



# User Manual

## Pan Tilt Zoom Camera

Please read this manual carefully before use of the products and preserve for reference purposes. Specifications are subject to change without notice\*

## WARNINGS AND CAUTIONS

### WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH VENTILATION GRILLS OR OPENINGS ON THE EQUIPMENT.

### CAUTION



### EXPLANATION OF GRAPHICAL SYMBOLS



This symbol, is intended to alert the user the presence of non-insulated “dangerous voltage” within the product’s enclosure that maybe of sufficient magnitude to cause shock.



This symbol, is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product

**PRECAUTIONS:**

- Anyone without technical qualifications should not attempt to operate this dome device before reading this manual thoroughly.
- Remove any power to the dome before attempting any operations or adjustments inside the dome cover to avoid potential damage to the mechanism.
- Inside the dome cover there are precision optical and electrical devices. Heavy pressure, shock and other sudden adjustments or operations should be avoided. Otherwise, you may cause irreparable damage to the product.
- Please DO NOT remove or disassemble any internal parts of the video camera to avoid abnormal operation and voiding the warranty. There are no serviceable parts inside this camera.
- All electrical connections to the dome should be made in strict accordance with the attached labels and wiring instructions in this manual. Failure to do so may damage the dome beyond repair and void the warranty.
- For outdoor installation, especially in high places or poles, it is highly recommended that the proper lightning arrestors and surge suppressors are installed before the dome is started.

## **IMPORTANT SAFEGUARDS**

1. Read these instructions before attempting installation or operation of dome device
2. Keep these instructions for future reference
3. Heed all warnings and adhere to electrical specifications
4. Clean only with non abrasive dry cotton cloth, lint free and approved acrylic cleaners
5. Should the lens of the camera become dirty, use special lens cleaning cloth and solution to properly clean it.
6. Do not block any ventilation openings. Install in accordance with manufacturer's instructions
7. Use only attachments or accessories specified by the manufacturer
8. Verify that the surface you are planning to use for attaching the dome can adequately support the weight of the device and mounting hardware
9. Protect the device against lightning storms with proper power supplies
10. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, when liquid traces are present, when the presence of loose objects is evident or if the device does not function properly, or has received severe impact.
11. Indoor dome is for indoor use only and not suitable for outdoor or high humidity locations. Do not use this product under circumstances exceeding specified temperature and humidity ratings.
12. Avoid pointing the camera directly to the sun or other extremely bright objects for prolonged period of time to avoid the risk of permanent damages to the imaging sensor.
13. The attached instructions are for use by qualified personnel only. To reduce the risks of electric shock do not perform any servicing other than what's in the operating instructions unless you are qualified to do so.
14. During usage, user should abide by all electrical safety standards and adhere to electrical specifications for the operation of the dome. The control cable for RS485 communications as well as the video signal cables should be isolated from high voltage equipment and or high voltage cables.
15. Use supplied power supply transformer only.

# INDEX

<b>1 Product Introduction.....</b>	<b>5</b>
1.1 Package Contents.....	5
1.2 Specification.....	6
1.3 Function Description.....	7
<b>2 Installation.....</b>	<b>9</b>
2.1 DIP Switch Settings.....	9
2.1.1 Preparation.....	9
2.1.2 Address Settings.....	9
2.1.3 Baud Rate Settings.....	10
2.1.4 RS-485 Bus Matching Resistance.....	10
2.2 Bracket Dimensions.....	11
2.2.1 Wall Mounted Bracket.....	11
2.2.2 Corner Mounted Bracket.....	11
2.2.3 Pole Mounted Bracket.....	11
2.2.4 Ceiling Mounted.....	12
2.3 Installation of Brackets.....	12
2.3.1 Wall Mounted.....	12
2.3.2 Corner Mounted.....	13
2.3.3 Pole Mounted.....	14
2.3.4 Ceiling Mounted.....	15
2.4 Connection.....	16
<b>3. Function Instruction.....</b>	<b>17</b>
3.1 Power Up Action.....	17
3.2 Basic Function.....	17
3.3 Special Function.....	18
3.4 Screen Character Operation.....	18
<b>4 OSD Menu.....</b>	<b>20</b>
4.1 Menu Index.....	20
4.2 System Information.....	21
4.3 Dome.....	21
4.3.1 Communication.....	22
4.3.2 IR Display.....	22
4.3.3 Guard Tours.....	23
4.3.4 A-B Scan.....	23

4.3.5 Pan Scan.....	24
4.3.6 Park Action.....	24
4.3.7 Privacy Zone.....	25
4.3.8 Alarm (Optional).....	25
4.3.9 Advanced.....	26
4.4 Camera.....	26
4.5 Language.....	27
4.6 Display.....	27
4.7 Reset.....	27
<b>5. Auto Temperature Control.....</b>	<b>28</b>
<b>Appendix I Anti-lightning, Anti-surge.....</b>	<b>28</b>
<b>Appendix II Clean Transparent Cover.....</b>	<b>29</b>
<b>Appendix III Common Knowledge on RS-485 Bus.....</b>	<b>29</b>
1. Basic Feature of RS-485bus.....	29
2. Mode of Connection and Terminal Resistance.....	29
<b>Appendix IV Address Code Mapping Table.....</b>	<b>30</b>
<b>Appendix III Exception Handling.....</b>	<b>32</b>
<b>Copyright Statement.....</b>	<b>32</b>

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\* Indicates the functions with default protocol, it might not function by using other protocols

※ Indicates the optional functions, only with certain mode.

# 1 Product Introduction

## 1.1 Package Contents

IR Speed dome	1pc
Wall mount bracket	1pc
Power supply	1pc
Screws kits	1pc
User manual	1pc

