SIERA VSP 8733HD 4in1
PTZ CAMERA
USER´S MANUAL

## 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 lighting 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:**

- Persons 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 normal operation and possibly void the warranty. There are no serviceable parts inside the 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 rod and surge suppressors are installed before the dome is entered into service.

- 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 high voltage cables.

15. Use supplied power supply transformer only.

**INDEX**

* 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

| | |
|---|---|
| Horizontal Rotation Speed | 0.02-480°/s |
| Tilt Rotation Speed | 0.02-160°/s |
| Horizontal Rotation Range | 360° |
| Tilt Rotation Range | 93° |
| Auto Flip | Horizontal 180°, Vertical 93° |
| Ratio Speed | Support |
| Preset Points | 220 |
| Go to Preset Speed | 1-64 grades available |
| 360° Scan | 1-64 grades setting available |
| A-B Scan | User programmable |
| A-B Scan Speed | 1-64 grades setting available |
| Dwell Preset | 1-60s interval available |
| Guard Tours | 8 groups |
| Guard Points | Max.16 points, dwell time user selectable |
| Pattern Scan | 4pcs |
| Pattern Scan Record | Max.512 commands |
| PWR On Action | Memory/Pattern1/Tour 1/360° scan/A-B scan/Home/None |
| Park Mode | Pattern 1/Tour1/360° scan/A-B scan/Home/None |
| Park Time | 1-60mins setting available |
| Menu | English |
| Pan and Tilt position display | Support |
| Communication protocol | Pelco-D, Pelco-P |
| Baud Rate | 1200/2400/4800/9600bps (Default is 2400bps) |
| Operating Temperature | Indoor:0°C-+40°C/ Outdoor:-40°C-+70°C |
| Operating Humidity | ≤95% Non Condensing |
| Power Supply | DC12V 4A/AC24V 3A |
| Lightning Protection | Transient voltage 6000V |
| IR distance | 50 -300 meters |
| IR illumination on | 1-15 grades selectable |
| Power Consumption | ≤25W |

## 1.3 Function Description

**Multilanguage OSD Menu**

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

**Privacy Mask(Optional)**

In the monitoring scope, areas that users can't or aren't willing to make show in the screen of the monitor can be set as privacy protected area (area masking), such as area where customers enter the password in monitoring system of bank or some doorway.

**Alarming Set (Optional)**

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 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 back-light 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).

**Auto-recognize to Protocol and Module**

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

**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.).

**Zero Alignment**

There is a point specified as zero point. When the dome is working, the preset point is not accurate because of something caused by the operator. User can make the dome automatically enable the zero alignment by operational order.

**Auto Flip**

In the manual tracking mode, when a target goes directly beneath the dome, the dome will automatically rotate 180 degrees in horizontal direction to maintain continuity 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 Coaxial Control

The dome supports coaxial control and also supports RS-485 communication signal.

### 2.1.1 AC24V power cable transmission distance and cable requirement

In general, the power cable has resistance, there are internal losses when transmitting the voltage, the longer of the cable used, the smaller the wire diameter, the worse loss will suffer. In order to avoid losses of cable causing low voltage and keep the dome work properly, when processing wiring please refer to the requirement below:

| Cable diameter | 0.5mm²(20#) | 1.0mm²(18#) | 1.5mm²(16#) | 2.5mm²(14#) |
|---|---|---|---|---|
| Dome distance | 11m(37ft) | 18m(60ft) | 29m(95ft) | 46m(152ft) |

For example, if a dome is 35 meters away from the power, power cable used must be more than 2.5mm², otherwise, the dome may suffer insufficient power supply and could not work properly.

Remark: The dome with DC12v should be less than 3 meters away from power supply.

