

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



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user the presence of non-insulated “dangerous voltage” within the product’s enclosure that maybe of sufficient magnitude to constitute a risk of electric shock to different persons.



The exclamation point within an equilateral triangle, is intended to alert the user the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product

PRECAUTIONS:

1. Persons without technical qualifications should not attempt to operate this dome device before reading this manual thoroughly.
2. Remove any power to the dome before attempting any operations or adjustments inside the dome cover to avoid potential damage to the mechanism.
3. 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.
4. Please DO NOT remove or disassemble any internal parts of the video camera to avoid normal operation and possibly void the warranty. There are no serviceable parts inside the camera.
5. 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.
6. 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 entered into service.
7. Please do not use the product under circumstances where the limits exceed the maximum specified temperature, humidity or power supply specifications.

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 Follow all instructions
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 this devices against lighting 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, or the presence of loose objects is evident or if the device does not function properly, or has received sever impact or has been dropped accidentally.
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 avoiding 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 contained 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.

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1 Product Introduction

1.1 Specification

Horizontal Rotation Speed	0-30°/s
Horizontal Rotation Range	0° -200°
Tilt Rotation Range	-45° ~40°
Tilt Rotation Speed	0-25° /s
Auto control IR LED	PWM
IR Distance	Up to 100M
A-B Scan Range	any point in range:-45° ~40° and 0° -200°
A-B Scan Speed	01-64speed setting available
Preset Points	220
Go to Preset Speed	200°/s
Guard Tours	3 groups
Guard Points	Max.16 points, dwell time user selectable
Communication	RS485 Bus
Operating Temperature	-15°C~+60°C
Heater & Blower	Auto temperature control
Power Consumption	≤ 15W
Coaxial control	Support

1.2 Function Description

- Coaxial control

Through BNC cable to control PTZ and no need use the ID address and RS485 to distinguish cameras.

- English OSD menu

The language display on screen menu, the available language is English. User can set PTZ function and specification by menu. Also including the corresponding PTZ information and state.

- IR Output Power Consumption

IR output power consumption can be set through the OSD after IR is turned on.

- IR Detection Time

Time duration switching from Color to B/W or B/W to Color.

- 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 the center of the screen;
- (2) Attempting to view images that are far and near at the same time;
- (3) Target is strongly lighted object, such as neon lamp, etc.;
- (4) Targets are behind the 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 enhance 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 through pressing OPEN or CLOSE iris adjusting keys, manually adjust the aperture size to get the required picture brightness.

By controlling the keyboard up, down, left, right or zoom to resume auto iris (auto iris is recommended).

- 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

Intelligent pan and tilt speed is variable depend 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 scan close-up real-time scene according to A-B points at setting speed in both horizontal and vertical directions.

- Pan Scan

Dome 360°clockwise continuous 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

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 power is restored. By default setting, the dome support power up memory, which improves the reliability and avoids repeated settings of the parameter.

- Park Action

If users don't operate the dome in set time, it will automatically run preset specific mode (pan scan, A-B scan, park action, cruise, preserve action etc.).

2 Installation

2.1. Wall Mounted Bracket

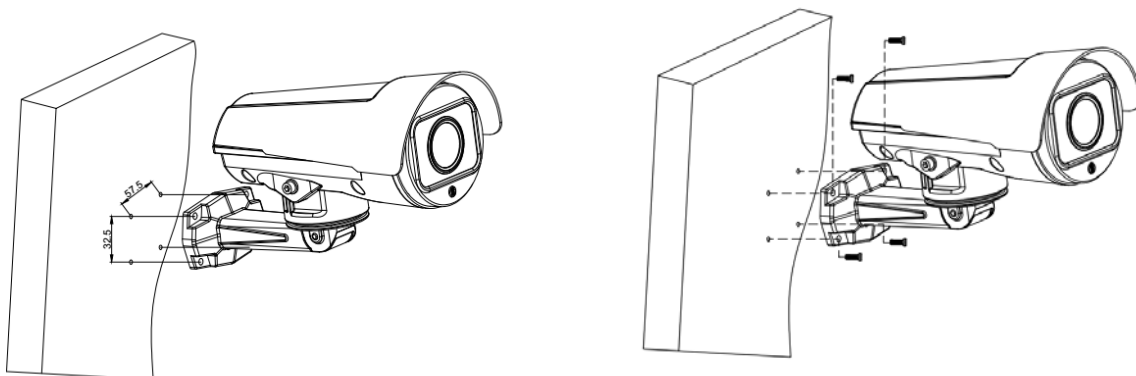


Fig. 2.1.1.1

3. Operation Instruction

3.1 Basic Function

- 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 button “preset”+”number”+”enter”.