## 1.2 Specification

Model#: TVIPTZ-SB2IR18XE		Model#: TVIPTZ-SB2IR18XME	
Camera		Camera	
Image Sensor	1/2.8" SONY CMOS Sensor 2.4MP	Image Sensor	1/2.8" SONY CMOS Sensor 2.4MP
Image Resolution	1080P	Image Resolution	1080P
S/N Ratio	≥58dB	S/N Ratio	≥58dB
PTZ		PTZ	
Horizontal Rotation Speed	60°/s	Horizontal Rotation Speed	45°/s
Horizontal Rotation Range	360°	Horizontal Rotation Range	360°
Tilt Rotation Speed	360°	Tilt Rotation Speed	30°/s
Tilt Rotation Range	93°	Tilt Rotation Range	93°
Auto Flip	Horizontal 180°, Vertical 93°	Auto Flip	Horizontal 180°, Vertical 93°
Ratio Speed	Support	Ratio Speed	Support
360° Scan	User programmable	360° Scan	User programmable
360° Scan Speed	01-64speed setting available	360° Scan Speed	01-64speed setting available
A-B Scan	User programmable	A-B Scan	User programmable
A-B Scan Speed	01-64speed setting available	A-B Scan Speed	01-64speed setting available
PWR on Action	Memory/Tour/360 scan/AB scan/Home/Nop	PWR on Action	Memory/Tour/360 scan/AB scan/Home/Nop
Park Time	1-60 mins setting available	Park Time	1-60 mins setting available
Dwell Preset	1-60s interval available	Dwell Preset	1-60s interval available
Preset Points	220	Preset Points	220
Go to Preset Speed	200°/s	Go to Preset Speed	200°/s
Guard Tours	4 groups	Guard Tours	3 groups
Guard Points	Max.16 points, dwell time user selectable	Guard Points	Max.16 points, dwell time user selectable
Lens		Lens	
Focus Length	5.35mm-96.3mm	Focus Length	5.35mm-96.3mm
Focus Control	18X Optical Zoom	Focus Control	18X Optical Zoom
Night Vision		Night Vision	
Infrared LED	22x8PCS + 16x6PCS	Infrared LED	42x6PCS
IR Range	390 Feet (120m)	IR Range	195 Feet (60m)
Auxiliary Interface		Auxiliary Interface	
Communication Protocol	Pelco-D, Pelco-P	Communication Protocol	Pelco-D, Pelco-P
Communication	RS485	Communication	RS485
Baud Rate	1200/2400/4800/9600bps	Baud Rate	1200/2400/4800/9600bps
General		General	
Weatherproof	IP66	Weatherproof	IP66 Rated
Operating Humidity	≤95% Non Condensing	Operating Temperature	Indoor: 0°~ +40° Outdoor: -40°~ +60°
Heater & Blower	Auto temperature control	Operating Humidity	≤95% Non Condensing
Auto Control IR LED	PWM	Heater & Blower	Auto temperature control
OSD Menu	Yes English	Auto Control IR LED	PWM
Power	DC12V/3A	OSD Menu	Yes English
Power Consumption	≤ 36W	Power	DC12V/3A
Lightning Protection	Transient voltage 6000V	Power Consumption	≤ 36W
Dimension	32x32x43(cm)	Lightning Protection	Transient voltage 3000V
Weight	7kgs	Dimension	29.5x28x17(cm)
Operating Temperature	Indoor: 32°~104°, Outdoor: -40°~140°	Weight	2.5kgs
		Operating Temperature	Indoor: 32°F~104°F, Outdoor: -40°F~140°F

## **1.3 Function Description**

### **Super Communication**

Address, baud rate and protocol can be changed both from Dip switch or from software.

### **Multilanguage OSD Menu**

The language display on screen menu, User can set the function or parameter, or check the related information through the OSD.

### **Privacy Mask**

Privacy masking is a feature found in many IP cameras which is used to protect personal privacy by concealing parts of the image from view with a masked area.

### **Alarming Set**

Details please refer to the OSD menu.

### **IR Detection Time**

Time duration switching from Color to B/W or B/W to Color. It can be set through OSD Focus. The auto focus enables the camera to focus automatically to maintain clear image. User can use manual focus to in special condition.

Under the following conditions camera will not auto focus on the camera target:

- (1) Target is not in the center of the screen;
- (2) When attempting to view images that are far and near at the same time;
- (3) Target is strongly lighted object, such as neon lamp.
- (4) Targets are behind glass covered with water droplets or dust.
- (5) Targets are moving quickly.
- (6) Monotonous large area targets, such as wall.
- (7) Targets are too dark or faint.

### **BLC**

If a bright backlight is present, the target in the picture may appear dark or as a silhouette, BLC enhances the target in the center of the picture, the dome uses the center of the pictures to adjust the iris. If there is a bright light source outside this area, it will wash out to white, the camera will adjust the iris so that the target in the sensitive area will properly exposed.

### **Iris Control**

Factory default is automatic camera aperture, in mode of which camera senses changes in ambient light through moving and adjust automatically lens aperture to make the brightness of output image stable.

Users can manually adjust the aperture size to get the required picture brightness through pressing OPEN or CLOSE keys.

### **Auto-recognize to Protocol and Module**

The dome can auto-recognize to the corresponding protocol and module during self-inspection.

eg. Module: Sony, CNB, LG, Samsung, domestic etc.

Protocol: PELCO\_P, PELCO\_D etc.

### **Day/Night Switch**

With auto day/night switch function, when the illumination is low the picture will auto switch from day to night mode and when the illumination is high enough the picture will auto switch from night to day mode

### **Ratio Speed**

PTZ speed is will vary depending on the zoom factor. When zooming in, the speed will become slower and when zooming out, the speed will become quicker.

### **A-B Scan**

Dome circularly scans close-up real-time scene according to A-B points at setting speed in both horizontal and vertical directions.

### **Pan Scan**

Dome will 360°clockwise continuously scan the display scene at setting speed in horizontal direction under the condition that pitch angle remains the same.

### **Preset**

After the dome camera keeps arbitrary PTZ location, it will automatically move to the defined position when preset is called.

### **Guard Tour Scan**

Dome patrol scans according to certain edited preset order.

### **Power Off Memory**

This feature allows the dome to resume its previous preset or status after powered off and on.

### **Park Action**

If unused for a certain amount of time dome will automatically run preset specific mode

## Zero Alignment

There is a point specified as zero point. When the dome is working, the preset point is not accurate. User can make the dome automatically enable the zero alignment .

## Auto Flip

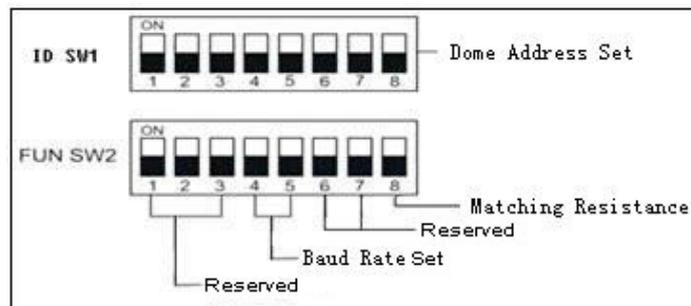
In the manual tracking mode, when a target goes directly beneath the dome, the dome will automatically rotate 180 degree in horizontal direction to maintain tracking. When the dome flips, the camera starts moving upward as long as you hold the joystick in the down position.

# 2 Installation

## 2.1 DIP Switch Settings

### 2.1.1 Preparation

Before installation, make sure that the protocol , baud rate and address code used by the product is fully consistent with the control system. Corresponding DIP switch site can be seen below:



### 2.1.2 Address Settings

DIP switch SW1 is the address settings of camera. It is a 8-bit switch, each switch corresponds with 0 or 1 in the Binary code. OFF status means 0 while ON status means 1.

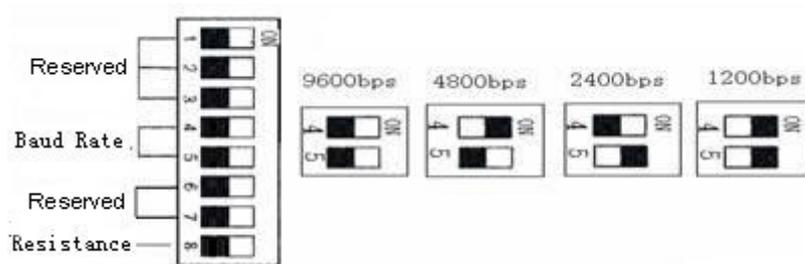


(See illustration above) Turn on the 1st and 3rd (allocated to ON position) and get the binary code 00000101, so the correspondence address is 5.

Detailed settings please refer to the back “Address Code Mapping Table”(appendix IV).

