



# Intelligent High Speed Dome Camera

## User Manual

2014 version 3

Please read the user manual carefully before operation.

## Safety Precautions

### 1. Technical skill needed for installer and serviceman

- 1) with qualification certificates in CCTV installation skills
- 2) with certificate for work in high above ground
- 3) Basic acknowledgement and skills for electronic circuits
- 4) Understand and familiar with the product specification

### 2. Lifting appliance requirements:

- 1) Installing to right place through correct lifting device.
- 2) Lifting appliance can reach to the high place where will installed camera
- 3) Lifting appliance are safety and reliable.

## Precautions

### 1. Be careful of transportation

During transportation or storing, prevent camera from heavy goods, violent vibration or soaking. Our product packed and shipping separately, all the return products should packed separately, or we will not maintain it.

### 2. If camera break down

If the Camera not work, and with smoke come out, please cut off the power supply and contact your supplier for help.

### 3. Do not disassemble or change internal structure

Do not disassemble the dome camera, it will be dangerous. If you need internal setup or maintenance, contact the manufacturer for help.

### 4. Do not put any other items into the dome camera

Please confirm no combustible items in the camera. If water or liquid flow into the camera, please cut off the power supply. Contact your supplier to solve problems. Protect the camera away from rain or other corrosive liquid.

### 5. Handle with care

To avoid damage, prevent camera from violent shaking

### 6. Installation place should away from electric or magnet field.

The TV set, wireless transmitter, transformer or speaker will have influence to the image of camera

### 7. Avoid moisture and dust

To protect the camera, please install it away from the fume and vapor

### 8. Away from high temperature

The camera should stay away from high temperature objects, such as projector lamp. Do not install camera at the places which expose to the sunlight.

### 9. Cleaning

Cleaning the surface with soft cloth. And remove the dirt with neutral detergent. Do not use gasoline, paint or other chemicals to clean the surface of camera. Otherwise, it will deformation or paint peeling off.

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# 1. Product Overview

## 1.1 Product Description

This intelligence PTZ dome with high performance DSP, and vari-focal lens. This PTZ Dome camera support 360°PTZ function and Digital recorder function, Its quick location and tracking scanning features make the All direction and no blind spot surveillance come true. It can identify the light condition and target distance, Reliable system and easy for installation. Use the stepper motor device, working stable and quick response. This product with power off memory function, auto self check when it power on again. This will be very safety.

## 1.2 Technical Parameter

Power Supply	DC12V ±20%
Working Temperature	Indoor: (0~+40 °C) Outdoor: (-40 °C~+60 °C)
Environment Humidity	≤95% non condensing
Power Consumption	≤25W
Menu Language	English / Chinese
Password Protection	Support
Azimuth Information Display	Support
Communication	RS-485 Bus Control
Communication Protocol	Auto Identify (Pelco-P/D protocol)
Baud Rate	2400bps/4800bps/9600bps/19200bps
Dome ID	Address :001~255
Horizontal Rotation Speed	Horizontal : High 160°/S Mid. 60°/S Vertical: High 120°/S Mid. 40°/S
Rotation Range	Horizontal : 0~360° Vertical: 0~90°
Auto Reverse	2 level (Horizontal :180° Vertical : 90°)
Proportional Speed change	support
IR LED Control	Auto/ON/Near/Far/OFF
IR light	Constant Current Light Adjust
IR Checking Time	1~15 second
IR ON Illumination	1~20 level
IR LED power output	2 level control
Power On	Recovery / LR Scan/360°Scan/ Tour Scan/ Pattern Scan/ Preset/ None
Left & Right Range	0°~90° adjustable
LR SCAN SPEED	Level 01~64
Tour Groups	8 groups (32 presets selectable, and stay time adjustable)
Presets	Support 255 presets
Home Action	Preset /LR Scan /360°Scan/Tour Scan /Pattern Scan/ None