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

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

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

Overview for 4 in 1 products(Support AHD/ CVI/ TVI/ CVBS output)

Basic on single HD Analog coaxial series,(AHD/TVI/CVI/CVBS series), the 4 in 1 series have combined the 4 single output signal together,it can be switched the video signal freely between the AHD/TVI/CVI/CVBS by shortcut commends. This gives great convenience for all application, reduce cost, and easy for maintenance.

Switch video signal:Two ways to switch the video signal

Call twice preset 102 to enter the Sub OSD menu.

Press “Zoom+” or “Zoom-” to move the option to the item 1.

Press the “Focus+” or “Focus-” to switch to the signal output needed,

Then press “ zoom+ or Zoom- to the item 6“ RETURN”

Call twice 102 again to exit from the Sub OSD menu.

Direct shortcut commend to switch the video output signal needed. Please Reference to the below table for details.

Remark: Please do not change the parameter of the Sub OSD menu randomly to avoid any unexpected happen.

Please reboot the PTZ after switch the video signal output.

3.2 Special Function

Shortcut commends are complaine with Pelco D and its Extended protocol. User can use the shortcut commend to enable the function directly.

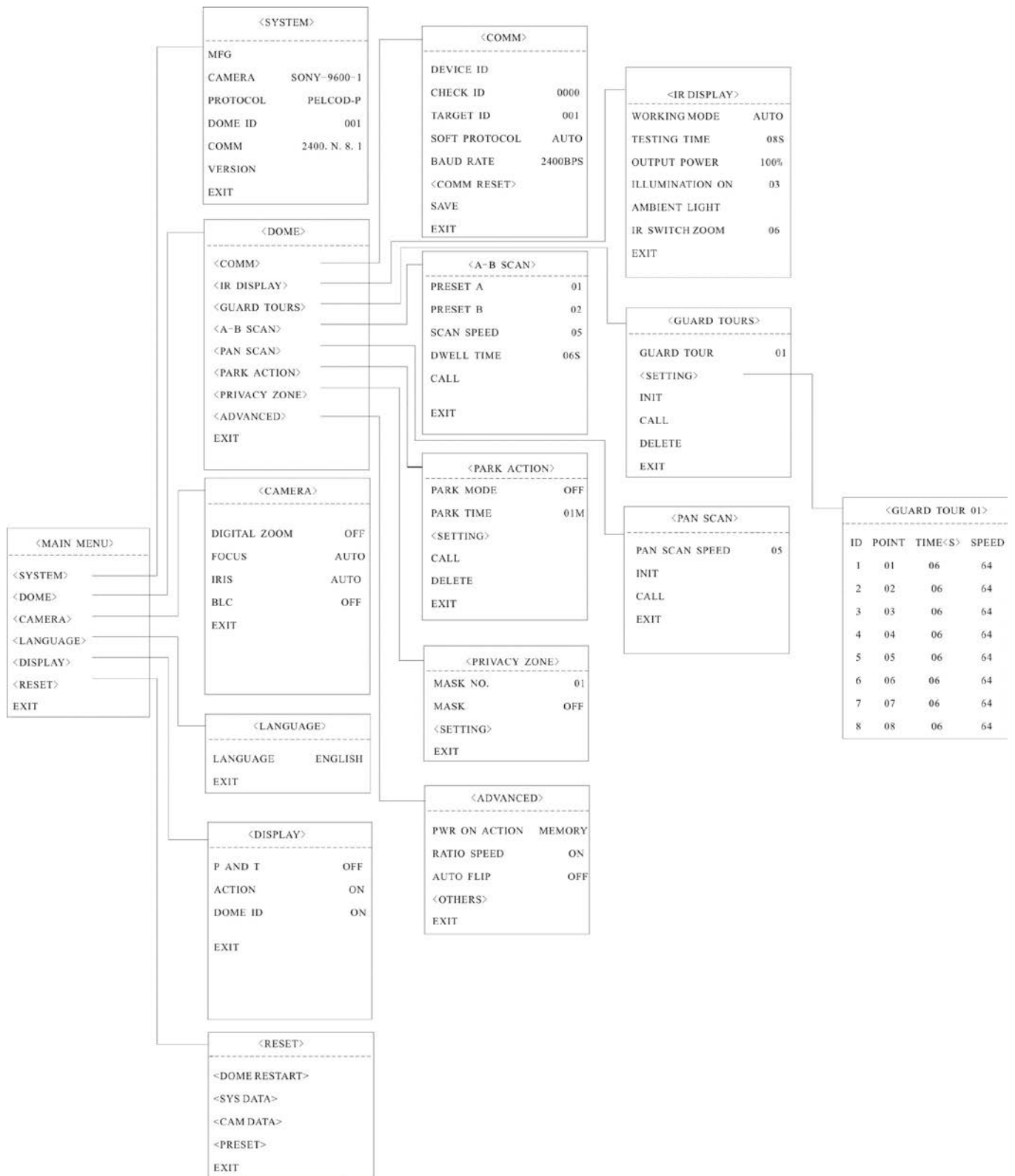
Preset No.	Function	Preset No.	Function
34	Reset	96	Call tour 3
81 (41)	Auto day/ night	97	Call tour 2
82 (42)	Switch to night	98 (38)	Call tour 1
83	Switch to day	99 (39)	Pan scan
84	Force on far light	Twice 137	Switch to AHD
85	Force on near light	Twice 138	Switch to TVI
86	BLC on	Twice 139	Switch to CVI
87	BLC off	Twice 140	Switch to CVBS
92	A-B Scan	Twice 115	Switch to NTSC
94	OSD off	Twice 116	Switch to PAL
95	OSD on		

