









# Package Contents:

Item	Qty.
Z-20A-2(IR)	1
Wall Bracket	1
Hinge Pin	1
Rubber Seal	1
AC power supply	1
Wall Screws	4
PM8*25 socket head screws	1
Allan Key	1

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## **1** General Instructions:

## 1.1 Safety Instructions:

- Make sure to read the user manual before using the camera.
- Always follow national and local safety codes during the installation.
- Only qualified and experienced person can carry the installation and maintenance for this camera.
- Use reliable tools.
- Make sure that the environmental conditions meets the installation requirements for this product.
- Please check the space and toughness of the installation surface before installation. It should be able to bear 4 times the weight of the camera and its accessories.

### 1.2 Warnings:

- Do not install this speed dome in hazardous places where combustible or explosive materials are stored or used.
- Do not install on platform that suffers from constant vibrations.
- Make sure no object or fluid substances get inside the unit.
- This speed dome runs on AC24V, do not connect it to different voltage.
- Do not turn power on before installation is complete.
- Do not disassemble any part of the camera.
- Use soft towel to clean the down the lenses when necessary, do not use caustic detergent.
- To protect the image sensor, avoid facing the camera directly into strong light.
  - To prevent damage, do not drop the unit or expose to strong shocks or vibrations.
  - Make sure no object is blocking the unit's full range of motion.

## 2 Features:

## 2.1 Product Picture:



### 2.2 Product Features

- Alarm I/O: 7 Input/ 2 Output
- CoC Support
- ♦ 4 in 1 (AHD/TVI/CVI/CVBS)
- Adaptive PELCO-P/D protocol.
- Memory recall.
- Real-Time-Control: call any functions at any time.
- Support 255 preset positions.
- English OSD menu.
- Proportional zoom.
- Auto flip function.
- Built in lightning proof and surge proof protection.
- Advanced step motor for smoother movement.
- Support Tour 4 groups, 8 Auto scan, 4 patterns, and 360° continuous scan and 360° intermittent scan.
- The upper dome adopts 7" aluminum alloy structure for better

magnetic shield and heat radiation.



The underpart dome adopts full metal class points bin type design for fast heat dissipation and anti-mist, non-interference light source images and long life span IR light.

	Input: AC100~240V 50/60Hz
Power Supply	Output: AC24V±5%, 3A
Sync system	Internal Sync
Language	English
Signal Output	4 in 1 AHD/TVI/CVI/CVBS + PAL/NTSC
Pan Speed	$0.01o{\sim}350^\circ$ /s(Max. Preset Speed)
Tilt Speed	0.010 $\sim$ 120 $^{\circ}$ /s (Max. Preset Speed)
Pan Range	0°~360°(Continuous)
Tilt Range	0°~90° (180° auto flip)
Presets	255
Preset Accuracy	<±0.1°
Tour	4Groups
Pattern	4
Auto scan	8
Protocol	CoC / RS-485
Communication	CoC / PELCO-D/P
Baud Rate	2400bps、 4800bps、 9600bps
Address	1-255 (By DIP Switch or Software)
Work Temperature	-35 oC +55oC
Work Humidity	<90%

### 2.3 Specifications:

## **3** Installation Site Preparations:

## 3.1 Tool List:

(1) Screws*	(2) Monkey wrench
(3) Philips screwdriver	(4) Straight Screwdriver
(5) Wire stripper	(6) Socket head wrench
(7) Electric drill	(8) Hammer
(9) BNC connector	(10) BNC Clamp
*Included in the kit	

## 3.2 Installation Preparation:

(1) Check the space and toughness of the site and make sure that the environmental conditions meet the installation requirements for this product.(2) The installation surface should be able to bear 4 times the weight of the PTZ and its accessories.

## 3.3 DIP Switch Setting:

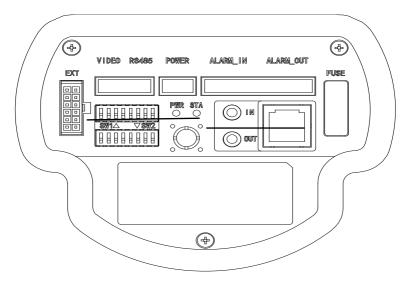
(1)Default Settings: Pelco P/D (auto-detected), baud rate: 2400, address: 1. Use Philips screwdriver to remove the DIP switch cover (see location below)



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SW1— Dip switch for the dome address

SW2— Dip switch for the dome protocol and Baud rate



(2) Baud Rate Setup

Decoder Switch: 9~10 (1=ON, 0=OFF)

Baud Rate	SW2-5	SW2-6
9600	OFF	OFF
4800	ON	OFF
2400	OFF	ON
Reserved		

(3) Hardware Address Setup\*: Please refer to Appendix I.

