b>WDR MODE</b>	N/A
ADVANCE SETTING1	
ADVANCE SETTING2	
BACK	
EXIT	

## 5.5 视频同步控制

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、操作摇杆，移动光标到【CAMERA SETTING】项，按【OPEN】键，调出下一级主菜单；
- 3、操作摇杆，移动光标到【LINE SYNC】项；按【OPEN】键，上下摆动摇杆设置视频同步。视频同步分为外同步和内同步，选择OFF为内同步，ON为外同步；按【OPEN】键，保存设置。



### 操作小窍门

当多个云台共用一个后端视频设备时，切换时如果画面滚动，请将每个云台设置为外同步。



此功能与云台内置摄像机型号及参数有关，摄像机若无此功能时，该选项无效（N/A）

## 5.6 宽动态控制

- 1、操作摇杆，移动光标到【WDR MODE】项；按【OPEN】键，上下摆动摇杆设置宽动态。选择ON表示打开宽动态功能，如选择OFF则表示关闭宽动态功能。按【OPEN】键保存设置。

宽动态技术是在非常强烈的对比下让摄像机看到影像的特色而运用的一种技术。例如当在强光源（日光、灯具等）照射下的高强度区域及阴影、逆光等亮度较低区域在图像中同时存在时，即可打开宽动态功能，提高画面品质。



此功能与云台内置摄像机型号及参数有关，摄像机若无此功能时，该选项无效（N/A）

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
<b>ADVANCE SETTING 1</b>	
ADVANCE SETTING 2	
BACK	
EXIT	



ADVANCE SETTING 1	
IR CUT FILTER	AUTO
IR CUT ON TIME	N/A
IR CUT OFF TIME	N/A
THRESHOLD	10dB
MAX GAIN	28dB
EXPOSURECOMP	OFF
MIRROR	OFF
FLIP	OFF
SHARPNESS	00
BACK	
EXIT	

## 5.7 彩色/黑白转换

- 1、调用95号预置点或3秒内连续两次调9号预置点,进入主菜单;
- 2、操作摇杆,移动光标到【ADVANCE SETTING1】项,调出下一级主菜单;
- 3、操作摇杆,移动光标到【IR CUT FILTER】项;按【OPEN】键,出现一“⚙”在【IR CUT FILTER】前,光标跳到右边,移动摇杆进入彩色/黑白转换功能设置,选项如下,其中【AUTO】为缺省选项。
  - 【AUTO】自动彩色/黑白转换模式,即智能云台根据照度自动转换;
  - 【COLOR】设置为彩色图像模式;
  - 【BLACK】设置为黑白图像模式;
  - 【TIME】设置黑白模式的启始时间.

当用户选择【TIME】模式时,【IR CUT ON TIME】与【IR CUT OFF TIME】为有效项,可设置黑白模式的启始时间,操作如下:

- 1.操作摇杆,移动光标到【IR CUT FILTER】项,上下摆动摇杆选择【TIME】模式,按【OPEN】键保存;
- 2.操作摇杆,移动光标到【IR CUT ON TIME】项,上下摆动摇杆设置黑白模式的开始时间;【IR CUT OFF TIME】项可设置黑白模式的结束时间,操作方法与设置开始时间一样。
- 3.操作摇杆,移动光标到【MAX GAIN】,【MAX GAIN】为自动增益最大限制,选择范围为8-28dB.当光线暗时,【MAX GAIN】的数值越小越暗,图像的雪花点少;【MAX GAIN】的数值越大越亮,但图像的雪花点多。
  - 【THRESHOLD】:黑白转换彩色灵敏度,选择范围:0-28dB。
  - 【EXPOSURECOMP】: 曝光补偿功能。
  - 【MIRROR】 图像镜像功能。
  - 【FILP】 图像180° 倒像功能。
  - 【SHARPNESS】: 图像锐度(范围00-15)
- 4.按【OPEN】键,保存设置。



### 操作小窍门

彩色/黑白自动转换功能,白天用彩色,晚间用黑白,既保证画面品质又能节省存储空间。



以上功能与云台内置摄像机型号及参数有关,摄像机若无此功能时,该选项无效(N/A)。

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
<b>ADVANCE SETTING2</b>	
BACK	
EXIT	



ADVANCE SETTING2	
<b>AE MODE</b>	<b>AUTO</b>
SHUTTER	N/A
IRIS	N/A
BRIGHT	N/A
WB MODE	AUTO
R GAIN	N/A
B GAIN	N/A
HI-RESOLUTION	ON
BACK	
EXIT	

## 5.8 高级设置

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、操作摇杆，移动光标到【CAMERA SETTING】项，调出下一级主菜单；
- 3、操作摇杆，移动光标到【ADVANCE SETTING2】；按【OPEN】键，调出下一级菜单，如左图；

### 5.8.1 AE 模式

- 1、操作摇杆，移动光标到【AE MODE】，按【OPEN】键，上下摆动摇杆选择模AE式，可供选择的模式有：

- 【AUTO】：缺省设置，自动曝光模式
- 【BRIGHT】：亮度优先模式
- 【IRIS】：光圈优先模式
- 【SHUTTER】：快门优先模式

- 2、选择光圈优先模式【IRIS】，按【OPEN】键，保存设置。

- 3、移动摇杆到 AE 模式的子选项【IRIS F1.4】，按【OPEN】键，选择合适的光圈大小，按【OPEN】键，保存设置。

- 【SHUTTER 1/50】表示快门速度，只有当AE模式为快门优先时，该项才可设置；
- 【IRIS F1.4】表示光圈大小，只有当AE模式为光圈优先时，该项才可设置；
- 【BRIGHT F2.0/ODB】表示亮度，只有当AE模式为亮度优先时，该项才可设置。

### 操作小窍门

图像的好坏与曝光量有关，也就是说应该通多少的光线使CCD能够得到清晰的图像。曝光量与通光时间（快门速度决定），通光面积（光圈大小决定）有关。

摄像机根据景物亮度、CCD感光度等自动计算出合适的曝光量，在曝光量一定的情况下：【SHUTTER】（快门优先）是指固定快门速度，摄像机自动决定用多大的光圈；【IRIS】（光圈优先）是指固定光圈大小，自动决定快门速度。【BRIGHT】（亮度优先）是指的是由摄像机TTL闪光直接测光，并控制图像的亮度。

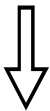


高级设置菜单所有功能与内置摄像机型号及参数有关，根据摄像机型号不同，高级设置菜单选项可能略有差异。

MAIN MENU	
SYSTEM SETTING	
<b>CAMERA SETTING</b>	
FUNCTION SETTING	
WINDOW BLANKING	
ALARMS	
EXIT	



CAMERA SETTING	
ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
LINE SYNC	N/A
WDR MODE	N/A
ADVANCE SETTING1	
<b>ADVANCE SETTING2</b>	
BACK	
EXIT	



ADVANCE SETTING2	
AE MODE	AUTO
SHUTTER	N/A
IRIS	N/A
BRIGHT	N/A
<b>WB MODE</b>	<b>AUTO</b>
R GAIN	N/A
B GAIN	N/A
HI-RESOLUTION	ON
BACK	
EXIT	

## 5.8.2 白平衡模式

系统提供自动【AUTO】、室内模式【INDOOR】、户外模式【OUTDOOR】、自动跟踪模式【ATW】、单次模式【OPW】、【OPT】模式、手动模式【MANUAL】等多种白平衡模式。

具体设置步骤如下：

1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；按左图顺序点击各项命令，调出高级设置菜单。

2、操作摇杆，移动光标到【WB MODE】项，选择白平衡模式，按【OPEN】键保存设置。

自动模式【AUTO】为智能云台默认的模式，是由摄像机的白平衡感测器进行环境侦测后自动还原真实色彩。

当选择了手动模式【MANUAL】，可调整【R GAIN】和【B GAIN】的数值。

- 【R GAIN】选择范围在1-255，数值越大，表示增加红色越多，色调转暖。

- 【B GAIN】选择范围在1-255，数值越大，表示增加蓝色越多，色调转冷。

室内模式【INDOOR】，色调偏冷。

户外模式【OUTDOOR】，色调偏暖。

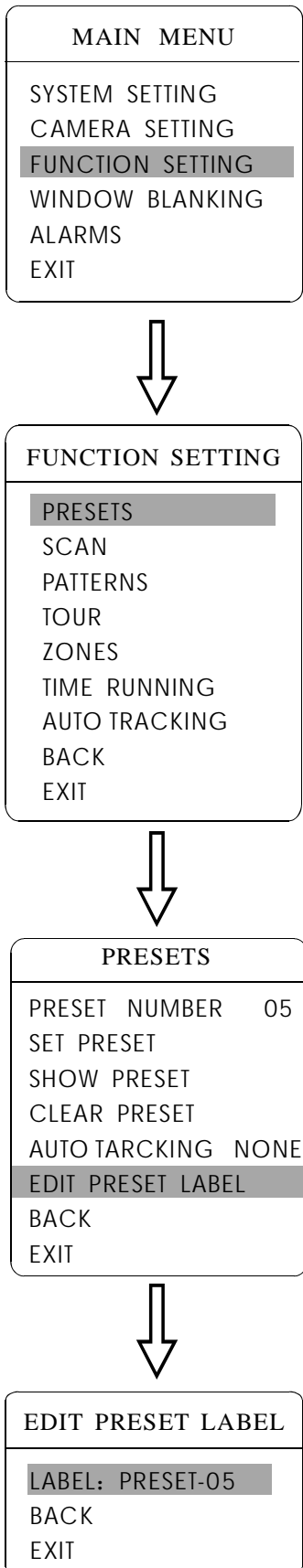
【HI-RESOLUTION】像机内置的高分辨率功能，与像机类型有关。



对于不同的摄像机类型，有可能不具备【INDOOR】【OUTDOOR】【HI-RESOLUTION】【ALC】【PLC】等设置项。

当设置项显示是N/A时，表示目前摄像机无该项功能；

## 6. 功能设置菜单



### 6.1 预置点设置

1、调用95号预置点或3秒内连续两次调9号预置点进入主菜单，按左图顺序点击各项菜单调出预置点主菜单，各项功能如下：

- 【PRESET NUMBER】：选择预置点编号作为当前预置点
- 【SET PRESET】：定义当前预置点
- 【SHOW PRESET】：调用当前预置点
- 【CLEAR PRESET】：清除当前预置点
- 【EDIT PRESET LABEL】：编辑当前预置点标签

定义预置点和调用预置点功能也可通过键盘操作实现，先输入预置点编号，然后单击按键“存预置点/调预置点”实现。

2、选择当前预置点编号：将光标移动到【PRESET NUMBER】项，按【OPEN】键选择预置点编号，选择范围01-128，这里选中05编号作为当前预置点，以下的操作只针对当前预置点。

3、定义当前预置点：将光标移到【SET PRESET】项，按【OPEN】键，通过操作摇杆，调整放大倍数，选择好目标画面，按【OPEN】键保存。如果图像很近，属于数字变焦内的图像，设置预置点时，图像会自动跳到最大光学变焦。



