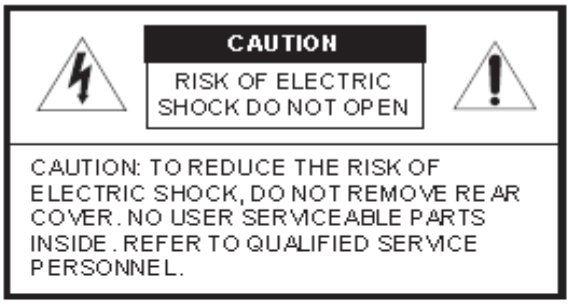
MINI INTELLIGENT DOME CAMERA

User Manual

Warnings

Thanks for purchasing a Relong color CCTV camera. Please confirm camera model and the proper supply voltage before operating the camera.

Pursuant to Part 15 of FCC rules, this equipment has been tested and found to comply with the limits for a Class A digital device.




This symbol indicates high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product.


This symbol alerts you that important literature concerning operation and maintenance has been included with this product.

To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate audio frequency energy and, if not installed and used in accordance with the construction manual, may cause harmful interference to radio communications. Users will be required to correct the interference at his expense.

Note: Be sure to use only the standard adapter that is specified in the specification sheet. Use any other adapter could cause fire. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Please read this manual carefully before installing and using this product

- Interpretation of the modification of the product design and specification shall reside with our company. The information contained herein is subject to change without notice. Previsions or new editions to this publication may be issued to incorporate such changes.
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Precautions

1. Before attempting to operate this product, please read these instructions carefully.
2. In order to avoid damaging this product, please choose the power correctly.
3. During the course of transportation , storage and installation, the product should be avoided from incorrect operations such as heavy pressing, strong vibration etc, which can cause damage of the product as there are sophisticated optical and electronic parts inside the machine. The camera should not be powered on before the installation is complete.
4. The Camera should not be put on unsteady desks and brackets.
5. Avoid liquid or other things penetrating into the camera, or the camera could be damaged.
6. To avoid affecting the usage of the Dome Camera, please do not dismount its inner elements. There are no user serviceable parts inside.
7. The unit should be used in accordance with electrical standards. Its RS-485 and Video Signal adopt TVS-level anti-thunder, so it can effectively avoid the damage caused by various pulse signals, such as instantaneous thunder below 1500w, surge, etc. Keep the camera and signal cables away from high voltage cables. Precautions for anti-surge and anti-lightening should be taken when necessary.
8. No matter the camera is in use or not, it should never be exposed to the sun or other bright objects. Otherwise, it may cause permanent damage to Camera CCD.
9. When the machine is not operating properly, do not attempt to disassemble the camera .Ask a qualified service personnel for servicing or contact our after service department.
10. Do not disassemble, or modify the system.

1. Product Overview.

Intelligent Dome Camera is a high-tech surveillance product combined high-performance and high-speed focused Integrated monitoring system, universal variable PTZ, multifunctional decoder, universal character generator, CPU as well as memory chip into one. By doing so, this kind of camera not only has the functions of rapid location and continuous follow-up scanning in a row, but also achieves the real all-round and no blind spot monitoring. Besides, it can automatically adapt to the environment and the objectives that are changing in terms of distance. This camera adopts full digital control system, and its design is quite exquisite and simple, minimizing the connections between system components to improve the reliability of the system to the greatest extent, and it is very convenient for installation and maintenance. Moreover, it uses precision stepping motor to drive, achieving the effects of stable operation, rapid response and accurate positioning, and the accuracy of positioning can reach ±0.1°. In addition, it has the intelligent functions of around scanning, pattern scanning, privacy dodging, and motion detection, alarm uploading images to the appointed mailbox or FTP server. This camera is applied to large area, and moving objects monitoring in every walk of life, such as intelligent mansion, banks, urban streets, electricity departments, airports, stations and so on.

2. Features

1. This product adopts RS 485 communication and a variety of communication protocols, baud rate adjustable; Its high universality feature makes it compatible with the main systems at home and abroad via easy DIP switch control

2. Easy –to-use importing built-in manual focus lens (4,6,8,12,16mm),

3. Its RS485 and video signal adopt TVS level anti-thunder, so it can effectively prevent the damage caused by various pulse signals such as thunder, surge etc,

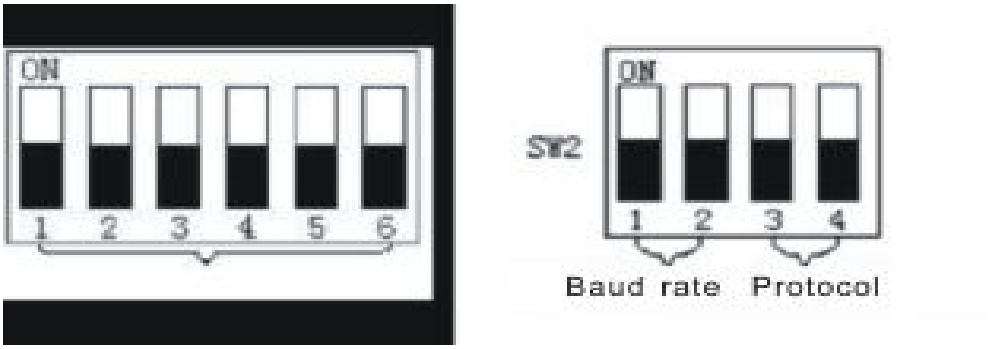
4. 360° rotation horizontally,12°/sec.
   90° rotation vertically,12°/sec.

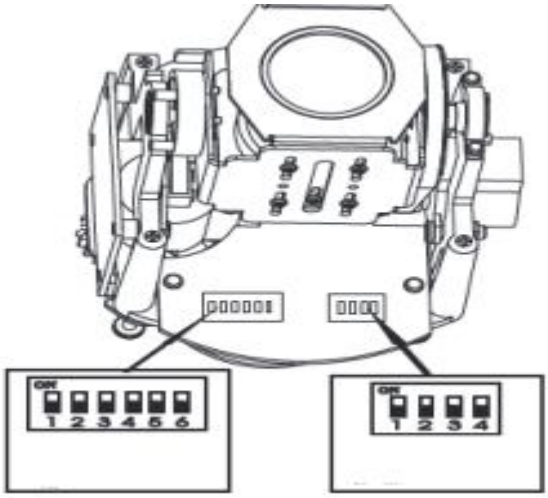
5. Exquisite design, compact structure, smooth operation, stable picture.

3. Settings

Before installing the Dome Camera, please confirm the communication protocol, baud rate and local address code of the control host, and then the DIP-switch (SW1, SW2) in the bottom of the camera should be set to be in complete accordance with that in control system. SWI is used for settings of camera ID, while SW2 is for the settings of its communication protocols and its baud rate. Its corresponding

DIP-switch settings and connecting line can be seen in picture 1:





Picture 1

4. Technical Specifications

4.1. Intelligent Dome Camera Technical Specifications:

Model	Intermediate Speed	High-Speed
Power Supply	DC12V±10%	
Operation Temperature	–20℃～+60℃	
Humidity	≤95% no dew	
Power Consumption	20W	
Communication Mode	RS485	
Baud Rate	2400/4800/9600/19200 bps	
Horizontal Rotate Speed	5°～100°（1～64shift）	5°～180°（1～64shift）
Horizontal Rotate Range	360° rotation	

Pitching Range	90°
Auto Flip Function	Auto Flip 180°when Vertical 90°
Auto Control Focus Speed	Auto adjustment according to focus change
Two Spots Scanning	At random
Two Spots Scan Speed	1～8 optional
Two Spots Scan Dwelling Time	1～60sec.optional
Preset Position Number	128
Speed to Patrol Point	1～8 optional
Every Preset Position Dwelling Time	1～60sec.optional
Scouting Group	6
Scouting Spots in every Group	16

