

# 1080p AHD 18x Optical Zoom External 360° PTZ Camera with Wall Bracket

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GAHD18IRPTZ



User Manual

Please read these instructions carefully before operating the unit  
and keep for further reference.

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### **CAUTION:**

- During transport and installation process, prevent weight, severe vibration and water damage to the product.
- Please do not disassemble the zoom camera.
- For power supply cable, video cable and control cable, please adopt shielded cable and independent wiring and do not mix with other cables.
- Please follow all kinds of electric standards when using the PTZ camera and make sure that the signal cable is kept at enough distance (at least 50m) with high voltage equipment or cables. If possible, please take lightning and surge measurement.
- When cleaning the camera housing, please use a dry soft cloth to wipe. If it is too dirty, please use a neutral cleaner to wipe lightly. Do not use a strong cleaner and scrub otherwise housing can scratch.
- Prevent liquid or other things getting into the housing to prevent any damage.
- Please do not use the camera beyond its limited temperature and humidity : -25°C to 50°C, humidity less than 90%.
- Please do not install the camera near an air conditioner outlet or any of the following as the lens will be fogged because of condensation:
  - Under the environment where the temperature is up and down frequently.
  - In an environment which can make the glass fog.
  - In an environment full with smoke or dust.
- Please do not place the camera towards a strong light source, such as the sun for a long time as this will damage the colour filter on CCD or CMOS which will make the image lose colour.

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### 1.1 Product Features

- 18x optical zoom
- IP66 ingress protection
- 60m IR distance (in ideal conditions)
- RS485 PTZ control
- Supports auto iris, electronic shutter, automatic white balance, backlight compensation
- 6 piece infrared lights
- Supports 220 presets, 8 patrols, 4 patterns
- 360° endless pan range and 0-90° tilt range
- PELCO-D/P communication protocols
- NDAA compliant

### 1.2 Speed Dome Parameter

#### Electric

Rated Voltage	DC12V 4A±10%
Power Consumption	10 Max at daytime, 30Max at night (without heating)
Decoder	Built-in
IR Distance	100-120m

#### Set

Communication Protocol	PELCO-D/P
ID	1-255
Baud Rate (RS485)	2400/4800/9600bps/auto identify

#### Operate

Pan Rotate	360° endless
Tilt Rotate	90°
Speed	Middle Speed: Pan 6~30 °/ S, Tilt: 4~17 °/S High Speed: Pan 0.1~200 °/S, Tilt: 4~30 °/S
Preset	220
Monitor Mode Preset	Patrol, pan scan and pattern scan

#### Environment

Operate Environment	Outdoor: -20°C~60°C Indoor: -10°C~50°C
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#### Environment Humidity