#### 操作小窍门

预置点功能是将当前状态下云台的水平角度、倾斜角度和摄像机镜头焦距等参数储存在云台存储器中，需要时迅速调用这些参数并将云台和摄像头调整至该位置。

4、显示当前预置点：将光标移动到【SHOW PRESET】项，按【OPEN】键，屏幕显示当前预置点；

5、清除当前预置点：将光标移动到【CLEAR PRESET】项，按【OPEN】键，当前预置点被清除；

6、【AUTO TARCKING】：调用预置点打开/关闭自动跟踪功能；当此项状态设置为ON时，调用当前预置点可打开自动跟踪功能；当设置为OFF时，调用当前预置点可关闭自动跟踪功能；设置为NONE时，调用当前预置点不会对自动跟踪功能产生影响。

7、编辑当前预置点标签：将光标移动到【EDIT PRESET LABEL】项，按【OPEN】键进入编辑预置点标题子菜单，系统自动设置标签为PRESET-XX，按【OPEN】键修改标签。

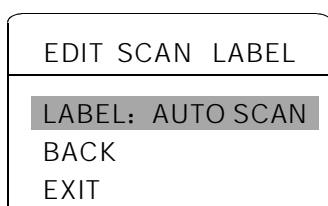
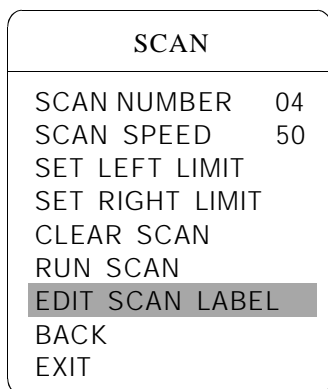
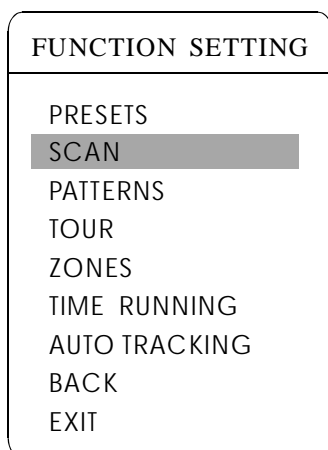
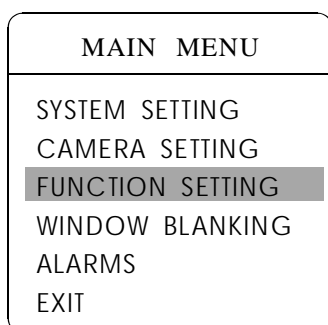


1. 要执行定义、显示、清除预置点及编辑标签时，先选择预置点编号。

2. 标签最多可设置16位字符，不需要编辑的字符，连续按【OPEN】键跳过，要删除的字符用空格取代，每编辑完一个字符按【OPEN】键进入下一位字符的编辑，编辑到最后一个字符时，按【OPEN】键保存。按【CLOSE】键中止编辑。

可供选择的标签字符有：0-9、A-Z、:<>-.，空格。  
其它标签输入方式同上。





## 6.2 水平扫描

1、水平扫描是预先设置好云台的左右限位，摄像机以左限位为基准在左右限位之间以稳定的速度、相同放大倍数、水平来回扫描。一个云台可设置4条水平扫描路线。

2、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；按左图顺序选择各项菜单调出水平扫描的菜单设置。

- 【SCAN NUMBER】：扫描路线设置
- 【SCAN SPEED】：扫描速度
- 【SET LEFT LIMIT】：设置左限位
- 【SET RIGHT LIMIT】：设置右限位
- 【RUN SCAN】：运行扫描
- 【CLEAR SCAN】：清除扫描
- 【EDIT SCAN LABEL】：编辑扫描标签

3、扫描路线的设定：操作摇杆移动到【SCAN NUMBER】项，按【OPEN】键，上下摆动摇杆选择扫描路线，按【OPEN】键保存，以下操作都只针对当前扫描路线；

4、扫描速度设置：操作摇杆移动到【SCAN SPEED】项，按【OPEN】键，上下摆动摇杆调节扫描速度有0~63级可调，按【OPEN】键保存扫描速度设置；

5、左限位设置：操作摇杆移动到【SET LEFT LIMIT】项，按【OPEN】键，操作摇杆选择目标图像，按【OPEN】键保存；【SET RIGHT LIMIT】右限位设置方法与左限位设置方法一致。

6、编辑水平扫描标签：操作摇杆，移动光标到【EDIT SCAN LABEL】项，按【OPEN】键调出编辑标签子菜单，将光标移到【LABEL】，系统自动设置标签为AUTOSCAN，按【OPEN】修改。



标签最多可设置16位字符，不需要编辑的字符，连续按【OPEN】键跳过，要删除的字符用空格取代，每编辑完一个字符按【OPEN】键进入下一位字符的编辑，按【CLOSE】键中止编辑。编辑到最后一个字符时，按【OPEN】键保存。

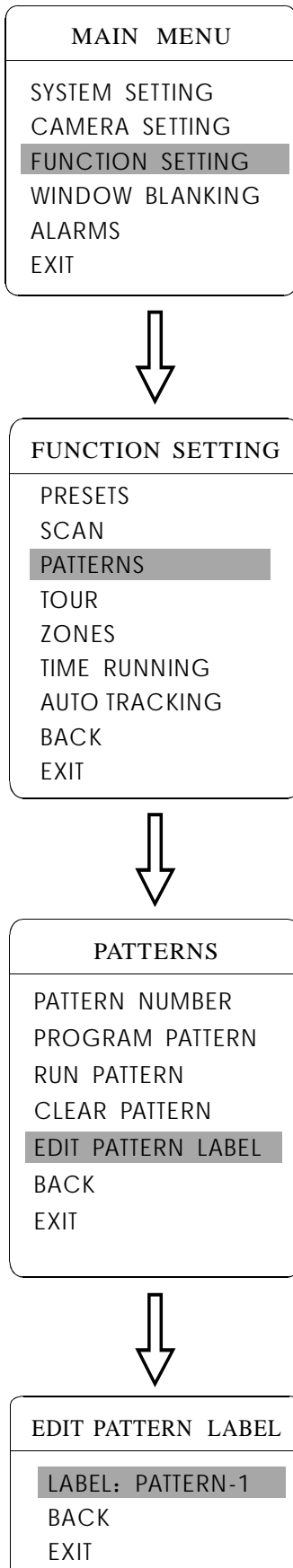
可以供选择的标签字符有：0-9、A-Z、:<>-.，空格。  
其它标签编辑方法同上。

7、启动扫描：操作摇杆移动到【RUN SCAN】项，按【OPEN】键退出菜单，开始运行水平扫描。



1. 扫描的左、右限位设置在同一点时，即运行360全方位运行。
2. 扫描过程中，速度、放大倍数、垂直方向不会变，如果两个限位的速度放大倍数、垂直方向不一致，运行扫描时以左限位为准。





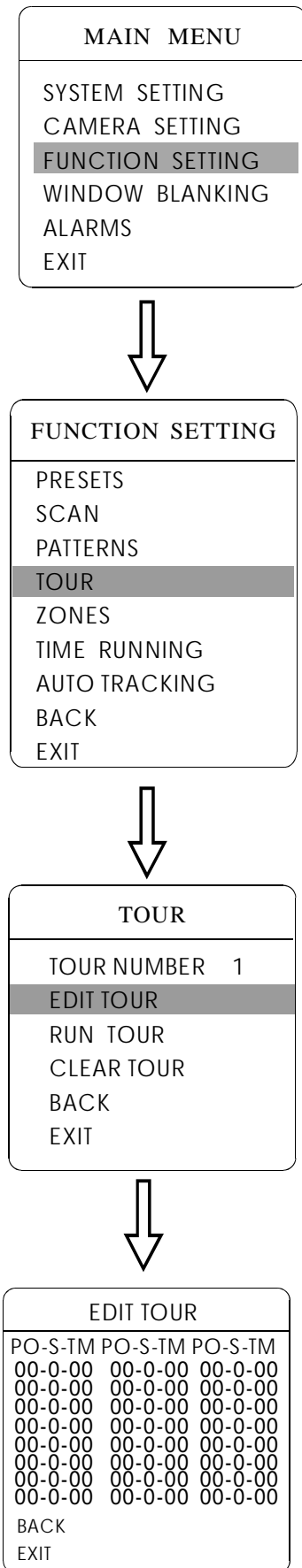
## 6.3 花样扫描

花样扫描 (PATTERN) 功能是本智能云台内置的功能，云台能够连续记录至少180秒的特定运行路线（一系列云台控制、镜头控制命令等）。一个云台最多可设置4条花样扫描。

- 1、调用95号预置点或3秒内连续两次调用9号预置点，进入主菜单；
- 2、操作摇杆，将光标移到【FUNCTION SETTING】，按【OPEN】键调出下一级菜单；
- 3、操作摇杆移动到【PATTERNS】，按【OPEN】键调出花样扫描菜单；
  - 【PATTERN NUMBER】选择当前花样编号，作为当前花样扫描
  - 【PROGRAM PATTERN】定义当前花样扫描运行轨迹
  - 【RUN PATTERN】运行当前花样扫描
  - 【CLEAR PATTERN】清除当前花样扫描
  - 【EDIT PATTERN LABEL】编辑当前花样扫描标签
- 4、选择花样扫描编号：光标移动到【PATTERN NUMBER】项，按【OPEN】键，所选择的花样扫描作为当前花样扫描，以下操作都只针对当前花样扫描；
- 5、定义当前花样扫描运行轨迹：光标移动到【PROGRAM PATTERN】，按【OPEN】键设置扫描轨迹，可任意移动画面，拉伸焦距。云台将运行至少180秒的路线，停留时间、放大倍数、聚焦等一系列都会记录下来，按【OPEN】键保存。
- 6、运行当前花样扫描：操作摇杆到【RUN PATTERN】项，按【OPEN】键运行，云台会不断重复记录的特定运行路径。



要执行定义、运行、清除花样扫描及编辑标签时，先选择花样扫描编号。



## 6.4 自动巡航

自动巡航是本智能云台内置的功能，通过预先编程，将预置点编排到自动巡航队列中，并设定在预置点停留的时间，运行自动巡航就是不停地调用各个预置点的过程。4条巡航路径，最多可存储24个预置点。

1. 调用95号预置点或3秒内连续两次调用9号预置点，进入主菜单；

2. 操作摇杆，将光标移到【FUNCTION SETTING】，按【OPEN】键调出下一级菜单；

3. 操作摇杆移动到【TOUR】，按【OPEN】键进入巡航的菜单设置；  
 【TOUR NUMBER】 选择当前巡航编号，作为当前巡航路线；  
 【EDIT TOUR】 巡航路线设置；  
 【RUN TOUR】 运行当前巡航路线；  
 【CLEAR TOUR】 清除当前设定好的巡航路线设置。