Parking Time	001~255sec. Adjustable
PATTERN SCAN	8 Groups(1000 movements for each group, Longest time reach to 8 minutes)
Privacy Masking	Support (Camera support)
Video frozen	Support (Camera support)
Backlight Compensation	Support (Camera support)
Digital Zoom	Support (Camera support)
AE mode	Auto/ manual/shutter/AGC (Camera support)
Digital Noise	Support (Camera support)
WDR	Support (Camera support)
Data Reduction	Factory Reset/Preset Reset /Camera Reset /System Restart
Zero Point Adjust	Manual /Auto
Protection Grade	OutDoor Dome : IP66, TVS Instantaneous Voltage 6KV, Anti-thunder, Anti surge, Vandal proof

## 1.3 Function introduction

### Super Communication:

The Communication setting can be changed through the Camera menu, no need setting hard address. This dome without hard address setting, this will avoid hard damage.

### Privacy Masking

Privacy Masking function will protect your secret, apply to the important places' monitoring

### Focus Control Function

During the focus progress, the camera will select one target to do focus on. This step will keep the image very clear. Under special situation, the camera need manual focus .such as below situation:

- 1).Target not in the middle of image
- 2).Two targets near or far to the camera lens, can not get clear image.
- 3).Target with highlight. Such as Neon lamp, spot lamp.
- 4).Target on the surface of glass, which covered with dust or water.
- 5).Target move too fast
- 6).Large area of target such as the wall.
- 7).target is dark or fuzzy.



**BACKLIGHT COMPENSATION**

If the Camera installed under the high light situation, it will auto focus on the dark target and make backlight compensation. The image effect will be better.

**Proportional variable speed function**

The horizontal or vertical speed will change coincident with Zoom times.

**Power cut memory function**

If the power cut off, the data information will be saved. When the PTZ camera power on, it will recover the action (Tour Scan, LR Scan, Pattern Scan and presets).

**PRESET FUNCTION**

Setting the PTZ location to the presets, and call the presets, the camera will move to the preset direction.

**TOUR SCAN**

The Dome camera will tour scanning according to the order of presets

**PATTERN SCAN**

The dome can save the PTZ control action . if you running the the pattern scan, the PTZ dome will running the action you saved.

**LR SCAN**

If you set the Left point and Right point of dome camera, it will scan between these two points, and keep in the same speed. If the Left point & Right point are the same, the camera will running 360° horizontal rotation.

**HOME ACTION**

If the camera without action for a long time (preset),the camera will running the home action( (LR Scan, Pattern Scan, Tour Scan or running Presets) .

**HORIZONTAL ROTATION**

When use the manual tracking function, if target beyond top point range, the dome camera will running horizontal rotation 180°and then tracking the target.

## 2. Installation Instruction

### 2.1 Preparation

#### 2.1.1 Basic Requirements

All electrical work must comply with the latest electrical codes, fire codes and regulations. According to packing list, please confirm if all accessories are contained. Check to confirm the location of the machine and installation applications whether the required match. If not, please contact your supplier.

#### 2.1.2 Check the Space and Structure of Installation Site

Confirm the space is enough for the camera and other components. Pay attention to the carrying capability of ceiling, wall and bracket, it must support the total weight of Speed dome and other structure components 4 level safety factor.

#### 2.1.3 Length of AC24V power line and transmission range

The power voltages will loss during the transmission. Longer distance has more voltage losses. To avoid the voltage shortage problem, please refer to below list to meet the requirements of diagram of cable, and distance of transmission.

Sectional area of cable	0.5mm <sup>2</sup> (20#)	1.0mm <sup>2</sup> (18#)	1.5mm <sup>2</sup> (16#)	2.5mm <sup>2</sup> (14#)
Distance	11m(37ft)	18m(60ft)	29m(95ft)	46m(152ft)

eg.: the distance between dome camera and power supply is 35 meters, must use the copper core cable with 2.5mm<sup>2</sup> sectional area. Otherwise, the power supply will be shortage

**Note: If use DC12V power supply, the distance between PTZ camera and power adaptor within 3 meters**

#### 2.1.4 RS-485 Control and transmission range

When use the 0.56mm(24AWG)twisted pair cable as transmission cable, the transmission range will differ for the baud rate