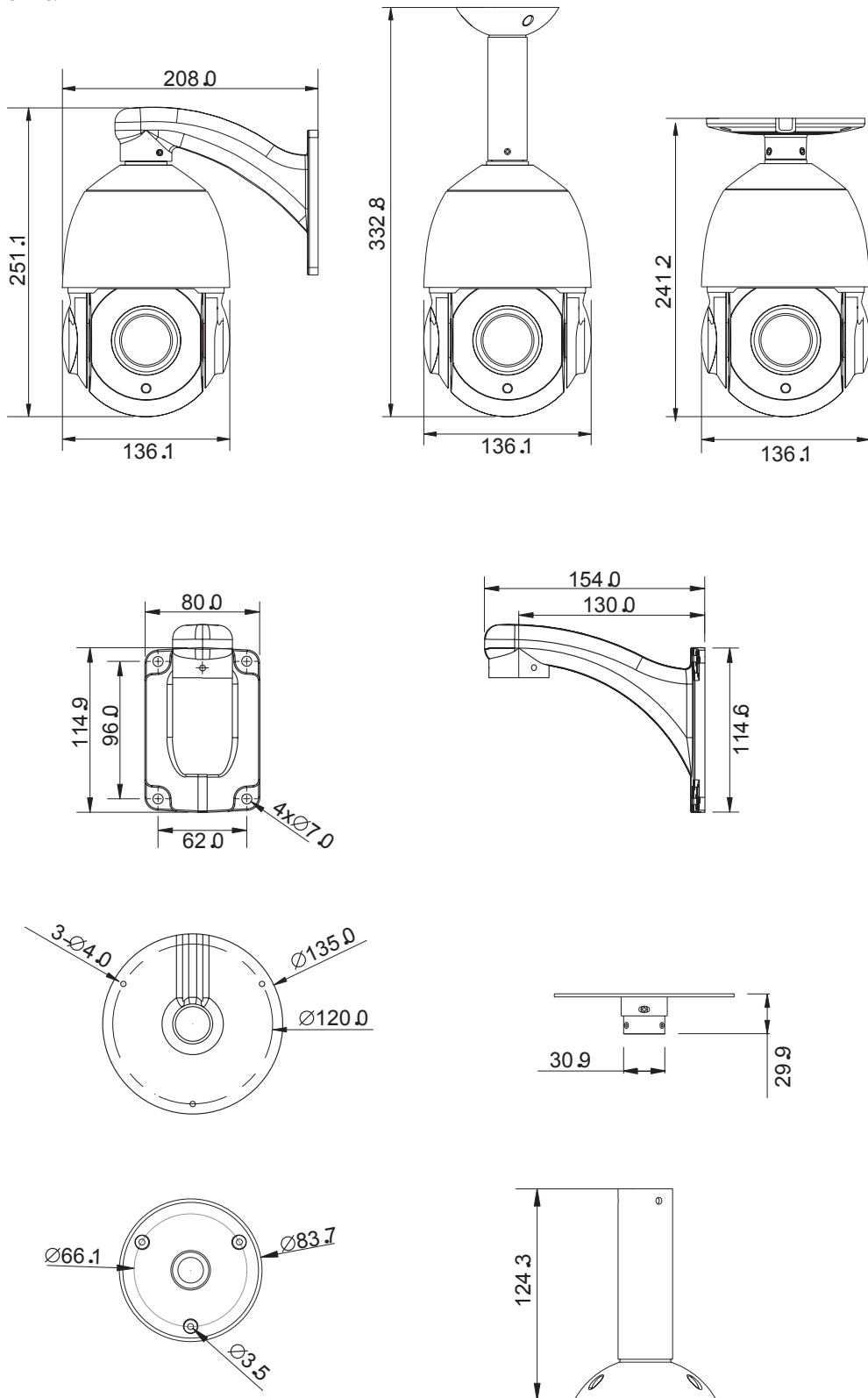
Ingress Protection	IP66
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#### Physical

Installation Mode	Wall mount/ceiling mount
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### 1.3 Product Dimensions

Unit: mm



### 2.1 Installation Instructions

#### Before installation

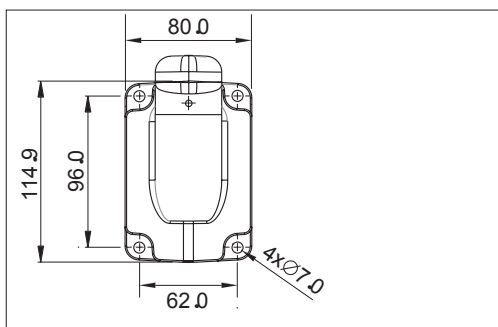
- In order to prevent any trouble with installation, it should be done by a professional.
- Confirm all spare-parts are there, ensure the application of this camera and installation mode is suitable for requirement.
- Wall/ceiling mount camera composite with bracket, zoom camera, transparent cover and other parts.

### 2.2 Installation Method

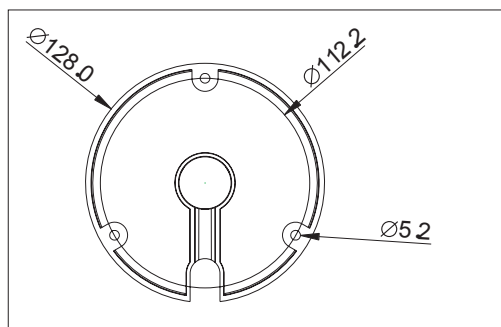
#### Step 1 – Draw positioning holes

Take out the bracket from packaging box. Mark the holes' position based on the wall mount bracket bottom 4pcs installation holes.