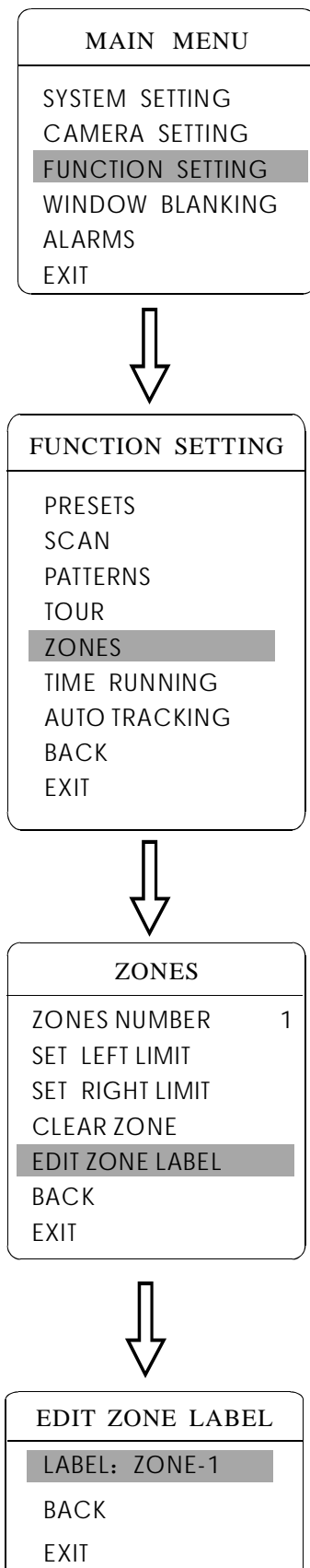
4. 选择巡航编号：光标移动到【TOUR NUMBER】项，按【OPEN】键，所选择的巡航路线作为当前的巡航路线，以下操作都只针对当前巡航路线；

5. 巡航路线设置：将光标移动到【EDIT TOUR】项，按【OPEN】键进入巡航设置区，【PO-S-TM】可设置巡航路线的预置点、速度、时间；按【OPEN】键。第一个位置被激活，上下操作摇杆来选取预置点编号，预置值的选取范围为1-80号预置位，一条巡航路线最多可设置24个预置点；按【OPEN】键光标跳到下一个位置，上下操作摇杆来选取到达当前预置点的速度，速度共分为8级，1-8级依次递增；按【OPEN】键光标跳到下一个位置，上下操作摇杆来设定在当前预置点停留的时间，最长可停留60秒。如果要设置第二行，光标移到第二行，按【OPEN】键继续编辑。设置完成后按【OPEN】键保存设置，按【CLOSE】键不保存设置。

6. 启动巡航：操作摇杆到【RUN TOUR】，按【OPEN】键退出菜单，开始运行巡航。



当某一项停留时间设置为0时，系统会自动跳过该预置点；当预置点或运动速度设置为0时，云台将不再执行其后面预置点的巡航。



## 6.5 设置区域

一个云台最多可设置8个区域，区域场景不得有重叠的部分。用户给每个区域设置标签，显示设置【ZONE LABEL】为0N时，云台运行到某区域时就会显示该区域的区域标签。通过设置区域标签，可以很方便的知道智能云台所拍摄的区域。

1、调用95号预置点或3秒内连续两次调9号预置点,进入主菜单;

2、操作摇杆，移动光标到【FUNCTION SETTING】，按【OPEN】键调出下一级菜单;

3、操作摇杆，移动光标到【ZONES】，按【OPEN】键调出下一级菜单，如左图。

- 【ZONES NUMBER】选择区域编号，作为当前区域，该菜单的其它选项只针对当前区域。

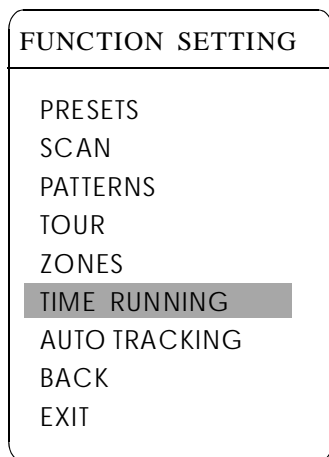
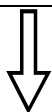
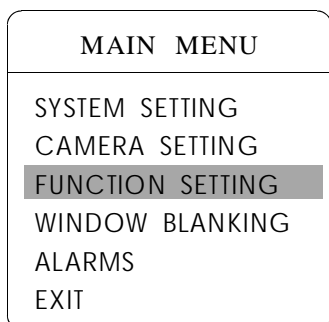
- 【SET LEFT LIMIT】设置当前区域左限位

- 【SET RIGHT LIMIT】设置当前区域右限位

- 【CLEAR ZONE】清除当前区域设置

- 【EDIT ZONE LABEL】编辑当前区域标签，区域编号为1时区域标签自动为ZONE-1。

以左/右限位为界，中间部分为一个区域。菜单各项操作方法同其它设置一样，这里不再赘述。



## 6.6 定时运行功能

定时运行功能可设置自动运行预置点、扫描、巡航及花样扫描的时间。

- 1、调用95号预置点或3秒内连续两次调用9号预置点，进入主菜单；
- 2、操作摇杆，将光标移到【FUNCTION SETTING】，按【OPEN】键调出下一级菜单；
- 3、操作摇杆，移动光标到【TIME RUNNING】，按【OPEN】键进入菜单设置；如左图

- 【DAY】 星期设置；
- 【TIME CHANNEL】 定时运行功能可设定4个通道；
- 【STRAT TIME】 执行某一指定通道的开始时间；
- 【END TIME】 执行某一指定通道的结束时间；
- 【RUNNING】 选择指定通道所要运行的功能，每个通道都可

可分别设置为预置点、扫描、巡航、花样扫描。

- 4、在【RUNNING】设为关闭时，该通道的时间段不会与其它通道相冲突。

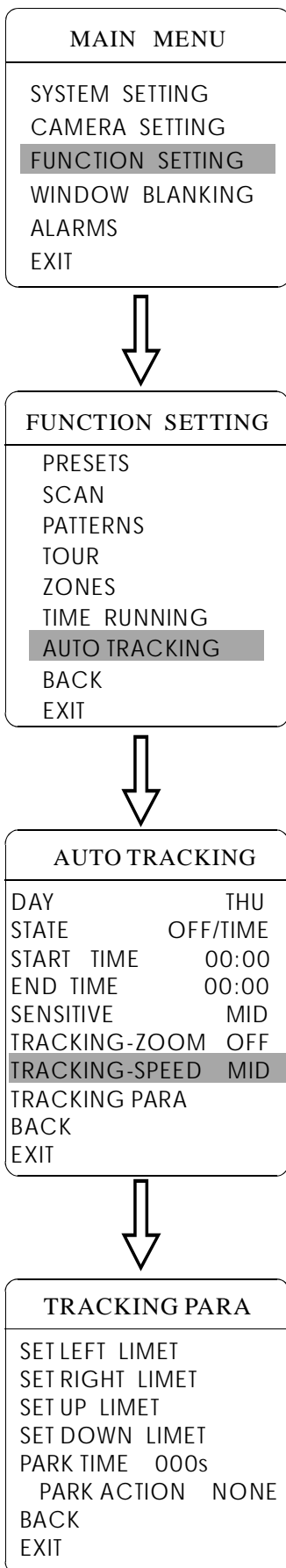
1、在用户执行或空闲运行左右扫描、巡航及花样扫描时，如定时时间到，则中断当前的运行，执行定时运行功能，待定时功能时间结束后，刚恢复定时功能之前状态及位置。（如果原来在预置点位置，回到指定的预置点位置，如果原来在运行水平扫描、巡航、花样扫描等连续运行功能，运行相应的连续运行功能，如原来在手动操作摇杆操作下的任一个位置，也会回到这一位置）。



2、在定时运行功能的时间段内，不允许空闲运行功能；用户操作云台时，将中断定时运行功能，如30秒内无操作，时间仍在定时功能的时间段内，则回到定时运行功能，否则如有空闲功能，则在指定的时间内运行空闲功能。

3、在用户设置预置点、录制花样扫描，设置左右限位、菜单状态等所有设置功能时，不运行定时功能。

4、当云台同时执行报警、定时、空闲功能时，报警的优先级最高，定时次之，空闲的优先级最低。



## 6.7 设置自动跟踪

自动跟踪功能打开时，球机将自动捕捉图像中移动物体的轨迹，实现球机全智能实时跟踪拍摄。

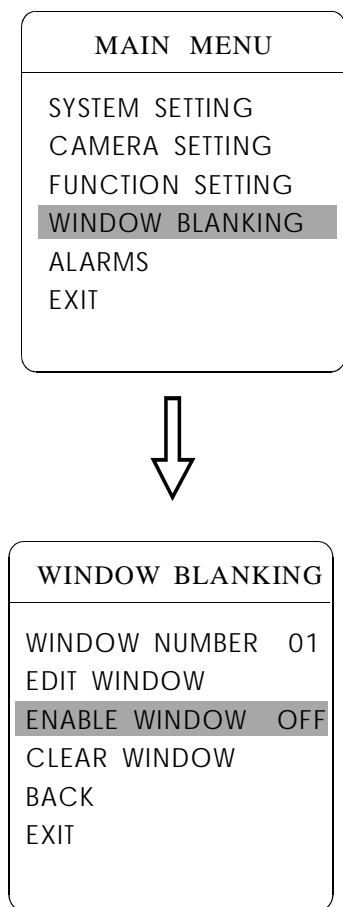
- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
  - 2、操作摇杆，移动光标到【FUNCTION SETTING】，按【OPEN】键调出下一级菜单；
  - 3、操作摇杆，移动光标到【AUTO TRACKING】，按【OPEN】键调出下一级菜单，如左图。
    - 【DAY】选择时间（星期一到星期日）；
    - 【STATE】设置所选时间的自动跟踪功能状态，可将自动跟踪功能设置为关闭或者设置自动跟踪开启的时间段；
    - 【START TIME】设置自动跟踪功能开始的时间；
    - 【END TIME】设置自动跟踪功能关闭的时间；
    - 【SENSITIVE】设置物体跟踪的灵敏度；
    - 【TRACKING-ZOOM】打开或关闭镜头拉倍；
    - 【TRACKING-SPEED】跟踪目标的速度选项；
    - 【PAPK TIME】自动跟踪定时激活时间；
    - 【PAPK ACTION】自动跟踪定时激活动作；
  - 4、● 设置移动侦测范围左限位:操作摇杆到【SET LEFT LIMIT】，按【OPEN】键，操作摇杆选择目标位置，然后按【OPEN】保存；
    - 设置移动侦测范围右限位:操作摇杆到【SET RIGHT LIMIT】，按【OPEN】键，操作摇杆选择目标位置，然后按OPEN保存。
 当左右限位设置为同一点时，球机将在水平360°范围内跟踪移动物体。
  - 5、● 设置移动侦测范围上限位:操作摇杆到【SET UP LIMET】，按【OPEN】键，操作摇杆选择目标位置，然后按【OPEN】保存；
    - 设置移动侦测范围下限位:操作摇杆到【SET DOWN LIMIT】，按【OPEN】键，操作摇杆选择目标位置，然后按OPEN保存。
 当上下限位设置为同一点时，球机将在垂直90°范围内跟踪移动物体。
  - 6、【PAPK TIME】该设置允许云台在“自动跟踪开启模式下”进入空闲状态一段时间（1-240秒）后执行下一个指定的动作（PRE01-PRE80）
    - （1）“自动跟踪开启模式下”
    - （2）TRACKING PARA→PARK TIME 设置为非“0”
    - （3）TRACKING PARA→PARK ACTION 设置为非“NONE”
 如果同时满足以上三个条件时：
    - 执行【TRACKING PARA→PARK TIME 000s  
PARK ACTION NONE】功能指定的动作
    - 【MOTION→PARK TIME 000  
PARK ACTION NONE】功能则被屏蔽掉不执行动作
 如果没有同时满足以上三个条件时：
    - 执行【MOTION→PARK TIME 000  
PARK ACTION NONE】功能指定的动作
    - 【TRACKING PARA→PARK TIME 000s  
PARK ACTION NONE】功能无效
- 调用250号预置点可关闭自动跟踪功能，调用251号预置点可打开自动跟踪功能，如断电后再通电，球机将不会恢复断电前的自动跟踪功能。



