# XtendLan

# SDOMEO4802701

**Outdoor Day/Night Speed Dome with built in Sony CCD 27x optical zoom camera**

# SDOME4802201

**Indoor Day/Night Speed Dome with built in Sony CCD 22x optical zoom camera**

# User's Guide

## *Safety Attention Notes*

- Please read the instructions thoroughly before installing or operating the unit.
- Please do not put the machine on an unstable table or mounting bracket.
- Please prevent all liquids or other contaminating material from entering into the dome housing.
- When connecting to the power source, please follow all electric safety standards and only use the power supply designated for this device. The speed dome's RS-485 and video signal uses TVS technology to protect it from strong electric surges. This technology prevents damage to the device resulting from impulse signals such as lightning strikes or surges under 500W power. Allow for enough distance between the RS-485 and video signals and high-voltage equipment or cables during the transmission process. Please do not power the unit until all connections are secure and installation is complete.
- Avoid shooting very bright objects directly into the camera's CCD (such as the sun or light fittings).
- When the machine is not operating properly, do not casually repair it. Refer to the instructions for information about how to service or repair your speed dome.
- Please protect the unit against extremes of vibration, pressure or dampness while transporting unit. Damage can occur from improperly packaging the unit while shipping.
- Please only install the outdoor dome camera system in outdoor environments.

# Contents:

# 1   Introduction

Congratulations on purchasing our speed dome, an intelligent, high-speed dome camera with a high-performance DSP camera and sophisticated zoom lens. It is an advanced  technological surveillance product combining an all-direction variable speed dome and digital decoder all in one unit. It can aim quickly and scan continuously, making omni-directional and non-blind-spot monitoring into reality. Additionally, it can quickly adapt to changing environments with its 18x optical and 12x digital zoom with precise stepping motors. The advanced stepping motor technologies enable the dome to rotate smoothly, respond sensitively and aim precisely. The speed dome camera has memorizing function when the power cuts off, can auto resume to previous working status before the power cuts off. Use the high-performance speed dome "When

it *Counts.*''

All of the features make the intelligent high-speed dome camera fit for a wide range  of applications such as intelligent building, bank, street of city, airport, station etc.

# 2   Technical Data

## 2.1   *Technical Parameter of Intelligent High-speed Dome*

| Model | Outdoor Day/Night Speed Dome | Indoor Speed Dome |
|---|---|---|
| Power Supply | AC24V | DC12V, 3A |
| Operating temperature | -40℃~+60℃ | 0℃~+40℃ |
| Operating moisture | ≤95% | |
| Power consumption | 20W | |
| Communication | RS485 bus | |
| Communication transmission speed | 1200/2400/4800/9600bps | |
| Horizontal rotation speed | 0.4°–280° (1-64 grade shift gears) | |
| Horizontal rotation range | 360° unlimited rotation | |
| Tilt rotation range | 90° | |
| Auto f lip | Rotates 180° when camera tilts to the vertical position | |
| Auto zoom speed control | Control speed auto-adjusted according to zoom length changing | |
| 2 points scan | Can set freely | |
| 2 points scan speed | 1–64 grade available | |
| Dwell time(2 points scan) | 1–60s available | |
| Preset Positions | 128 pcs | |
| Running to preset speed: | 1–64 grade available, 0.4° - 280° | |
| Dwell time at preset position | 1–60s available | |
| Cruise Tour: | 8 group | |
| Cruise Points Qty per cruise group | 16 preset positions | |
| Fan, Heater | Fan and heater auto-starts 12VAC | NIL |

## 2.2   2.2. Camera Parameter for High-speed Dome:

| Model | Outdoor Day/Night Speed Dome | Indoor Speed Dome |
|---|---|---|
| Mode | ¼" Sony Exview (Day/Night) CCD | ¼" Sony Exview (Day/Night) CCD |
| Scan | 2:1 Interlace | 2:1 Interlace |
| Resolution | >480 lines | >480 lines |
| Minimum illumination | 0.8lux/0.01lux (b/w mode) | 1lux/0.01lux (b/w mode) |
| Iris | Auto/manual | Auto/manual |
| Focus | Auto/manual | Auto/manual |
| Zoom | 27x optical | 22x optical |
| Focal length | f=4 – 88mm | f=3.25 – 88mm |
| Angle of view | 44° (wide), 2° (Tele-) | 52° (wide), 2° (Tele-) |
| Backlight compensation | Backlight compensation | Backlight compensation |
| White balance | Auto | Auto |
| Gain | Auto | Auto |
| Signal | PAL/NTSC | PAL/NTSC |
| S/N ratio | >55dB | >55dB |
| Video signal output | 1.0 ± 0.2Vp-p | 1.0 ± 0.2Vp-p |

# 3   Setting, Installation, Connection

## 3.1   Dome Address, Transmission Speed, Protocol Setting

Before the dome is installed, the communication protocol, baud rate and dome address, should be confirmed. Set the code switch, keeping the setting consistent with the control system. The relative code switch site and connecting wire are diagrammed below for reference.
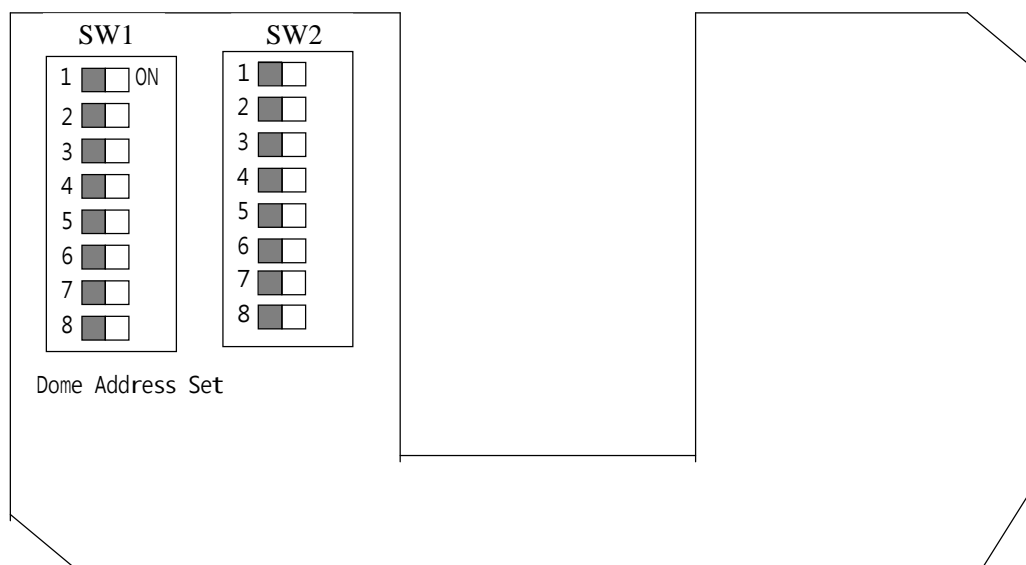


Note: Internal version has only 6 SW2 switches.