4.2. Intelligent Dome Camera Lens' Technical Specifications:

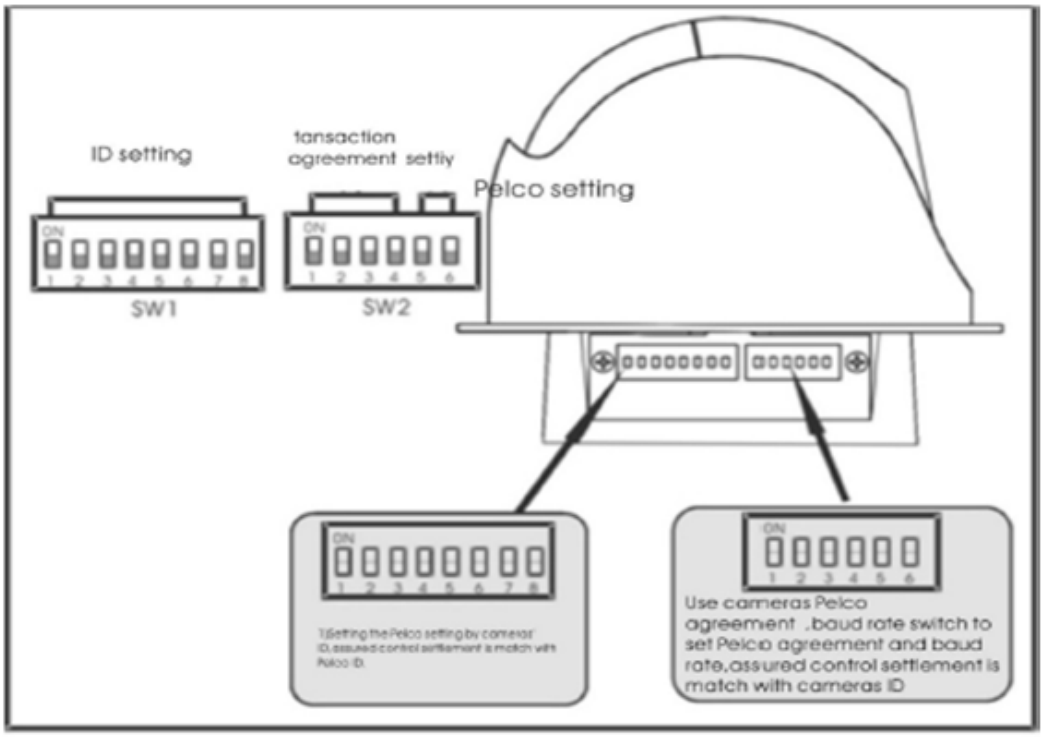
Image Sensor	1/4″SONY SUPER HAD CCD
Signal System	NTSC/PAL
Synchronizing System	Internal/External
Scanning Mode	2:1 interlacing scan
Horizontal Resolution	>480TVL
Min. Illumination	1.0Lux(color)/0.05Lux(BW)
Iris	Auto/Manual
Focus Mode	Auto/Interval/Trigger/Manual
Focus Sensitivity	High/Medium/Low
Focus Rate	10X/ Optical Zoom
Focus	3.78～37.8mm
Image Angel	Wide-angle 59°, angle 8°
BLC	Area detection BLC

AWB	Auto-speedy/manual/indoor/fluorescence light/outdoor
AGC	Auto
S/N Ratio	>52dB
Video Signal Output	1.0±0.1Vpp

5. Settings Installation and Connection

5.1. Settings of 4" Dome Camera ID, Transfer Rate and Communication Protocol

Before installing the Dome Camera, please confirm the communication protocol, baud rate and local address code of the control host, and then the DIP-switch should be set to be in complete accordance with that in control system. Its corresponding DIP-switch settings and connecting line can be seen in picture 2:



Picture 2

5．1．1　Settings of Dome Camera ID

Before the Intelligent Dome Camera is used, its address code should be firstly set by (SW1) 8 bit code switch on PCB board with binary system 8421 code. The largest encode address is 255, and the number 1 indicates “on”, while the number “0” means “off”. (As it shown in picture 3): Set each Dome Camera ID code and the keyboard

input of corresponding ID on LCD:

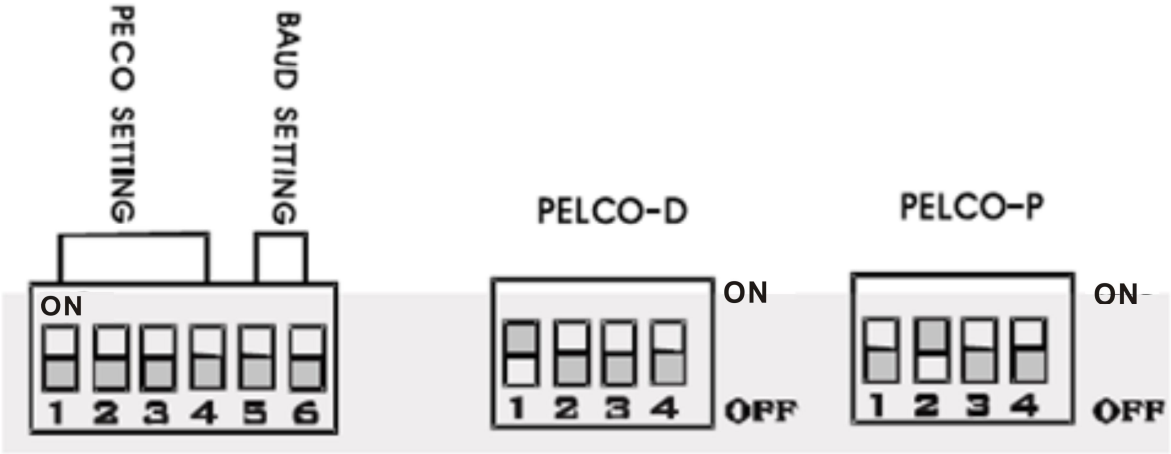
Picture 3

As shown in the picture above: The first switch is in the "ON" status, while the rest VAD switches are "OFF", the Camera ID is 1. Click the "CAM" button on the control keyboard, and then input number "1". Then click "Enter" again, which indicates that the ID is set as NO.1 control ID. The Dome Camera ID can be set as 001.Other IDs can be set in this way as well.

◆ The new settings will not be effective until the Dome Camera reboots.

5.1.2 Settings of Dome Camera Communication Protocol

No.1、2、3、4 on PCB board SW2 is the communication protocol setting. As it is shown in picture 4:



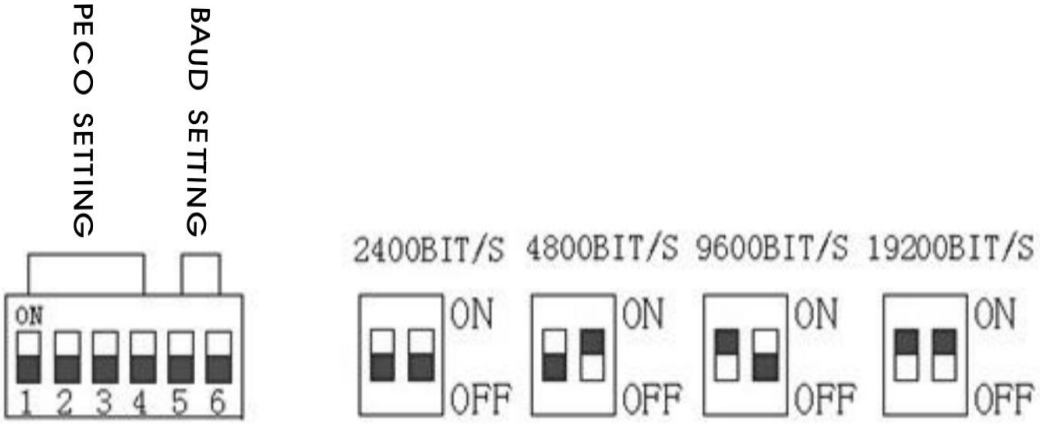
Picture4

◆The setting of speed dome camera communication protocol do not work until

computer reboots.

5.1.3 Settings of Dome Camera Transfer Rate

No.4、5on PCB board SW2 is the communication baud rate setting. The default value is 2400BIT/S. The Baud rate is 2400BIT/S, 4800BIT/S, 9600BIT/S, 19200BIT/S optional, as it is shown in picture 5.



Picture 5

◆The setting of speed dome camera communication protocol do not work until computer reboots.

5.2 Installation and Connection

1. The installation and connection of the Mini Intelligent Dome Camera should be implemented under local provisions by people who own the technical qualifications of CCTV system installation.
2. Please refer to the silk print on PCB and the installation manual for the detailed information of the connection of each line.
3. Avoid direct touch to the lower cover of the dome to prevent scratches and the loss of image quality, for the cover is a high-level optical instrument.
4. To ensure the image quality, the lower cover of the dome camera should be cleaned periodically. When cleaning, take the lower cover down by holding the outer ring carefully, avoiding direct touch; the acidic sweat on one's finger might corrode the coating of the cover. And the scratches made by hard objects might also result in a blurry image. Please use a tender dry cloth or other substitutes to clean both the inner and outer side of the cover. If the dirt is hard to clean, a neutral detergent

could be used; any cleanser which is for luxury furniture can be used for the lower cover.

Installation Preparation

5.2.1 Installation Requirements

- Installation must be carried out by professionals and the regulations should be abided by to avoid any function failure.
- Check the accessories, and make sure that the location and the installation method meet all the requirements.