## 2.2 Bracket Dimensions

### 2.2.1 Wall Mounted Bracket
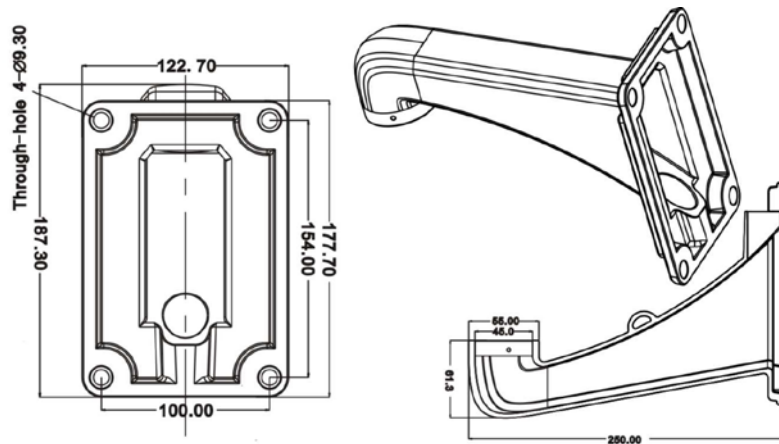


### 2.2.2 Corner Mounted Bracket
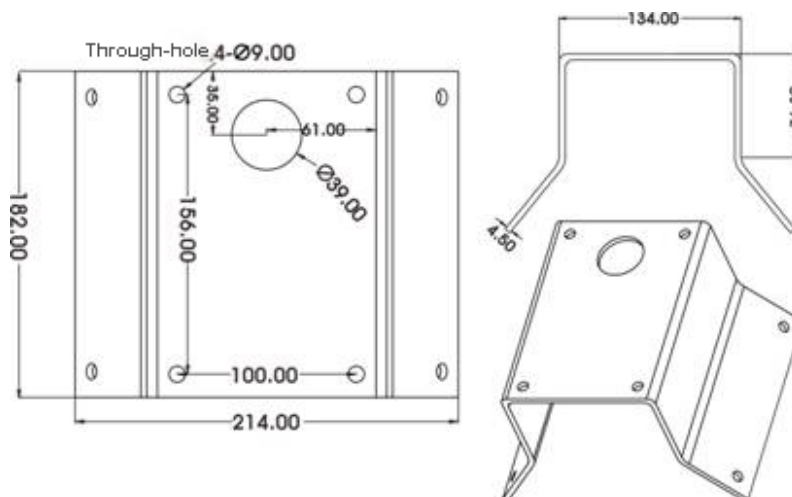


### 2.2.3 Pole Mounted Bracket
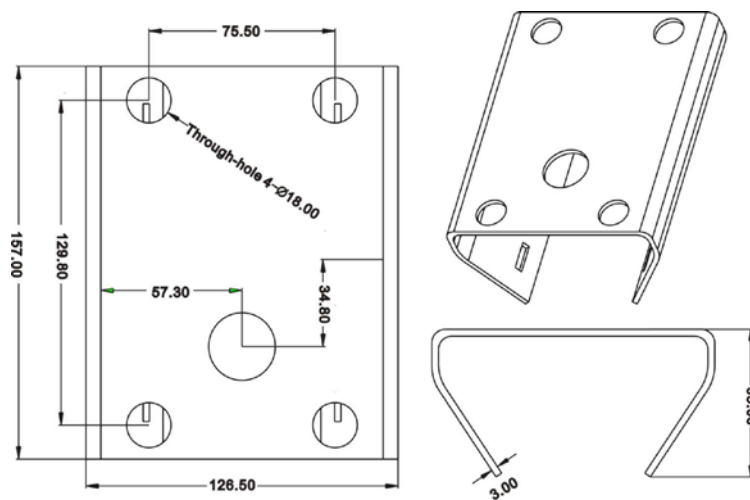
### 2.2.4 Ceiling Mounted
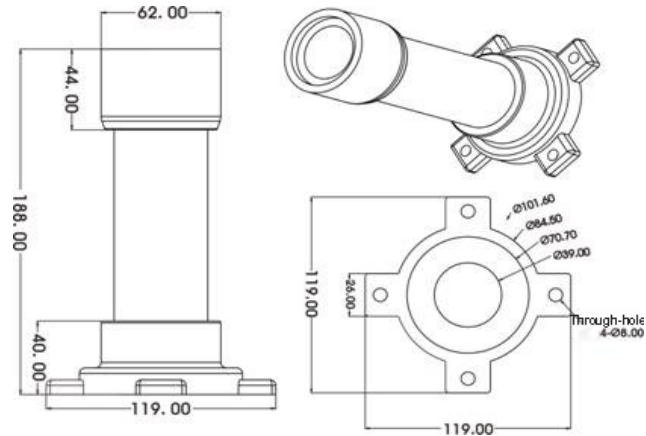


## 2.3 Installation of Brackets.

### 2.3.1 Wall Mounted
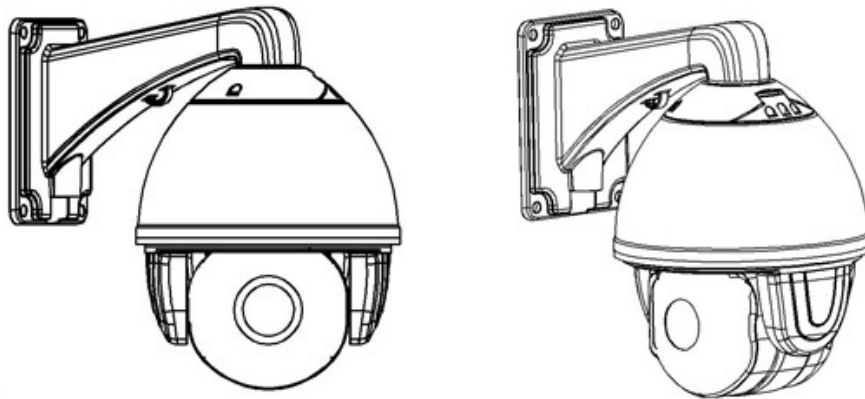


Fig 1

Installation conditions:

Wall mounted dome can be used in the hard wall structure whose thickness 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.
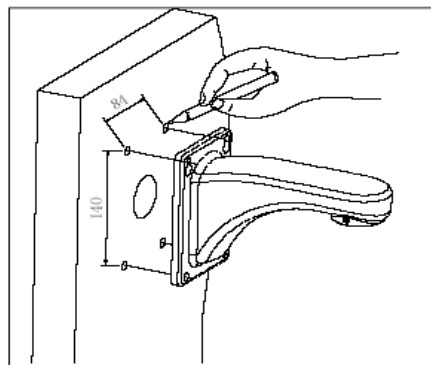