Wall Mount Bracket



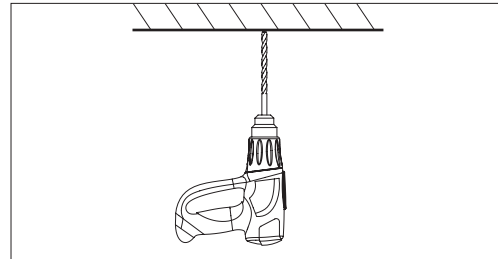
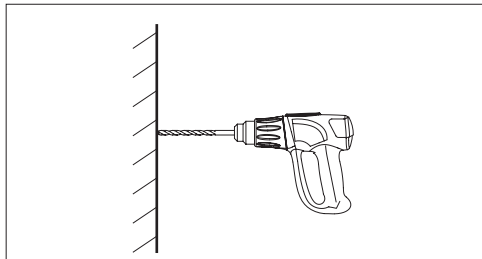
Ceiling Mount Bracket

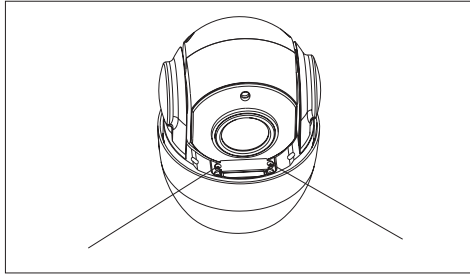


#### Step 2 – Drill holes and put expansion screws in

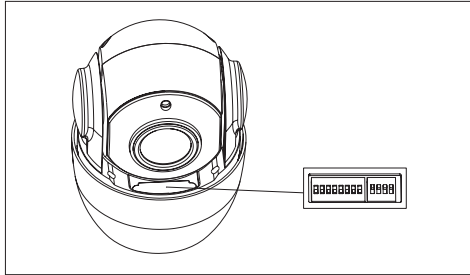
Drill 4pcs expansion screw's installation holes at pre-marked position, then put 4pcs expansion screws in.

(Note: please bring own expansion screws.)

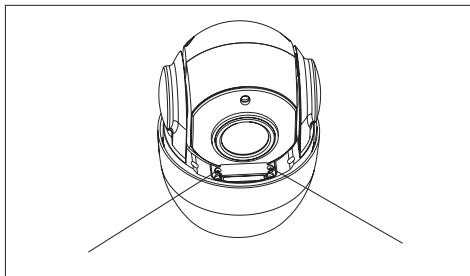




Step 3 - Unscrew the 2pcs screws used to fix the transparent cover for DIP switch  
Use the screwdriver to open 2pcs screw which are used to fix the transparent cover for DIP switch, then move transparent cover from speed dome camera.

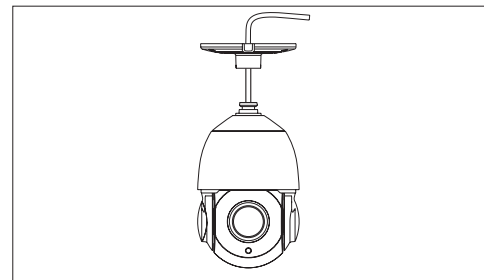
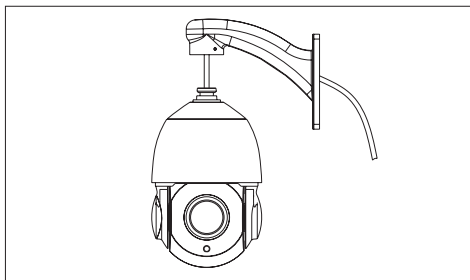


Step 4 - Set up DIP switch  
Please refer to section 3, Baud rate setup.

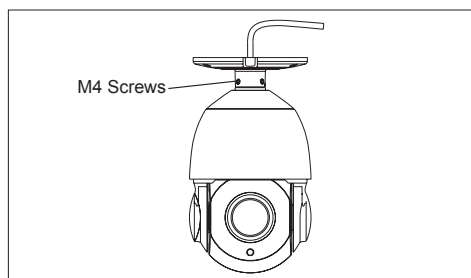
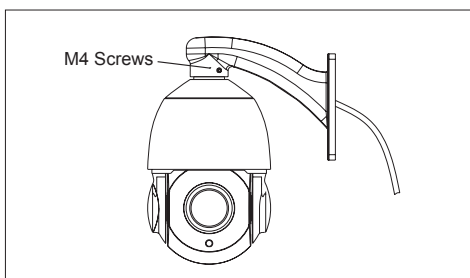


Step 5 - Install transparent cover of DIP switch  
After finishing baud rate setup, install transparent cover of DIP switch again.