Baud Rate	Max Transmission Distance
2400Bps	1800m
4800Bps	1200m
9600Bps	800m

If you use thinner cables, the signal will be weak and will be affected. The transmission range also affected by the quantity of devices which connect to the RS 485 Bus connection

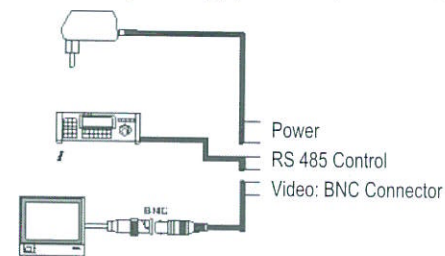
#### 2.1.5 Video Cable transmission range

The video signals will loss during the transmission. The longer cable will have more video losses, higher signal frequency. Below is the common used cable type and the transmission range for reference:

Video cable signal	Transmit range	Video cable signal	Transmit range
75-2	150m	75-5	370m
75-3	200m	75-7	500m
75-4	270m	75-9	680m

### 2.2 Wiring Diagram

Before installation, please cut all the power supply of camera, and read user manual carefully.



## 3. Basic Operation

The operation approach will be different from the different operation platform. Please refer to the User Guide for common operation. For special function, please contact supplier for the detailed information. Here we introduce the common use of PTZ keyboard.

### 3.1 Power-on Self-check

If the camera power on, it will enter into self-check. The dome camera will horizontal or vertical rotate, and then Zoom in and zoom out automatically.

### 3.2 Control the Rotation

Select one camera, move the joystick to control the camera upward or downward, etc..Move the joystick to the right, the camera will running to the right direction.



### 3.3 Preset setup

According to the following steps to set the presets:

**3.3.1 Move the joystick to adjust Camera image through the Zoom ,Focus and Iris function..**

**3.3.2 Input the number + PRESET, save the data of this preset.**

**3.3.3 Selecting the preset**

Call the Presets according to below steps:

Input number+ CALL, the dome camera will turn to this location. And the Lens data and focus function will change to the related settings.

**Special Preset list:**

Special Preset	Function description
93+CALL	Factory Setting
94+CALL	Open/Close Internal Menu (only apply to Camera with internal menu)
95+CALL (60+CALL)	Enter the system main menu
97+CALL	Delete all presets
98+CALL	IR Mode switch
61~68+CALL	Run tour group 1~8
71~78+CALL	Run pattern scan group 1~8
81~87+CALL	Run LR Scan group 1~8
99+CALL(88+CALL)	Run 360°Scan

## 4. Menu Function

This part will mainly introduce how to set the OSD menu of dome.After power on, PTZ dome will enter to self-check, display information as below:

SYSTEM INFORMATION	
-----	
DOME ID	001
COMM	2400.N.8.1
PROTOCOL	AUTO
DOME MODEL	AHD2118X
VERSION	900HM.0.10
INITAILLIZING...	

These are the self-check parameters of dome, (Serial number, dome ID, Communication, Protocol, Model No. , dome Model, software version, etc.)

**Note:** Set the protocol, Dome ID, communication in the communication function menu.

The below is the introduction of Camera setting. Usage of the keyboard to operate the OSD menu.

**Keyboard function:**

- 【OPEN】** It will adjust to big iris, if you select image. Confirmations function for camera setting and skip to next setting
- 【CLOSE】** It means reduce the aperture, if you adjust the image. And cancel function for Camera setting or back to the forward menu.
- 【FAR】** Far focus, the image setting, it will focus on the target far..Camera menu setting , this function means modify menu item to forward value
- 【NEAR】** Near focus, the camera setting, it will focus on the near target..Camera menu setting, this function means modify menu item to next value
- 【TELE】** Zoom in, increase the zoom times of image. In the camera menu setting, it will back to forwarder menu item
- 【WIDE】** Zoom out, increase the zoom times of image. In the camera menu setting, it will back to forwarder menu item
- 【UP】** Camera upward, When you setting the menu, it means back to forward menu item. When you setting privacy masking, it means decrease the height of masking area
- 【DOWN】** Camera downward. When you setting the menu, it means skip to the next menu item. When you setting the privacy masking, it means increase the height of masking area.
- 【RITHT】** Camera turn right; When you set the menu that means enter to next object or save the setting. When you setting privacy masking, it means enlarge the length masking area.
- 【LEFT】** Camera turn to left; In the menu operation means back to forward menu, or return to main menu; When you setting privacy masking, it means reduce the masking area.