### 3.1.1 Speed Dome Camera Address Setting

The address code for the speed dome should be properly set before use to ensure accurate operating order of the controller at the control centre and to control many dome cameras. The address code is made up of ADD (8 bits) on PCB board. The 8 bits switch uses the 8421 binary coded decimal system. The largest value is established at 256. 1 means ON status and 0 means OFF status.  Each dome address code and keyboard relative screen display mode is represented in the chart below (see the following figure and the address/digits in following chart)

**SW 2 switch:**

| Pelco Coaxitron | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dip Switch | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Address | off | off | off | off | off | off | off | off |

| Pelco "P" Rx Address=Switch Value plus 1 | | | | | |
|---|---|---|---|---|---|
| Dip Swithch | 1 | 2 | 3 | 4 | 5 |
| Rx Address 1 | off | off | off | off | off |
| Rx Address 32 | on | on | on | on | on |
| Switch Value | 1 | 2 | 4 | 8 | 16 |

| Pelco "D" Rx Address=Switch Value plus 1 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dip Swithch | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Rx Address 1 | on | off | off | off | off | off | off | off |
| Rx Address 254 | off | on | on | on | on | on | on | on |
| Switch Value | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 |

With reference to the above chart: When all code switches are under "OFF" status on speed dome, address code is 1. When you input Numerical key No.1 on control keyboard, then press CAM key for confirmation showing that set keyboard address as No.1 control address., At this time, keyboard can control speed dome camera(its control address is 0001). Other address is to be set as above.

### 3.1.2 Speed Dome Camera Communication Protocol Setting

SW 1 switch:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Pelco "P" | on | off | off | off | off | off | off | off |
| Pelco "D" | off | on | off | off | off | off | off | off |
| Dip Switch | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

### 3.1.3 Speed Dome Camera Transmission Speed Setting (Baud Rate Setting)

The 5th and 6th bits of FUN on the PCB board are used to set the baud rate (see following figure). The default baud rate setting is 9600.

SW2 switch:

| Dip Swithch | 6 | 7 | 8 |
|---|---|---|---|
| 2400 Baud | off | off | off |
| 4800 Baud | on | off | off |
| 9600 Baud | off | on | off |

## *3.2  Installation, Connection*

### *Attention!*

1. Installation should only be handled by a qualified CCTV expert.
2. For detailed connection information, please refer to silk-screen print instruction on PCB and installation guide or manuals.
3. Because the dome is a high-grade optical unit, please never touch any of the optical components.
4. For a clear image, the dome cover should be cleaned periodically. When cleaning, position your hand to hold dome's outer loop to prevent finger sweat acidity from corrupting the surface of the dome. If the dome is scratched, it will affect image quality. Therefore please use a soft dry cloth or similar products to clean its outer surface. If the dust is heavy, you can use a neutral cleanser. Any advanced furniture cleanser can be used to clean the dome exterior.

## *Installation Preparation*

### 3.2.1  Installation Requirement

• Installation should be handled by a qualified service agent and should comply with all local regulations, Service personnel should forecast potential problem such as falling objects, outer breach, building vibration or other similar conditions.

• Check for all necessary materials, and ensure if the selected installation location is suitable for the speed dome.

### 3.2.2  Outdoor Speed Dome Camera Wall Hanging Installation

#### – Wall Hanging Installation

ATTN: Installation locations should endure 5 times weight of total weight (dome camera, mounting bracket and mounting base) to avoid in shaken images.
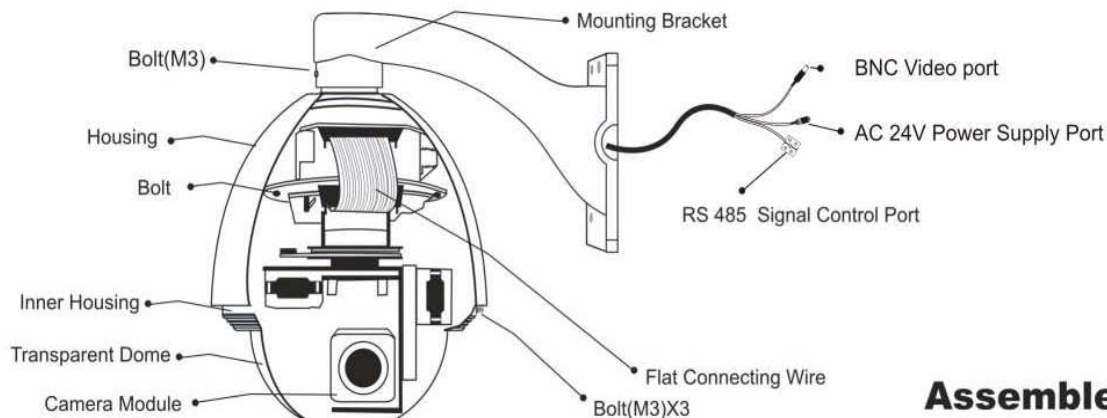


**Assemble Sketch**

a. Set wall bracket mounting on the wall. Draw out center site of the hole on the wall against bracket sample

b. Use drill to make 4 holes with the M8 size at the designated site. Screw in M8 bolt for mounting

c. Put power, communication and video lines through bracket hole, leaving enough wire length Maneuverability.

d. Fix the bracket to the wall with 4 M8 bolts and mounting tray.

- **Please** make an installation hole site with a M6 Bolt size
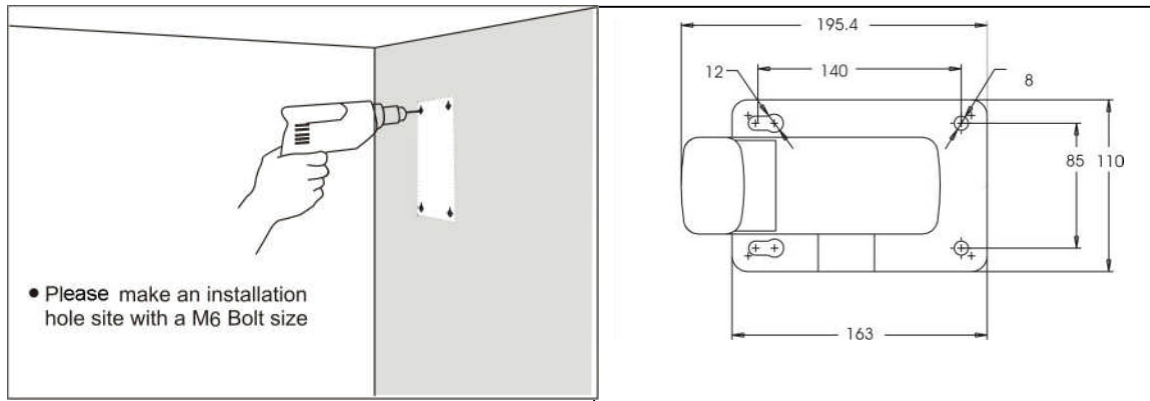
- **Housing Installation**

**a.** Remove housing from the packing and put the cable into the bracket from bracket top. Install G1 1/2 bolt on the top of housing into the bolt of wall bracket. At the same time, use two M8 bolt to secure in place.