当画面中移动物体太多时，球机将随机跟踪移动物体，球机拍摄环境光线过亮或过暗都会影响自动跟踪效果。

此功能与球机或球机内置摄像机型号及参数有关，摄像机若无此功能时，该选项无效（N/A）或不显示。

## 7. 隐私保护窗口



隐私保护功能可以将某一块区域屏蔽显示。比如说将卧室的窗户或银行的自动取款机进行隐私保护。一个云台最多可设置24个隐私保护窗口。（隐私保护设置功能与内置摄像机型号有关，摄像机的不同可能隐私保护窗口数量也会略有差异）。

日立像机：在360°的监控范围内最多可设置8个隐私保护，每屏最多可设置2个，当此处不能设置时，屏幕上会提示Please move（请移动），当云台镜头水平向下 $\geq 45^\circ$ 时，不能设置隐私保护功能；  
 索尼像机：在360°的监控范围内最多可设置24个隐私保护(45系列只能设置8个隐私保护)，当云台镜头水平向下 $\geq 20^\circ$ 时，不能设置隐私保护功能；  
 LG、CNB摄像机无隐私保护功能。

- 1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；
- 2、操作摇杆移动到【WINDOW BLANKING】，按【OPEN】键进入隐私保护区域的菜单设置；

- 【WINDOW NUMBER】选择窗口编号，选中的窗口编号作为当前隐私保护窗口，该菜单的其它选项只针对当前隐私保护窗口；
- 【EDIT WINDOW】定义当前隐私窗口；
- 【ENABLE WINDOW】允许/禁止当前隐私窗口，有两个选项：**ON**——允许当前隐私区域 / **OFF**——禁止当前隐私区域；
- 【CLEAR WINDOW】清除当前隐私窗口设置，窗口清除后，窗口状态自动改为OFF。

- 3、定义当前隐私窗口：先选择窗口编号，做以下操作：
  - a.操作摇杆移动光标到【EDIT WINDOWS】项，按【OPEN】键移动画面将需要隐私保护的区域显示在屏幕上；
  - b.按【OPEN】键，屏幕中心将弹出一方形的屏蔽区域，操作摇杆，将方块移到需要隐藏的中心位置；
  - c.按【OPEN】键，操作摇杆调整屏蔽区域大小：摇杆向上，高度增加；摇杆向下，高度减小；摇杆向右，宽度增加；摇杆向左，宽度减小。
  - d.按【OPEN】键保存当前隐私区域设置，同时窗口状态自动改为ON。



隐私保护窗口



此功能与云台内置摄像机型号及参数有关，摄像机若无此功能时，该选项无效（N/A）



## 8. 报警功能

MAIN MENU
SYSTEM SETTING
CAMERA SETTING
FUNCTION SETTING
WINDOW BLANKING
ALARMS
EXIT



ALARMS
RESUME            OFF
SEQUENCE         002
RESET DELAY     020
ALARM CONTACT   N/C
ALARM SETTING
ARM SETTING
BACK
EXIT



ALARM SETTING
ALARM NUMBER    001
ALARM ACTION    TOUR
ACTIVATE AUX    NONE
ALARM PRIORITY   HIGH
BACK
EXIT

智能云台可连接7路报警输入，2路输出，实现报警联动，外部报警信号传给云台，云台转向报警点拍摄（调用预置点或启动自动巡航、花样扫描、水平扫描等），并选择是否执行报警输出。

1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单，按左图顺序点击各项菜单，调出报警主菜单，选项如下：

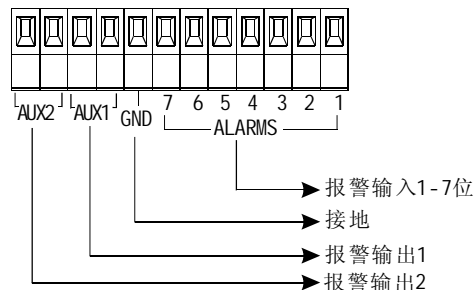
- **【RESUME】** 报警输入解除后恢复模式，有两种选择：ON-清除报警输出，云台回到报警前状态，OFF—不清除报警输出，继续运行报警响应功能；
- **【SEQUENCE】** 在两个同样优先级的报警点之间停留的时间，设定范围为1-60秒；
- **【RESET DELAY】** 设置报警复位延迟时间（1-255秒），即云台接到报警信号后过多久解除，执行**【RESUME】**的设置。

● **【ALARM CONTACT】** 设定继电器状态。N/C---常闭状态，N/O---常开状态。如果设置为常闭状态，无报警输出时继电器处于关闭状态，有报警输出时继电器处于打开状态。

- **【ALARM SETTING】** 报警设置
- **【ARM SETTING】** 报警布防设置

2、操作摇杆移动光标到**【ALARM SETTING】**，按**【OPEN】**键调出报警设置菜单。

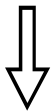
- **【ALARM NUMBER】** 报警编号，对应云台内部转接板上12位插座（如下图）。
- **【ALARM ACTION】** 当前报警输入时，执行的动作。有以下选项可供选择。NONE---无动作 / SCAN1-4--水平扫描 / PAT1-4--运行一路花样扫描 / TOUR1-4--运行巡航 / PRESET1-80--调用预置点。
- **【ACTIVATE AUX】** 当前报警输入时，是否执行报警输出  
NONE---无报警输出 / AUX1---第1路报警输出 / AUX2---第2路报警输出 / BOTH---两路报警输出。
- **【ALARM PRIORITY】** 报警优先级，分高、中、低三级。