Fig 2

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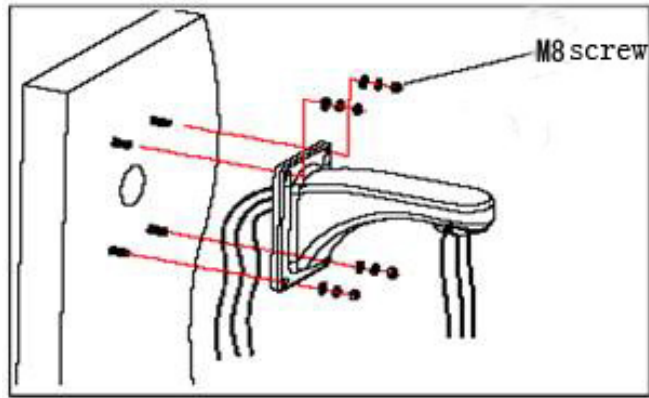
Fig 3

## 2.3.2 Corner Mounted
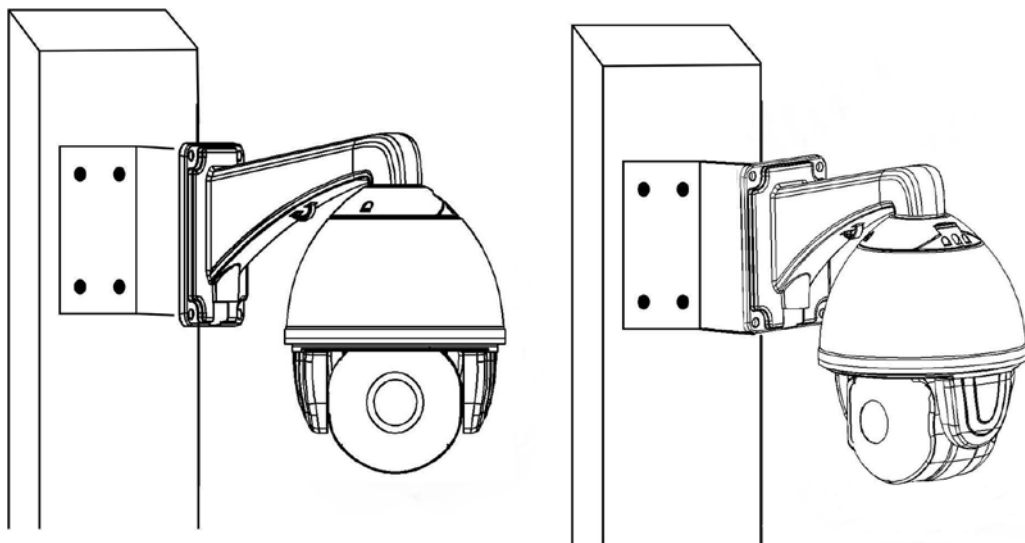


Fig 4

Installation conditions:

Corner mounted dome can be used in the hard wall structure with an angle of 90° whose thickness 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 Fig5, with the installation holes in the corner mounted attachment as pattern, draw punched locations on the wall with an angle of 90°and punch to install expansion bolt.
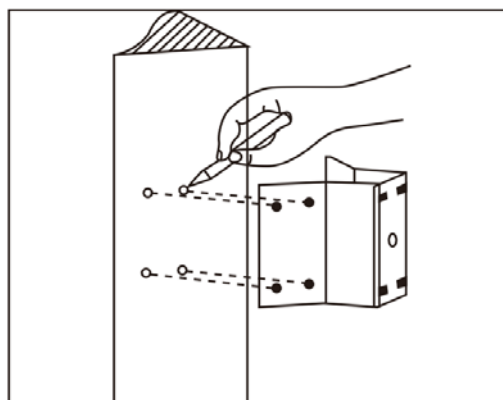


Fig 5

b. As shown in Fig6, 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.
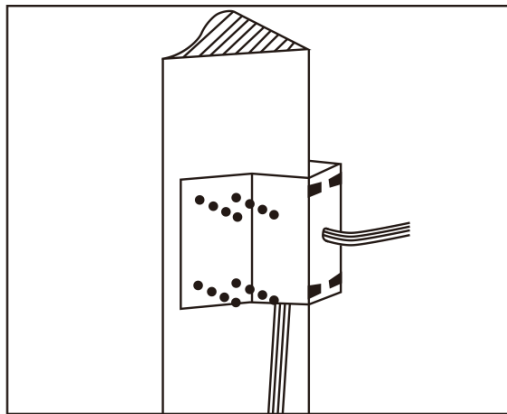


Fig 6

c. As shown in Fig7, fix the wall hanging bracket with all cables power through it on the corner mounted attachment.
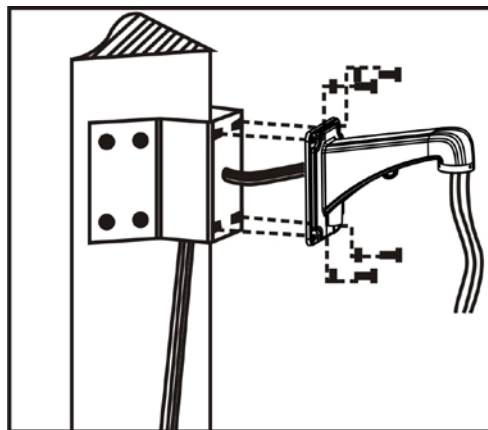