5.2.2 4" Dome Camera Ceiling-mounted Bracket Installation

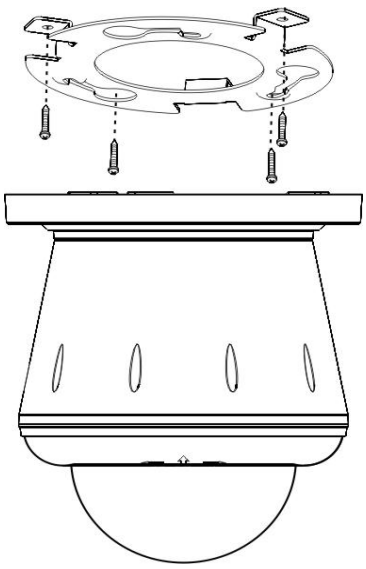
Ceiling-mounted Bracket Installation

Note: The ceiling which to be installed on should be solid and with no delaminating. The bearing capacity of the installation location should be able to afford at least five times of the total weight of the Dome, frame and pedestal, in order to avoid image jitter caused by unstable installation.

a. Use percussion drill to drill holes on the ceiling; install four rubber plugs (φ6X30) and then four expansion bolts PA3.5X25. Fasten the frame.

b. Put the power wire、communication cable、video cable through the frame holes, and set aside enough cable for connection.

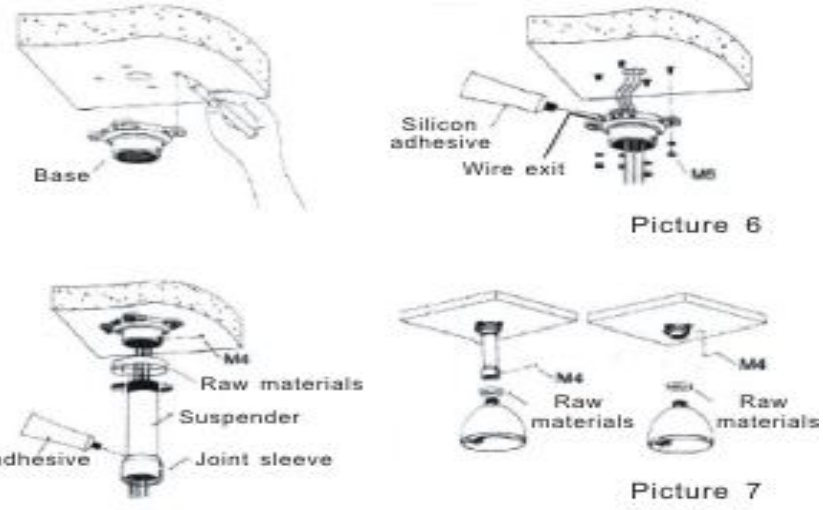
c. Fasten the Dome Camera to the frame.



Picture 6

Ceiling Mount

Note: The ceiling which to be installed on should be solid and with no delaminating. The bearing capacity of the installation location should be able to afford at least five times of the total weight of the Dome, frame and pedestal, in order to avoid image jitter caused by unstable installation.



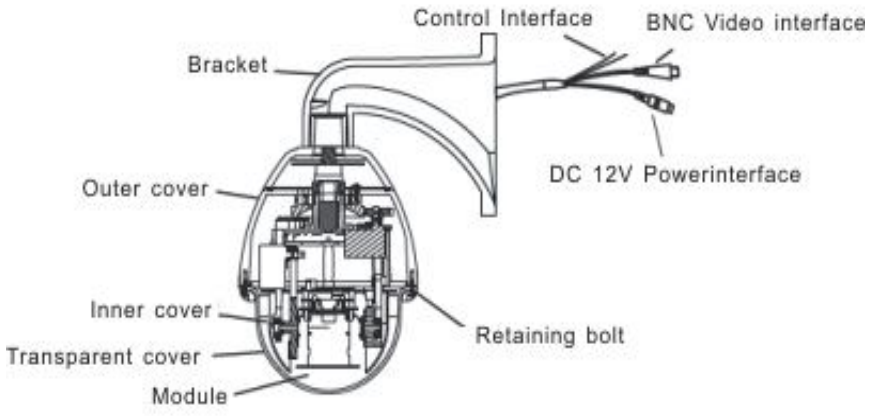
Picture 6

Picture 7

Picture7

Wall-mounted Bracket Installation

Note: The wall which to be installed on should be solid and with no delaminating. The bearing capacity of the installation location should be able to afford at least five times of the total weight of the Dome, frame and pedestal, in order to avoid image jitter caused by unstable installation.



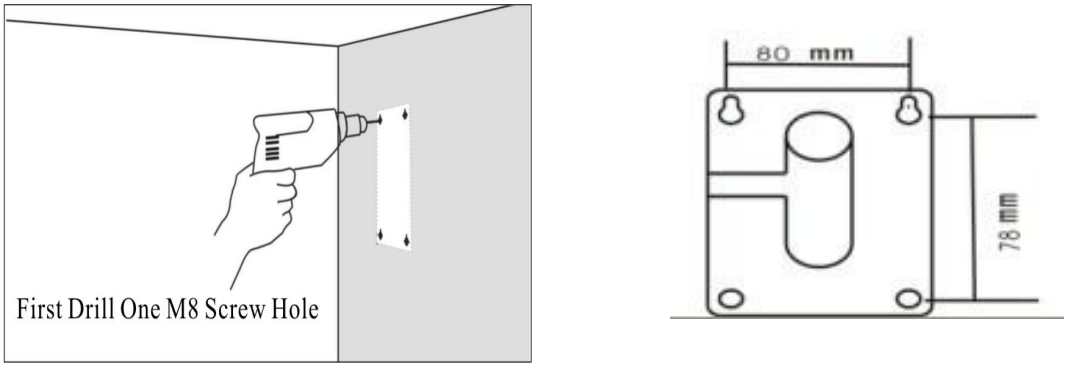
Picture 8

1. Installation Instructions

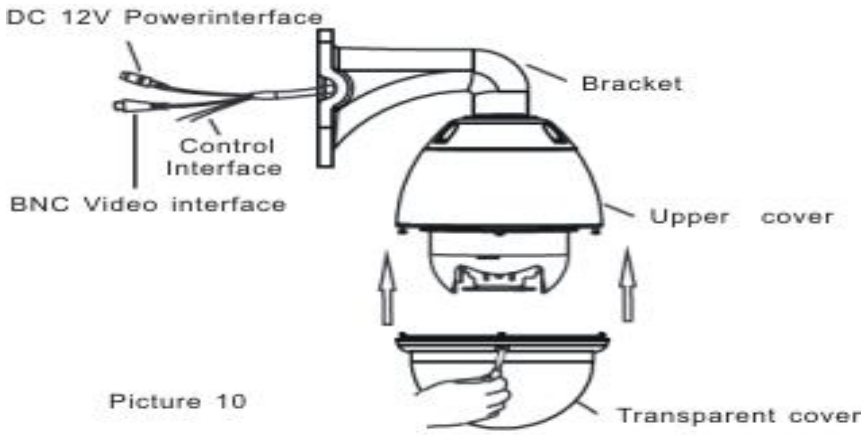
A Stick positioning template on the wall firstly.

B Drill 4 M8 holes on the positioning template. Add rubber stopper and fix bracket on the wall with 4pcs ST5 X 15 screws.

C Put power cable, communication cable and video cable through bracket hole and leave sufficient length for connection.



Picture 9



Picture 10

2. Connect to the electricity

a. Check the polarity of the plug and socket and the connection of cable then power on.

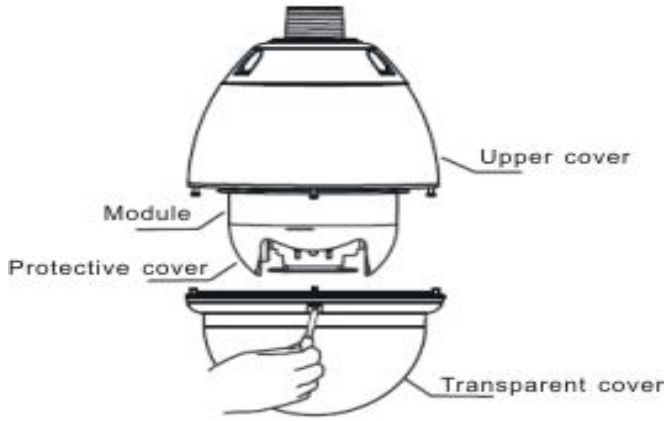
b. Test the camera's functions. If they fail to work, please check communication protocols, baud rate and the connection of RS485.

3. Down Cover Installation

a. Wipe away the dust from the cover with tender lint to avoid scratching the cover.

b. Make the three screw holes of the bottom cover aim at the outer cover screw holes,

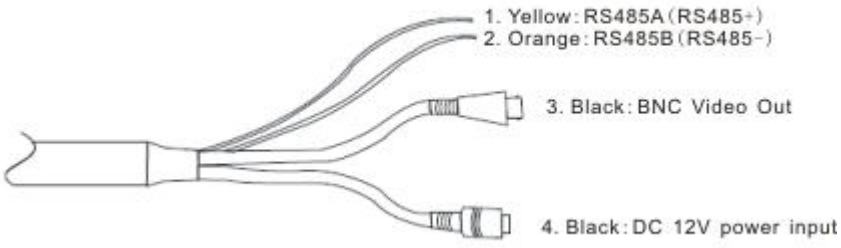
and then fasten them with three screws (M3).