MAIN MENU	
SYSTEM SETTING	
CAMERA SETTING	
FUNCTION SETTING	
WINDOW BLANKING	
<b>ALARMS</b>	
EXIT	



ALARMS	
RESUME	OFF
SEQUENCE	002
RESET DELAY	020
ALARM SETTING	
<b>ARM SETTING</b>	
BACK	
EXIT	



ARM SETTING	
DAY	SUN
<b>ARM STATE</b>	<b>OFF</b>
ARM TIME	N/A
UNARM TIME	N/A
BACK	
EXIT	

## 8.1 报警布防设置

1、调用95号预置点或3秒内连续两次调9号预置点，进入主菜单；

2、上下摆动摇杆将光标移动到【ALARMS】，按【OPEN】键调出下一级菜单；

3、上下摆动摇杆将光标移动到【ARM SETTING】，按【OPEN】键调出下一级菜单，如左图。

4.上下摆动摇杆将光标移动到【DAY】按【OPEN】键选中，上下摆动摇杆选择需要设置的日期，日期以周为单位，报警状态及报警布防时间都是在日期基础上进行设置。

【ATM STATE】报警布防/撤防（当该设置处于OFF状态时报警设置功能无效处于撤防状态，当该设置处于ON状态时，报警设置功能有效。

【ARM TIME】报警布防时间设置；

【UNARM TIME】报警撤防时间设置；

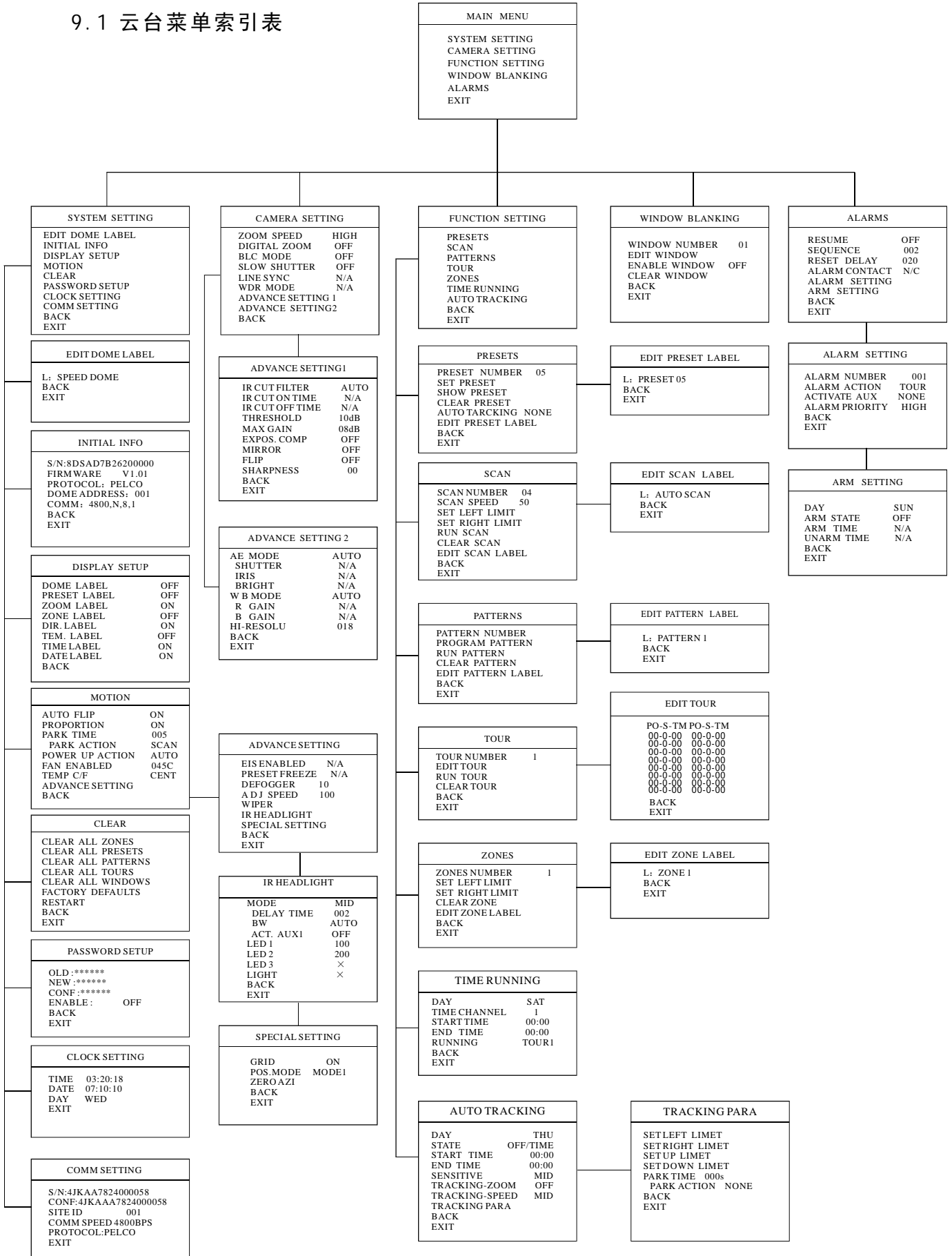
【BACK】返回上一级菜单；

【EXIT】退出菜单命令。



# 9. 附录

## 9.1 云台菜单索引表



## 9.2 24VAC线径和传输距离关系表

当线径大小一定，24VAC电压损耗率低于10%时，推荐的最大传输距离如下图表所示。（对于交流供电的设备而言，其最大的允许电压损耗率为10%。）

云台的额定功率为50W。需要的最小线径为：1.0MM

传输距离 Feet (m) 传输功率va	0.800	1.000	1.250	2.000
10	283 (86)	451 (137)	716 (218)	1811 (551)
20	141 (42)	225 (68)	358 (109)	905 (275)
30	94 (28)	150 (45)	238 (72)	603 (183)
40	70 (21)	112 (34)	197 (54)	452 (137)
50	56 (17)	90 (27)	143 (43)	362 (110)
60	47 (14)	75 (22)	119 (36)	301 (91)
70	40 (12)	64 (19)	102 (31)	258 (78)
80	35 (10)	56 (17)	89 (27)	226 (68)
90	31 (9)	50 (15)	79 (24)	201 (61)
100	28 (8)	45 (13)	71 (21)	181 (55)
110	25 (7)	41 (12)	65 (19)	164 (49)
120	23 (7)	37 (11)	59 (17)	150 (45)
130	21 (6)	34 (10)	55 (16)	139 (42)
140	20 (6)	32 (9)	51 (15)	129 (39)
150	18 (5)	30 (9)	47 (14)	120 (36)
160	17 (5)	28 (8)	44 (13)	113 (34)
170	16 (4)	26 (7)	42 (12)	106 (32)
180	15 (4)	25 (7)	39 (11)	100 (30)
190	14 (4)	23 (7)	37 (11)	95 (28)
200	14 (4)	22 (6)	35 (10)	90 (27)

### 9.3 国内外线规对照表

公司裸线线径 (mm)	近似美制线规 AWC	近似英制线规 SWC	裸线横截面积 (mm <sup>2</sup> )
0.050	43	47	0.00196
0.060	42	46	0.00283
0.070	41	45	0.00385
0.080	40	44	0.00503
0.090	39	43	0.00636
0.100	38	42	0.00785
0.110	37	41	0.00950
0.130	36	39	0.01327
0.140	35		0.01539
0.160	34	37	0.02011
0.180	33		0.02545
0.200	32	35	0.03142
0.230	31		0.04115
0.250	30	33	0.04909
0.290	29	31	0.06605
0.330	28	30	0.08553
0.350	27	29	0.09621
0.400	26	28	0.1257
0.450	25		0.1602
0.560	24	24	0.2463
0.600	23	23	0.2827
0.710	22	22	0.3958
0.750	21		0.4417
0.800	20	21	0.5027
0.900	19	20	0.6362
1.000	18	19	0.7854
1.250	16	18	1.2266
1.500	15		1.7663
2.000	12	12	3.1420
2.500			4.9080
3.000			7.0683

## 9.4 RS485总线常识

### Ø RS485总线基本特性

根据RS485工业总线标准，RS485工业总线为特性阻抗120Ω的半双工通讯总线，其最大负载能力为32个有效负载（包括主控设备与被控设备）。

### Ø Rs485总线传输距离

当使用0.56mm(24AWG)双绞线作为通讯电缆时，根据波特率的不同，最大传输距离理论值如下表：

波特率	最大距离
2400BPS	1800米
4800BPS	1200米
9600BPS	800米
19200BPS	600米

当使用较细的通讯电缆，或者在电磁干扰较强的环境使用本产品；或者总线上连接有较多的设备时，最大传输距离相应缩短，反之，最大距离加长。

### Ø 连接方式与终端电阻

Rs485工业总线标准要求各设备之间采用菊花链式连接方式，两头必须接有120Ω终端电阻（如图10.4-1）。简化连接可采用图10.4-2，但“D”段距离不得超过7米。

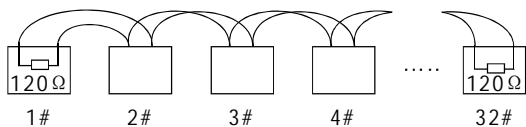


图9-4.1

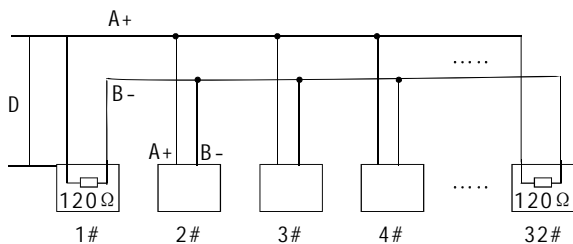


图9-4.2

### Ø 设备终端120Ω电阻的连接方式

设备终端120Ω电阻在转接板已备有，共有两种连接方式（见图9-6.3中的表格），一种为出厂时的缺省连接方式，此转接板的跳线帽插接在2、3位置上，这时120Ω的电阻未接入。

当需要接入120Ω电阻时，将2、3位置上的跳线帽拔下来，插在1、2位置上，这样120Ω电阻接入电路中。（如图9-4.3）

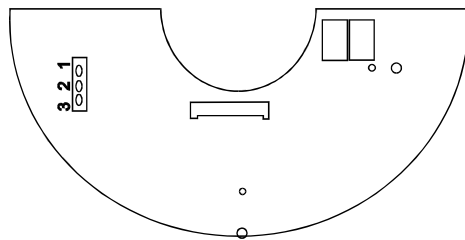


图9-4.3

Ø 实际使用中的问题

实际施工使用中用户常采用星形链接方式，此时终端电阻必须连接在线路距离最远的两个设备上（如图10-4.4中1#与15#设备），但是由于该连接方式不符合RS485工业标准的使用要求，因此在各设备线路距离较远时，容易产生信号反射、抗干扰能力下降等问题，导致控制信号的可靠性下降。反映现象为云台不受控制或控制时断时续或自行运转无法停止。

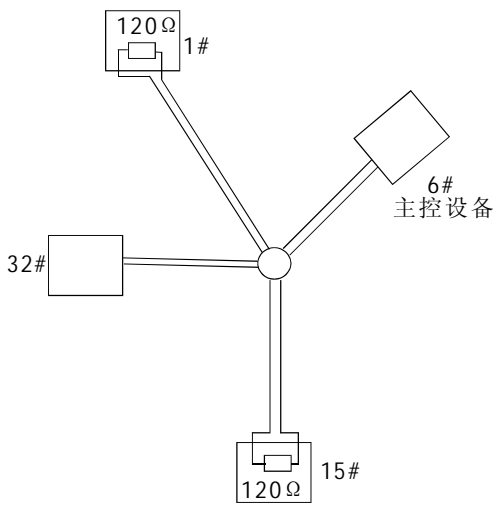


图9-4.4

对于这种情况建议采用RS485分配器。它可以有效地将星形链接转换为符合RS485工业标准所规定的连接方式，从而避免产生问题，提高通信可靠性。（如图10-4.5）

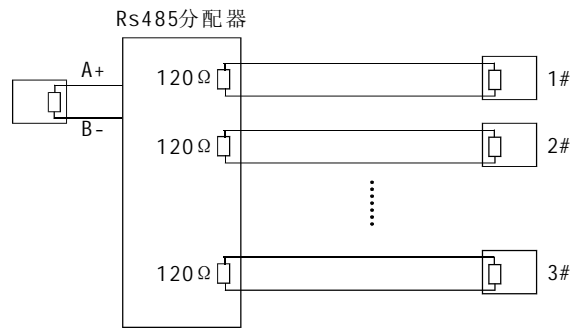


图9-4.5

Ø RS485总线常见故障解决

故障现象	可能原因	解决方法
云台能自检但不能控制	A、主机、云台地址波特率不相符； B、RS485总线+、-极接反； C、接线松脱； D、RS485线中间断路、短路。	A、更改主机或云台地址、波特率，使之一致； B、调整RS485+/-接线极性； C、紧固接线； D、更换RS485线。
云台能控制但不顺畅	A、RS485线接触不良； B、一根RS485线断； C、主机、云台距离太远； D、云台并接太多。	A、重新接好RS485线； B、更换RS485线； C、加装终端匹配电阻； D、加装RS485分配器。

## 9.5 拨码开关设置

球机侧面有两个八位拨码开关SW1和SW2，SW1用于设置云台地址，SW2用于设置云台控制协议、通讯波特率、终端120Ω电阻的接入。

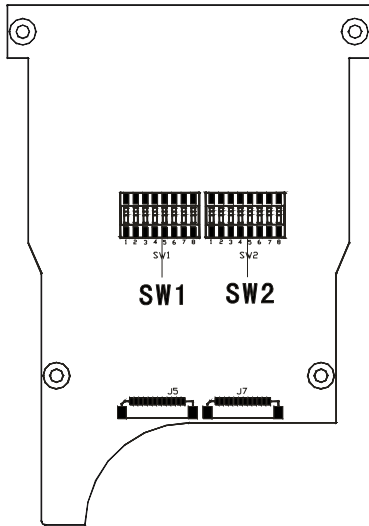


图9-5.1

在下列表中，标签“1”表示拨码开关位为ON状态；标记“0”表示DIP开关为OFF状态。

### 9.5.1 波特率设置 (SW2)：

请参照“附录 Rs485总线常识”，检查设置的波特率是否满足了传输距离的需要。

波特率	开关号(SW2)	
	(Bit) 7	8
2400bps	0	0
4800bps	1	0
9600bps	0	1
19200bps	1	1

### 9.5.2 协议设置 (SW2)

控制协议	开关号(SW2)					
	(Bit) 1	2	3	4	5	6
FACTORY (厂家协议)	0	0	0	0	0	0
PELCO	1	0	0	0	0	0
SAE	0	1	0	0	0	0
VAC	1	1	0	0	0	0
MOLYNX	0	0	1	0	0	0
VICON	1	0	1	0	0	0
SANTACHI	0	1	1	0	0	0
PANASONIC	1	1	1	0	0	0
SAMSUNG	0	0	0	1	0	0
DIAMOND	1	0	0	1	0	0
KALATEL	0	1	0	1	0	0
LILIN	1	1	0	1	0	0
VIDO B02	0	0	1	1	0	0
HUNDA	1	0	1	1	0	0
ISO	0	1	1	1	0	0
DYNACOLOR	1	1	1	1	0	0
ST-SD	1	0	0	0	1	0
PHILIPS	0	0	0	0	0	1
AD	1	0	0	0	0	1
保留	OTHERS					