Step 6 - Lead cable through wall mount bracket  
Lead the cable through the wall mount bracket hole.

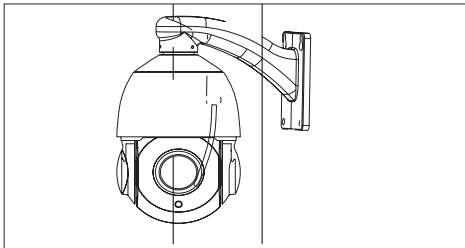
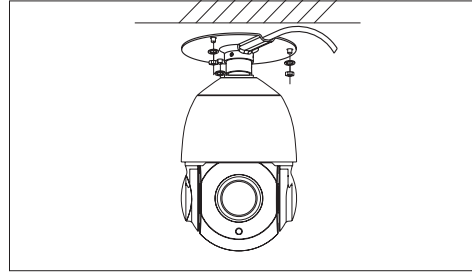
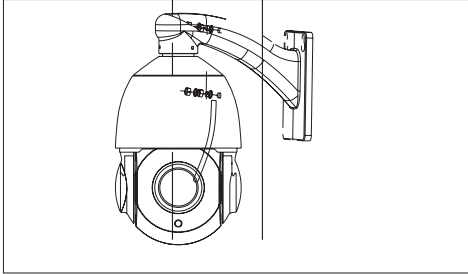


Step 7 - Connect PTZ camera and wall mount bracket  
Put PTZ camera connection port into bracket hole, screw 4pcs hexagon screws into corresponding screw holes.



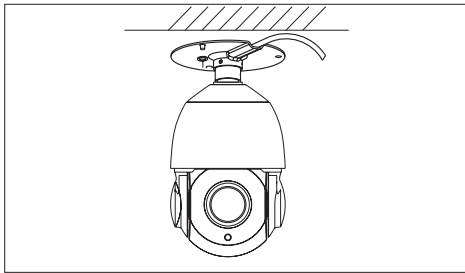
Step 8 – Fix PTZ camera on wall

To ensure the product is water-resistant, first install rubber seals on wall mount bracket, and lead the cable out from the wiring port, then fix it onto the wall by using 4 screws. Seal the wiring port of the bracket by using silicon sealant.



Step 9 – Cable connection

Please refer to section six of this chapter – Connection method.



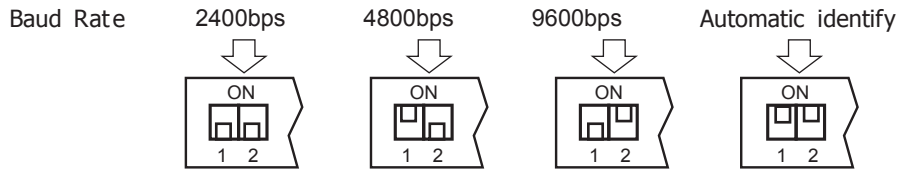
Step 10 – Tear off protection film

Tear off protection film of transparent cover.  
Note: Please take care of transparent cover.

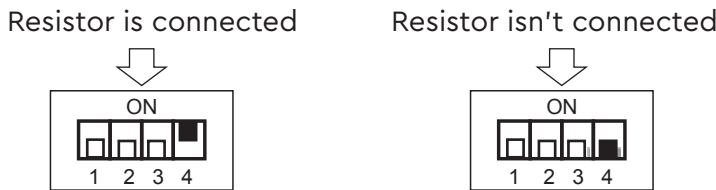


### 2.3 Baud Rate Set-up

Baud rate and corresponding DIP status as below:



RS485 control bus needs all devices that connect to it in parallel mode, and each end of the system shall be connected to a 120ohm resistor. The PTZ has a 120ohm resistor in it, so you only need to set it up through dip switch SW2, put the 4th switch on, then the resistor is connected, details as below :