Fig 7

### 2.2.3 Pole Mounted
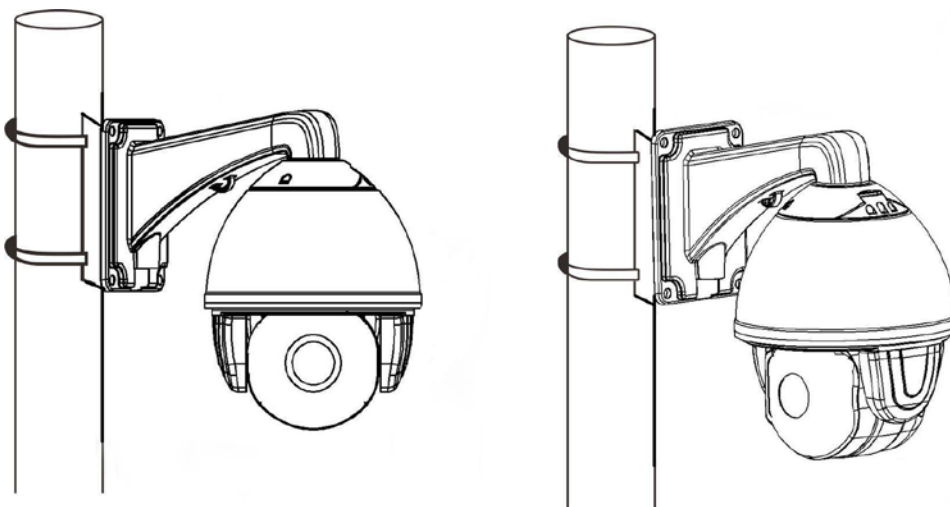


Fig 8

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 φ130-152mm 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 9, use the stainless hose clamps to fix the pole mounted attachment with all cable through it on the pole structure.
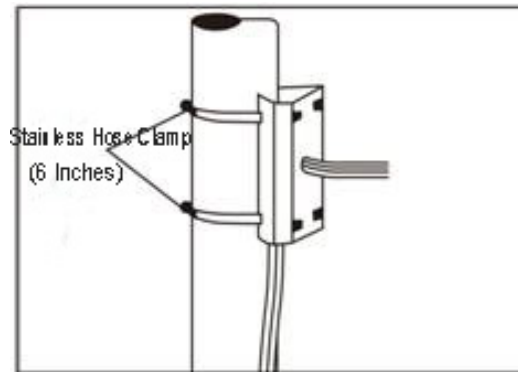


Fig 9

b. As shown in Fig 10, fix the wall hanging bracket with all cables through it on the pole mounted attachment.
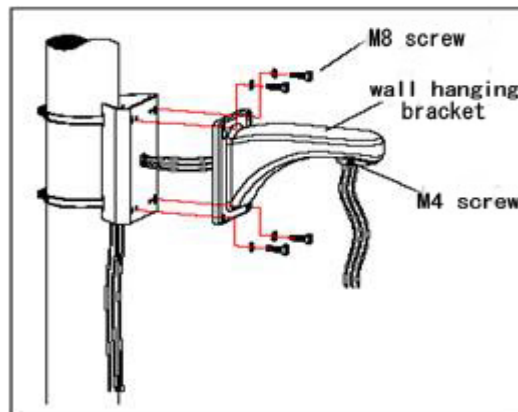


Fig 10

### 2.3.4 Ceiling Mounted
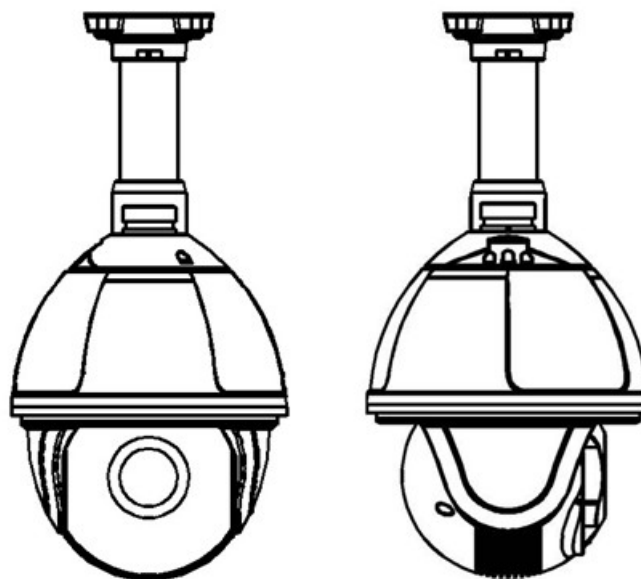


Fig11

Installation conditions:

Ceiling mounted dome with thick pole can be used in the hard ceiling structure whose thickness 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 12, with the installation holes in the base of ceiling as pattern, draw punched locations in the ceiling and punch to install M6 expansion bolt.
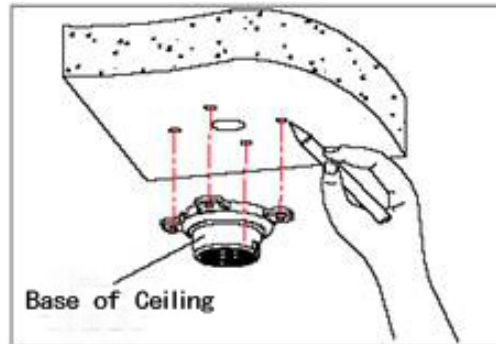


Fig 12

b. As shown in Fig 13, at first unscrew the M4 screw at the side of the base of ceiling and split the base of ceiling and boom. Then make the three groups of cables of power, video/control and alarming into the side recessing seal groove of the ceiling connector bottom and through the core hole of the base of ceiling mounted. Fix the base of hang ceiling on the ceiling board.
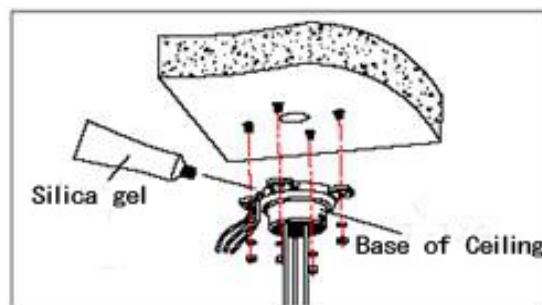


Fig 13

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

c. As shown in the Fig 14, tighten the boom with electrical wire and cable through it on the base of ceiling and screw up the M4 screw.
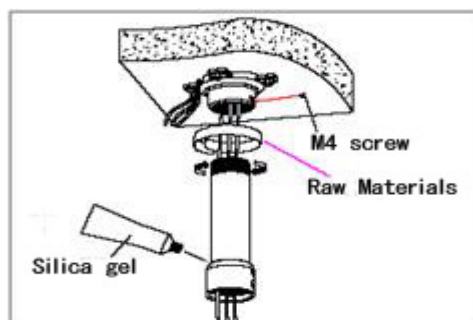


Fig 14

**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

Before connecting, please turn off the power and read carefully the instructions of all connected devices. (If the camera and the DVR support coaxial control, please ignore this step).
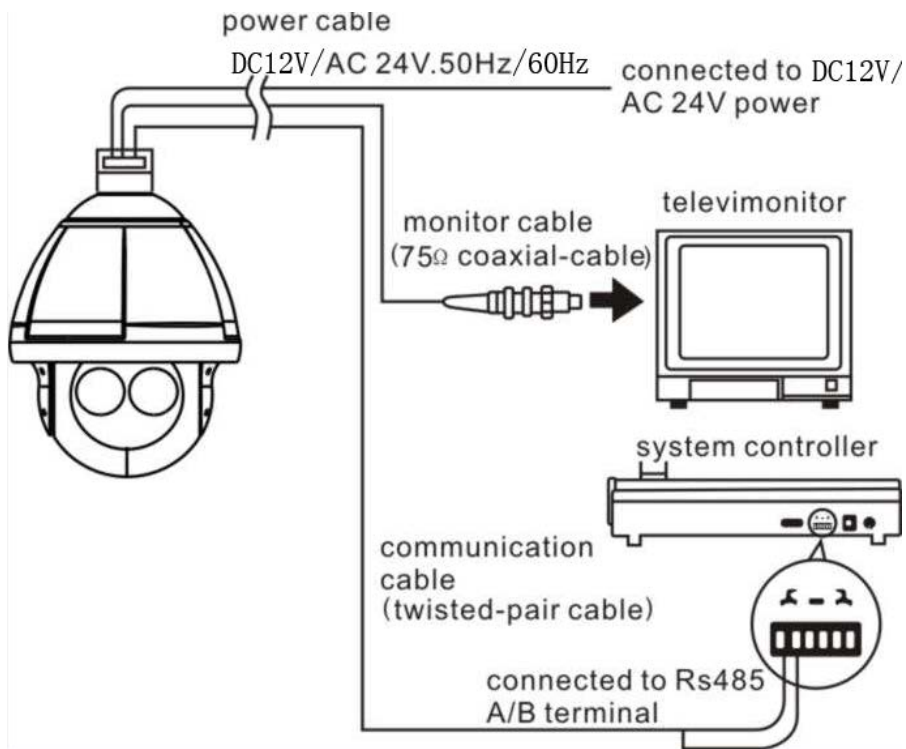


Fig 24

# 3. Function Instruction

## 3.1 Power Up Action

```
        <SYSTEM>
------------------------------------
 MFG
 PROTOCOL            AUTO
 DOME ID
 COMM
 TEMPERATURE
 VERSION

 EXIT
```

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

Power Up Self Testing          Pan, Tilt, Camera Self-test Completion

✧ Lens action: Lens zooms out to the widest angle.

✧ Pan action: Pan rotate in certain direction and stop in zero coordinate.

✧ Tilt action: Tilt rotate in certain direction and stop in zero coordinate.

✧ 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 key in the keyboard.