### 2.1.3 Baud Rate Settings

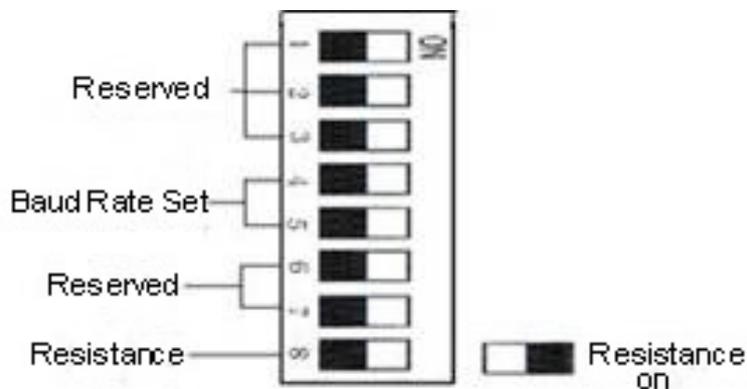
The 4th and 5th DIP Switches set the Baud rate. Factory-default setting is 2400bps.  
Baud rate: 1200bps, 2400bps, 4800bps, 9600bps selectable



### 2.1.4 RS-485 Bus Matching Resistance

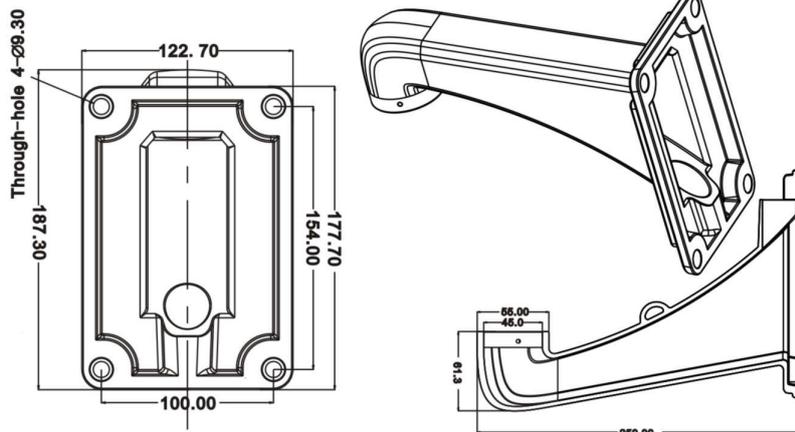
The 8<sup>th</sup> bit of DIP switch SW2 is to select the matching resistor. To the control center, in order to prevent the reflection and interference of RS-485 communication signal and other signals, the parallel matching resistor is needed in the communication interface of dome camera at the end away from the control center.

DIP switch SW2 has a control switch of matching resistor. That the 8<sup>th</sup> bit micro-switch turn to the ON state (set as below) means having connected the matching electricity to RS-485 bus.

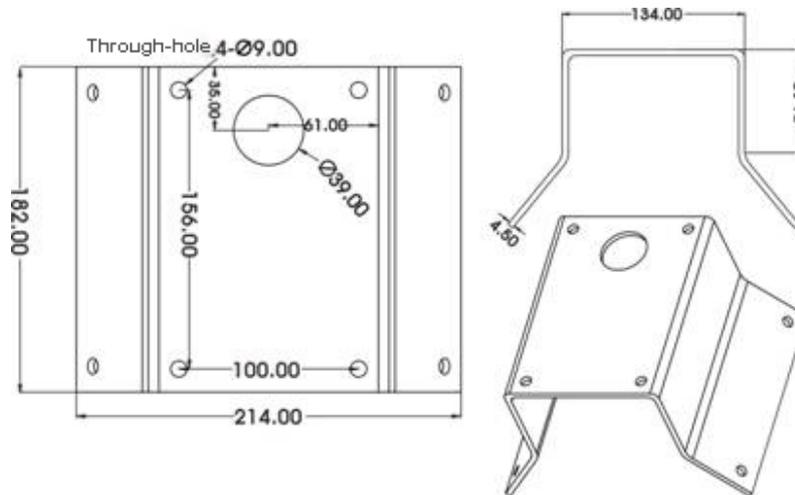


## 2.2 Bracket Dimensions

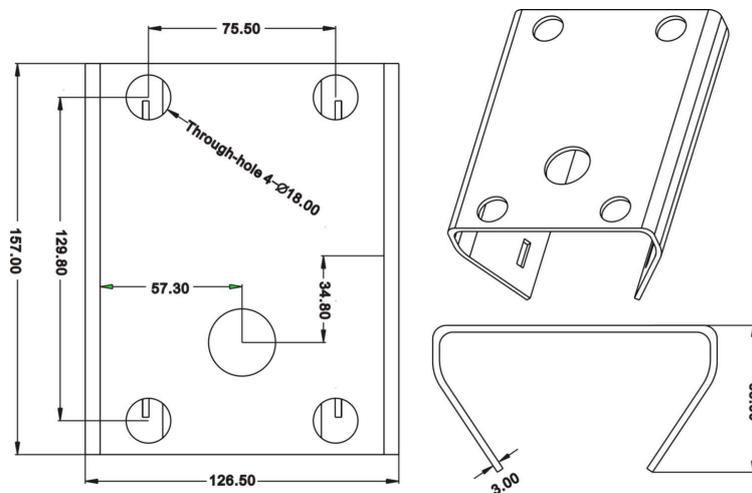
### 2.2.1 Wall Mounted Bracket



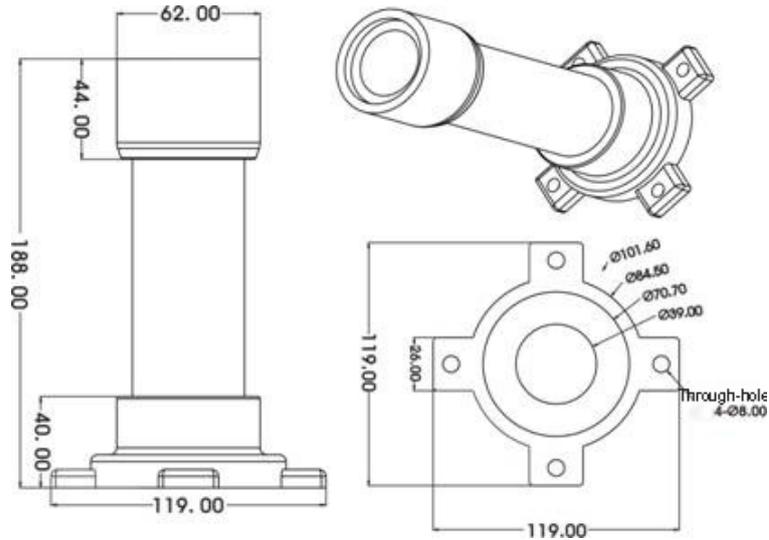
### 2.2.2 Corner Mounted Bracket



### 2.2.3 Pole Mounted Bracket



## 2.2.4 Ceiling Mounted



## 2.3 Installation of Brackets.

### 2.3.1 Wall Mounted

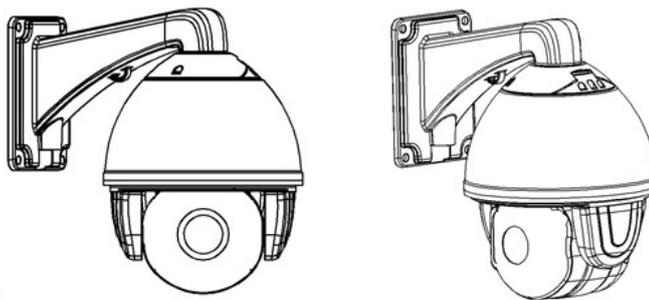


Fig 1

Installation conditions:

Wall mounted dome can be used in the hard wall structure with a thickness that should be enough to install expansion bolt in indoor and outdoor environment. The wall can bear at least 4 times the weight of the dome. Install wall hanging bracket:

a. As shown in fig 2, with the installation holes in the underside of the wall hanging bracket as pattern, draw punched locations and punch.