### 2.4 ID Set-up

ID setup (address code setup obey binary rules) address code shall be set through 8 DIP switch (SW1). Keyboard control speed dome through communication bus, one keyboard can control max. 255pcs speed dome camera, each speed dome camera has its own address code, user can set address code through 8 DIP switch, details as below:

Address	SW1 Switch Setup							
	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
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
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
---	---	---	---	---	---	---	---	---
254	OFF	ON	ON	ON	ON	ON	ON	ON
255	ON	ON	ON	ON	ON	ON	ON	ON



## 2.5 Power Supply and Control Cable Connection

### Power Supply Connection

Note: Please check rated voltage and power supply carefully, rated voltage and current as below:

Rated Voltage	Rated Voltage Range	Current
H/N:DC12V ( AC 24V Optional)	± 10%	4A
R/U:DC12V	± 10%	2A

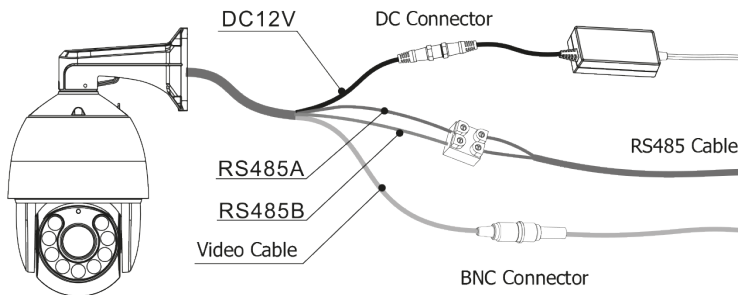
### Control Line Connection

Connect RS485 line to keyboard controller or DVR, if there is more than one that needs to be controlled by keyboard or DVR, please connect it in parallel.

Note:

1. Protocol and baud rate of keyboard and DVR can be set by customer, just make sure it is the same with that PTZ.
2. The ID of different camera which is in same system shall be set as different.
3. It should set the difference PTZ Camera Address in Monitor system with multi-cameras.

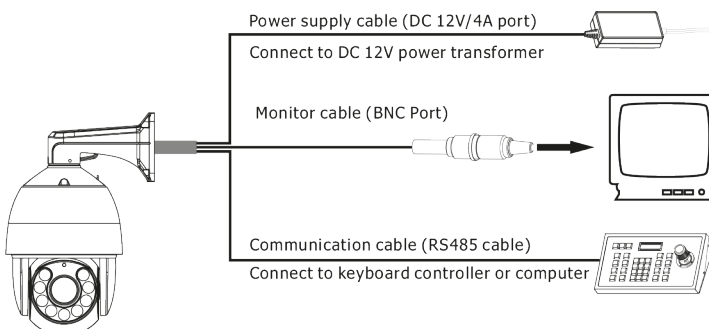
## 2.6 Connection Method



## 2.7 Cabling Mark Instruction

Port Mark	Port Instruction	Cable Colour	Connection Instruction
Power supply cable	DC12V input power	DC connector	Connect DC12V input power
RS485A	485 Communication bus A	White	Connect bus cable A (here in example connect PTZ-CON Ta)
RS485B	485 Communication bus B	Green	Connect bus cable B (here in example connect PTZ-CON Tb)
Video cable	Video cable	BNC port	Connect Monitor or Analogue HD DVR

## 2.8 Typical Application Wiring Diagram



## 3.0 Basic Operation

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As there are different system platforms, specific operation method is not the same, subject to manufacturer's manual, different situations have special requirements and operation methods. Please contact distributor to obtain necessary information and only introduce this control method when connected with a universal keyboard controller.

### 3.1 Power On Self-Test

After powering on the camera, it will action in pan and tilt direction automatically, through self-test to confirm the camera is working normally.

Control camera up, down, left and right rotate:

After selecting one camera, you can manually control the camera's up, down, left and right movements through the keyboard joystick.

When moving the joystick to the right, the camera will also move to the right, and when moving the joystick left, the camera will also move to the left. Moving the joystick in a tilt direction, the camera also will make corresponding action in tilt direction. If you move the joystick in a diagonal direction, it can make the camera move in a pan and tilt direction action at the same time, with the movement direction same as the joystick.