◆ **Note:** It will quicken the speed. If control the PTZ camera Up and Down continuously, Meaning of symbols:

“→” present Menu item selected

“( )”that means this one have subsidiary menu;

### 4.1 Main Menu

After PTZ Dome power on, Call No. 95 preset will enter to Main menu:

MAIN MENU
-----
→ (SYSTEM INFORMATION)
(COMMUNICATION)
(CAMERA SETTING)
(PTZ SETTING)
(AUTORUN SETUP)
(DISPLAY INFORMATION)
(INFRARED SETTING)
(RESET)
EXIT

## 4.2 SPEED DOME INFORMATION

SYSTEM INFORMATION	
-----	
→TITLE:	
LANGUAGE:	ENGLISH
PASSWORD	
SYSTEM INFORMATION	
EXIT	

**TITLE:** Adjustable: 14 characters of word, number or symbol  
Right move to skip the characters no need modify. Use blank to replace the character you want to delete. Select "Exist" to save the setting.

**LANGUAGE:** English or Chinese for option.

**PASSWORD:** Input the NEW Password, and confirm. And do this again to save the password. It will have some information to advise you the setting finished.

**Tip: Default Password: "000000" if you set password to "000000", the password protection function will close.**

**SYSTEM INFORMATION:**

SYSTEM INFORMATION	
-----	
DOME ID	001
COMM	2400.N.8.1
PROTOCOL	AUTO
DOME MODEL	AHD2118X
VERSION	900HM.0.10
→RETURN	

## 4.3 Communication

(COMMUNICATION)	
-----	
→DOME ID:	001
PROTOCOL	AUTO
BAUDRATE	2400
SAVE SETTING	
EXIT	

If hard ID switch is off, you can modify the Soft ID, protocols or the baud rate.

**Dome ID:** 001~255 selectable

**Protocol:** Support PELCO-P/D, and auto identification.

**Baudrate :** 2400bps / 4800bps/ 9600bps/ 19200bps.

**Save Setting:** Save the setting and system restart, communication will be valid.

**Tip: If you change the above data of PTZ Dome, please make the keyboard or DVR set the same date.**

## 4.4 Camera Setting

Camera setting menu, it will be differ from suppliers. Please refer to the related usual manual..

## 4.5 PTZ Setting

PTZ SETTING	
-----	
→PAN AUTO FLIP	ON
JOYSTICK	ALL
PROPORTIONAL	ON
NORTH DIRECT	
ZERO ADJUST	
EXIT	

**Pan Auto Flip:** Auto flip turn ON/ OFF

**JOYSTICK:** All / Focus/ IRIS./None

**All:** Manual IRIS mode or Manual focus mode, move the joystick, it will change to **Auto Focus / Auto IRIS.**

**FOCUS:** Manual focus or Manual IRIS, move the joystick, system will back to Auto Focus.

**IRIS:** Manual IRIS or Focus, move the stick, it will back to Auto Iris mode

**None:** Move the joystick, no action

**Proportional:** ON/ OFF; If turn on, the dome camera zoom function and vertical speed will change proportionately.

**North Direct:** if run this function, the present location will save as North Direct in the system.

And it is also the horizontal Zero Point of

**(ZERO ADJUST)**

ZERO ADJUST	
-----	
→MANUAL ADJUST	
AUTO ADJUST	ON
EXIT	

**Manual Adjust:** Active this function, the system will recheck the Horizontal and Vertical Zero Point. This is important step to prevent power off damage.