### 9.5.3 云台地址号设置 (SW1)

解码器上面的地址开关和云台上的地址设置方式如下:表中“1”表示 DIP 开关为ON; “0”表示DIP开关为OFF。

云台控制地址	开关号 (Sw1)								云台控制地址	开关号 (Sw1)							
	(Bit)1	2	3	4	5	6	7	8		(Bit)1	2	3	4	5	6	7	8
0(厂家协议时为调试地址)	0	0	0	0	0	0	0	0	34	0	1	0	0	0	1	0	0
1	1	0	0	0	0	0	0	0	35	1	1	0	0	0	1	0	0
2	0	1	0	0	0	0	0	0	36	0	0	1	0	0	1	0	0
3	1	1	0	0	0	0	0	0	37	1	0	1	0	0	1	0	0
4	0	0	1	0	0	0	0	0	38	0	1	1	0	0	1	0	0
5	1	0	1	0	0	0	0	0	39	1	1	1	0	0	1	0	0
6	0	1	1	0	0	0	0	0	40	0	0	0	1	0	1	0	0
7	1	1	1	0	0	0	0	0	41	1	0	0	1	0	1	0	0
8	0	0	0	1	0	0	0	0	42	0	1	0	1	0	1	0	0
9	1	0	0	1	0	0	0	0	43	1	1	0	1	0	1	0	0
10	0	1	0	1	0	0	0	0	44	0	0	1	1	0	1	0	0
11	1	1	0	1	0	0	0	0	45	1	0	1	1	0	1	0	0
12	0	0	1	1	0	0	0	0	46	0	1	1	1	0	1	0	0
13	1	0	1	1	0	0	0	0	47	1	1	1	1	0	1	0	0
14	0	1	1	1	0	0	0	0	48	0	0	0	0	1	1	0	0
15	1	1	1	1	0	0	0	0	49	1	0	0	0	1	1	0	0
16	0	0	0	0	1	0	0	0	50	0	1	0	0	1	1	0	0
17	1	0	0	0	1	0	0	0	51	1	1	0	0	1	1	0	0
18	0	1	0	0	1	0	0	0	52	0	0	1	0	1	1	0	0
19	1	1	0	0	1	0	0	0	53	1	0	1	0	1	1	0	0
20	0	0	1	0	1	0	0	0	54	0	1	1	0	1	1	0	0
21	1	0	1	0	1	0	0	0	55	1	1	1	0	1	1	0	0
22	0	1	1	0	1	0	0	0	56	0	0	0	1	1	1	0	0
23	1	1	1	0	1	0	0	0	57	1	0	0	1	1	1	0	0
24	0	0	0	1	1	0	0	0	58	0	1	0	1	1	1	0	0
25	1	0	0	1	1	0	0	0	59	1	1	0	1	1	1	0	0
26	0	1	0	1	1	0	0	0	60	0	0	1	1	1	1	0	0
27	1	1	0	1	1	0	0	0	61	1	0	1	1	1	1	0	0
28	0	0	1	1	1	0	0	0	62	0	1	1	1	1	1	0	0
29	1	0	1	1	1	0	0	0	63	1	1	1	1	1	1	0	0
30	0	1	1	1	1	0	0	0	64	0	0	0	0	0	0	1	0
31	1	1	1	1	1	0	0	0	65	1	0	0	0	0	0	1	0
32	0	0	0	0	0	1	0	0	66	0	1	0	0	0	0	1	0
33	1	0	0	0	0	1	0	0	67	1	1	0	0	0	0	1	0

云台控制地址	开关号 (Sw1)							
	(Bit)1	2	3	4	5	6	7	8
68	0	0	1	0	0	0	1	0
69	1	0	1	0	0	0	1	0
70	0	1	1	0	0	0	1	0
71	1	1	1	0	0	0	1	0
72	0	0	0	1	0	0	1	0
73	1	0	0	1	0	0	1	0
74	0	1	0	1	0	0	1	0
75	1	1	0	1	0	0	1	0
76	0	0	1	1	0	0	1	0
77	1	0	1	1	0	0	1	0
78	0	1	1	1	0	0	1	0
79	1	1	1	1	0	0	1	0
80	0	0	0	0	1	0	1	0
81	1	0	0	0	1	0	1	0
82	0	1	0	0	1	0	1	0
83	1	1	0	0	1	0	1	0
84	0	0	1	0	1	0	1	0
85	1	0	1	0	1	0	1	0
86	0	1	1	0	1	0	1	0
87	1	1	1	0	1	0	1	0
88	0	0	0	1	1	0	1	0
89	1	0	0	1	1	0	1	0
90	0	1	0	1	1	0	1	0
91	1	1	0	1	1	0	1	0
92	0	0	1	1	1	0	1	0
93	1	0	1	1	1	0	1	0
94	0	1	1	1	1	0	1	0
95	1	1	1	1	1	0	1	0
96	0	0	0	0	0	1	1	0
97	1	0	0	0	0	1	1	0
98	0	1	0	0	0	1	1	0
99	1	1	0	0	0	1	1	0
100	0	0	1	0	0	1	1	0
101	1	0	1	0	0	1	1	0
102	0	1	1	0	0	1	1	0
103	1	1	1	0	0	1	1	0
104	0	0	0	1	0	1	1	0
105	1	0	0	1	0	1	1	0
106	0	1	0	1	0	1	1	0
107	1	1	0	1	0	1	1	0
108	0	0	1	1	0	1	1	0
109	1	0	1	1	0	1	1	0
110	0	1	1	1	0	1	1	0
111	1	1	1	1	0	1	1	0
112	0	0	0	0	1	1	1	0
113	1	0	0	0	1	1	1	0
114	0	1	0	0	1	1	1	0
115	1	1	0	0	1	1	1	0
116	0	0	1	0	1	1	1	0
117	1	0	1	0	1	1	1	0
118	0	1	1	0	1	1	1	0
119	1	1	1	0	1	1	1	0
120	0	0	0	1	1	1	1	0
121	1	0	0	1	1	1	1	0
122	0	1	0	1	1	1	1	0
123	1	1	0	1	1	1	1	0
124	0	0	1	1	1	1	1	0
125	1	0	1	1	1	1	1	0
126	0	1	1	1	1	1	1	0
127	1	1	1	1	1	1	1	0
128	0	0	0	0	0	0	0	1
129	1	0	0	0	0	0	0	1
130	0	1	0	0	0	0	0	1
131	1	1	0	0	0	0	0	1
132	0	0	1	0	0	0	0	1
133	1	0	1	0	0	0	0	1
134	0	1	1	0	0	0	0	1
135	1	1	1	0	0	0	0	1



云台控制地址	开关号 (Sw1)								云台控制地址	开关号 (Sw1)							
	(Bit)1	2	3	4	5	6	7	8		(Bit)1	2	3	4	5	6	7	8
136	0	0	0	1	0	0	0	1	170	0	1	0	1	0	1	0	1
137	1	0	0	1	0	0	0	1	171	1	1	0	1	0	1	0	1
138	0	1	0	1	0	0	0	1	172	0	0	1	1	0	1	0	1
139	1	1	0	1	0	0	0	1	173	1	0	1	1	0	1	0	1
140	0	0	1	1	0	0	0	1	174	0	1	1	1	0	1	0	1
141	1	0	1	1	0	0	0	1	175	1	1	1	1	0	1	0	1
142	0	1	1	1	0	0	0	1	176	0	0	0	0	1	1	0	1
143	1	1	1	1	0	0	0	1	177	1	0	0	0	1	1	0	1
144	0	0	0	0	1	0	0	1	178	0	1	0	0	1	1	0	1
145	1	0	0	0	1	0	0	1	179	1	1	0	0	1	1	0	1
146	0	1	0	0	1	0	0	1	180	0	0	1	0	1	1	0	1
147	1	1	0	0	1	0	0	1	181	1	0	1	0	1	1	0	1
148	0	0	1	0	1	0	0	1	182	0	1	1	0	1	1	0	1
149	1	0	1	0	1	0	0	1	183	1	1	1	0	1	1	0	1
150	0	1	1	0	1	0	0	1	184	0	0	0	1	1	1	0	1
151	1	1	1	0	1	0	0	1	185	1	0	0	1	1	1	0	1
152	0	0	0	1	1	0	0	1	186	0	1	0	1	1	1	0	1
153	1	0	0	1	1	0	0	1	187	1	1	0	1	1	1	0	1
154	0	1	0	1	1	0	0	1	188	0	0	1	1	1	1	0	1
155	1	1	0	1	1	0	0	1	189	1	0	1	1	1	1	0	1
156	0	0	1	1	1	0	0	1	190	0	1	1	1	1	1	0	1
157	1	0	1	1	1	0	0	1	191	1	1	1	1	1	1	0	1
158	0	1	1	1	1	0	0	1	192	0	0	0	0	0	0	1	1
159	1	1	1	1	1	0	0	1	193	1	0	0	0	0	0	1	1
160	0	0	0	0	0	1	0	1	194	0	1	0	0	0	0	1	1
161	1	0	0	0	0	1	0	1	195	1	1	0	0	0	0	1	1
162	0	1	0	0	0	1	0	1	196	0	0	1	0	0	0	1	1
163	1	1	0	0	0	1	0	1	197	1	0	1	0	0	0	1	1
164	0	0	1	0	0	1	0	1	198	0	1	1	0	0	0	1	1
165	1	0	1	0	0	1	0	1	199	1	1	1	0	0	0	1	1
166	0	1	1	0	0	1	0	1	200	0	0	0	1	0	0	1	1
167	1	1	1	0	0	1	0	1	201	1	0	0	1	0	0	1	1
168	0	0	0	1	0	1	0	1	202	0	1	0	1	0	0	1	1
169	1	0	0	1	0	1	0	1	203	1	1	0	1	0	0	1	1