### 3.2 Preset Setting

Operation steps as below:

1. Select camera (please refer to your keyboard controller manual for details)
2. Operate joystick or zoom+/- button to adjust camera image
3. Press (PRESET) + (N) (input specified preset number) + (ENTER), save current position parameters as a preset.

### 3.3 Call a Preset

Operation steps as below:

1. Select camera
2. Press (SHOT) + (N)(input specified preset number) + (ENTER), camera will move to corresponding preset position at once, zoom+/- will also adjust according to the parameter of preset automatically.

### 3.4 Function by Preset

Adopting the method of a double-layer preset can be achieved through all the functions of the camera by preset call, Specific correspond <<Preset Function Table of General Function>>and <<Preset Function of Specific Function>>.

Call Mode:

Call mode is on in general preset of call, specific function is achieved by the mode of preset call, for example: [92] + [SHOT] + [1] + [SHOT], which is to call patrol 1.

Setting Mode:

Setting mode is on in general preset of setting, specific function is achieved by the mode of preset call, for example: [92] + [PRESET] + [1] + [SHOT], which is to set patrol 1.

#### Preset Function Table of General Function

General Function	Preset
IR	90
Zoom module	91
Patrol scan	92
Pattern scan	93
PTZ control	94
Menu	95
System Setting	96
Reservation	97
High speed auto scan	98
Low speed auto scan	99

#### Preset Function of Specific Function

General Function	Preset No.	Call Mode	Setting Mode	Remarks
IR Function only support IR speed dome camera	1	Auto ON/OFF		
	2	Forced ON		
	3	Force OFF		
	11	High Sensitivity		
	12	Middle Sensitivity		
	13	Low Sensitivity		

Zoom Module Setting	1	IR CUT - ON		
	2	IR CUT - OFF		
	3	IR CUT - AUTO ON		
	4	IR CUT - AUTO OFF		
	50	Zoom Camera Automatic Diagnosis		
	51	SONY		
	52	HITACHI		
	53	SAMSUNG		
	54	HIK		
	55	MYTECH		
	56	LG		
	57	LG-XDI		
	58	CNB		
	59	CNB 36 x Optical Zoom		
Zoom Module Setting	60	GV		
	61	SWELL		
	62	BQL		
	63	WIT		
	80	Enter module menu		Module support OSD function
	81	Confirm function in OSD menu		
Patrol Scan	1	Call patrol 1	Patrol 1 setting start	
	2	Call patrol 2	Patrol 2 setting start	
	3	Call patrol 3	Patrol 3 setting start	
	4	Call patrol 4	Patrol 4 setting start	
	5	Call patrol 5	Patrol 5 setting start	
	6	Call patrol 6	Patrol 6 setting start	
	7	Call patrol 7	Patrol 7 setting start	
	8	Call patrol 8	Patrol 8 setting start	
	9	Patrol setting end		
	10	Patrol time setting(5-240sec.)		
	11	Patrol speed setting(1-63)		
Pattern Scan	1	Call pattern 1	Pattern 1 setting start	
	2	Call pattern 2	Pattern 2 setting start	
	3	Call pattern 3	Pattern 3 setting start	
	4	Call pattern 4	Pattern 4 setting start	
	5	Pattern setting end		

PTZ Control	1-8	Park preset 1-8		
	9-16	Park patrol 1-8		
	17-20	Park pattern 1-4		
	21	Park auto scan		
	22	Park AB lines scan		
	30	Park time 0(off)		
	31	Park time 10s		
	32	Park time 30s		
	33	Park time 60s		
	41	A line-scan setting		
	42	B line-scan setting		
	43	High speed line-scan start		
	44	Middle speed line-scan start		
	45	Low speed line-scan start		
	46	Inner arc line-scan		
	47	Outer arc line-scan		
System Setting	50	Open autotracking		support speed dome camera with autotracking
	51	Off autotracking		
	52	Open zoom self-adaption		support IP speed dome camera with autotracking
	53	Off zoom self-adaption		
System Setting	Continuous call 10,12,14	Restore factory settings		
	30	On/off Auto-flip		Support flip Dome Camera
System Setting	01	TVI 1080P P		
	02	CVI 1080P P		
	03	AHD 1080P P		
	04	CVBS P		
	05	P		
	06	N		

Remark: Preset 35 could run Patrol 1, Default Preset Point No.1~No.8

### 3.5 Patrol Setting

Start patrol order "set preset 92+ call corresponding preset of patrol number", then add preset "call preset", every patrol path can add Max. 32 presets. After adding, save the setting by "set preset 92 + call preset 9".