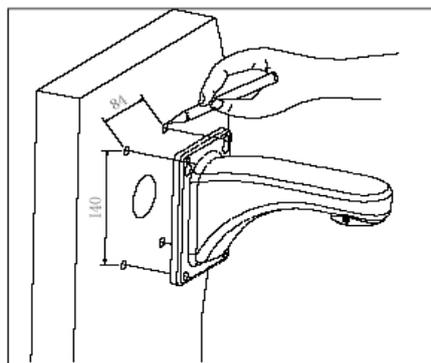


Fig 2

b. As shown in fig 3, fix the wall hanging bracket on the wall with wire and cable through it.

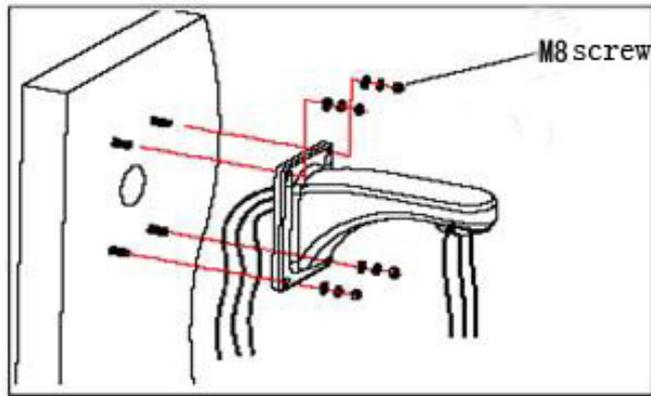


Fig 3

### 2.3.2 Corner Mounted

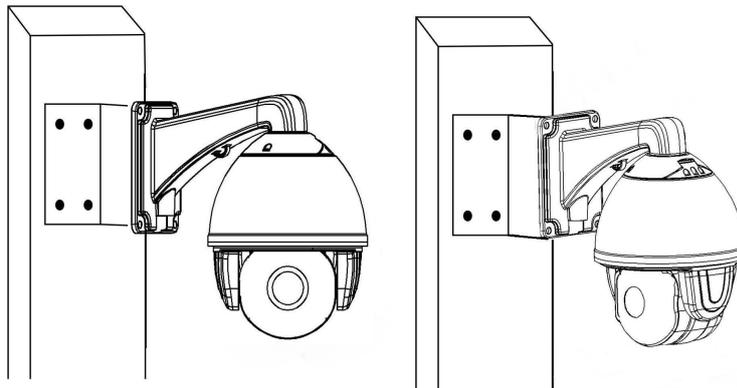


Fig 11

Installation conditions:

Corner mounted dome can be used in the hard wall structure with an angle of  $90^\circ$  with a thickness that should be enough to install expansion bolt in indoor and outdoor environment. The wall can bear at least 4 times the weight of the dome. Install corner mounted attachment and wall hanging bracket:

a. As shown in fig 12, with the installation holes in the corner mounted attachment as pattern, draw punched locations on the wall with an angle of  $90^\circ$  and punch to install expansion bolt.

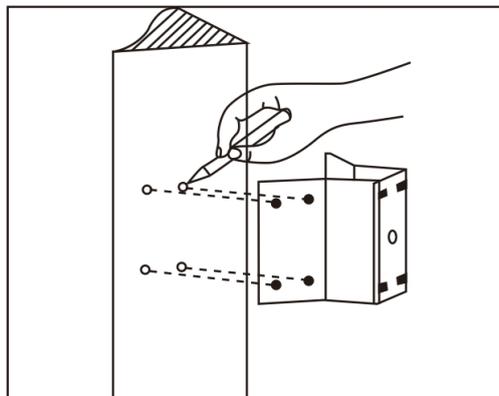


Fig 12

b. As shown in fig 13, use M8 screw nut to fix the base of corner mounted on the wall with all cables through the center holes of the corner mounted, marine glue and bracket. Enough wiring length should be left.

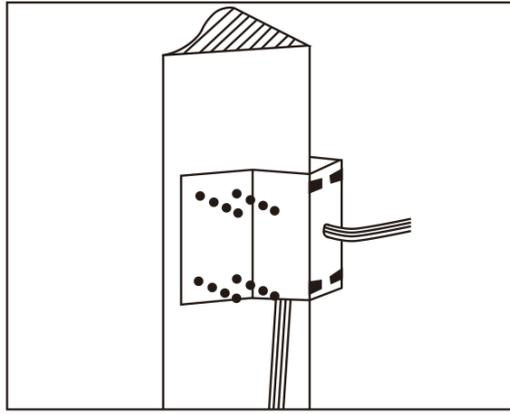


Fig 13

c. As shown in fig 14, fix the wall hanging bracket with all cables power through it on the corner mounted attachment.

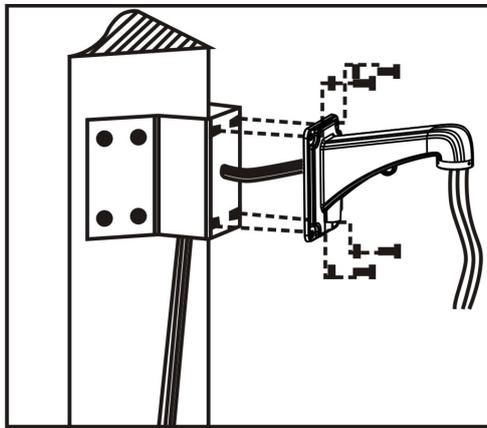


Fig 14

### 2.3.3 Pole Mounted

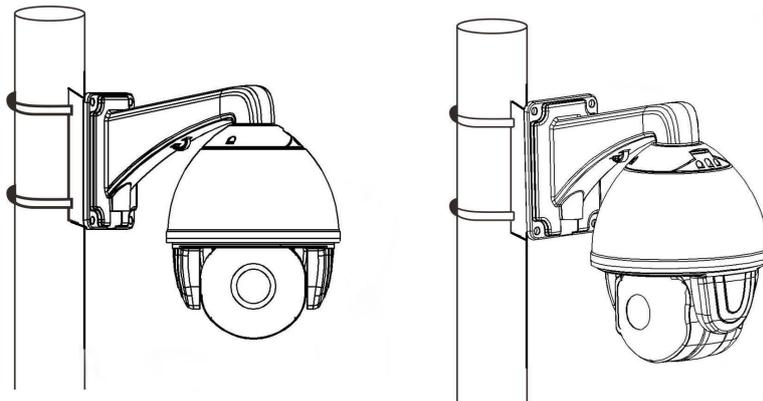


Fig 15

Installation conditions:

Pole mounted dome can be used in the hard pole structure in indoor and outdoor environment whose diameter should match the installation size of stainless hose clamps. Factory default is 6 inches stainless hose clamps (fit  $\phi$ 130-152mm pillar). The pole structure can bear at least 4 times the weight of the dome. Install corner mounted attachment and wall hanging bracket:

a. As shown in fig 16, use the stainless hose clamps to fix the pole mounted attachment with all cable through it on the pole structure.