**Auto Adjust:** ON or OFF; If turn on, the dome camera will run to Zero Point automatically.



### 4.6 Auto-run Setup

```

AUTORUN SETUP
-----
-> (PRESET SETUP)
(TOUR SETUP)
(PATTERN SETUP)
(LR SCAN SETUP)
(HOME ACTION)
(POWER ON ACTION)
EXIT
    
```

#### 4.6.1 PRESET SETUP

```

PRESET SETUP
-----
->PRESET NO:      001
TITLE:           PRESET:001
SET PRESET
NEXT PRESET
DEL PRESET
EXIT
    
```

**PRESET NO.:** between 001~255

**Tip: when the Presets setuped, the dome camera will run to it, show the location of Preset.**

**TITLE:** Adjustable: 14 characters of word, number or symbol

**SET PRESET:** Set and save this preset setup.

**NEXT PRESET:** Check the data of next preset, if it exist, the dome will adjust to the location of this preset automatically. If the next preset inexistence, it will note: "preset invalid..."

**DEL PRESET:** Delete the setup of present preset.

#### 4.6.2 TOUR SETUP

```

TOUR SETUP
-----
->TOUR NO:      001
TITLE:         TOUR001
TOUR SPEED:   012
EDIT TOUR
RUN TOUR
DEL TUOR
EXIT
    
```

**TOUR NO.:** Group 001 ~ 008 Tour Scan adjustable

**TITLE :** Adjustable: 14 characters of word, number or symbol

**TOUR SPEED:** Level 01 ~ 15 speed selectable

**EDIT TOUR:** Edit the tour group and the stay time. After this setup, move cursor to left end, press **PTZ Right** to save the settings and back to previous menu

PRE - DWE	PRE - DWE	PRE - DWE
→ 001 - 005	002 - 005	003 - 005
004 - 005	005 - 005	006 - 005
007 - 005	008 - 005	009 - 005
010 - 005	011 - 005	012 - 005
013 - 005	014 - 005	015 - 005
016 - 005	017 - 005	018 - 005
019 - 005	020 - 005	021 - 005
022 - 005	023 - 005	024 - 005
025 - 005	026 - 005	027 - 005
028 - 005	029 - 005	030 - 005
031 - 005	032 - 005	

**RUN TOUR:** Run the present tour scan.

**DEL TOUR:** Delete the tour scan, restore to factory default.

#### 4.6.3 PATTERN SETUP

```

(PATTERN SETUP)
-----
->PATTERN NO:   001
TITLE:         PATTERN:001
REC PATTERN
RUN PATTERN
DEL PATTERN
EXIT
    
```

**PATTERN NO.:** 001 ~ 008

**TITLE :** Adjustable: 14 characters of word, number or symbol

**REC PATTERN:** Recording the pattern scan and save this settings.

**RUN PATTERN:** Running the recorded patter scan

**DEL PATTERN:** Delete pattern scan.

#### 4.6.4 LR SCAN SETUP

```

(LR SCAN SETUP)
-----
->LR SCAN NO:   001
TITLE:         LR SCAN001
LEFT LIMIT
RIGHT LIMIT
SPEED:         064
RUN SCAN
DEL SCAN
EXIT
    
```

**LR SCAN NO.:** 001~008 LR Scan No. selectable

**TITLE :** Adjustable (support 14 characters: English, Number or Symbol)

**LEFT LIMIT:** Set the left limit

**RIGHT LIMIT:** Set the right limit

**SPEED:** Scanning speed level 1 ~ 64 adjustable

**RUN SCAN:** Run the LR Scan

**DEL SCAN:** Delete the present LR Scan

## 4.6.5 HOME ACTION

(HOME ACTION)	
-----	
→HOME TIME:	030
HOME ACTION:	NOP
EXIT	

**HOME TIME:** between 005~255 sec.

**HOME ACTION:** Set the home action: LR scan 1-7, 360°Scan, presets1-255、Tour scan 1-8, Pattern Scan 1-8 or Close function selectable

## 4.6.6 POWER ON ACTION

(POWER ON ACTION)	
-----	
→POWER ACTION:	MEMORY
EXIT	

**POWER ON ACTION:** Set this Power on function, the LR scan range between level 1~7, 360°Scan, Presets 1-255、Tour group 1-8, Pattern scan 1-8, power on recovery , No action,etc