云台控制地址	开关号 (Sw1)								云台控制地址	开关号 (Sw1)							
	(Bit)1	2	3	4	5	6	7	8		(Bit)1	2	3	4	5	6	7	8
204	0	0	1	1	0	0	1	1	238	0	1	1	1	0	1	1	1
205	1	0	1	1	0	0	1	1	239	1	1	1	1	0	1	1	1
206	0	1	1	1	0	0	1	1	240	0	0	0	0	1	1	1	1
207	1	1	1	1	0	0	1	1	241	1	0	0	0	1	1	1	1
208	0	0	0	0	1	0	1	1	242	0	1	0	0	1	1	1	1
209	1	0	0	0	1	0	1	1	243	1	1	0	0	1	1	1	1
210	0	1	0	0	1	0	1	1	244	0	0	1	0	1	1	1	1
211	1	1	0	0	1	0	1	1	245	1	0	1	0	1	1	1	1
212	0	0	1	0	1	0	1	1	246	0	1	1	0	1	1	1	1
213	1	0	1	0	1	0	1	1	247	1	1	1	0	1	1	1	1
214	0	1	1	0	1	0	1	1	248	0	0	0	1	1	1	1	1
215	1	1	1	0	1	0	1	1	249	1	0	0	1	1	1	1	1
216	0	0	0	1	1	0	1	1	250	0	1	0	1	1	1	1	1
217	1	0	0	1	1	0	1	1	251	1	1	0	1	1	1	1	1
218	0	1	0	1	1	0	1	1	252	0	0	1	1	1	1	1	1
219	1	1	0	1	1	0	1	1	253	1	0	1	1	1	1	1	1
220	0	0	1	1	1	0	1	1	254	0	1	1	1	1	1	1	1
221	1	0	1	1	1	0	1	1	255(厂家协议时为广播地址)	1	1	1	1	1	1	1	1
222	0	1	1	1	1	0	1	1									
223	1	1	1	1	1	0	1	1									
224	0	0	0	0	0	1	1	1									
225	1	0	0	0	0	1	1	1									
226	0	1	0	0	0	1	1	1									
227	1	1	0	0	0	1	1	1									
228	0	0	1	0	0	1	1	1									
229	1	0	1	0	0	1	1	1									
230	0	1	1	0	0	1	1	1									
231	1	1	1	0	0	1	1	1									
232	0	0	0	1	0	1	1	1									
233	1	0	0	1	0	1	1	1									
234	0	1	0	1	0	1	1	1									
235	1	1	0	1	0	1	1	1									
236	0	0	1	1	0	1	1	1									
237	1	0	1	1	0	1	1	1									



注意: 调试地址(仅厂家协议和PELCO协议可设置):  
如果摄像机的地址为0, 则无论用户选择任何地址都可控制该机。

## 10. 安装说明

### 10.1 注意事项

- 在安装使用本产品之前，请首先仔细阅读本说明书。
- 使用电源：AC220V/110V-AC24V, 实际情况请参照产品上的标贴。
- 产品内部为精密光学及电子器件，在运输保管及安装过程中要防止重压、剧烈震动等不正确的操作方法，否则可能对产品造成损坏。
- 请不要自行拆卸产品内部器件，以免影响使用，里面没有用户自行维修的零件。
- 使用中必须遵守各项电气安全标准，配用产品自带的专用电源。RS-485及视频信号在传输过程中应与高压设备或电缆保持足够的距离，必要时还要做好防雷击、防浪涌等防护措施。
- 不要在超出限定的温度、湿度或电源规格的状态下使用本产品。
- 不管电源是否接通，不要将摄像机瞄准太阳或极光亮的物体，不要将摄像机长时间瞄准或监视光亮的静止物体。
- 不要用强烈的或磨损性洗涤剂清洗本产品。清理污垢时，应以干布清理，污垢不易清除时，可用中性清洗剂轻拭干净。
- 应小心使用本产品，应避免受撞或震动。若使用不当，将受损害。
- 安装本产品时，请安装于具有足够承受力的位置。
- 镜头上如果粘有尘灰，请使用专用镜头纸擦拭。

### 10.2 布线安全

请参照右图11.2-1

- 信号传输线必须与高压设备或高压电缆之间至少保持50米的距离；
- 室外布线尽量选择沿屋檐下走线；
- 对于空旷地带必须采用密封钢管理地方式布线，并对钢管采用一点接地，绝对禁止采用架空方式布线；
- 在强雷暴地区或高感应电压地带（如高压变电站），必须采取额外加装大功率防雷设备以及安装避雷针等措施；
- 室外装置和线路的防雷和接地设计必须结合建筑物防雷要求统一考虑，并符合有关国家和行业标准的要求；
- 系统必须等电位接地。接地装置必须满足系统抗干扰和电气安全的双重要求，并不得与强电网零线短接或混接。系统单独接地时，接地阻抗不大于 $4\Omega$ ，接地导线截面必须不大于 $25\text{mm}^2$ 。

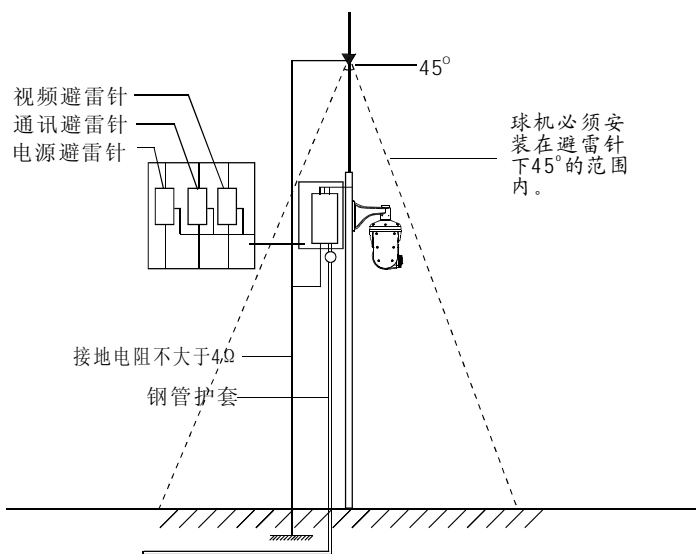


图11.2-1



## 10.3 防雷击和浪涌

本产品采用TVS防雷技术,可以有效防止4000V以下功率的瞬时雷击、浪涌等各类脉冲信号对设备造成的损坏。

但是,对于室外安装要根据实际情况在保证电气安全的前提下做好必要的防护措施。(参见10.2布线安全)

## 10.4 防水性能

本产品具有良好的防水、防潮、防尘性能,达到IP66国际标准。但长时间在水滴或水溅的环境中对其容易造成内部元件损坏。

## 10.5 安装前的准备

### 10.5.1 安装前的准备

#### Ø 安装人员的准备

- = 对安装或维修人员的素质要求有关本产品的所有安装维护工作均应由有资格的安装维护技术人员来完成。
- = 安装时请详细参照本手册。

#### Ø 基本要求

- = 所有的电气工作都必须遵守当地最新的电气法规、防火法规以及有关法规;
- = 根据装箱单查验所有物件是否齐全,确定该云台的应用场所和安装方式是否与所要求的相合。若不吻合,请联系供应商。
- = 请按工作环境要求使用本产品。

= 勿用力挤压各结构部件;云台透镜属于高级光学元件,勿用手触摸;安装过程中非通电检查不要接通电源。

#### Ø 核查安装空间及安装地点构造的强度

- = 确认安装地点有容纳本产品及其安装构件的足够空间。
- = 确认安装云台的墙壁、支架的承载能力必须能支撑云台及其安装结构件的总重量。要求具有4倍以上安全系数。

#### Ø 材料的准备工作

- 根据传输距离选择所需电缆:
- = 视频同轴电缆最低规格要求:
    - 1) 75Ω阻抗;
    - 2) 全铜芯导线;
    - 3) 95%编织铜屏蔽。

国内型号	国际型号	最大距离(英尺/米)
RG59/U	RG59/U	750ft (229m)
5C-2V	RG6/U	1,000ft (305m)
7C-2V	RG11/U	1,500ft (457m)

- = RS485通讯电缆(参见使用说明书附录),
- = 24VAC电源电缆(参见使用说明书附录),

#### Ø 请保存全部包装材料

在拆开包装后,请妥善保存好原包装材料。以便出现问题时,用原包装材料将云台包装好,寄到代理商或返回厂家修理。

非原包装材料可能导致运输途中的意外损坏,从而导致额外费用。

#### Ø 安装方式简介

红外灯安装方式分别为:壁挂支架安装、吊装支架安装;