Picture 11

Please wear gloves during installation to prevent the inner and outer side of the cover from being smudged. Otherwise it would result in blurry image and a loss of image quality.

4. After installation, connect wiring according to the picture below.



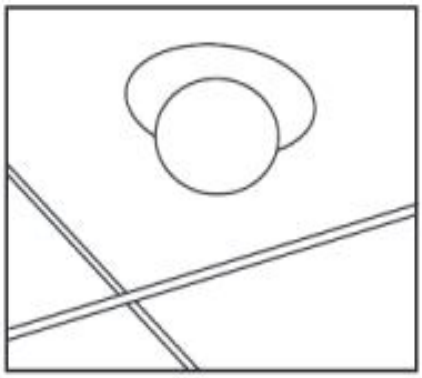
Picture 12

Flush mount installation.

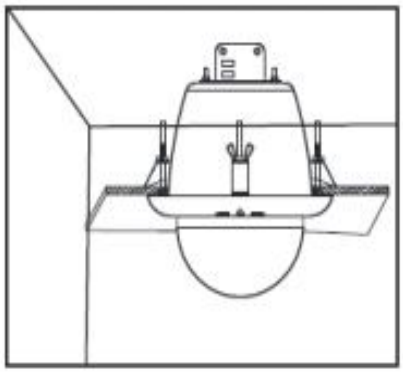
1 The fixing of the dome camera and cover installation.

Flush mount installation could be used in places with ceilings and the cover of the camera is put half in and half out of the ceiling, living only a semi hemisphere out side. Therefore the camera can easily be hidden from sight. The ceiling which to be installed on should be solid and with no delaminating. The bearing capacity of the installation location should be able to afford at least five times of the total weight of the

Dome Camera and bracket.



Picture13



Picture14

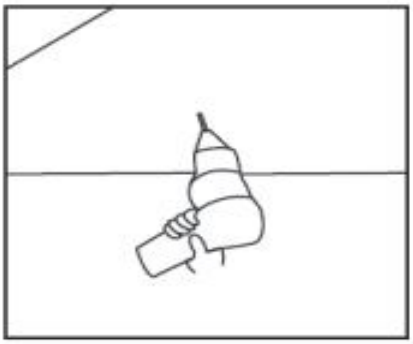
2. Installation instruction.

a. Drill a hole (Φ3mm) at the centre of installation location, then use a self-tapping screw to fix one side of a set rule to the ceiling

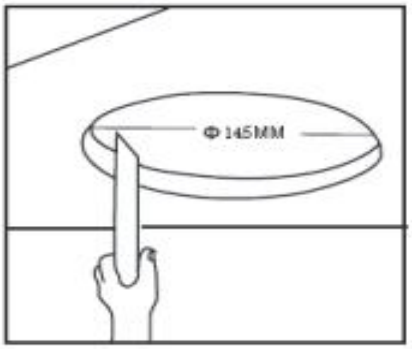
b. Draw a circle (Φ145mm) with a pencil and set rule .Then dig out the materials within the circle.

c. Connect the video cable、power cable and signal control cable properly.

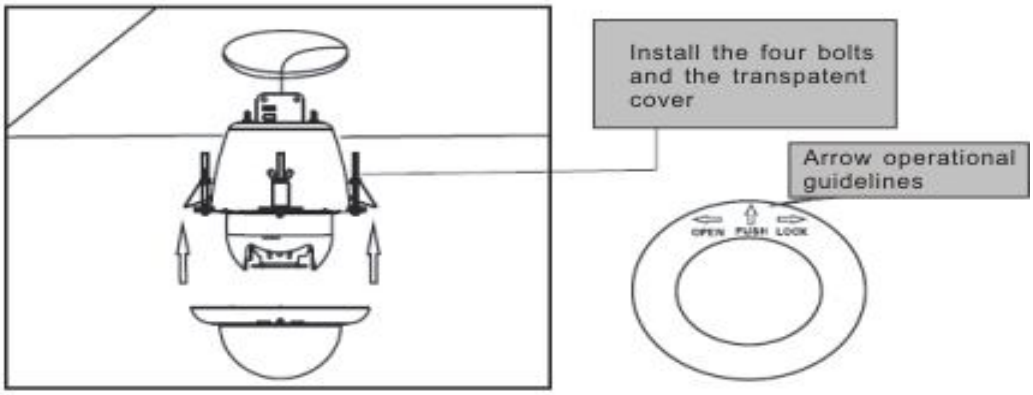
d. Put the dome camera in the hole and let the installation shrapnel totally get into the hole. Tighten all the four screws on the shrapnel and make sure that the camera is fixed firmly to the ceiling.



Picture 17



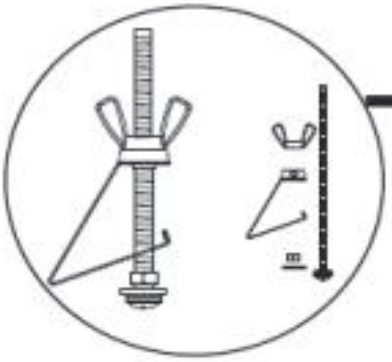
Picture 18



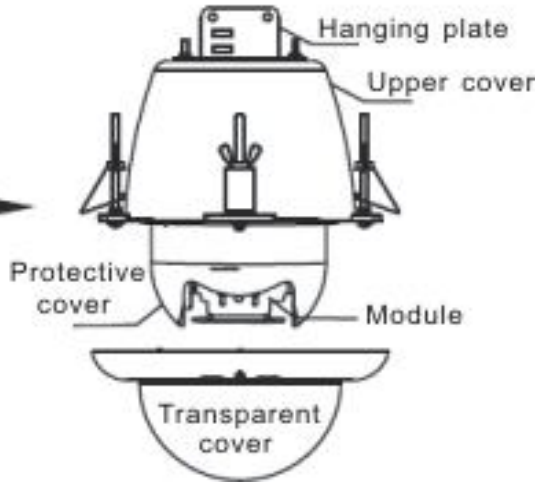
3. Down Cover Installation

a. Wipe away the dust and dirty marks from the cover with soft lint

b. Make the four screw holes on the down cover aim at the corresponding position on the outer cover, then fasten them.



Picture 19



Picture 20

4. Outer Wire Connection

Connect the BNC video interface of Dome Camera to the arranged video cable; connect the power cord to the arranged power cord. RS485 control wire is connected to RS485 control wire layer out.

cable	function	connection object	note
Power input line	Power supply	Dome camera-power adapter	Power interface
RS485	Rs485control signal	Dome camera-control equipment	Yellow(A)orange(B)
Video cable	Camera signal	Dome camera-surveillance equipment	BNC connector

◆ Ensure that the positive and negative polarity of RS485 is properly connected. “A” represents positive pole, while “B” negative pole.

◆If RS485 is wrongly connected, it could not control the Dome Camera.

5. Connect to the electricity

a. Check the polarity of the plug and socket and the connection of cable then power on.

b. Test the camera's functions. If they fail to work, please check communication protocols, baud rate and the connection of RS485.

Outer Wire Connection

Connect the BNC video interface of Dome Camera to the arranged video cable; connect the power cord to the arranged power cord (AC12V). RS485 control wire is connected to RS485 control wire layer out.

◆ Ensure that the positive and negative polarity of RS485 is properly connected. "A" represents positive pole, while "B" negative pole.

If RS485 is wrongly connected, it could not control the Dome Camera.

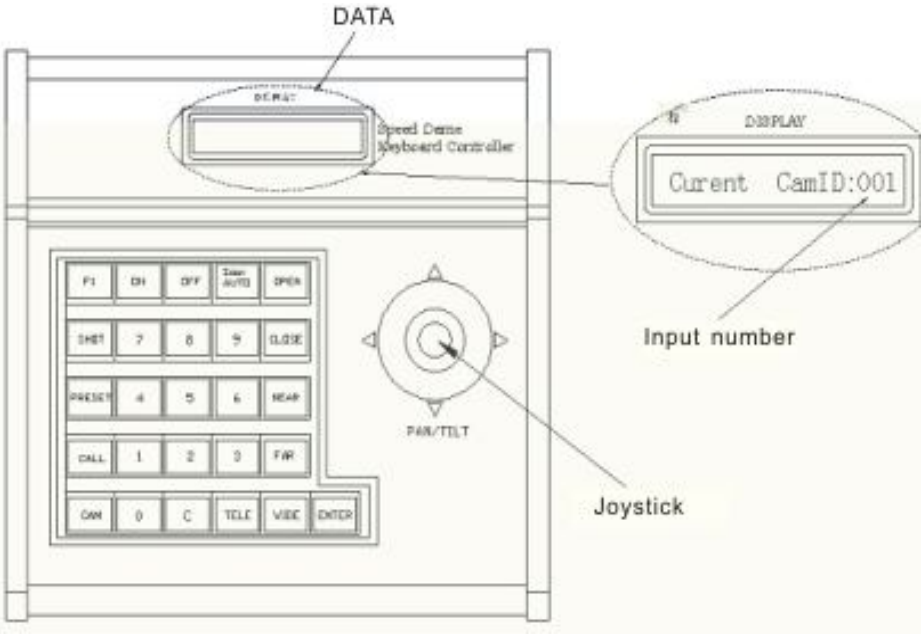
a. Check the polarity of the plug and socket, and the connection of cable, then power on.

b. When the self-checking starts, the Dome will turn 360°horizontally and then 90°vertically for the testing of the camera and the electrical and mechanical structure of the Dome, and turn back to the initial position by the resetting program. When the Dome totally stops, the self-checking finishes and it is ready to be under control.