**Zoom**

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

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

**Focus**

Press FOCUS- button, close shot will become clearer while long shot will become fuzzy.

Press FOCUS+ button, long shot will become clearer while close shot will become fuzzy.

**Iris**

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

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

**Preset Point**

Setting preset to press buttons "preset" + "number" + "enter".

Calling preset to press buttons "call" + "number" + "enter".

Deleting preset to press buttons "clear" + "number" + "enter".

**Remark:** Some preset points are occupied by special functions.

## 3.3 Shortcut commands

Below is list of shortcut commands, user can enable the function by shortcut command easily.

| Call PREST | FUNCTION | Call PRESET | FUNCTION |
|---|---|---|---|
| 16 | OSD on/Call twice | 86 | BLC on |
| 34 | Reset | 87 | BLC off |
| 35 | Wiper on | 88 | Freeze on |
| 36 | Wiper off | 89 | Freeze off |
| 75 | Pattern 1 | 92 | A-B scan |
| 76 | Pattern 2 | 94 | OSD off |
| 77 | Pattern 3 | 95 | OSD on |
| 79 | Digital zoom on | 96 | Guard tour 3 |
| 80 | Digital zoom off | 97 | Guard tour 2 |
| 81 | Auto day/night | 98 | Guard tour 1 |
| 82 | Switch to night | 99 | Pan scan |
| 83 | Switch to day | Set Preset | |
| 84 | Force on far light | 92 | Preset A |
| 85 | Force on near light | 93 | Preset B |

**Remark**: Some special functions probably can't be effective because of the limit of protocol when the dome controlled by different devices.

## 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 optional 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. When entering the setting page in menu, it is useless to call preset 94 to exit the menu directly. Such as the sub-menu <SET> in menu <GUARD TOUR SET>.

# 4 OSD Menu

## 4.1 Menu Index

```
<SYSTEM>

MFG
PROTOCOL
DOME ID
COMM
TEMPERATURE
VERSION
EXIT
```

```
<COMM>

DEVICE ID
CHECK ID

TARGET ID
SOFT PROTOCOL
BAUD RATE
<COMM RESET>
SAVE
EXIT
```

```
<IR DISPLAY>

WORKING MODE
TESTING TIME
OUTPUT POWER
ILLUMINATION ON
AMBIENT LIGHT
IR SWITCH ZOOM
EXIT
```

```
<GUARD TOUR  01>

ID POINT TIME SPEED
01001    06    64
02002    06    64
03003    06    64
04004    06    64
05005    06    64
06006    06    64
07007    06    64
08008    06    64
```

```
<DOME>

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

```
<A-B SCAN>

<PRESET A>
<PRESET B>
SCAN SPEED
DWELL TIME
RUNNING
DELETE
EXIT
```

```
<GUARD TOURS>

GUARD TOUR
<SETTING>
INIT
RUNNING
DELETE
EXIT
```

```
<PAN SCAN>

PAN SCAN SPEED
INIT
RUNNING
EXIT
```

```
<A-B SCAN>

PRESET1 SAVE
PRESET2 BACK
```

```
<CAMERA>

CAM
ZOOM SPEED
DIGITAL ZOOM
FOCUS
IRIS
BLC
FREEZE
EXIT
```

```
<PATTERN>

PATTERN NO
<SETTING>
RUNNING
DELETE
EXIT
```

```
<PRIVACY ZONE>

MASK NO.
MASK
<SETTING>
EXIT
```

```
<PARK ACTION>

PARK MODE
PARK TIME
<SETTING>
RUNNING
DELETE
EXIT
```

```
<PATTERN>

PRESET1 SAVE
AND BACK
PRESET2 BACK
LAST MENU
```

```
<MAIN MENU>

<SYSTEM>
<DOME>
<CAMERA>
<DISPLAY>
<LANGUAGE>
<TIMING TASK>
<ALARM>
<RESET>
EXIT
```

```
<DISPLAY>

SYSTEM
P AND T
ZOOM
ACTION
DOME ID
COMM
TIME
EXIT
```

```
<ADVANCED>

PWR ON ACT
RATIO SPEED
AUTO FLIP
<OTHERS>
EXIT
```

```
<PARK ACTION>

PRESET1 SAVE
PRESET2 BACK
```

```
<LANGUAGE>

LANGUAGE
EXIT
```

```
<TIME SETTING>

TIME-YEAR
TIME-MONTH
TIME-DATE
TIME-HOUR
TIME-MIN
TIME-SEC
SAVE
EXIT
```

```
<PRIVACY ZONE>

PRESET1 SAVE
PRESET2 BACK
```

```
<TIMING TASK>

<TIME SETTING>
<TIMING TASK>
EXIT
```

```
<ALARM>

ALARM NO.
ALARM MODE
PRIORITY LEVEL
ALARM IN
ALARM ACTION
ALARM OUT
RELEASE TIME
PATROL TIME
EXIT
```

```
<TIMING TASK>

START  END FUNCTION
00-00 00-00    OFF
00-00 00-00    OFF
00-00 00-00    OFF
00-00 00-00    OFF
00-00 00-00    OFF
00-00 00-00    OFF
```