Remark:Because the limit of COC protocol,it is possible that some of the shortcut commend are not valid when connected to some of the controlled equipment.

If no video or video is stuck in black and white, please make sure the video output of the signal, the TV system (NTSC/Pal) between the PTZ and the controlled equipment to be consistent, if not, please adjust accordingly.

4 OSD Menu

4.1 Menu Index



4.2 System Information

<SYSTEM>	
MFG	
CAMERA	SONY-9600-1
PROTOCOL	PELCOD-P
DOME ID	001
COMM	2400.N.8.1
VERSION	
EXIT	

Fig. 4.2.1

MFG : Max 15 characters display on the screen.

CAMERA: Camera module protocol.

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.

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

4.3 Dome

4.3.1 Communication

<COMM>	
DEVICE ID	
CHECK ID	0000
TARGET ID	001
SOFT PROTOCOL	AUTO
BAUD RATE	2400BPS
<COMM RESET>	
SAVE	
EXIT	

Fig.4.3.1.1

DEVICE ID

It is only and used to distinct from the ID of other domes.

CHECK ID

Distinguishing several domes with same ID and altering target ID, soft protocol and baud rate need 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

SAVE

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

COMM RESET

Dome save data and reboot .

4.3.2 IR Display

<IR DISPLAY>	
WORKING MODE	AUTO
TESTING TIME	08S
OUTPUT POWER	100%
ILLUMINATION ON	3
AMBIENT LIGHT	
IR SWITCH ZOOM	01
EXIT	

Fig.4.3.2.1

WORKING MODE

Working mode has auto, black/white, color selectable. Default is auto.

TESTING TIME

On IR auto working mode and the programmed time, the IR will execute the programmed action, eg. Switch from day to night or from night to day. The detection time is from 2s to 15s selectable.

OUTPUT POWER

IR output consumption has 40%、 60%、 80%、 100% selectable.

ILLUMINATION ON

Illumination on is 1 to15 grade selectable and default is 3. On 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

IR switch zoom is 1 grade selectable.

4.3.3 Guard Tours

<GUARD TOURS>	
GUARD TOUR	01
<SETTING>	
INIT	
CALL	
DELETE	
EXIT	

Fig.4.3.3.1

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

Fig.4.3.3.2

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. 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.

CALL

Call the new setting.

DELETE

Delete the guard tour set. After deleting, the present preset points 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>	
PRESET A	01
PRESET B	02
SCAN SPEED	05
DWELL TIME	06S
CALL	
EXIT	

Fig.4.3.4.1

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.

CALL

Call the new setting.

4.3.5 Pan Scan

<PAN SCAN>	
PAN SCAN SPEED	20
INIT	
CALL	
EXIT	

Fig.4.3.5.1

PAN SCAN SPEED

Pan scan speed is 1 to 64 grade selectable.

INIT

Reset the scan speed and tilt degree as default setting.

CALL

Call the new setting.

4.3.6 Park Action

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

Fig.4.3.6.1

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

Fig.4.3.6.2

PARK MODE

Park mode includes OFF, Park action, A-B scan, Pan scan, guard tour01, guard tour02, guard tour03 and Preserve action.