6 Dome Camera is controlled by keyboard

Intelligent control and all functions can be achieved by controlling the Dome Camera with keyboard. Meanwhile, there are different operating methods for different control system platforms. Generally speaking, operating methods should be based on the manual offered by system manufacturer. Sometimes there may be some special requirements and operation methods. In this case, please feel free to contact distributors to get the useful information. (We advise you to control the Dome Camera with original keyboard to achieve optimal performance.)

Take the original keyboard of the Dome Camera manufacturer as an example. The agreement for Keyboard control is (PELCO-D、PELCO-P) .



Picture 21

6.0 Select the Dome Camera ID to be controlled

【CAM】＋【N】＋【Enter】(N: Camera Number, range 0~255)

First, click the “CAM” button，then input the number N (address) of the Dome Camera to be controlled, and then click “Enter”. When the number N is consistent with the Camera ID, the Dome Camera is ready to be controlled.

For example: Control No.2 Dome Camera

a. Click “CAM”. (The screen shows as picture 22)

b. Input “2”

c. Click “Enter”. (The screen shows as picture 23)

Picture 22

Picture 23

6.1 Set and Call Preset Position

Preset function is that the position parameters of horizontal angle, vertical angle, and lens focus are stored into Dome Camera with the number (1-128). When needed, these parameters can be transferred to adjust the Dome Camera to a fixed position. Users can conveniently store and call the preset positions by controlling keyboard. This kind of camera support 128 preset positions.

6.1.1 Set Preset Position: [PRESET] + [N] + [Enter] (N: Preset Number, range1~128)

After the Dome Camera is adjusted to the best position through keyboard (including the selection of location、 Camera zoom、focus、and Iris), click the “PRESET”, and then type the number N of representing this preset position. Finally click “Enter”.

For example: Set No.2 preset position

a. Adjust camera to a required position by moving lever, and adjust the lens’s zoom

b. Click “PRESET” (Picture 24)

c. Input 2 (Picture 25)

d. Click “Enter”

Picture 24

Picture25

◆ When set preset positions for distant objects, you can focus the image manually. That is to say, when adjust lens at a distance, you can adjust and store the best images by controlling “FAR” / “NEAR” buttons on the keyboard. By doing so, image blurring could be avoided.

6.1.2 Call Preset Position: [CALL] + [N] +ENTER] (N: the number of preset position)

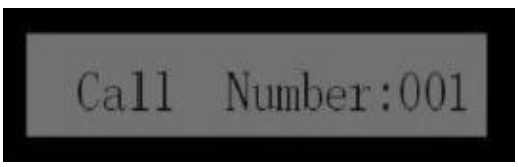
The function of calling preset positions is adjusting camera to the previous position. Click “CALL “firstly, and then input the preset position number to be called. Lastly, click “ENTER”. At this time, the camera is back to the original position.

For example: Call No.2 preset position

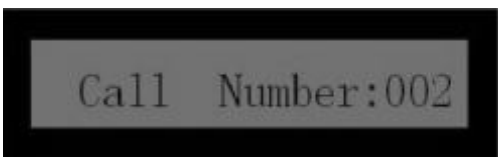
a. Click “CALL” button. (Refer to the picture 26)

b. Input No. 2 (Refer to the picture 27)

c. Click “ENTER” button.



Picture 26



Picture 27

6.1.3 Clear Preset Position: [PRESET] + [N] + [OFF] (N: the number of preset position)

Clearing preset position is to delete the stored preset location in the Dome Camera.

For example: Clear No.2 preset position.

a. Click “PRESET” button. (Refer to the picture 28)

b. Input No.2. (Refer to the picture 29)

c. Click “OFF” button.

Picture 28

Picture 29

6.2. Dome Camera Cruising Function

Auto cruising is an important feature for Dome Camera. This function can arrange preset positions to the cruising queue in a required order. Under an external command, the Dome Camera can automatically visit back and forth at a specified interval time in sequence. Altogether 8 cruising tracks can be set, and each track involves 16 preset positions.

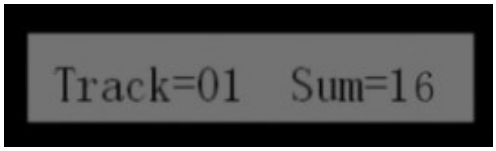
6.2.1 Set Cruising Track: Enter and edit cruising tracks.

Set the cruising tracks of Dome Camera with keyboard. Click “SHOT” button firstly, then input the number of cruising track. Next, click “ON” button to enter a cruising tracks setting state. After that, click “TELE” button enter the next step, and if you click the “WIDE” button, you can go back to the last step. Each track involving 16 preset positions, and the running speed and dwelling time upon each point can be edited by controlling “TELE/WIDE “buttons.

For example: The first preset position in the first cruising track is set as the No.1 preset position. Its running speed is Level 5 and dwelling time is 3 seconds.

a. Click “SHOT” button.(Refer to the picture 30)
b. Press 1 on the number pad to set cruising track.
c. Click “ON” button is set to enter the track. (Refer to the picture 31)

Picture 30



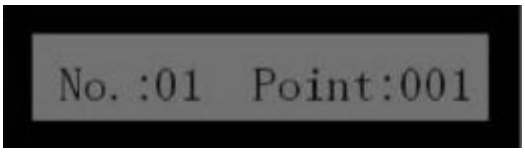
Picture 31

d. Click “TELE” button.

e. Press 1 on the number pad to set preset position 1. (Refer to the picture 32)

f. Click “TELE” button.

g. Press 5 on the number pad to set running speed. (Refer to the picture 33)



Picture 32

Picture33

h. Click “TELE” button.

i. Press 3 on the number pad to set dwelling time. (Picture 34)

j. Click “TELE” button to set the second preset position. (Picture 35)

Picture34

Picture35

NOTE: Click “OFF” button to save settings and back to last step after the preset positions settings are finished. If you rotate the level or press other buttons, the settings could not be saved.

- Altogether 6 cruising tracks can be set. Each track involving 16 preset locations. (Preset position at random is 1—128).
- 1~60 secs dwelling time for each preset location can be set, and level 1~8 preset location speed to each point can be set as well.

6.2.2 Run Cruising Track: [SHOT] + [N] + [Enter] (N: the number of Cruising track, 1~6)

For example: Running the first cruising track.

a. Click “SHOT” button.

b. Press 1 on the number pad to activate the first cruising track.

c. Click “Enter” button.

6.2.3 Stop Cruising Track: [SHOT] + [OFF]/ Use level

6.3 Auto scanning (2-spot scanning, 360° scanning)

The Auto Scanning function enables that the Dome Camera can scan randomly between 2 selected locations, or can do 360° scanning. While scanning, it will automatically run with matched speed according to the lens’ focal length.

6.3.1 Scanning between Two Spots

a. Move to the start point (point A) by using level. Then click “PRESET” button, and input 101 on the number pad. Finally click “ENTER” button.

b. Move to the end point (point B) by using level. Then click “CALL” button. After that, input 101 on the number pad. At last, click “ENTER” button.

c. Click “CALL” button. Then input 103 on the number pad. At last, click “ENTER” button.

d. If you want to stop scanning, please use the level.

6.3.2 360° Scanning: [CALL] + [106] + [Enter]

a. Click “CALL” button.

b. Input 106

c. Click “ENTER” button.

d. If you want to stop scanning, please use the level.

6.4 Home Place

The Home Place function is that the Dome Camera will return to No.1 preset location automatically when no operation is done in a period of time. The Home Place function of Dome Camera can be activated through keyboard.

6.4.1 Start Home Place Function: [PRESET] + [107] + [ENTER]

a. Click “CALL” button (The screen shows as picture 36)

b. Input 107 on the number pad to activate the mode. (Picture 37)

c. Click “ENTER” button.

Picture 36

Picture37

6.4.2 Stop Home Place Function: [CALL] + [107] + [ENTER]

a. Click “CALL” button (Picture 38)

b. Input 107 on the number pad to activate the mode. (Picture 39)

c. Click “ENTER” button

Picture38

Picture39

7. Other Functions

7.1 Object Tracking

Users can use the control lever on the control keyboard to move the Dome camera up and down, or left and right to track the moving object or change the field of vision, and change the visual angle or the image of the object by adjusting the focal length. On the preset condition of auto-focusing and auto-aperture, the camera can adjust itself quickly to get a clear view of the object according to the environment during its moving around.