## 4.7 DISPLAY INFORMATION

(DISPLAY INFORMATION)	
-----	
→DOME TITLE	OFF
PRESET TITLE	OFF
TOUR TITLE	OFF
ZOOM POSITION	OFF
DIRECTION	ON
GLOBAL SETUP...	
EXIT	

## 4.8 INFRARED SETTING

(INFRARED SETTING)	
-----	
→IR ZOOM CONTROL	ON
IR WORKING MODE	AUTO
CHECK TIME	03S
OUTPUTPOWER	HIGH
ILLUMINATION ON	08
AMBIENT LIGHT	20
IR SWITCH ZOOM	06
EXIT	

**IR ZOOM CONTROL:** Mode: **ON/ OFF**. If IR Zoon control turn ON, the IR light will change based on the zoom magnification "OFF" All the IR LED will turn on

**IR WORKING MODE:** Auto, ON or OFF (default AUTO )

**CHECK TIME:** the IR LED will turn on automatically, when the outside is dark. It will change to Day/ Night mode. When the checking time, 01~15 seconds selectable

**OUTPUT POWER:** IR power output MODE : High /Low

**ILLUMINATION ON:** IR turn on range between level 01 ~ 20,default level 8,

**AMBIENT LIGHT:** it cannot be change, the illumination level is updating continuously, just in the menu

**IR SWITCH ZOOM:** Multiple of IR level 01~10 selectable

## 4.9 RESET

(RESET)	
-----	
→FACTORY SETTING	
CAMERA RESET	
PRESETS RESET	
SYSTEM RESTART	
EXIT	

**FACTORY SETTING:** All parameters will restore to factory default

**CAMERA RESET:** OSD menu function will restore to factory default.

**Note :** If camera with internal menu, please set it in the internal menu to default setting

**PRESETS RESET:** Delete all presets information

**SYSTEM RESTART:** Restart the PTZ camera



### Appendix I Dome Switch Setting

#### Address setting

Address	Address Codes Table							
	1	2	3	4	5	6	7	8
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
.....								
250	OFF	ON	OFF	ON	ON	ON	ON	ON
251	ON	ON	OFF	ON	ON	ON	ON	ON
252	OFF	OFF	ON	ON	ON	ON	ON	ON
253	ON	OFF	ON	ON	ON	ON	ON	ON
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON

#### Protocol setting

Protocol	Protocol setting			
	1	2	3	4
Pelco_P	OFF	OFF		
Pelco_D	ON	OFF		
NC	OFF	ON		
NC	ON	ON		

#### Baudrate setting

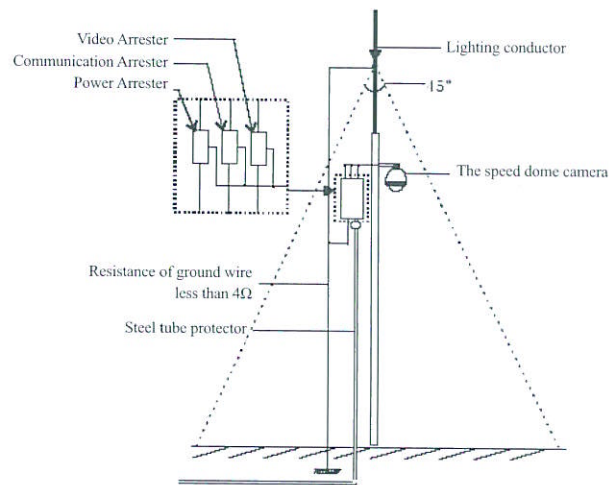
Baudrate	Baudrate setting			
	1	2	3	4
2400BPS			OFF	OFF
4800BPS			ON	OFF
9600BPS			OFF	ON
19200BPS			ON	ON

### Appendix II Prevent Lighting stroke and Surging

This product use the Air Discharge tube and lightning protection technology. It can effectively prevent the 1500W instant lighting, surge and other types of pause signal damage. However, outdoor installation must according to the actual situation. Ensuring electrical safety under the premise of take the necessary protection measures

Signal transmission line must keep a distance from High Voltage equipment or High-voltage cables.(at least 50 meters)