*Camera Module Installation*

- Install under the condition that the power is off

- Loosen the two M5 bolts on the bracket, which are located in the inner housing.

- Take the camera module from the packing, and check if connecting wire plugs are loose. Set code switch of the dome.
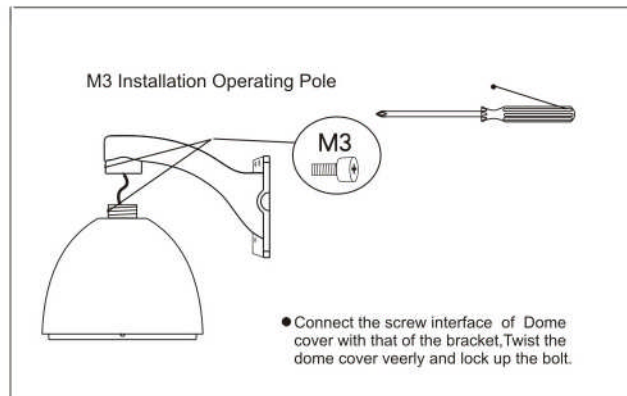
- Secure the camera module (use one hand to hold stepping motor, preventing it from moving.). Insert the wire terminal into the outlet on the end of camera module. Align two holes on the camera module base with the two M5 bolt of the connecting bridge. Twist the camera module in to place. Ensuring the two M5 bolts reach the end of bar hole. Tighten the two M5 bolts to make camera module fixed on the upper housing.

- Put down the camera module with both hands, and pls pay attention to bolt hole.Then twist on the camera module according to picture A Finally use bolt tool to lock up(see picture B.)
- Should insert flat wire into Socket on the base in correct direction (see picture B)

⚠ Please pay attention to device falut resulting from loose bole.

- Please inseret flat wire info socket strongly and be sure to be locked

⚠ Please be sure that the connection between flat control wire and socket on base is fixed.

## Connection (Outer connecting wire )

Connect BNC video interface of outdoor speed dome camera with video wire (BNC). Connect power supply line with set power line (AC24V).

> **Should not connect positive and negative polarity of RS485 contrarily. A RS485 positive, B RS 485 negative polarity. If connect RS485 contrarily, will not control outdoor speed dome camera**

## Electricity

- Check the polarity of the plug and outlet, then check all connecting wires
- Domes enter self-inspection, and carry out a replacement program when first powered on. (During the replacement process, self-inspects horizontal and tilt rotation to starting point before camera lens extend, then make a horizontal 360° and tilt 90° rotation). After the dome stops completely, the self-inspection is completed and dome is ready to be controlled.

## Dome Mounting

- Please make 3 bolt holes aim at housing bolt holes, and use thee M3 bolts to fix.
- Use soft cloth to wipe off dust and smudges of transparent dome, avoid scratching the dome



- Please wear protective glove in order not to Scratch the dome.
- Please align mounting hole here and use M3 bolt to lock.
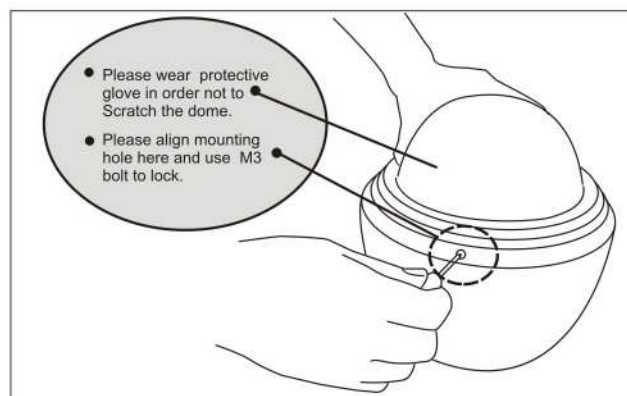
⚠ Please ensure that the carrying capacity of ceiling, wall and bracket must support above 5 times weight of dome and its installation parts.

## 3.2.3 Indoor Hemisphere Dome Camera Recessed Installation

ATTN: Installation locations should endure five times the total weight of the camera assembly (dome camera, mounting bracket and mounting base) to avoid in shaken images. Installation ceiling must be strong and has no peeling phenomenon.
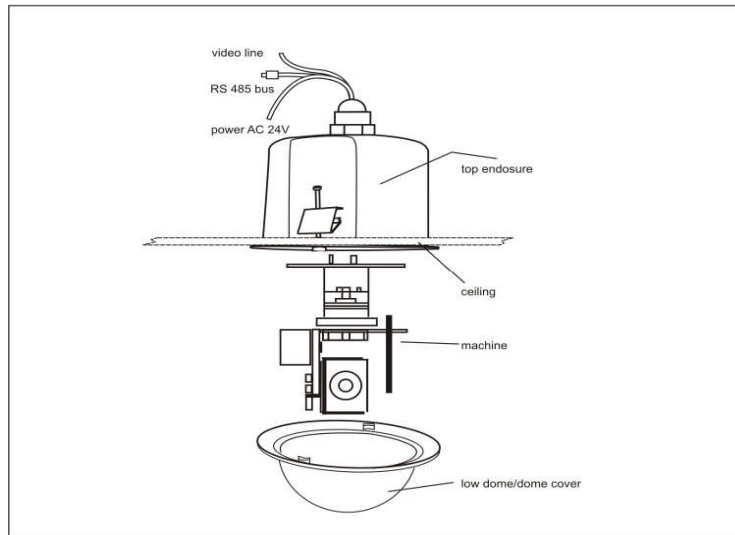


A. Draw out center site of the hole on the ceiling against embedded upper housing sample
B. Use drill to make hole on the ceiling
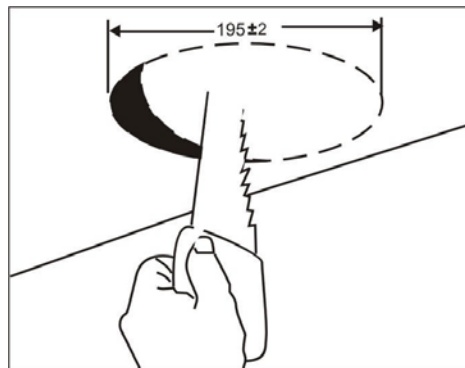
## Housing Installation

**A** Take out the housing from the carton, adjust the thickness of bolt reed more than that of ceiling.

**B** Stick 3 rings to housing, and install the upper housing in the round hole of the ceiling, connecting flange edge with the ceiling surface closely.