* Focal Length/Rotating Speed Auto-matching Technology

When manual adjusting the Dome camera with a long focal distance, the high rotating speed of camera may cause image loss even touch the control lever slightly. Considering the humanization, this ball camera is designed to auto-adjust both the horizontal and vertical rotating speed according to the focal length which makes the manual operation of tracking easier.

* Auto-overturn

When the operator turns the scene to the bottom (vertically) and continues pressing the control stick, the camera will turn 180° horizontally and then upturn 90° to get a back view, which provides a 180° whole-course continuous monitor.

7.2 Camera Control

7.2.1 Zoom Control

Users can zoom in or out by using the [WIDE] and [TELE] key on the control keyboard to get an overall perspective or a close shot.

7.2.2 Focusing Control

Auto-focusing is the default setup. When zooming, the camera will auto-focus on the center of the view to get a clear picture. In particular situation, users can manually focus by using the [NEAR] and [FAR] key to get an expectant view.

◆Camera cannot auto-focus on following conditions:

a. The object is not in the center of the picture;
b. The objects from both far and near spots cannot be visually clear simultaneously;
c. The object emits strong light, such as neon light and spotlight;
d. The object is behind a class with water dew or dust on it;
e. The object moves very fast;
f. The object is large and monotonous, like a wall;
g. The object is too dark or blurry itself.

7.2.3 Aperture Control

●Auto-iris is the default setup. This function can auto-detect the light condition of the environment and adjust accordingly to ensure the brightness of the output picture stable.

●Users can manually adjust the aperture to get a needed brightness by using the control keyboard.

●Users can restore the auto-iris function by using the control keyboard (Note: auto-iris is suggested).

Note: When switching the aperture control to manual function, the current control position will be locked, and it will not restore to auto-aperture function automatically, even the scene changes. To restore the auto function, users need to operate the control lever or give a control order.

7.2.4 Auto BLC

The camera will divide the scene into six areas to realize the auto back light compensation. In a bright environment, it will auto-compensate the dark object and adjust the lighting for the bright background, in order to avoid obtaining an over-bright picture without visualizing the dark object instead of a clear image.

7.2.5 Auto WEB

Automatically adjust according to the lighting of the surroundings to recover the true colors.

8. Camera 【OSD】Setup

The Dome Camera menu could be set with keyboard, but some of them could not be set.

The following【OSD】setup is only applied to the standard cameras that the dome camera producer manufactured.

8.1.0 Enter Camera【OSD】

a. Click “PRESET” button

b. Input 112

c. Click “Enter” button, and then exit.

8.1.1 Quit from Camera【OSD】

a. Click “CALL” button

b. Input 112

c. Click “Enter” button, and then exit.

Notice: If you want to go back to the main menu, please click the last option “BACK TO MENU” or click [CALL] + [112] when you stay in the second submenu. After that, please carry out 8.1.1 operation to drop out OSD control menu.

8.2.0 Camera【OSD】Menu Items

Menu includes main menu and submenu. When entering the Camera【OSD】, you can open the selected items by controlling “UP”、“DOWN”、“LEFT”、“RIGHT” buttons on the keyboard lever. (The flickering items indicate that they have been selected.)

● Main Menu displays 6 options.

MAIN MENU

INITIAL	GENERAL	FOCUS
EXPOSURE	PRIVACY	WB

Menu Operation

■ INITIAL SET

● Make functions restore to the factory default.

■ LENS AUTO INIT

● Lens auto initialization function can be achieved by counting the number of lens zoom. You can select 5K、10K、15K、20K, EXCE and OFF. Regrouping makes images clearer.

■ GENERAL

- Set Camera’s normal operations
- Press “DOWN” to enter the submenu

GENERAL	
CAMERA ID	OFF
MIRROR	OFF
SHARPNESS	HIGH
COLOR SUPPRESS	OFF
LUX LEVEL	LOW
APERTURE SUPPRESS	OFF
	NEXT
HIGHLIGHT SUPPRESS	OFF
THRESHOLD LEVEL	000
BAUDRATE	9600
BACK TO MENU	<—

1. CAMERAID

- Show the Camera's identification number.
- The ID of Camera No.001-255 can be set by using NEAR/ LEFT、 FRA/ RIGHT .

2. MIRROR

- Mirroring can be done to the images taken by the Camera.

Menu Operations

Add menu operations

3. SHARPNESS

- Adjust image sketch, and High/ Middle/ Low can be set.

4. COLOR SUPPRESS

- Pictures can be changed into white and black pictures in a certain dark circumstance, and improve the signal noise ratio.

5. LUX LEVEL

- Camera can be adjusted by using LEFT/ RIGHT to control the electrical level high/ middle/ low.

6. APERTURE SUPPRESS

- Reduce noise point in a certain dark circumstance to enhance signal noise ratio.

7. HIGH LIGHT SUPPRESS

- Restrain highlight as black、light color in a certain highlight.

8. HIGH LIGHT SUPPRESS LEVEL

- Camera highlight can be adjusted by using LEFT/ RIGHT to control electrical level high/ middle/ low.

9. BAUDRATE

- (* Manufacturer reserves, and any changes are forbidden.)
- BACK TO MENU

MENU OPERATIONS

1. FOCUS MODE

FOCUS MENU	NORM
SENSITIVITY	NORM
NEAR FCS LIMIT	002
W/ T 50cm/ 1m	
BACK TO MENU	←

FOCUS MODE

1.1 NORM

●This kind of mode will make lens stay in a continuous focusing state in a very long time. If users do not want the lens to stay in the focusing states, interval trigger focusing state or zoomed trigger focusing mode could be their best choice. By selecting one of these two modes, the time for using lens will be extended.

1.2 INTV

AF Interval Time

- Set the auto focus interval time (001~120sec.) by controlling LEFT/ RIGHT button.

1.3 ZMTR

Run Time

- Set the running time (001~120sec.) by controlling the NEAR/FAR button.

1.4 MANU

- Choose this mode to exit. Then adjust focus by “LEFT/ RIGHT” button.

MENU OPERATIONS

2. SENSITIVITY

- Adjust the auto focusing sensitivity.

3. NEAR FOCUS LIMIT

●The full-view auto-focus system of the Camera can continuously take pictures, from close-up (the object is about 1cm away) to infinity. Make sure that the focus is in

the recent locations. Users can adjust close focus limited parameters to achieve the fastest focus speed. For example, if the subjects to be taken are beyond 5M, the close focus limiest parameter can be set above 006.

Close Focus Limited Specifications：

000	001	002	003	004	005	006	007	008
1cm/1m	10cm/1m	50cm/1m	1m/1m	2m/2m	3m/3m	5m/5m	10m/10m	infinity

4. BACK TO MENU

AE MODE AL

BACKLIGHT OFF

BACKTOMENU ←

■AE MODE(Shutter setting)

1. AE [Auto shutter]
2. AI [Auto aperture]
3. MANU [Manual setting]
4. SHUTTER [Manual setting]

●The range of shutter speed is 1/ 50 (1/60)、1/120 (1/100)、1/ 250、 1/ 500、1/ 1K、1/ 2K、 1/ 4K,、1/10K 、1/ 100K

5. IRIS

The range of iris is CLOSE, F1.6-F16.

6．AGC

●The range of AGC is 5db\ 13db\ 22db\ 30db.

FLICKERLESS MUST BE OFF

●WARNING: FLICKERLESS MUST BE OFF.

■ FLICKERLESS

●The default options are: Normal, Cable Control, Steady and Off.

■ BACK TO MENU

■ BACKLIGHT OFF (Backlight setting)

1. SENS

GAIN

● Set backlight sensitivity

● Gain control can be set in the range of 0~255 through LEFT/ RIGHT.

2. AREA Checking area

2.1 OFF Backlight off

2.2 AREA1 Set middle window backlight

2.3 AREA2 Set below 1/3 window backlight

2.4 AREA3 Set left middle window backlight

2.5 AREA4 Set right middle window backlight

2.6 AREA5 Set upper 1/3 window backlight

＊ If the subjects that you want to take are too dim due to the strong backlight, you can set the BLC “ON”. Then Camera will balance light automatically to make images clearer. This function could not be applied to the situation that the objects are too small comparing with the background.

MENU OPERATIONS

1. UNWEIGHTED LEVEL

● Set Backlight Weighted Average

● 0~15 optional

2. BACK TO MENU

AE MODE MUST BE AE

● WARNING: MODE MUST BE AE.

MENU OPERATIONS

■ PRIVACY

MASKSET

MASKNUMBER

MASKSET OFF

H. START POSITION

H. END POSITION

V. START POSITION

V. END POSITION ←

MASK COLOR HOLD

BACK TO MENU

MUST OPERATE ON MANUFCS

1. MASK NUMBER

●8 areas can be set.