```
<RESET>

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

## 4.2 System Information

```
                <MAIN MENU>
-------------------------------------------

<SYSTEM>
<DOME>
<CAMERA>
<DISPLAY>
<LANGUAGE>
<TIMING TASK>
<ALARM>
<RESET>
EXIT
```

```
                  <SYSTEM>
-------------------------------------------
MFG
PROTOCOL                    PELCO D-P
DOME ID                           001
COMM                        2400.N.8.1
TEMPERATURE                    41.8℃
VERSION              V863R15122109
EXIT
```

When enter the OSD, it display

Enter to the SYSTEM, you will see:

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

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

**DOME ID**: Display the dome address

**COMM**: Baud rate.

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

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

**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>
<PATTERN>
<PARK ACTION >
<PRIVACY ZONE>
<ADVANCED>
EXIT
```

## 4.3.1 Communication

```
        <COMM>
------------------------------------
 DEVICE ID              125295
 CHECK ID               125288

 TARGET ID                 000
 SOFT PROTOCOL            AUTO
 BAUD RATE                2400
 <COMM RESET>
 SAVE
 EXIT
```

```
      <COMM RESET>
------------------------------------

 RESET TO DIAL THE CODE




 OK
```

Fig4.3.1.1                              Fig.4.3.1.2

**DEVICE ID**: It is sole and auto generated by system.

**CHECK ID**: To change the TARGET ID, please input the CHECK ID exactly same as the DEVICE ID displays on the screen.

**TARGET ID**: Target ID is available from 001 to 250 and used to distinguish several domes of same ID.

**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, choose "YES" ,the dome will save the setting automatically and restart

**SAVE**:    After saving, the dome will reboot. Communication setting take effect.

## 4.3.2 IR Display

```
       <IR DISPLAY>
------------------------------------
 WORKING MODE           AUTO
 TESTING TIME            08S
 OUTPUT POWER           100%
 ILLUMINATION ON          03
 AMBIENT LIGHT            09
 IR SWITCH ZOOM           06

 EXIT
```

**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 programmed action accordingly, eg. Switch from day to night or from night to day. The detection time is from 2s to 15s selectable.

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

**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 grades.

**IR SWITCH ZOOM**: When zoom value reaches to the demanded setting, the IR LEDs with auto switch from near illumination to far illumination, zoom value option from 01-10.

### 4.3.3 Guard Tours

```
      <GUARD TOURS>
-----------------------------------
GUARD TOUR            01
<SETTING>
INIT
RUNNING
DELETE


EXIT
```

```
           <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
```

**GUARD TOUR**: Total 8 guard tours selectable.

**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 grades selectable.

**INIT**: After initial, preset point, dwell time and 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>
----------------------------------
PRESET A            01
PRESET B            02
SCAN SPEED          20
DWELL TIME          06S
RUNNING
DELETE
EXIT
```

```
         A-B SCAN
----------------------------------
RUNNING….
```

Fig4.3.4.1                                    Fig 4.3.4.2

**PRESET A**: On A-B scan, A point can be any point

**PRESET B**: On A-B scan, B point can be any preset.

**SCAN SPEED**: A-B scan speed is 1 to 64 grades 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
-----------------------------       -----------------------------
PAN SCAN SPEED        20             RUNNING…
INIT
RUNNING
EXIT
```

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

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

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

## 4.3.6 Pattern

```
         <PATTERN>                          <PATTERN>
-----------------------------       -----------------------------
PATTERN NO          OFF             PRESET 1 SAVE
<SETTING>                           PRESET 2 BACK
RUNNING
DELETE
EXIT
```

## 4.3.7 Park Action

```
       <PARK ACTION>                      <PARK ACTION>
-----------------------------       -----------------------------
PARK MODE           OFF
PARK TIME           01M
<SETTING>
CALL                                PRESET 1: SAVE
DELETE                              PRESET 2: BACK
EXIT
```

<div align="center">4.3.7.1                                    4.3.7.2</div>

**PARK MODE**: Park mode includes OFF, Park action, A-B scan, Pan scan, guard tour 01, pattern 1.

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

**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 Min's selectable.

**SETTING**: After entering the OSD menu, as 4.3.7.2, move to the desired position and save the settings.

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

**DELETE**: Delete the settings.

## 4.3.8 Privacy Zone (Optional)

| <PRIVACY ZONE> | <PRIVACY ZONE> | <PRIVACY ZONE> |
|---|---|---|
| MASK NO.          01<br>MASK               OFF<br><SETTING><br><br><br>EXIT | <span style="color:red">PRESET1:SAVE AND BACK<br>PRESET2:BACK MENU</span> | PRIVACY PROPOSED TO OPEN |
| 4.3.8.1 | 4.3.8.2 | 4.3.8.3 |

**MASK NO.**: Mask No. depends on the number of the module supported.

**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 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. 4.3.8.3.

## 4.3.9 Advanced

| <ADVANCED> |  |
|---|---|
| PWR ON ACT | ACTI ON |
| RATIO SPEED | ON |
| AUTO FLIP | ON |
|  |  |
| <OTHERS> |  |
| EXIT |  |

**PWR ON ACT**: Power on action can be set as Memory, A-B scan, Pan scan, Park action, Pattern 1and No action, Guard tour 1.

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

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

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

WIPER MODE: WIPER MODE is On or Off status.

WIPER SPEED: Wiper speed 1 -5 level adjustable

WIPER TIME: Wiper time 1-5 times adjustable

## 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 Display