**C** Use screwdriver to rotate the bolt of the ring, making the ring stick to the ceiling in order to connecting flange edge with the ceiling surface closely.



Ceiling thickness

## Camera Module Installation

☐ Turn power supply off prior to installation.

☐ Loosen the two M5 screw on the bracket, which are located in the inner housing .

☐ Take the camera module from the packing carton, and check if connecting wire plugs are loose. Set code switch of the dome camera.
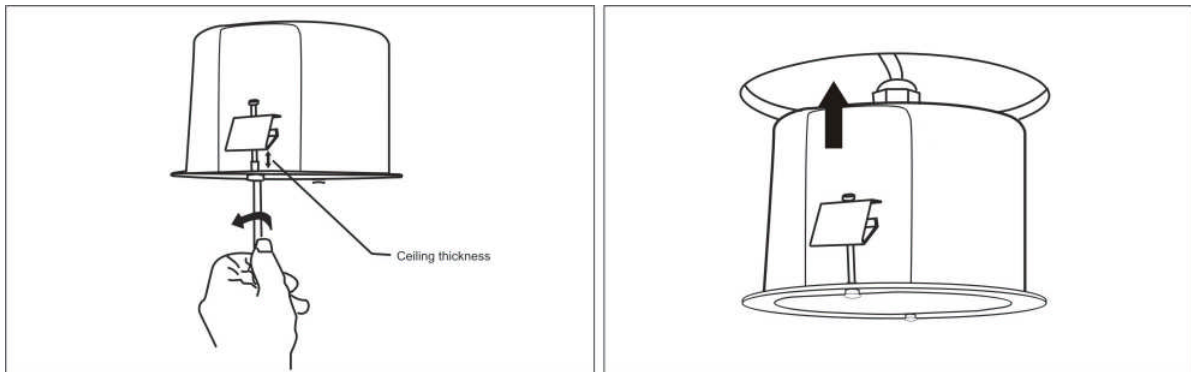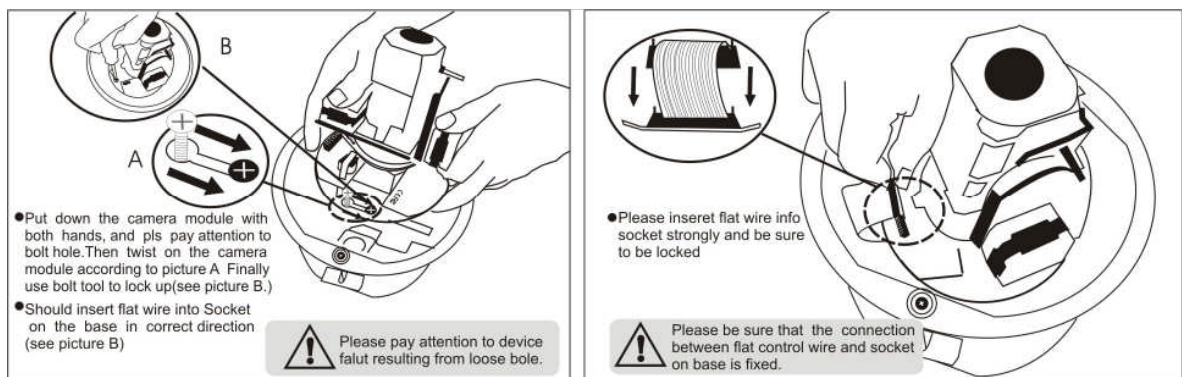
☐ Secure the camera module (use one hand to hold stepping motor, preventing it from moving.). Insert the wire terminal into the outlet on the end of camera module. Align two bar holes on the camera module base with the two M5 bolt of the connecting bridge. Twist the camera module upward ensuring the two M5 bolts reach the end of bar hole. Tighten the two M5 bolt to make camera module fixed in the upper housing.



● Put down the camera module with both hands, and pls pay attention to bolt hole.Then twist on the camera module according to picture A Finally use bolt tool to lock up(see picture B.)

● Should insert flat wire into Socket on the base in correct direction (see picture B)

⚠ Please pay attention to device falut resulting from loose bole.

● Please inseret flat wire info socket strongly and be sure to be locked

⚠ Please be sure that the connection between flat control wire and socket on base is fixed.

## Connection (Outer Connecting Wire)

Connect BNC video interface of dome camera with video wire (BNC) which is finished installing. Connect power supply line with power line (AC24V) which have been set well.

> ⚠️ Should not connect positive and negative polarity of RS485 contrarily. A RS485 positive, B RS 485 negative polarity. If connect RS485 contrarily, will not control indoor speed dome camera

### Electricity
- Check the polarity of the plug and outlet, then check all connecting wires.
- Domes enter self-inspection, and make a horizontal 360° and tilt 90° rotation to test camera lens, dome horizontal and tilt electronic& mechanical structure. Then carry out a replacement program rotating to starting point. After the dome stops completely, the self-inspection is completed and dome is ready to be controlled.