MASK SET [Mosaic window setting]

H. START POSITION [Horizontal start position]

H. END POSITION [Horizontal end position]

V. START POSITION [Vertical start position]

V. END POSITION [Vertical end position]

MASK COLOR [Mosaic window color]

● Optional colors for MASK are: HOLD, GREY, WHIT, BLAC, RED, ORAN, YELL, GREE, BLUE and PURP.

1. BACK TO MENU

● WARNING: Must be on manual focus model.

■ WBC MODE

WBC MODE

WBC MODE

BACK TO MENU ←

ANTI-COLOR MUST BE OFF

1. PUSH

Adjust BLC automatically and quickly.

2. MANU

2.1 WBC ADDITION

●Chose this option if you want to add / reduce red or blue correction.

3. INDR

Set temperature is about 3200K..

4. FLUO

Set temperature is about 4700K.

5. OUTD

Set temperature is about 9500K.

6. AUTO

Adjust image color automatically according to the effective illumination.

7. BACK TO MENU

＊ After return to the main menu, click [CALL] button, then input [112], lastly click [ENTER], then you can go back to OSD control menu.

Protocol、Transmission rate and ID should be set correctly when other control equipments are used to control the Dome Camera. Because different manufacturers have different ID codes, sometimes the Camera ID is needed to be set as “ID+1”. For example, the Dome Camera could not be controlled by DVR until its ID is “2”. The rest can be done in the same manner.

9. Trouble Shooting.

Problems	Possible reasons	Solutions
No action, no pictures when power is on	Power supply damaged or under power	Replace
	Wrong connection of power	Correct
	Project line fault	Eliminate
Abnormal self-check. Images with motor noise	Mechanical failure	Recondition
	Camera inclined	Reinstall
	Power supply not enough	Replace required power supply; Put power supply close to Dome Camera
Normal self-check, but no	Wrong connection of video	Correct
	Bad connection of video	Eliminate

images	Camera damaged	Replace
Normal self-check, but out of control	Wrong connection of signal control cable	Correct
	Dome ID setup is wrong	Reselect
	Protocol or communication baud rate is not matched	Adjust protocol to match with the controller, and power on again
Unstable images	Bad connection of video	Press to connect well
	Power not enough	Replace
Dome Camera out of control	Self-check error	Power on again
	Bad connection of control cable	Eliminate
	Bad host operations	Power on again
	Overload or communication distance too far	Add code distributor

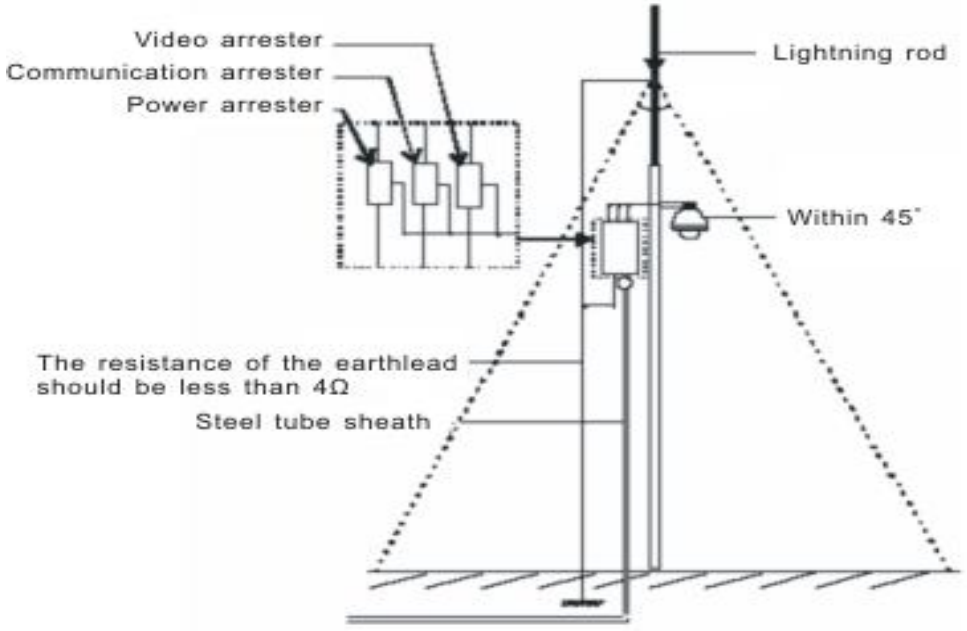
10. Appendix 1: Lightning and Surge Protection

The product adopts TVS plate lightning protection technology, which is effective for avoiding the damage of equipments from pulse signal under 1500W HP, such as those from instant lightning or surge. However, for outdoor installation, necessary protection must be adopted according to the situation on condition that the electric safety must be guaranteed.

- The transmission line must be at least 50 meters away from high-voltage equipments and cable; try to arrange the line along the eaves.
- The underground sealed steel tube arrangement must be adopted in open area, and the one point grounding must be used. The overhead ground arrangement is absolutely forbidden.
- In the intense thunderstorm or high induced voltage area (e.g. High-Voltage Junction Box), such methods as the installation of extra superpower lightning protection equipments or lightning rod must be adopted.
- The design of outdoor device and the lightning protection and earthing of line

must meet the requirements of the building's lightning protection, and be in accordance with relevant national and industrial standards.

- The system must be earthed with equal potential. The earthing device must meet the requirements of both anti-interference and electric safety, and mustn't connect to, or mix with the zero line of any strong power grid. When the system adopts the earth connection alone, the impedance should be no more than 4Ω, and section surface should not excess 25mm^2.



Picture 40

Appendix Ⅱ: Cleanness of Transparent Cover

- To ensure the image quality, the lower cover of the dome camera should be cleaned periodically
- When cleaning, take the lower cover down by holding the outer ring carefully, avoiding direct touch; the acidic sweat on one's finger might corrode the coating of the cover. And the scratches made by hard objects might also result in a blurry image.
- Please use a tender dry cloth or other substitutes to clean both the inner and outer side of the cover.
- If the dirt is hard to clean, a neutral detergent could be used; any cleanser which is for luxury furniture can be used for the lower cover.

Appendix Ⅲ: General Knowledge of RS485

1. Basic Characteristics of RS485

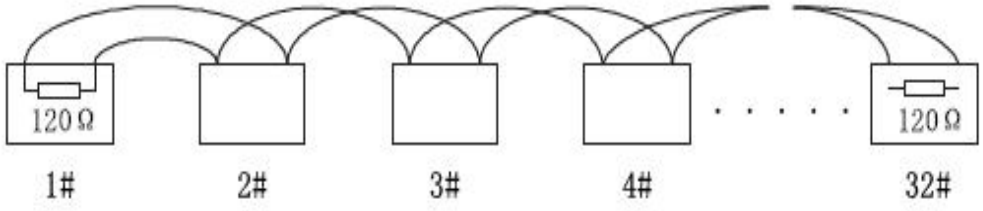
According to its standard, RS485 industrial bus is a half-duplex C-bus of special impedance 120 Ω, whose largest loading capacity is 32 payloads. (Including master device and controlled device)

2. The transmission distance of RS 485

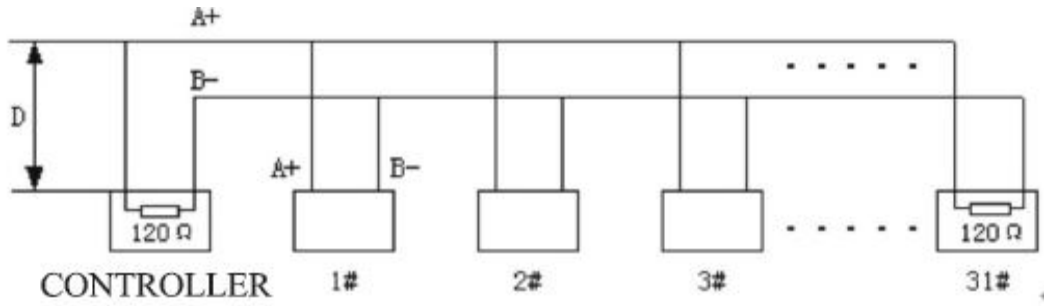
Band Rate	Maximum Transmission Distance
2400Bps	1800m
4800 Bps	1200m
9600 Bps	800m

3. Connection mode and terminal resistance

a) RS 485 industrial bus standard requires that daisy chained ways should be adopted among devices with 120Ω terminal resistors at both ends. The connection (picture 41) can be simplified as that in picture42, but “D” distance should not be more than 7 meters.