- Outdoor wiring must be under eaves.;
- For the open area must be sealed tube buried way wiring, and steel single point ground, the absolute prohibition of use of overhead wiring methods;
- in strong thunderstorm or high induced voltage areas (such as high-voltage substation), you must take extra strong lightning protection equipment and lightning rods and other measures
- For outdoor device and line, lightning protection and grounding design must consider incorporate protection requirement and comply with the relevant national and industry standards;
- The system must be equipotential grounding. Grounding device must meet the without interference and electrical safety. And shall not connect high voltage electricity lines or short circuited lines. System individually grounded, anti-ground resistance of less than 4Ω, grounding wire cross-sectional area must not be less than 25 mm<sup>2</sup>;



### Appendix III RS485 bus cable

#### 1. RS485 bus cable features

According to RS485 industrial standard, RS485 bus cable belongs to 120Ω characteristic impedance half-duplex communication cable. Max load capacity is 32 effective load (including main control equipment and manipulated equipment)

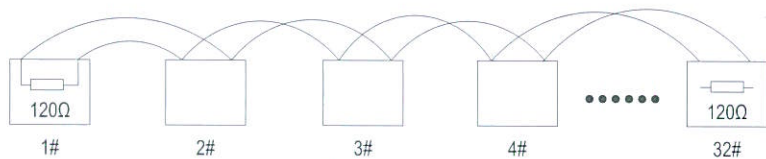
#### 2. RS485 bus cable transmitting distance

Using 0.56mm (24AWG) twisted-pair as the communication cable, according to different baud rate, max distance data is as follows,

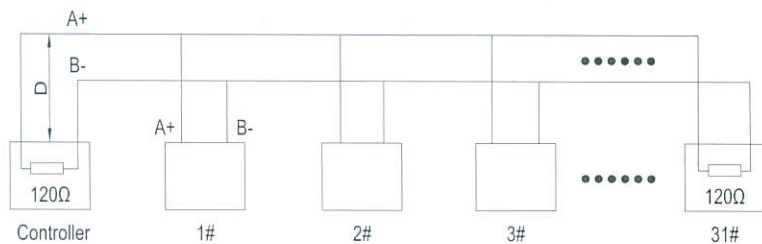
Baud rate	Max distance
2400Bps	1800M
4800Bps	1200M
9600Bps	800M

#### 3. Connection method and terminal resistance

According to RS485 industrial standard, it require each equipments connected by the following connection ways. The two ends must be with 120Ω terminal resistance (picture a). Simple connection is as picture b, but "D" section distance is max 7 meters.



Picture a



Picture b

Picture b is RS485 bus cable 120Ω terminal resistance jumper. To avoid 485 signal reflex, connect 120Ω terminal resistance at the end the 485 bus cable. The middle equipments must disconnect terminal resistance.

### Appendix IV Simple Troubles Shootings

Trouble	Probable Cause	Solution
Power-on ,the machine no action, no image, and signal light not turn on	Power supply not enough	Test with Multimeter , and use the propriety power voltage
	Wrong connection of Power ling	Correct it
	Local power supply or transformer damaged	Check the power supply , if the power adaptor work
	Power adaptor damaged	Eliminate
Self-Checked, display image but can not control	The Dome ID or Baudrate incorrect	Reset it
	Protocols not correct	Correct
	Wiring loose	Check the RS 485 connection
	RS485 wrong connection or open circuit	Check RS 485 connection
Self-Check abnormal , motor purring, with image	Mechanical breakdown	maintenance
	Camera incline	Adjust
	Power is not enough	Change to better one
Fuzzy Image	Manual Focus mode	Set to Auto Focus mode
	Camera Shade with dust	Clean it
Instability image	Video line wrong connection	Check the video line
	Power supply not enough	Change
PTZ Dome out of control	Power supply not enough	Change to a better supply
	RS485 control bad contact	Reconnect the RS485 line
	RS485 line broken	Change another line
	Many PTZ Domes connected in parallel	Add RS485 Distributor
	Long distance between Host and PTZ dome	Add distributor