### Dome Mounting
- Use soft cloth to wipe off dust and smudges of transparent dome cover, avoid scratching it
- Align two holes on the dome cover edge with the two connection points of the metal upper housing.
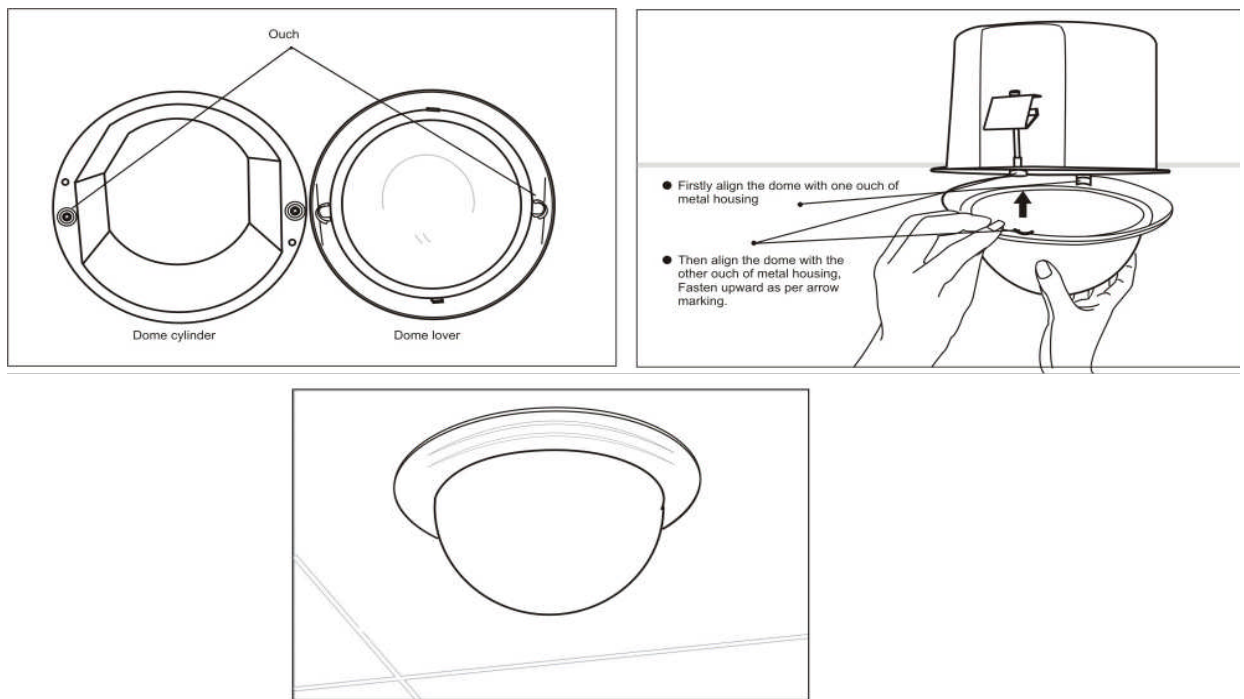


> ⚠️ ATTN: Please ensure that the dome cover and metal housing are connected firmly

# 4 Control Keyboard Control Use Instruction to Speed Dome Camera

Use the keyboard controller to realize the complete potential of the speed dome. (The control keyboard control protocol is set as the default protocol for the speed dome.)

## 4.1 Setting and Adjusting Preset Position

The Preset function is the dome's default level angle, lean angle and camera focal length in EMS

memory.  By using this saved parameter, the dome and camera can run to the preset positions when it is required.   Operator can save and adjust preset positions by using the control keyboard; the speed dome can support 128 preset positions.

### 4.1.1 Setting Preset Position

Adjust the speed dome camera to the desired position using the keyboard joystick/rocker (including location, camera zoom, focus and iris), and then input the required preset position number. The inputted preset position value No. is displayed at the bottom of the LCD "DATA" area. Press Shift + Call, to confirm position. The preset position at "DATA" disappears showing that the preset position was set successfully.

**For example: Set No.1 preset position**

1.   In the Main Menu screen, Press CLR to Clear the data. The keyboard displays:

```
MON    CAM    DATA
 00     0000    0000
```

2. Enter the Preset Position Number you wish to set

Ex. Set Preset Position No. 1, the keyboard displays:

```
MON    CAM    DATA
 00     0000    0001
```
← Displays the Preset Position Number (1-128)

3. Adjust the speed camera to the desired position including location, camera zoom, focus and iris.

4. Press Shift + Call for final confirmation.

### 4.1.2 View Preset Position

Use the keyboard to view the preset position. (Preset positions are saved in advance). Input the preset position you would like to view, Data area will display preset position number. Press Call key, the dome will move to the target place.

**For example: View No.5 preset position**

1. In the Main Menu, Press CLR to clear the data.

```
MON    CAM    DATA
 00     000     0000
```
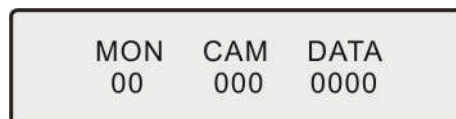
2. Input the preset position you would like to view. Example: View preset position No. 5
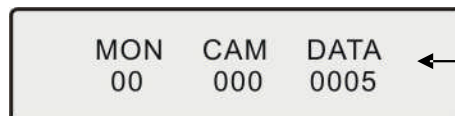
```
MON    CAM    DATA
 00     000     0005
```
← Displays the Preset Position Number (1-128)

3. Press the CALL key.    The dome will move to the Preset Position No. 5

## 4.2  Dome Pattern Tours

Pattern Tours are a key function of the speed dome camera. You can layout the preset position order in the pattern tours through our advanced program. Using the control keyboard you set the rotation speed for each preset position and dwell time at each preset position. Only an outer command unit can transfigure the speed dome camera into a pattern tour program route.

### 4.2.1 Preset Position Parameter Setting

speed dome camera has the capacity to set up to 128 preset positions through the keyboard. It can set a running speed at each preset position from 0.4/s to 280/s (1-64grades) and dwell time from (1-60seconds).

Note: speed dome can rotate at low speeds and at fast speeds. Its speed can be divided into 64 grades. 1 is the lowest speed and 64 is the fastest speed.

To get to the control keyboard Main Menu Press Exit until the screen displays:

```
MON    CAM    DATA
 01    0001   0000
```

1. In the Main Menu, Press the SHIFT+EXIT key. Keyboard displays:

```
1)Speed dome .Setup
   Number:0001
```

Press CLR to delete previous data. Input required SPEED DOME address code XXXX （1-1024）for control. Press Enter for

2. Enter the correct Speed Dome Unit and Press Enter.
Example: Preset Position for Speed Dome 3. Keyboard displays:

```
1) Speed Dome Setup
   Number:0003
```

Displays the Speed Dome Address (1-1024)

3. Now the control Keyboard displays:

Preset position (1-128)

Running speed (1-64)

```
1.Position:000
Speed:00   Time:00
```

Dwell time(1-60)

**Press** Shift+MON key **key on the keyboard to move the cursor up and down**

4. Press CLR key to delete previous data before programming to a new preset position.
5. Enter desired Preset Position and Press Enter.
6. Press Shift+MON to get to Speed.    Using the number keys enter the desired running speed.
7. Press Shift+MON to get to Time.    Using the number keys enter the desired dwell time.

For example: Set the running speed of preset position No. 6 as Grade 64 (fastest speed), dwelling time is 5 seconds. Set the running speed of preset position No.2 as Grade 10, dwelling time is 10seconds.

1. Press the SHIFT+EXIT key.
2. Press CLR to clear the data.
3. Input 06 (Note: Setting the Preset Position No. 6) press the Enter Key to Confirm.
4. Press the Shift+MON key to move the cursor to Speed:00←
5. Input 64, press Enter
6. Press the Shift+MON key to move the cursor to Time:00←
7. Input 05, press Enter

8.  Press Shift+MON to move the cursor back to 1.Position:001←
9.  Press CLR to delete 0006
10. Input 02, press Enter
11. Press the Shift+MON key to move the cursor to Speed:64←
12. Press CLR to delete 64
13. Input 10, press Enter
14. Press the Shift+MON key to move the cursor to Time:05←
15. Press CLR to delete 05
    Input 10, press Enter

## 4.2.2  Sequence Setting

This function can realize that camera can scan from No.1 preset position to No.16 preset position, every 16 preset positions are treated as one sequence, there are 128 preset positions for speed dome camera, so there are 8 sequences.