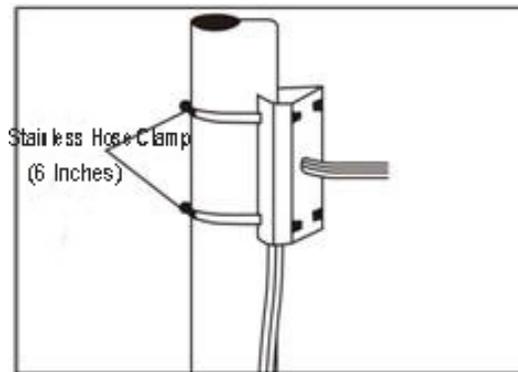


Fig 16

b. As shown in fig 17, fix the wall hanging bracket with all cables through it on the pole mounted attachment.

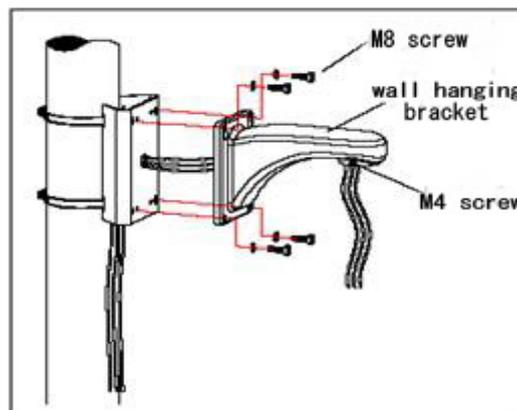
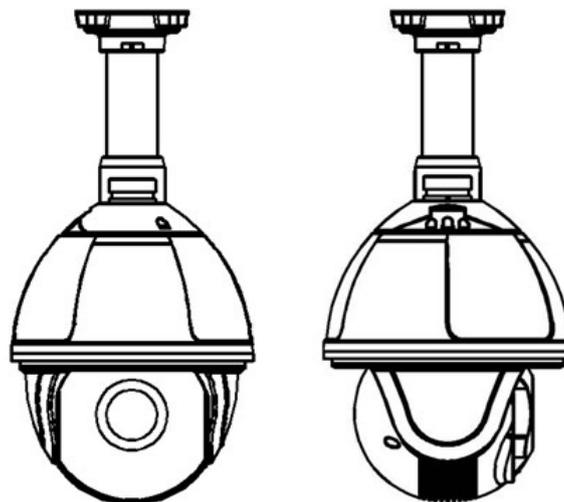


Fig 17

### 2.3.4 Ceiling Mounted



Fig

Installation conditions:

Ceiling mounted dome with thick pole can be used in the hard ceiling structure with a thickness that should be enough to install expansion bolt in indoor and outdoor environment. The ceiling can bear at least 4 times the weight of the dome. Install the base of ceiling and boom:

a. As shown in fig 19, with the installation holes in the base of ceiling as pattern, draw punched locations in the ceiling and punch to install M6 expansion bolt.

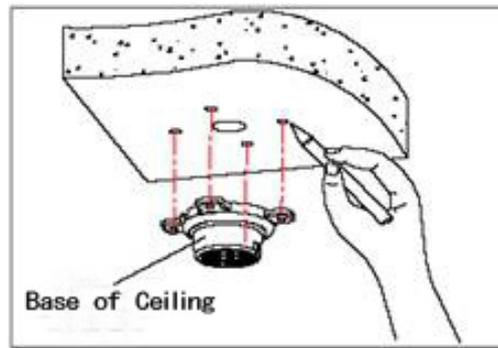


Fig 19

b. As shown in fig 20, at first unscrew the M4 screw at the side of the base of ceiling. Then make the three groups of cables Power, video/control and alarming insert into the side recessing seal groove of the ceiling connector bottom and through the core hole of the base of ceiling mount.

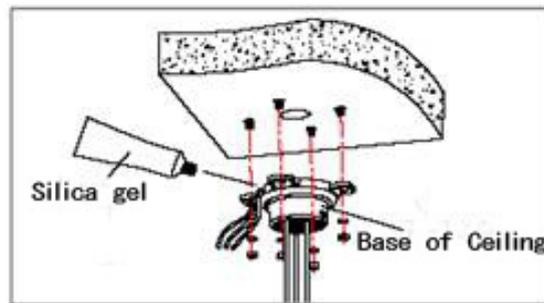


Fig 20

**Note:** If the dome is used in outdoor conditions, use the silica gel on the surface of the base of ceiling and the ceiling board and around the out-holes to be sure its water sealed.

c. As shown in the fig 21, tighten the boom with electrical wire and cable through it on the base of ceiling and screw up the M4 screw.

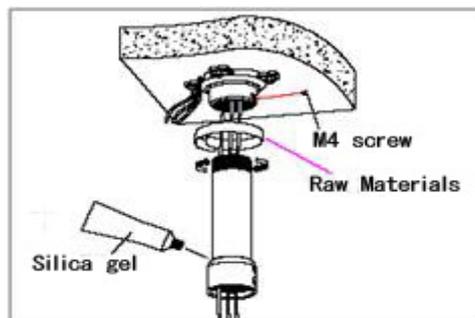


Fig 21

**Note:** If the dome is used in the outdoor conditions, after using enough raw materials to wrap the thread at the upper end of boom, tighten the boom on the base of ceiling. Use the silica gel around the joint sleeve and connector of the boom to be sure water proof

## 2.4 Connection

Connection of RS485

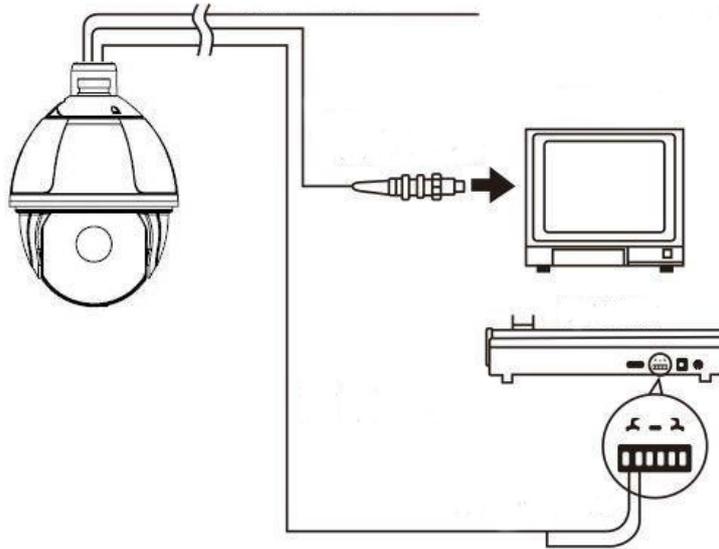


Fig 24

## 3. Function Instruction

### 3.1 Power Up Action

<SYSTEM>	
MFG	
PROTOCOL	AUTO
DOME ID	
COMM	
VERSION	
TEMPERATURE	
DETECTING...	