Picture 41



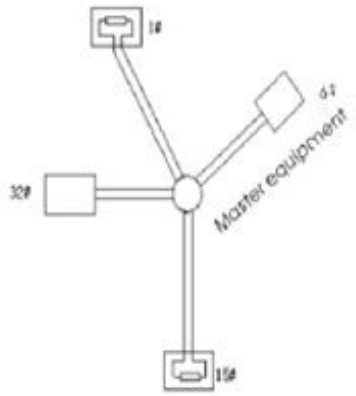
Picture 42

A) The connection mode of device terminal 120Ω: (As picture42) there are device terminal resistances on controller board, which have two connection modes. Picture 43 shows the factory default connection mode. In this case, the wire jumper cap on

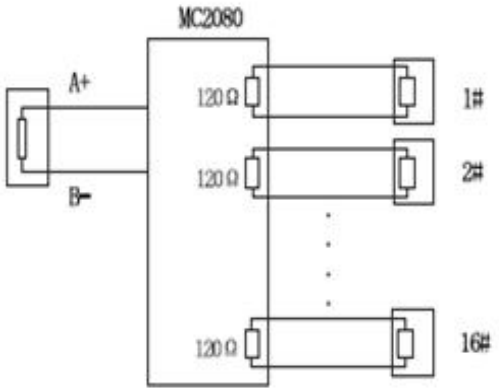
controller board is connected to the position between 2-3 sockets without 120Ω resistor connected. When 120Ω resistor is required, the wire jumper cap on controller board should be pulled out of 2-3 sockets to plug into the 1-2 ones. Then the 120Ω resistor is connected to circuits.

4. Some problems in application

Star connection is always adopted by users in application. In this situation, the terminal resistors should be on the 1# and 15# (as it is shown in picture 43) of two devices with maximum line distance. However, this connection type is not consistent with the operating requirements of RS 485 industrial standard, so the problems, like signal reflex and the decrease of anti-jamming capability, easily occur, which may reduce the reliability of controlled signal. The phenomenon reflected is that balling machine is completely or discontinuously out of control, or that it cannot stop running. To solve these problems, we propose to use MC 2080 Rs485 distributor, because this product can convert the star connection mode to that one accord with RS 485 industrial standard, avoiding problems to improve the reliability. (Picture 44)



Picture 43



picture 44

Appendix Ⅳ

Relational Table of 24V AC Line Diameter and Transmission Distance

The maximum transmission distance is recommended in the situation that the line diameter is fixed and 24V AC voltage wastage rate is below 10%. As for the AC main power supply devices, their maximum allowable voltage wastage rate is 10%. For

example, a device with an 80 VA rated power is installed in a place 35 feet away from the transformer, then the required minimum line widths should be 0.8000 mm.

	Wire radii(mm)			
Distance feet(m) / Power	0.8000	1.000	1.250	2.000
10	283 (86)	451 (137)	716 (218)	1811 (551)
20	141 (42)	225 (68)	358 (109)	905 (275)
30	94 (28)	150 (45)	238 (72)	603 (183)
40	70 (21)	112 (34)	179 (54)	452 (137)
50	56 (17)	90 (27)	143 (43)	362 (110)
60	47 (14)	75 (22)	119 (36)	301 (91)
70	40 (12)	64 (19)	102 (31)	258 (78)
80	35 (10)	56 (17)	89 (27)	226 (68)
90	31 (9)	50 (15)	79 (24)	201 (61)
100	28 (8)	45 (13)	71 (21)	181 (55)
110	25 (7)	41 (12)	65 (19)	164 (49)
120	23 (7)	37 (11)	59 (17)	150 (45)
130	21 (6)	34 (10)	55 (16)	139 (42)
140	20 (6)	32 (9)	51 (15)	129 (39)
150	18 (5)	30 (9)	47 (14)	120 (36)
160	17 (5)	28 (8)	44 (13)	113 (34)
170	16 (4)	26 (7)	42 (12)	106 (32)
180	15 (4)	25 (7)	39 (11)	100 (30)
190	14 (4)	23 (7)	37 (11)	95 (28)
200	14 (4)	22 (6)	35 (10)	90 (27)

Attachment Ⅴ： Domestic and overseas guage table

Metric naked wire radii (mm)	Approximately American radii AWG	Approximately England radii SWG	naked wire cross section area (mm^2)
0.050	43	47	0.00196
0.060	42	46	0.00283
0.070	41	45	0.00385
0.080	40	44	0.00503
0.090	39	43	0.00636
0.100	38	42	0.00785
0.110	37	41	0.00950
0.130	36	39	0.01327
0.140	35		0.01539
0.160	34	37	0.02011
0.180	33		0.02545
0.200	32	35	0.03142
0.230	31		0.04115
0.250	30	33	0.04909
0.290	29	31	0.06605
0.330	28	30	0.08553
0.350	27	29	0.09621
0.400	26	28	0.1237
0.450	25		0.1602
0.560	24	24	0.2463
0.600	23	23	0.2827
0.710	22	22	0.3958
0.750	21		0.4417
0.800	20	21	0.5027
0.900	19	20	0.6362
1.000	18	19	0.7854
1.250	16	18	1.2266
1.500	15		1.7665
2.000	12	14	3.1420
2.500			4.9080
3.000			7.0683

Appendix Ⅵ： Address coding table

binary code	address	binary code	address	binary code	address
00000001	1	00010111	23	00101101	45
00000010	2	00011000	24	00101110	46
00000011	3	00011001	25	00101111	47
00000100	4	00011010	26	00110000	48
00000101	5	00011011	27	00110001	49
00000110	6	00011100	28	00110010	50
00000111	7	00011101	29	00110011	51
00001000	8	00011110	30	00110100	52
00001001	9	00011111	31	00110101	53
00001010	10	00100000	32	00110110	54
00001011	11	00100001	33	00110111	55
00001100	12	00100010	34	00111000	56
00001101	13	00100011	35	00111001	57
00001110	14	00100100	36	00111010	58
00001111	15	00100101	37	00111011	59
00010000	16	00100110	38	00111100	60
00010001	17	00100111	39	00111101	61
00010010	18	00101000	40	00111110	62
00010011	19	00101001	41	00111111	63
00010100	20	00101010	42	01000000	64
00010101	21	00101011	43	01000001	65
00010110	22	00101100	44	01000010	66
binary code	address	binary code	address	binary code	address
01000011	67	01101101	109	10010111	151
01000100	68	01101110	110	10011000	152
01000101	69	01101111	111	10011001	153
01000110	70	01110000	112	10011010	154
01000111	71	01110001	113	10011011	155

01001000	72	01110010	114	10011100	156
01001001	73	01110011	115	10011101	157
01001010	74	01110100	116	10011110	158
01001011	75	01110101	117	10011111	159
01001100	76	01110110	118	10100000	160
01001101	77	01110111	119	10100001	161
01001110	78	01111000	120	10100010	162
01001111	79	01111001	121	10100011	163
01010000	80	01111010	122	10100100	164
01010001	81	01111011	123	10100101	165
01010010	82	01111100	124	10100110	166
01010011	83	01111101	125	10100111	167
01010100	84	01111110	126	10101000	168
01010101	85	01111111	127	10101001	169
01010110	86	10000000	128	10101010	170
01010111	87	10000001	129	10101011	171
01011000	88	10000010	130	10101100	172
01011001	89	10000011	131	10101101	173
01011010	90	10000100	132	10101110	174
01011011	91	10000101	133	10101111	175
01011100	92	10000110	134	10110000	176
01011101	93	10000111	135	10110001	177
01011110	94	10001000	136	10110010	178
01011111	95	10001001	137	10110011	179
01100000	96	10001010	138	10110100	180
01100001	97	10001011	139	10110101	181
01100010	98	10001100	140	10110110	182
01100011	99	10001101	141	10110111	183
01100100	100	10001110	142	10111000	184
01100101	101	10001111	143	10111001	185
01100110	102	10010000	144	10111010	186

01100111	103	10010001	145	10111011	187
01101000	104	10010010	146	10111100	188
01101001	105	10010011	147	10111101	189
01101010	106	10010100	148	10111110	190
01101011	107	10010101	149	10111111	191
01101100	108	10010110	150	11000000	192
binary code	address	binary code	address	binary code	address
11000001	193	11010110	214	11101011	235
11000010	194	11010111	215	11101100	236
11000011	195	11011000	216	11101101	237
11000100	196	11011001	217	11101110	238
11000101	197	11011010	218	11101111	239
11000110	198	11011011	219	11110000	240
11000111	199	11011100	220	11110001	241
11001000	200	11011101	221	11110010	242
11001001	201	11011110	222	11110011	243
11001010	202	11011111	223	11110100	244
11001011	203	11100000	224	11110101	245
11001100	204	11100001	225	11110110	246
11001101	205	11100010	226	11110111	247
11001110	206	11100011	227	11111000	248
11001111	207	11100100	228	11111001	249
11010000	208	11100101	229	11111010	250
11010001	209	11100110	230	11111011	251
11010010	210	11100111	231	11111100	252
11010011	211	11101000	232	11111101	253
11010100	212	11101001	233	11111110	254
11010101	213	11101010	234	11111111	255