Setup sequence:

First, you need to setup preset position (shift + call + Preset No.) and give every position a number and name them, such as  No.1, No.2.....No.128, every 16 preset position as one sequence.

When sequence is ok, to press "call+ preset Number" will pick up preset position,
 press "call+ 98" to pick up sequence of "No1-No16";
 press "call+80" to pick up sequence of " No17-No 32  preset position";
 press "call+81" to pick up sequence of "No 33- No 48";
 press " call+82" to pick up sequence of "No49-No64".....
 press " call +86 " to pick up sequence of "No 113-No 128 preset position.

## 4.3   Auto Scanning (2points scanning, 360° scanning)

The operator can also run a simple point-to-point scan (also called back-and-forth scanning). To do this, set Preset Point A first (at the same time set the dwell time at Point A), and then set Present Point B (at the same time set the dwell time at Point). Finally execute an outer command to scan between points A and B.

### 4.3.1  2 Points Scan

1. To set Point A. Move the joystick to the desired position.
2. In the Main Menu enter a dwell time for Point A.  Example: If Dwell time is 2 seconds the control
   keyboard displays:

| MON | CAM | DATA |
|-----|-----|------|
| 00  | 0000 | 0002 |

3. Press PAN A.
4. To set Point B. Move the joystick to the desired position.
5. In the Main Menu enter a Dwell time for Point B.
6. Input the grade Speed (1-64) and Press AUTO
Example: Set dwell time of Point A as 2 seconds, dwell time of Point B as 3 seconds. Make the scanning at 32-grade speed between the two points
a) Move control joystick to Point A of scanning
b) Input 02, then press Pan-A on the keyboard after two seconds c)
Move control joystick to Point B of scanning
d) Input 03, then press SHIFT+Pan-A on the keyboard after two seconds e)

Input 32 grade, then press AUTO key.

This will scan starting at Point A to Point B at a scanning rate of 32 grade stopping at Point A for 2 seconds and Point B for 3 seconds.

### 4.3.2 360° Scan

The Operator can also start an auto cruise scan. This scan will rotate 36O°from the desired position.

1. In the Main Menu, input desired cruise group No.

Example: Desired Group No. is 4 the control keyboard displays:

```
MON   CAM   DATA
 00   0000  0004
```

2. Press Shift + Scan to place PTZ into cruise scanning.

OR

1. Move the joystick to desired position.

2. Input the running speed (1-64) and then input Shift + AUTO key.

**Note: When speed dome camera is under the auto scanning status, you can use the joystick if you want it to stop scanning.**

## 4.4  Objective Tracking

A user can rotate the camera lens up, down, left and right to view objects through the field of vision using the control keyboard. In addition, a user can adjust focal length to change the angle of view or the size of the objects. When in auto - iris and auto-zoom mode, the camera adjusts automatically to get a clear picture with changing image environments.

**Focus/Rotate Auto Speed Controls**

When manually adjusting the zoom length or focal distance at longer ranges, a typical PTZ dome may move too quickly resulting in the loss of important images. The out door speed dome is especially designed to adjust the sensitivity of the Pan and Tilt controls making navigation easy and intuitive at these long ranges.

**Auto Flip**

The speed dome's auto-pan rotation with 180-degree flip capabilities automatically rotates the camera $90^°$ when the camera tilts to the vertical position. This feature enables the continuous monitoring of an object as it passes through the field of vision.

## *4.5 Camera Control*

### 4.5.1 Zoom Control

The user can adjust the advanced zoom feature to acquire needed image through control keyboard. The speed dome features a 216x zoom magnification (18x Optical and 12x Digital).

### 4.5.2 Focus Control

The speed dome's default setting is for auto-adjust focusing. Under special conditions, a user can adjust the focus manually meet the required image effect.

⚠ The speed dome will not auto -focus the target object under the following conditions:

**a.** The object is not on the center of the picture.
**b.** Attempting to view images that are far and near at the same time
**c.** Object is strongly lighted object, such as neon lamp, focus lamp and etc.
**d.** Objects behind the glass covered by beat and dust.
**e.** Objects moving quickly
**f.** Objects within large area and single color such as wall
**g.** Objects that are too dark or faint

### 4.5.3 Iris Control

- The speed dome's default setting is for auto-adjust iris. It can make an adjustment quickly through auto detecting the beam change.
- User can adjust iris size manually through control keyboard to get required image brightness.
- User can renew auto iris after moving the joystick or sending additional commands through the controller (Attn: Suggest users to use auto iris).

Remark: When controlling the iris manually, the dome locks in its current control position and will not reset the auto-iris even if current object changes. You need to move the joystick or send control order to reset the auto iris.

### 4.5.4 Auto Backlight Compensation

Camera is divided into six areas to realize auto backlight compensation. In lighting conditions where a strong backlight exists, the speed dome will adjust the light levels relative to the foreground and background objects in order to achieve the highest resolution image. The camera is divided to 6 zones to best handle these unique lighting conditions.

### 4.5.5 Auto White Balance

The speed dome will automatically adjust the white balance to contrast the changing background lighting conditions to achieve the truest digital color image.

# 5  Camera Menu Setting

Through the control keyboard , you can enter the speed dome camera menu setting.

V.1 Camera Menu  （LGCamera．CNB Camera．J270zoom Camera）

| Operating Key | Function |
|---|---|
| Set 95 preset postion | Enter Camera menu |
| ZoomWide | Cursor up |
| ZoomTele | Cursor down |
| FocusFar | Increase of data(or select the item) |

| FocusNear | Decrease of data(or select the item) |
|---|---|

V.2 Camera Menu（Sony Camera,Pelco protocol）

| Operating Key | Function |
|---|---|
| Set 95 preset postion | Enter into camera menu |
| Set 96 preset postion | Cursor(up) |
| Set 97 preset postion | Cursor(down) |
| Set 98 preset postion | Menu Data Select |
| Set 99 preset postion | Menu data confirm |

V.3 Camera Menu（Sony Camera,Matri protocol）

1. Press "MPX"or"Auto", control keyboard displays:

1) Speed Dome Setup
Number:0000

⟶ Press Enter key

2.Press "MPX"or"Auto", control keyboard displays:

5) Dome Menu
Data:0000
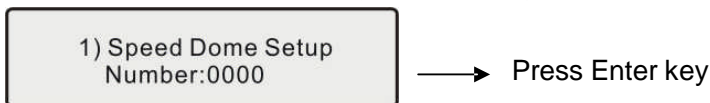
⟵ Displays Speed Dome Address
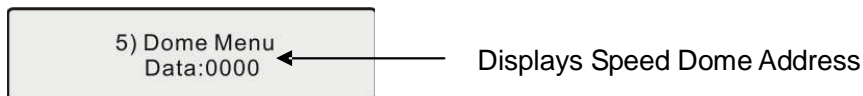
3. Press CLR to delete Original Data

4. Input desired speed dome Address, Press Enter

**01.** Use MPX key（Page up）and Auto key(page down) to select camera OSD. Press DVR key (confirmation), Pan_A (Select).

PELCO-D、PELCO-P、SAMSUNG、KALATEL  protocol：Adjust preset position:No.55 and

enter menu. Please refer to VI.