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

When park mode is PRESERVE ACTION status, it record 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 7.4.8.2, move to the desired position and save the settings.

CALL

Call the new setting.

4.3.7 Privacy Zone

Not available .

4.3.8 Advanced

<ADVANCED>	
PWR ON ACTION	MEMORY
RATIO SPEED	ON
AUTO FLIP	OFF
<OTHERS>	
EXIT	

Fig. 4.3.8.1

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

Does not support this function.

OTHERS

Set other options.

4.4 Camera

<CAMERA>	
DIGITAL ZOOM	OFF
FOCUS	AUTO
IRIS	AUTO
BLC	OFF
EXIT	

Fig.4.4.1

DIGITAL ZOOM

Not available

FOCUS

Focus is auto and manual selectable

IRIS

Iris is auto and manual selectable

BLC

BLC is ON and OFF selectable

Remark: Those functions are available on the present module if it supports those functions .

4.5 Language

<LANGUAGE>	
LANGUAGE	ENGLISH
EXIT	

Fig.4.5.1

LANGUAGE

Language can be set English. Default settings are English.

4.6 Display

<DISPLAY>	
P AND T	OFF
ACTION	ON
DOME ID	ON
EXIT	

Fig.4.6.1

P AND T

Support , default is not display .

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

DOME ID

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

4.7 Reset

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

Fig.4.7.1

DOME RESTART: It starts self-test by OSD menu.

SYS DAYA: Making all PTZ data recover the factory default .

CMA DATA: Recovering camera data as default (remark: it needs camera support).

PRESET: It supports preset reset by sub-menu.

Appendix I 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.

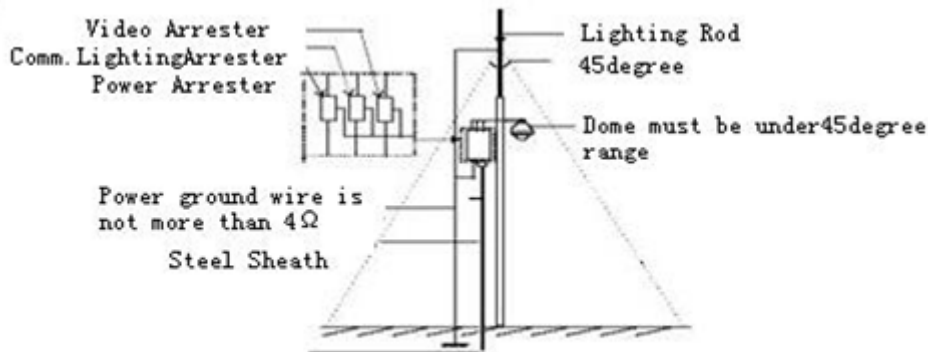
- Try to choose outdoor wiring laid down along the roof line.

- 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 4Ω , and cross-sectional area of grounding conductor must be not less than 25m^2 .



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 uses 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 120Ω , 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 mode of daisy chain should be used between the devices with 120Ω 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.

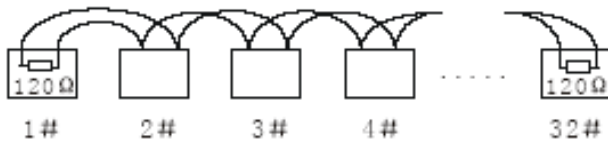


Fig 26

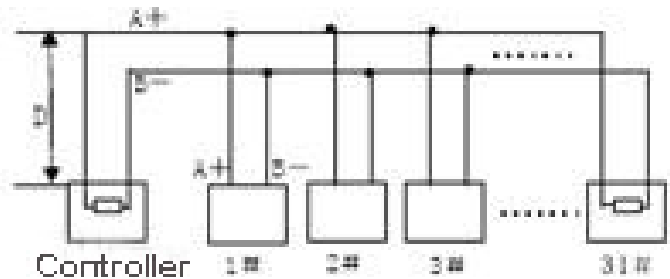


Fig 27

2.2 120Ω terminal resistance is connected as shown in fig 27.

120Ω terminal resistance is available in the circuit board and the connection is shown as following:

When needing to connect 120Ω resistance, toggle the 8th bit of DIP switch SW2 to "ON" . This way the 120Ω resistance is connected to the circuit.

Appendix IV 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 new power supply
Self-test is normal, but cannot control	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	Correct
	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 camera 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 do camera connected	Make sure the connected camera is in the allowed quantity

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