Power Up Self Testing

<SYSTEM>	
MFG	
PROTOCOL	AUTO
DOME ID	
COMM	
VERSION	
TEMPERATURE	
PAN: XXX	TILT: XXX

Pan, Tilt, Camera Self-test Completion

- ✧ Pan action: Pan rotate in certain direction and stop in zero coordinate.
- ✧ Tilt action: Tilt rotate in certain direction and stop in zero coordinate.
- ✧ Lens action: Lens zooms out to the widest angle.
- ✧ From running the action above to power up mode completion, power up self-testing finishes.

### 3.2 Basic Function

#### Dome Running

Control joystick or up, down, left and right

#### Zoom

Press ZOOM- button to make the lens farther and minify the scene.

Press ZOOM+ button to make the lens closer and magnify the scene.

#### Focus

After FOCUS- button is pressed, the object in vicinity will become clearer while the object far away will become ambiguous.

After FOCUS+ button is pressed, the object far away will become clearer while the object in vicinity will be ambiguous.

### Iris

Press IRIS- to gradually shrink the iris and decrease the image brightness.

Press IRIS+ to enlarge the iris and increase the image brightness.

### Preset Point

Setting preset press botton “preset”+”number”+”enter”.

Calling preset press botton “call”+”number”+”enter”.

Deleting preset press botton “clear”+”number”+”enter”.

**Remark:** Some preset points are used tentatively for special functions.

## 3.3 Special Function

The follow presets are predefined as special function, please shot+ preset No+ enter to enable those functions:

PREST	FUNCTION	PRESET	FUNCTION
33	Pan scan180 °	86	BLC on
34	Reset	87	BLC off
35	Wiper on	88	Freeze on
36	Wiper off	89	Freeze off
79	Digital zoom on	92	A-B scan
80	Digital zoom off	94	OSD off
81	Auto day/night	95	OSD on
82	Switch to night	96	Guard tour 3
83	Switch to day	97	Guard tour 2
84	Force on far light	98	Guard tour 1
85	Force on near light	99	Pan scan

**Remark:** If use some other equipments to control IR dome, some special functions probably can't be effective because of the limite of protocol.

## 3.4 Screen Character Operation

Call preset 95 to enter the OSD, call preset 94 to exit the OSD.

- ✧ Up or Down: Move the option of the OSD, change the value on the OSD.
- ✧ Right: Enter the option, select the item or confirm.
- ✧ Left: Return to main menu or cancel
- ✧ Angle Display: XXX.XX(pan)/XXX.XX(tilt)
- ✧ IR Display: Display on the lower right corner of the screen.

- Remark:**
1. Items with“< >” mean they have sub menu.
  2. “→”means the cursor selecting some option.
  3. “※” means editing the content of some option selected.
  4. When entering the setting page in menu, it is useless to call preset 94 to exit the menu directly. Such as the submenu <SET> in menu <GUARD TOUR SET>.



<MAIN MENU>
<SYSTEM> <DOME> <CAMERA> <LANGUAGE> <DISPLAY> <RESET> EXIT

Get into the Menu Screen

## 4.2 System Information

<SYSTEM>	
MFG	
PROTOCOL	AUTO
DOME ID	001
COMM	2400.N.8.1
VERSION	
TEMPERATURE	
EXIT	

**MFG:** Max 15 characters displayed on the screen.

**PROTOCOL:** Display the protocol of the dome

**DOME ID:** Display the dome address

**COMM:** Form: Baud rate. Check bit. Data bit. Start bit

**VERSION:** Version will update along with the product upgrading

**TEMPERATURE:** Display the temperature of the camera, it changes along with the temperature of the camera, the data is unchangeable by manual.

**Remark:** Protocol, ID and COMM all can be set in menu <COMM>.

## 4.3 Dome

<DOME>
<COMM>
<IR DISPLAY>
<GUARD TOURS>
<A-B SCAN>
<PAN SCAN>
<PARK ACTION>
<PRIVACY ZONE>
<ALARM>
<ADVANCED>
EXIT

### 4.3.1 Communication

<COMM>		<COMM RESET>	
DEVICE ID		RESET TO DIAL THE CODE	
CHECK ID	000000		
TARGET ID	001		
SOFT PROTOCOL	AUTO		
BAUD RATE	2400BPS		
<COMM RESET>		YES	
SAVE		EXIT	
EXIT			

**DEVICE ID:** Used to distinct from the ID of other domes.

**CHECK ID:** Distinguish several domes with same ID. And altering target ID, soft protocol and baud rate needs to enter check ID in line with the device ID, otherwise altering can't be completed.

**TARGET ID:** Target ID is available from 001 to 250.

**SOFT PROTOCOL:** Soft protocol is auto, Pelco-D and Pelco-P available

**BAUD RATE:** 1200BPS, 2400BPS, 4800BPS, 9600BPS available

**<COMM RESET>:** As shown in fig 4.3.1.2, carry out YES to reboot the dome and communication reset to dial the code and baud rate.

**SAVE:** Please save the change of communication. After saving, the dome will reboot.

**Remark:** The out-of-factory default of dome camera is hardware DIP set. After the COMM. is changed in menu, it can't be effective until saved. If you need to get hardware DIP set again, run the COMM RESET.

### 4.3.2 IR Display

<IR DISPLAY>	
WORKING MODE	AUTO
TESTING TIME	08S
OUTPUT POWER	100%
ILLUMINATION ON	3
AMBIENT LIGHT	
IR SWITCH ZOOM	06
EXIT	

**WORKING MODE:** Working mode has auto, black/white, color selectable. Default is auto.

**TESTING TIME:** The IR will execute the programmed action, .

**OUTPUT POWER:** Output power has 40%,60%,80%,100% for selection!

**ILLUMINATION ON:** IOn the auto IR working mode, if the illumination on level is less than the ambient light, the picture will change to color, the IR illumination will turn off automatically. If the illumination on level is more than the ambient light, the picture will change to black , the IR illumination will turn on

automatically.

**AMBIENT LIGHT:** Ambient light is a system data. User can not change it manually. It changes according to the environment all the time. The data will refresh every time when user enter the OSD. It is from 0 to 50 grade.

**IR SWITCH ZOOM:** When zoom value changes the IR LEDs with auto switch depending on the amount of zoom selected **01-23**.

### 4.3.3 Guard Tours

<GUARD TOURS>		<GUARD TOUR 01>			
GUARD TOUR	01	ID	POINT	TIME(S)	SPEED
<SETTING>		1	01	06	64
INIT		2	02	06	64
RUNNING		3	03	06	64
DELETE		4	04	06	64
		5	05	06	64
		6	06	06	64
		7	07	06	64
EXIT		8	08	06	64

**GUARD TOUR:** Total 3 guard tours selectable: 01, 02, 03.

**SETTING:** Each guard tour includes max 16 presets. The number of the preset is from 0-64, but 0 is not valid. Dwell time is 1 to 60s selectable. Speed is 1 to 64 grade selectable.