**02.** Take example for SONY camera to introduce each menu function

**1)**CAM ID（camera marking No.）

**2)**DZOOM：OFF（Digital zoom switch）

Press down PAN_A key，status from OFF ⟷ ON change

**3)**FOCUS：AUTO（Auto Focus）

Press down PAN_A key, status from AUTO(auto) ⟷ MAN(Manual) change

**4)**MIRROR：OFF（Right-Left shift）

　　Press down PAN_A key，status from OFF ←——→ ON change

**5)**NEGATIVE：OFF

　　Press down PAN_A key，status from OFF ←——→ ON change

**6)**ICR：AUTO（B/W —color auto shift）

　　Press down PAN_A key, status from AUTO(auto) ←——→ OFF change

　　Then select AUTO status, the Day/Night dome camera will shift B/W image when the illumination is low. When select OFF, will not shit as B/W image.

**7)**COLOR：OFF（Color display）

　　Press down PAN_A key，status from OFF ←——→ ON change

**8)**FREEZE：ON（Picture Freeze）

　　Press down PAN_A key，status from OFF ←——→ ON change

**9)**DISPAY：OFF（Screen display）

　Press down PAN_A key，status from OFF ←——→ ON change

**10)**BACKLIGHT：ON

　　Press down PAN_A key，status from OFF ←——→ ON change

**11)**WBC MODE：AUTO（whit balance）

　　Press down PAN_A key, status from AUTO ←——→ INDOOR ←——→ OUTDOOR ←——→ MAN

**12)**BRIGHT：

**13)**RGAIN（Red gain）

**14)**BGAIN（Blue gain）

**15)**LOST POWER SAVE（Save set）

　　Press down DVR key and save set

**16)**EXIT MENU

　　Press down DVR key and exit the menu

**17)**SET PRIVACY ZONE

　This function can be optional.

# 6  Protocol Order Chart

## 6.1  PELCO-D, PELCO-P Protocol Order Chart

P.S.: PELCO protocol has no relative order in control protocol because of part special function. In order to control some special function of dome, we make function shift to usual function. Usually adopt "adjust preset position/set preset position order" to make shift. Order shift chart see as below:

| N Code | Keyboard Operations | | N Code | Keyboard Operations | |
|---|---|---|---|---|---|
| | Adjust preset position: No. N | Set No. N preset position | | Adjust preset position: No. N | Set No. N preset position |
| 80 | Start the second group preset (17-32preset ) | Set watch preset on | 89 | Start Two point Scan high speed | |
| 81 | Start the third group preset (33-48preset ) | Set watch preset off | 92 | Set two point scan start point | Clear Alarm |
| 82 | Start the four group preset (49-64preset ) | Set watch preset wait time five sec. | 93 | Set two point scan end point | |
| 83 | Start the five group preset (65-79preset ) | Set watch preset wait time ten sec. | 95 | | Enter into camera menu |
| 84 | Start the six group preset (81-96preset ) | Digital zoom ON | 96 | 360ºScan slow speed | Cursor(up) |
| 85 | Start the seven group preset (100-112preset ) | Digital zoom OFF | 97 | 360º Scan middle speed | Cursor(down) |
| 86 | Start the eight group preset (113-128preset ) | Auto turn ON | 98 | Start the second group preset (1-16preset ) | Menu Data Select |
| 87 | Start Two point Scan slow speed | Auto turn OFF | 99 | 360ºScan high speed | Menu data confirm |
| 88 | Start Two point Scan middle speed | | | | |

For example: Use control keyboard to control speed dome PELCO protocol.

Set the protocol, address and baud rate to speed dome camera, make it same as that of the keyboard. When Input 51, then input CALL, the dome will make the slow scanning between two points. If input 51, then input SHIFT + CALL, will enter starting point of line scanning(i.e. point 1).

If other some control device to control speed dome camera, Part of special function for Intelligent high speed dome can't be realized because of protocol limitation.

When other control device to control speed dome camera, need set protocol, address and baud rate correctly. When you set address, please set the speed dome protocol 1 more than other control device. For example: DVR address is 1, dome camera address should be set as 2 for normal control.

# 7  Exception Handling

| Issue | Possible Reason | Solution |
|---|---|---|
| Power on, no movement, no image, indicator light does not light | Power line connected wrong | Correct it |
| | Power damaged | Replace |
| | Blowout | Replace |
| | Power line be connected bad | Check it |
| Power on, self check, has image, can't control, indicator light does not flicker | The machine's address code or baud rate is wrong | Reset |
| | Protocol wrong | Correct it |
| | RS485 bus be connected wrong | Check it |
| Camera can't reposition itself. (camera can no longer move) | Mechanical failure | Repair it |
| | Camera incline | Correct it |
| | Power is not enough | Replace |
| Image is not stable | Video line connected bad | Check it |
| | Power is not enough | Replace |
| Image is dim | Focus in manual state | Operate the machine or adjust a preset position |
| | Dome is dirty | Clean it |