```
            <DISPLAY>
--------------------------------
SYSTEM                    PAL
P AND T                    ON
ZOOM                       ON
ACTION                     ON
DOME ID                    ON
COMM                       ON
TIME                      OFF
```

**SYSTEM**: 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.

**ZOOM:** Displays the zoom level.

**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.

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

**TIME**: Displays the current time on screen.

## 4.6 Language

```
            <LANGUAGE>
.......................................................
LANGUAGE              ENGLISH
EXIT
```

**LANGUAGE**: Default language is English.

## 4.7 Timing task

```
            <TIMING TASK>
.......................................................
<TIME SETTING>
<TIMING TASK>
EXIT
```

```
        <TIMING TASK>
.......................................................
START     END    FUNCTION
-00  00 - 00   00           OFF
 00  00- 00   00           OFF
 00  00- 00   00           OFF
 00  00- 00   00           OFF
 00  00- 00   00           OFF
 00  00- 00   00           OFF
EXIT
```

```
        <TIMING SETTING>
.......................................................
TIME-YEAR              2016
TIME-MONTH              01
TIME-DATE               06
TIME-HOUR               15
TIME-MIN                34
TIME-SEC                56
SAVE
EXIT
```

## 4.8 Alarm (Optional)

```
              <ALARM>
        ----------------------------
        ALARM  NO              01
        ALARM MODE            06S
        PRIORITY LEVEL        OFF
        ALARM IN             LOW
        ALARM ACTIO PRESET     1
        ALARM OUT             NO
        RELEASE TIME         OFF
        PATROL TIME           06
        EXIT
```

**ALARM NO**: Alarm has OFF and ON selectable.

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

**PRIORITY LEVEL**: To run alarm 1, presets 1-4 and tour are available.

**ALARM IN**: Alarm in has low input and high input selectable.

**ALARM ACTION PRESET**: When prior is none, alarm action preset point 1-8 selectable, when prior is 1-4 level, alarm action has pattern, guard tour, 360 scan, preset scan and preset point 1-8 selectable.

**ALARM OUT**: Alarm out has NC (normal close) and NO(normal open) selectable.

**RELEASE TIME**: Alarming release time, 0-59s selectable, the default is OFF.

**PATROL TIME**: Patrol time is 0~59s selectable. The default is 6s.

## 4.9 Reset

```
          <RESET>
    ----------------------------
    <DOME RESTART>
    <SYS DATA>
    <CAM DATA>
    <PRESET>
    OK
```

```
        <DOME RESTART>
    ----------------------------
    CONFIRM: SAVE DATA,
              DOME RESTART


    OK
```

```
          <SYS DATA>
    ----------------------------
    CONFIRM: FACTORY DEFAULT
    OK
```

```
          <CAM DATA>
    ----------------------------
    CONFIRM: FACTORY DEFAULT
    OK
```

**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 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 6000V, 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 have proper ground protection. 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 25mm$^2$.
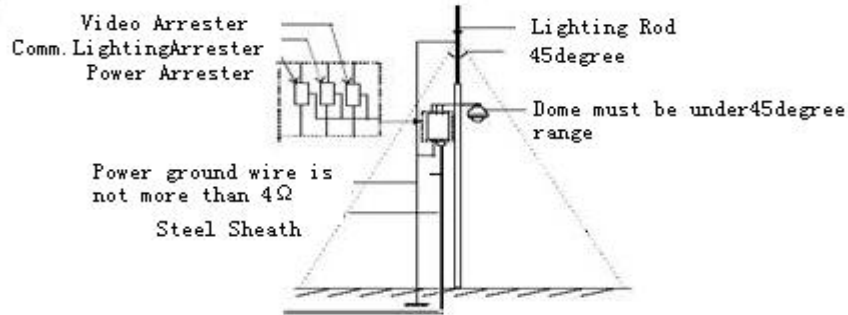
Fig 1

# 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 undercover. 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 120Ω, whose maximum load capacity is 32 payloads (including the master device and the controlled device).

## 2. Mode of Connection and Terminal Resistance

Industry standard of RS485 bus requires that connection in a 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
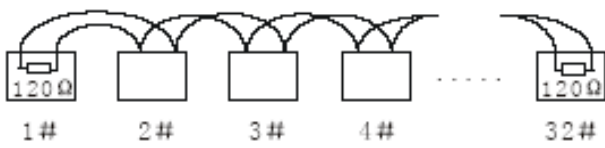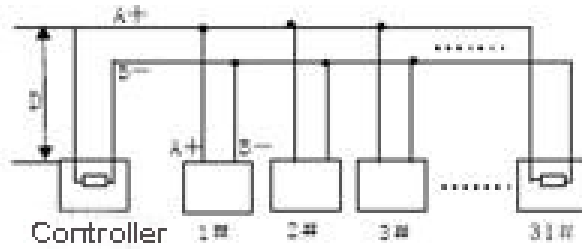
beyond 7 meters.



Fig.2



Fig,3

# 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 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 | 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 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 |