**INIT:** After init., preset point, dwell time, speed will resume to default setting.

**RUNNING:** Running the present guard tour.

**DELETE:** Delete the guard tour set. After deleting, the present preset points in the guard tours all display as 0. While the exact preset point information doesn't be deleted. So it is convenient for user to select the preset point needing to be guarded tour.

### 4.3.4 A-B Scan

<A-B SCAN>		A-B SCAN	
PRESET A	01	RUNNING...	
PRESET B	02	LEFT KEY TO EXIT	
SCAN SPEED	20		
DWELL TIME	06S		
RUNNING		PAN: XXX TILT: XX	
DELETE			
EXIT			

**PRESET A:** On A-B scan, A point can be preset from 0 to 64.

**PRESET B:** On A-B scan, B point can be preset from 0 to 64.

**SCAN SPEED:** A-B scan speed is 1 to 64 grade selectable.

**DWELL TIME:** Dwell time between A to B is 2s to 60s selectable.

**RUNNING:** Running the A-B scan. Check Fig. 4.3.4.2.

**DELETE:** After deleted, the preset points of A and B display as 0. While the exact preset point information doesn't be deleted. So it is convenient for user to select the preset point needing to be scanned. Speed and dwell time will reset as default setting.

#### 4.3.5 Pan Scan

<PAN SCAN>	
PAN SCAN SPEED	20
INIT	
RUNNING	
EXIT	

PAN SCAN	
RUNNING...	
LEFT KEY TO EXIT	
PAN: XXX	TILT: XX

**PAN SCAN SPEED:** Pan scan speed is 1 to 64 grade selectable.

**INIT:** Reset the scan speed and tilt degree as default setting.

**RUNNING:** Running the scan speed and tilt degree set.

#### 4.3.6 Park Action

<PARK ACTION>	
PARK MODE	OFF
PARK TIME	01M
<SETTING>	
RUNNING	
DELETE	
EXIT	

<PARK ACTION>	
PRESET 1: SAVE	
PRESET 2: BACK	

**PARK MODE:** Park mode includes OFF, Park action, A-B scan, Pan scan, guard tour 01, guard tour 02, guard tour 03 and Preserve action.

When park mode is OFF status, the dome doesn't run park mode.

When park mode is PRESERVE ACTION status, it records previous action order(A-B scan, Pan scan, Guard tour 01, Guard tour 02, Guard tour 03).

**Example:** Running A-B scan at first, when the action stops unexpectedly, it enters the park mode to continue to run A-B scan.

**PARK TIME:** Park time is 01~60 mins selectable.

**SETTING:** After entering the OSD menu, as 4.3.6.2, move to the desired position and save the settings.

**RUNNING:** Running the park action, if there is no setting, system will remind that "Please set park action".

**DELETE:** Delete the settings.

### 4.3.7 Privacy Zone

<PRIVACY ZONE>	<PRIVACY ZONE>	<PRIVACY ZONE>
MASK NO.            01 MASK                 OFF <SETTING>	PRESET 1: SAVE	PRIVACY PROPOSED TO OPEN
EXIT		

**MASK NO.:** Mask No. depends on the number of the module supported. The selective range of Sony is from 1 to 24.

**MASK:** Mask has on and off selectable.

**SETTING:** Set the specific parameter of present mask NO. And call preset 1 to save the settings.

Direction operation—Modify the coordinate of dome

Zoom operation—Modify the size of scenery

Iris operation—Modify the size of privacy zone

**Remark:** The mask size is better more than double the target size. If needing to modify mask NO.02, set it again. If needing to stop it, set mask to OFF status.

If the module doesn't support privacy mask, the screen will display the interface as Fig. 4.3.7.3.

### 4.3.8 Alarm (Optional)

<ALARM>	
ALARM	OFF
PATROL TIME	06S
ALARM LINKAGE	OFF
ALARM 1	01
ALARM 2	02
ALARM 3	03
ALARM 4	04
RELEASE TIME	OFF
EXIT	

**ALARM:** Alarm has OFF and ON selectable.

**PATROL TIME:** Patrol time is 2~60s selectable.

**ALARM LINKAGE:** Alarm linkage has OFF and ON selectable.

**ALARM 1:** To run alarm 1, presets 1-64 are available.

**ALARM 2:** To run alarm 2, presets 1-64 are available.

**ALARM 3:** To run alarm 3, presets 1-64 are available.

**ALARM 4:** To run alarm 4, presets 1-64 are available.

**RELEASE TIME:** Alarming release time, 2-60s selectable, the default is OFF.

### 4.3.9 Advanced

<ADVANCED>	
PWR ON ACTION	MEMORY
RATIO SPEED	ON
AUTO FLIP	ON
WIPER MODE	OFF
WIPER SPEED	5
WIPER TIMES	2
<OTHERS>	
EXIT	

**PWR ON ACTION:** Power on action can be set as Memory, A-B scan, Pan scan, Park action, Guard tour 01, Guard tour 02, Guard tour 03 and No action.

**RATIO SPEED:** Ratio speed can be set as ON or OFF status.

**AUTO FLIP:** Auto flip can be set as ON or OFF status.

**WIPER MODE:** Wiper mode can be set as ON or OFF status.

**WIPER SPEED:** Wiper speed 1-5 level adjustable.

**WIPER TIMES:** Wiper times 1-5 times adjustable.

**<OTHERS>:** Set other options.

### 4.4 Camera

<CAMERA>	
CAM	AUTO
ZOOM SPEED	QUICK
DIGITAL ZOOM	OFF
FOCUS	AUTO
IRIS	AUTO
BLC	OFF
FREEZE	OFF
EXIT	

**CAM:** Display the information of module supported by this dome.

**ZOOM SPEED:** Zoom speed is quick and slow selectable.

**DIGITAL ZOOM:** Digital zoom is on/off selectable.

**FOCUS:** Focus is auto and manual selectable

**IRIS:** Iris is auto and manual selectable

**BLC:** BLC is ON and OFF selectable

**FREEZE:** Video freeze is ON and OFF selectable

**Remark:** Only if those functions are available on the present module, the user can use them.

## 4.5 Language

<LANGUAGE>	
LANGUAGE	ENGLISH
EXIT	

**LANGUAGE:** Language can be set as Chinese or English. Default settings is English.

## 4.6 Display

<DISPLAY>	
SYSTEM	PAL
P AND T	ON
ACTION	ON
IR	ON
DOME ID	ON
COMM	ON
EXIT	

**SYSTEML:** Video system includes NTSC and PAL. N means NTSC and P means PAL.

**P AND T:** On screen, it displays the pan and tilt degree, user can enable or disable it.

**ACTION:** On the screen, it displays the current action, such as A-B scan, Call preset, Save preset, Call park action, Pan scan etc. User can enable or disable it.

**IR:** IR is ON and OFF selectable.

**DOME ID:** At the top left corner of screen, it displays the dome ID. User can enable or disable it.

**COMM:** At the top left corner of screen, it displays the dome communication information. User can enable or disable it.