## VIII. Address-Binary code chart

| Binary System Code | Matri<br>PELCO-D<br>PELCO-P | Binary System Code | Matri<br>PELCO-D<br>PELCO-P | Binary System Code | Matri<br>PELCO-D<br>PELCO-P |
|---|---|---|---|---|---|
| 00000000 | 1 | 00010000 | 17 | 00100000 | 33 |
| 00000001 | 2 | 00010001 | 18 | 00100001 | 34 |
| 00000010 | 3 | 00010010 | 19 | 00100010 | 35 |
| 00000011 | 4 | 00010011 | 20 | 00100011 | 36 |
| 00000100 | 5 | 00010100 | 21 | 00100100 | 37 |
| 00000101 | 6 | 00010101 | 22 | 00100101 | 38 |
| 00000110 | 7 | 00010110 | 23 | 00100110 | 39 |
| 00000111 | 8 | 00010111 | 24 | 00100111 | 40 |
| 00001000 | 9 | 00011000 | 25 | 00101000 | 41 |
| 00001001 | 10 | 00011001 | 26 | 00101001 | 42 |
| 00001010 | 11 | 00011010 | 27 | 00101010 | 43 |
| 00001011 | 12 | 00011011 | 28 | 00101011 | 44 |
| 00001100 | 13 | 00011100 | 29 | 00101100 | 45 |
| 00001101 | 14 | 00011101 | 30 | 00101101 | 46 |
| 00001110 | 15 | 00011110 | 31 | 00101110 | 47 |
| 00001111 | 16 | 00011111 | 32 | 00101111 | 48 |

| BinarySystem;Code | Matri PELCO-D PELCO-P | Binary System Code | Matri PELCO-D PELCO-P | Binary System Code | Matri PELCO-D PELCO-P |
|---|---|---|---|---|---|
| 00110000 | 49 | 01011001 | 90 | 10000010 | 131 |
| 00110001 | 50 | 01011010 | 91 | 10000011 | 132 |
| 00110010 | 51 | 01011011 | 92 | 10000100 | 133 |
| 00110011 | 52 | 01011100 | 93 | 10000101 | 134 |
| 00110100 | 53 | 01011101 | 94 | 10000110 | 135 |
| 00110101 | 54 | 01011110 | 95 | 10000111 | 136 |
| 00110110 | 55 | 01011111 | 96 | 10001000 | 137 |
| 00110111 | 56 | 01100000 | 97 | 10001001 | 138 |
| 00111000 | 57 | 01100001 | 98 | 10001010 | 139 |
| 00111001 | 58 | 01100010 | 99 | 10001011 | 140 |
| 00111010 | 59 | 01100011 | 100 | 10001100 | 141 |
| 00111011 | 60 | 01100100 | 101 | 10001101 | 142 |
| 00111100 | 61 | 01100101 | 102 | 10001110 | 143 |
| 00111101 | 62 | 01100110 | 103 | 10001111 | 144 |
| 00111110 | 63 | 01100111 | 104 | 10010000 | 145 |
| 00111111 | 64 | 01101000 | 105 | 10010001 | 146 |
| 01000000 | 65 | 01101001 | 106 | 10010010 | 147 |
| 01000001 | 66 | 01101010 | 107 | 10010011 | 148 |
| 01000010 | 67 | 01101011 | 108 | 10010100 | 149 |
| 01000011 | 68 | 01101100 | 109 | 10010101 | 150 |
| 01000100 | 69 | 01101101 | 110 | 10010110 | 151 |
| 01000101 | 70 | 01101110 | 111 | 10010111 | 152 |
| 01000110 | 71 | 01101111 | 112 | 10011000 | 153 |
| 01000111 | 72 | 01110000 | 113 | 10011001 | 154 |
| 01001000 | 73 | 01110001 | 114 | 10011010 | 155 |
| 01001001 | 74 | 01110010 | 115 | 10011011 | 156 |
| 01001010 | 75 | 01110011 | 116 | 10011100 | 157 |
| 01001011 | 76 | 01110100 | 117 | 10011101 | 158 |
| 01001100 | 77 | 01110101 | 118 | 10011110 | 159 |
| 01001101 | 78 | 01110110 | 119 | 10011111 | 160 |
| 01001110 | 79 | 01110111 | 120 | 10100000 | 161 |
| 01001111 | 80 | 01111000 | 121 | 10100001 | 162 |
| 01010000 | 81 | 01111001 | 122 | 10100010 | 163 |
| 01010001 | 82 | 01111010 | 123 | 10100011 | 164 |
| 01010010 | 83 | 01111011 | 124 | 10100100 | 165 |
| 01010011 | 84 | 01111100 | 125 | 10100101 | 166 |
| 01010100 | 85 | 01111101 | 126 | 10100110 | 167 |
| 01010101 | 86 | 01111110 | 127 | 10100111 | 168 |
| 01010110 | 87 | 01111111 | 128 | 10101000 | 169 |
| 01010111 | 88 | 10000000 | 129 | 10101001 | 170 |
| 01011000 | 89 | 10000001 | 130 | 10101010 | 171 |

| Binary System Code | Matri PELCO-D PELCO-P | Binary System Code | Matri PELCO-D PELCO-P | Binary System Code | Matri PELCO-D PELCO-P |
|---|---|---|---|---|---|
| 10101011 | 172 | 11001000 | 201 | 11100101 | 230 |
| 10101100 | 173 | 11001001 | 202 | 11100110 | 231 |
| 10101101 | 174 | 11001010 | 203 | 11100111 | 232 |
| 10101110 | 175 | 11001011 | 204 | 11101000 | 233 |
| 10101111 | 176 | 11001100 | 205 | 11101001 | 234 |
| 10110000 | 177 | 11001101 | 206 | 11101010 | 235 |
| 10110001 | 178 | 11001110 | 207 | 11101011 | 236 |
| 10110010 | 179 | 11001111 | 208 | 11101100 | 237 |
| 10110011 | 180 | 11010000 | 209 | 11101101 | 238 |
| 10110100 | 181 | 11010001 | 210 | 11101110 | 239 |
| 10110101 | 182 | 11010010 | 211 | 11101111 | 240 |
| 10110110 | 183 | 11010011 | 212 | 11110000 | 241 |
| 10110111 | 184 | 11010100 | 213 | 11110001 | 242 |
| 10111000 | 185 | 11010101 | 214 | 11110010 | 243 |
| 10111001 | 186 | 11010110 | 215 | 11110011 | 244 |
| 10111010 | 187 | 11010111 | 216 | 11110100 | 245 |
| 10111011 | 188 | 11011000 | 217 | 11110101 | 246 |
| 10111100 | 189 | 11011001 | 218 | 11110110 | 247 |
| 10111101 | 190 | 11011010 | 219 | 11110111 | 248 |
| 10111110 | 191 | 11011011 | 220 | 11111000 | 249 |
| 10111111 | 192 | 11011100 | 221 | 11111001 | 250 |
| 11000000 | 193 | 11011101 | 222 | 11111010 | 251 |
| 11000001 | 194 | 11011110 | 223 | 11111011 | 252 |
| 11000010 | 195 | 11011111 | 224 | 11111100 | 253 |
| 11000011 | 196 | 11100000 | 225 | 11111101 | 254 |
| 11000100 | 197 | 11100001 | 226 | 11111110 | 255 |
| 11000101 | 198 | 11100010 | 227 | 11111111 | 256 |
| 11000110 | 199 | 11100011 | 228 | | |
| 11000111 | 200 | 11100100 | 229 | | |