#### = 支架安装

- 安装地点必须能承受云台、安装支架及安装底座重量之和的4倍;
- 选择安装地点的墙壁必须坚实无脱层现象,确保支架安装在墙壁上而非表面涂覆物上。

## 10.6 结构说明

球机由连接盘、主体盖、侧盖、主体壳、相机前盖、雨刷6部分组成，采用整体包装方式。

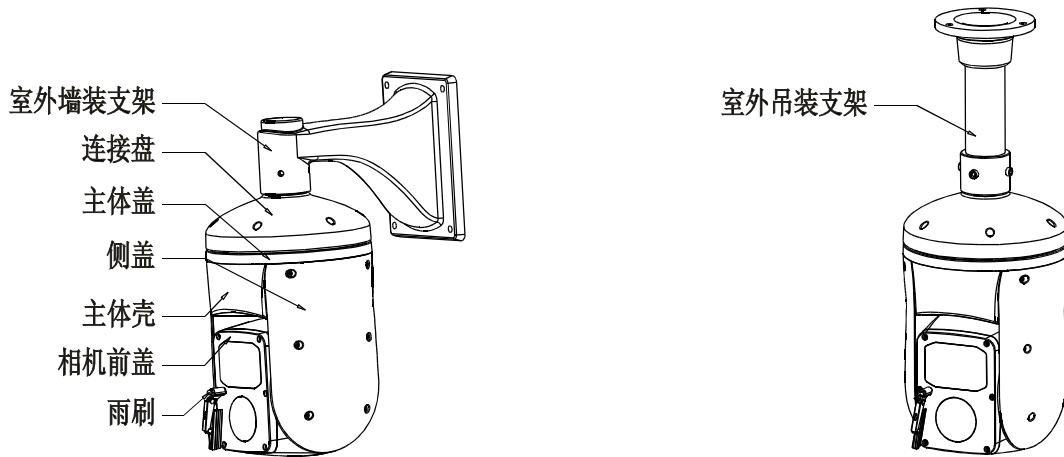


图10.6-1

## 10.7 基本尺寸

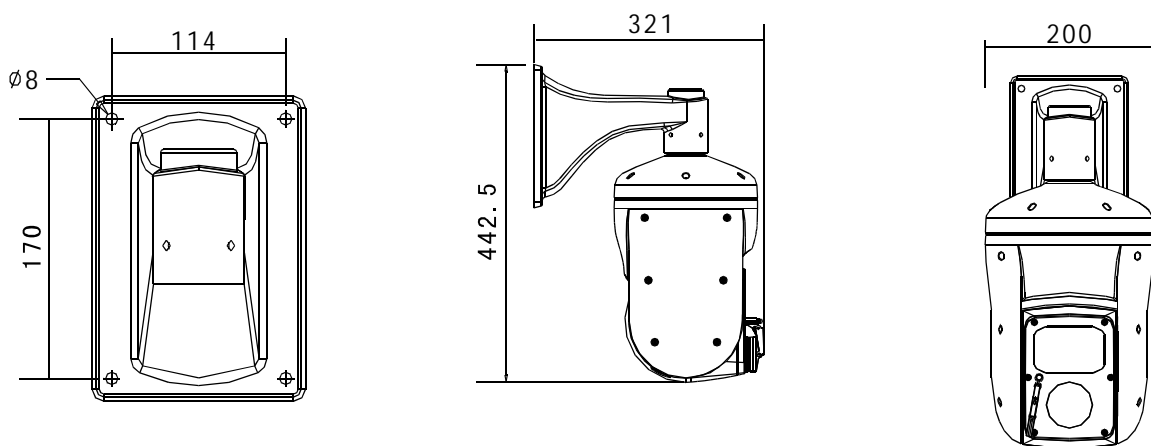


图10.7-1

## 10.8 进入安装

### 10.8.1. 壁挂支架安装



- 1、安装位置必须能承受球机、安装支架及安装底座重量之和的4倍。
- 2、选择的安装地点的墙壁必须坚实无脱层现象，确保支架安装在墙壁上而非表面涂覆物上。

在安装的墙壁上，用壁挂支架作样板，画出钻孔的中心位置。（如图10-8.1-1所示）

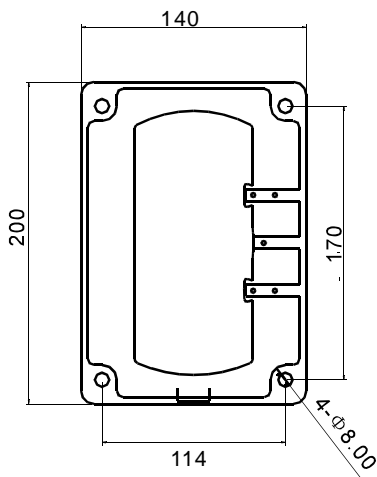
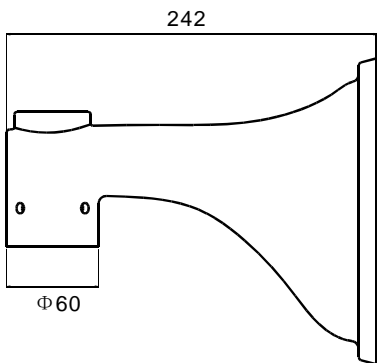


图10-8.1-1

用冲击电钻在安装表面上钻M6金属膨胀螺栓的安装孔4个，安装孔的深度约为75MM，装上M6膨胀螺钉。（如图10-8.2-2所示）

用附件袋内4个M6\*12螺钉将球机和壁挂支架固定在一起，再安装在墙壁上，如图10-8.1-2；

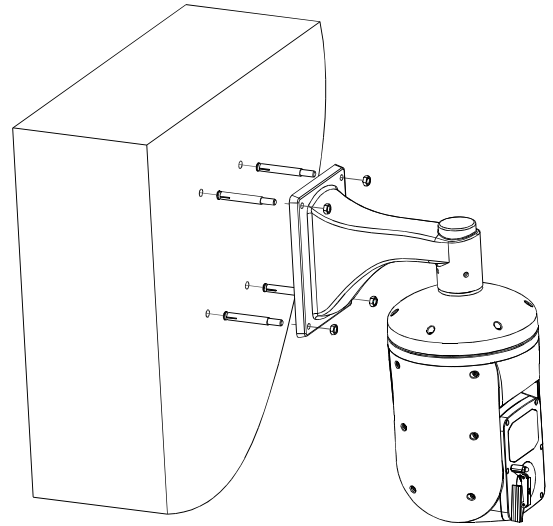


图10-8.1-2

请将图中用序号标出的①处用密封胶涂抹，以防止雨水渗入支架内损害球机(如图10-8.1-3所示)：

①为壁挂支架与墙接触面的四周；

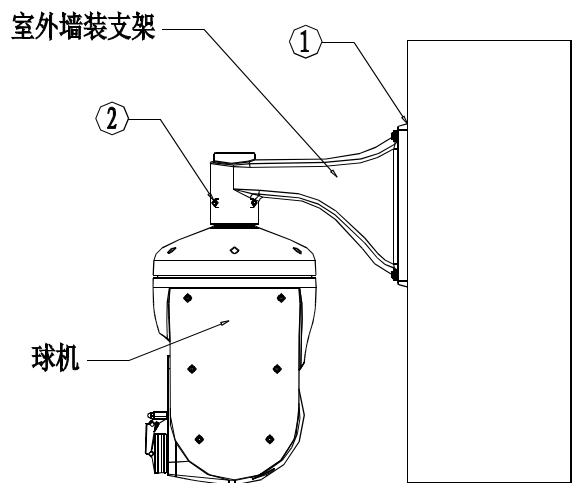


图10-8.1-3



请施工单位严格按照以下要求安装室外支架，如未按要求安装而造成球机损坏将不属我公司的保修范围。

### 10.8.2. 吊装支架安装



- 1、安装位置必须能承受球机、安装支架及安装底座重量之和的4倍。
- 2、选择的安装地点的墙壁必须坚实无脱层现象，确保支架安装在墙壁上而非表面涂覆物上。

在安装的墙壁上，用吊装底座作样板，画出钻孔的中心位置。（如图10-8.2-1所示）

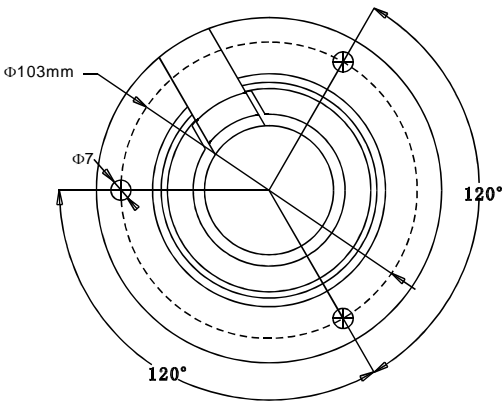


图10-8.2-1

用冲击钻在安装表面上钻3个M6金属膨胀的安装孔，安装孔深度约为75mm，装上M6\*70膨胀螺钉（如图10-8.2-2）

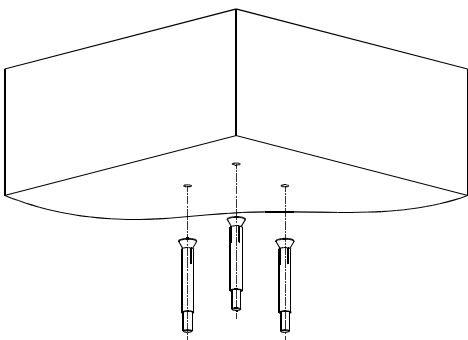


图10-8.2-2

将连接杆有管螺纹（G1-1/2"）的一端旋紧在底座，旋紧后用M4X10固定螺钉锁紧连接杆。

用附件袋内4个M6\*12螺钉将球机和吊装支架固定在一起，再安装在墙壁上，如图10-8.2-3；

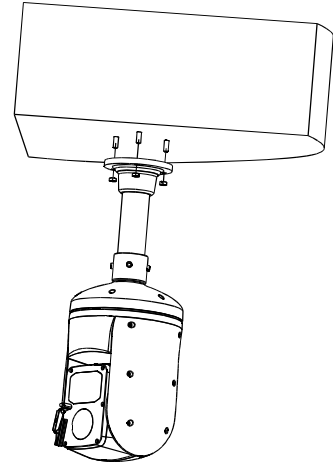


图10-8.2-3



请施工单位严格按照以下要求安装支架，如未按要求安装而造成球机损坏将不属于我公司的保修范围。

## 10.9 线路插接

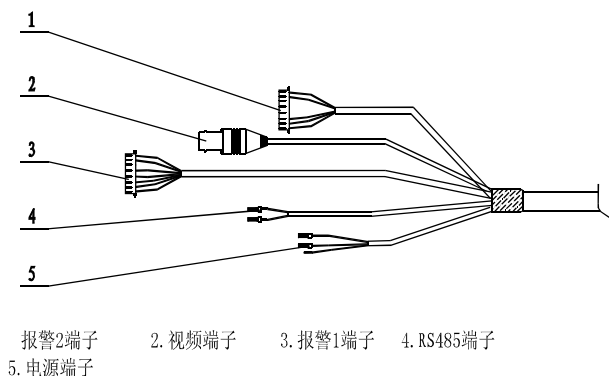


图10.9-1

请按照线缆上标贴连接好线材端子。详细插接如下：

<b>报警1端子：</b>	<b>报警2端子：</b>
RED: ALM1	AQUA: NC2
PINK: ALM2	BROWN: NO2
YELLOW: ALM3	GRAY: ALM7
GREEN: ALM4	PURPLE: ALM6
BLACK: COM	ORANGE: ALM5
WHITE: NO	
BLUE: NC	

<b>电源端子：</b>	<b>RS485线端子：</b>
RED: AC24V+	YELLOW: RS485-
YELLOW: GROUNDING	GREEN: RS485+
BLACK: AC24V-	

## 10.10 通电检查

将云台控制线、视频线等与其它设备连接；接通AC 24V电源。

通电后，云台进行自检，执行复位程序。在自检的过程中，摄像机将缓慢地水平旋转一周半至出厂默认设置的水平原点，然后向上运动到垂直原点，然后向下运动到水平原点，镜头由远焦拉到近焦完成镜头检测，最后稳定下来。摄像机完全停止后，表示云台自检完毕并准备接受控制。

如果有异常，请参考使用说明书附录“简易故障的排除”。



## 11. 维修服务条款

### 1、保修范围

- 本产品免费保修一年；
- 免费保修一年后，在收费维修三个月内出现同样故障，将免费维修；
- 由于人力不可抗拒原因（如战争、地震、雷击等）、使用不当、安装方法错误等非正常操作或事故引起的故障不属于免费保修范围；
- 运输及保管过程中要防止重压、剧烈振动、雨水浸泡对产品造成的损坏。因此造成的损坏不属于免费保修范围；
- 本产品必须采用分体包装方式和原厂包装材料运输，若因采用装配后整体包装方式造成的产品损坏或未采用原厂包装方式运输，不属于免费保修范围；
- 未经许可禁止用户拆卸机器，用户自行拆卸维修过的产品，不在免费保修范围。对超过保修期的故障产品，本公司实行终身有偿维修服务；
- 保修期内维修的产品，请正确填写产品保修信息表，详细描述故障现象，并提供销售发票原件或复印件；
- 厂家对由产品的特定使用或应用引起的损坏或损失不承担任何风险与责任。厂家对与产品相关的基于违约、疏忽或侵权的赔偿不超过所售产品的金额。厂家对由于其它任何原因造成的特殊的、突然的或延续的损坏不承担任何责任；
- 本公司将保留上述条款的最终解释权。

### 2、保修条件

- 保修期内需维修的货物，买方需随货提供产品保修卡与产品详细故障现象。

### 3、返回

- 产品需返回厂家维修时，顾客可返回给供应商，通过供应商返回给厂家，也可直接将货物返回给厂家。直接将货物返回厂家时，为加快货物的速度，请与我们联系。我司只承担维修后由厂家发至客户的单程运费。