The setting of preset standing time: "set preset 92 + call preset 10 + call corresponding preset of time".

The setting of preset running speed in patrol: "set preset 92 + call preset 11 + call corresponding preset of speed.

For example, add 1-4 presets in patrol 1, standing time 30s, speed 40, follow the instructions below:

Add preset in patrol path:

1. Set preset 92, call preset 1, start patrol 1 setting.
2. Call preset 1, add preset 1 to patrol 1.
3. Call preset 2, add preset 2 to patrol 1.
4. Call preset 3, add preset 3 to patrol 1.
5. Call preset 4, add preset 4 to patrol 1.
6. Call preset 92, then call preset 9, save patrol 1.

The setting of preset standing time in patrol:

1. Set preset 92, then call preset 10, start the setting of preset standing time.
2. Call preset 30, set standing time to 30s.

The setting of preset running speed in patrol:

1. Set preset 92, then call preset 11, start the setting of preset running speed.
2. Call preset 40, set preset running time to 40.

### 4.1 FAQ's

Faults Phenomenon	Check part	Probable Cause	Solution
There is no action and no image after powered up	Check power adapter and power PCB	Power adapter	Change power supply
		Power circuit exist has problem	Replace
There is image, but do not self-test when powered on	Motor has abnormal sound	Mechanical problem	Overhaul if it get stuck in something
	PTZ Swings	Very incline	Set it straight
	N/A	Power is not enough	Change a new power supply that meet the requirements
	N/A	Something wrong with motherboard	replace
There is no image, but can do self-test after powered on	Connection line between power panel and connection panel	Do not insert properly	Insert again and push protective cover
	Video line, BNC Connector	Do not install contact properly	Make sure all connection is proper
There is image, and can do self-test, but can not control after powered on	RS485 communicate line	Something wrong with the circuit	Make sure all connection is proper
	N/A	Irregular operation leads to out of control	Power off and restart
		Something is wrong with the motherboard	replace
N/A	Speed dome camera is in state of manual focusing	Operate speed dome camera or call any one preset to make it back to auto. focusing	
Video image is Foggy	Transparent cover	Transparent cover is dirty	Clean transparent cover

### 4.2 Cleaning the Transparent Cover

In order to keep the image clear, the cover needs to be cleaned.

When clear, please be careful and avoid touching the transparent cover directly. Any scratches of the flint on the transparent cover will lead to a foggy image, affecting the image quality.

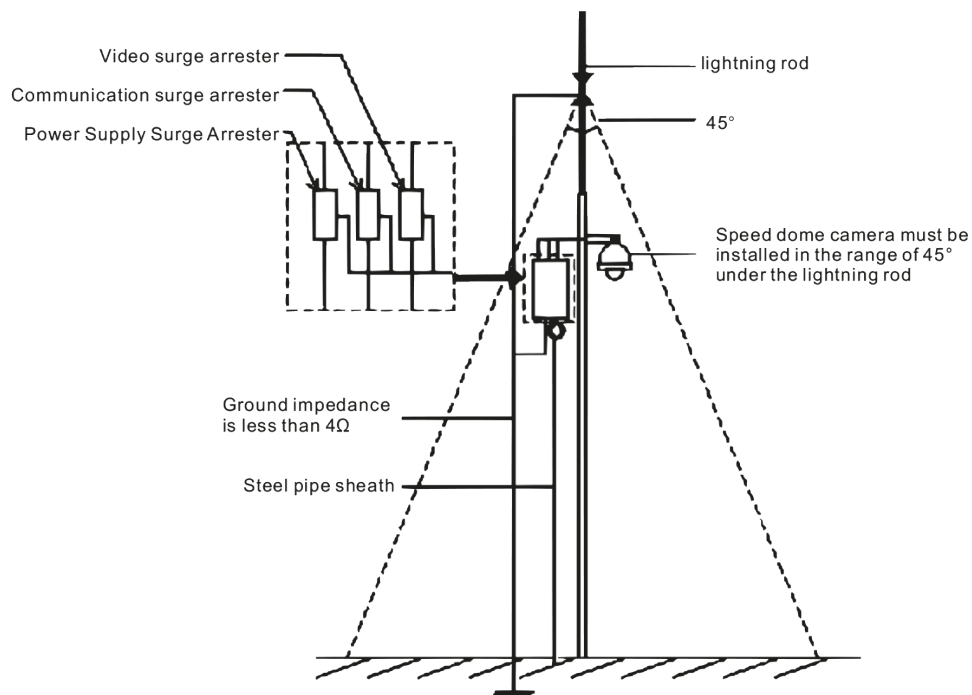
Please use soft enough dry cloth or other replacement to wipe the inner and surface. If seriously dirty, use a neutral cleanser.