## 4.7 Reset

<RESET>
<DOME RESTART>
<SYS DATA>
<CAM DATA>
<PRESET>
EXIT

<DOME RESTART>
CONFIRM: Save data, dome restart
EXIT

<SYS DATA>
CONFIRM: Factory default
EXIT

<CAM DATA>
CONFIRM: Factory default
EXIT

<PRESET>
CONFIRM: DEL ALL PRESETS
CONFIRM 1: DEL 01 TO 16
CONFIRM 2: DEL 17 TO 32
CONFIRM 3: DEL 33 TO 48
CONFIRM 4: DEL 49 TO 64
EXIT

**CONFIRM:** Delete the presets information saved by the dome.

## 5. Auto Temperature Control

This product has built-in fan and heater, which accordingly cool or heat through temperature sensitive circuit inside the dome.

## Appendix | Anti-lightning, Anti-surge

This product is extremely air discharge and lightning protection with TVS tube technology, which can effectively prevent the transient lightning below voltage 3000V, surge and damages caused by other types of pulse signals.

However, necessary protective measures should be made in the premise of ensuring electrical safety for outdoor installation according to the actual situation :

- Signal transmission line must be at least 50 meters far away from the high-voltage equipment or high voltage cable.
- Try to choose outdoor wiring laid down along the roof line.
- Way of sealed steel pipe buried wiring is used in the area which opened, and steel pipe units grounded in one point. Overhead wiring is absolutely prohibited.
- In the strong thunderstorms area or areas with high induced voltage (such as high voltage substations), measure of installation of additional high power lightning protection equipment and lightning rod must be taken.
- Lightning protection and grounding of outdoor devices and lines must take the lightning-protection requirements of buildings into consideration, and comply with the related national standards and industry standards.
- System must be equipotential grounding. Grounding device must meet dual requirements of anti-interference and electrical safety, and should not be shorted or mixed with the adjacent lines in the strong power grid. When system is independently grounded, grounding impedance should be less than  $4\Omega$ , and cross-sectional area of grounding conductor must be not less than  $25\text{m}^2$ .

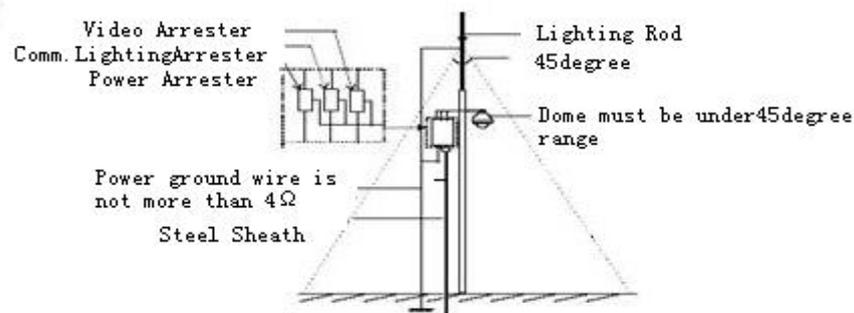


Fig 1

## Appendix II Clean Transparent Cover

In order to assure a clear image of dome, the under cover of dome should be cleaned regularly.

- Be careful when cleaning and hold the outer ring of under cover by hands to avoid directly touching with it. Because the acid sweat of finger membrane may corrode the surface coating of under cover. Hard tool scratching the under cover may lead to blurring the images of dome so that affecting image quality.
- Please use a soft enough dry cloth or other alternatives to wipe internal and external surface.
- If dirt is serious, user can use a mild detergent. Any senior furniture cleaning products can be used to clean the under cover.

## Appendix III Common Knowledge on RS-485 Bus

### 1. Basic Feature of RS-485bus

According to industry bus standard of RS-485, RS-485 bus is half-duplex communication bus with the characteristic impedance of  $120\Omega$ , whose maximum load capacity is 32 payloads (including the master device and the controlled device).

### 2. Mode of Connection and Terminal Resistance

2.1 Industry standard of RS485 bus requires that connection in a daisy chain should be used between the devices with  $120\Omega$  terminal resistances connected at the both ends.

As shown in fig. 26 and fig. 27 is simplified connection, but the distance of part "D" shall not beyond 7 meters.

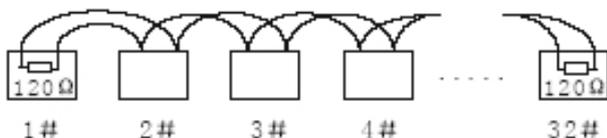


Fig 2

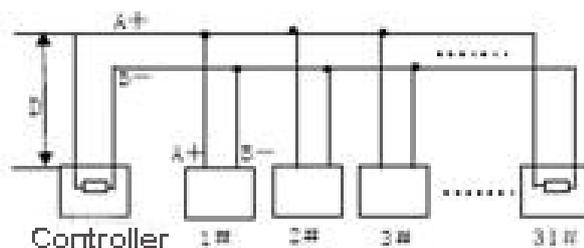


Fig 3

2.2  $120\Omega$  terminal resistance is connected as shown in fig 2.

$120\Omega$  terminal resistance is available in the circuit board and the connection is shown as following:

When needing to connect  $120\Omega$  resistance, toggle the 8<sup>th</sup> bit of DIP switch SW2 to "ON" .

This way the  $120\Omega$  resistance is connected to the circuit.

## Appendix IV Address Code Mapping Table

SW1 DIP Switch sets the dome address, which using binary encoded. The 8th is the top bits, and 1st is the lowest bits.

Toggle the code bits of DIP Switch to ON, then the corresponding location is “1”. Conversely, it’s “0”.

Following is a dome address code mapping table to set PELCO\_D:

Address	Switch Settings							
	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF						
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
---	----	----	----	----	----	----	----	----
251	ON	ON	OFF	ON	ON	ON	ON	ON
252	OFF	OFF	ON	ON	ON	ON	ON	ON
253	ON	OFF	ON	ON	ON	ON	ON	ON
254	OFF	ON						
255	ON	ON	ON	ON	ON	ON	ON	ON

Following is a dome address code mapping table to set PELCO\_P:

Address	Switch Settings
---------	-----------------



## Appendix III Exception Handling

Issue	Possible Reason	Solution
After power is applied, there is no motion (self-test) and no video image.	Cable harness is improperly connected	Verify that the orientation of the connector input
	Input power voltage is too low	Verify the voltage of the input power
	Power supply is not work	Change a to new power supply
Self-test is normal, but cannot control dome	Wrong communication settings	Set the correct protocol, baud rate and address of dome device
	Improper connection of control cable (polarity)	Verify the polarity of the RS485 connection as per the instruction manual
Noise after self-testing	Mechanical obstruction	Verify and correct it
	Camera module is not installed correct	Reinstall correctly
	Low power	Change the correct power supply
Image is not stable	Low power	Check the power supply or make sure the power input is DC 12V
	Video cable is improperly contact	Verify the contact of the video cable
Image is blurring	Camera is on manual focus	Change to auto focus
	The lens is dusted	Clean the lens
Control to the dome is not smooth	Power is too low	Change the DC 12V Power supply
	Communication distance is too long	Make sure the distance is in the allowed range
	RS485 cable is not properly contact	Make the RS485 is properly contact
	Too many domes connected	Make sure the connected dome is in the allowed quantity

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