### 4.3 Lightning and Surge Protection

When placing outside, you need to consider lightning and surge protection. To guarantee electrical safety, we can take following measures:

- At least keep 50m distance between signal transmission line and high voltage equipment or high voltage cable.
- Outdoor wiring under the eaves.
- For open field, use a seal steel pipe buried wiring way, and use one-point earthing with the steel pipe. Do not use aerial wiring.
- It needs to add extra high-frequency thunder-proof device and lightning rod in strong thunderstorms area or high inductive voltage region (such as high voltage substation).
- Thunder-proof and grounding design of exterior installation and circuit must be in accordance with building lightning proof requirements. It must meet national standard and industry standard.
- System must be equipotential grounding. Grounding device must meet anti-jamming and electric safety dual requirements. The connection with strong electrified wire netting can't be short connection or mixed connection. When system is in the condition of single-phase grounding, ground impedance is less than  $4\Omega$ , ground wire cross-section area must be more than 25 mm<sup>2</sup>.



#### 4.4 RS485 Bus Wiring

##### RS485 bus basic characteristic

RS485 industry bus is characteristic impedance  $120\Omega$  half-duplex communication bus according to RS485 industry bus standard.

##### RS485 bus transmission distance

When using 0.511mm (24AWG) screen twisted pair cable as communication cable. Depending on different baud rate, the longest transmitting distance theoretical value is shown as below:

The longest transmitting distance of baud rate:

2400Bps 1800m

4800Bps 1200m

9600Bps 800m

##### Connection mode and terminal resistance

RS485 industry bus standard require adopt snake-like wiring (chrysanthemum chain), the ends must connect with  $120\Omega$  terminal resistance (such as figure 6), ease connection can adopt figure 7, but distance of section "D" can't exceed 7m.

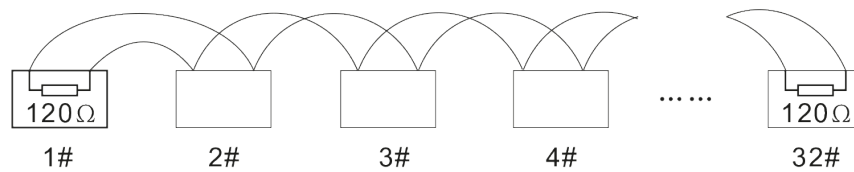


Fig6

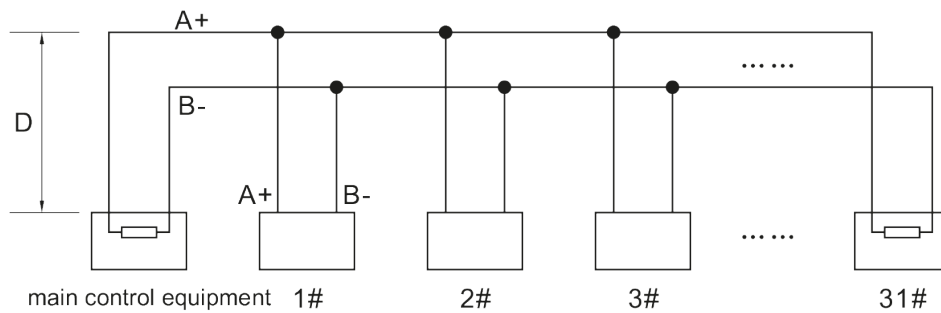


Fig7

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