## **3.4 Output Mode Setting:**

(1) Default Settings: AHD , PAL system

This output can be changed via the controller (Even if the user cannot gain a video output from the unit due to output incompatibility)

(2) Set your controller/DVR PTZ Settings to the Camera's Default Communication Settings: Protocol: CoC / PELCO-D, address: 1 (Unless user changed it by the DIP switch configuration), baud rate: 2400.

(3) In order to change the output type follow the instructions below:

	AHD/TVI/CVBS Command		
Set #85 preset,	Call the preset number of	N=1	AHD
Call N,Please note: we will have to delete #85 (if exist) & recreate again, whenever	the desired video type	N=2	TVI
we will ask to change the video signal	signal:	N=3	CVI
type – <u>AS it is "set" action</u> .	e.g. "14" for CVBS/NTSC	N=4	CVBS

	CVI Command		
Set #50 preset,	Call the preset number of	N=1	AHD
Call N,Please note: we will have to delete #85 (if exist) & recreate again, whenever	the desired video type	N=2	τνι
we will ask to change the video signal	signal:	N=3	CVI
type – <u>AS it is "set" action</u> .	e.g. "14" for CVBS/NTSC	N=4	CVBS

## 4. Setup of the OSD Menu:

## 4.1 Display Boot-UP Info.

Before installation please check the protocol, baud rate, address and RS485 data cable. **Default Settings: Protocol: PELCO-D, address: 1, baud rate: 2400.** 

VERSION: VR210P-306 SIGNAL: AHD PAL PROTOCOL: PELCO P D BAUD RATE: 2400 CAMERA ID: 001 TEMP: 36 STATUS:OK

## 4.2 Enter the OSD Menu:

While the camera is in standby condition, call preset 95 ("Call" + 95 + "Enter") in order to display the main menu. Use the Up/Down direction to select item or start the configuration. Use the Right key to confirm and left key for exit the current setting.

The Main menu as follows:

INFORMATION DOME SETTINGS MOTION RESTART FACTORY DEFAULTS EXIT

### 4.3 SYSTEM Menu:

<Main Menu> → <INFORMATION>

INFORMATION DOME SETTINGS MOTION RESTART FACTORY DEFAULTS EXIT

The user can check the dome system information as required. The system information includes: Version, dome address, baud rate, temperature, voltage.

#### 4.3.1 INFORMATION

INFORMATION		
VERSION: VR210P-306		
ADDRESS:001		
BAUDRATE:2400		
TEMPERATURE:37		
VOLTAGE:11.6V		
BACK EXIT		

#### 4.3.2 DOME SETTING

DOME SETTING		
IR LED		
WIPER		
PART ACTION		
ALARM		
PRIVACY MASK		
ADVANCED		
OTHER		
BACK EXIT		

#### 4.3.2.1 IR LED

IR LED SETTING		
CONTROL MODE: AUTO		
SENSITIVITY:218		
NEAR POWER:100		
FAR POWER:100		
COMPENSATION:0		
BACK EXIT		

The user can open and close the IR LED manually and set up the IR LED work mode under this OSD mean. (Under normal operation mode, the user can press IRIS OPEN and IRIS CLOSE to adjust the IR LED power): 1) control mode:

AUTO	IR LED will be opened or closed automatically according to	
	the light conditions.	
ON	IR LED forcedly open	
OFF	IR LED forcedly close	
CAMERA	IR LED status (Open/Close) will be synchronized with	
	Camera day and night switching	

2) Sensitivity:

User can manually set the sensitivity from 1-10. The smaller the number is, the lower light of the environment will be when the IR LED on.

- 3) NEAR POWER: 100
- 4) FAR POWER: 100
- 5) COMPENSATION: 0-50

#### 4.3.2.2 WIPER (Only models with WIPER support this feature)

WIPER		
NUMBER:03		
SPEED:MID		
AUX ON:AUX1		
RESTART		
ACTIVATE		
BACK	EXIT	

User can make adjustment for the wiper under this menu.

1) Numbers : Move the cursor to "NUMBER" and press IRIS OPEN to enter the setup of Wiper Number. Move the joystick up and down to select number (1-10), then press IRIS OPEN to confirm.

2)Speed: Move the cursor to "SPEED" and IRIS OPEN to enter the setup of

Wiper speed. Move the joystick up and down to select "HIGH", "MID "OR" LOW", the press IRIS OPEN to confirm.

#### 4.3.2.3

# PARK ACTION TIME: 1MIN ACTION:NONE BACK EXIT

User can set the parking time and action.

1) Time: 1MIN/2MIN/3MIN

2) Action: NONE / patter1 / Tour1 / Scan1 / Preset1

#### 4.3.2.4 ALARM

### ALARM SETTING

ALARM NO:1

CONTACT:NO

ALARM MODE: OFF

ACTION:NONE

ALARM OUT:OFF

### 4.3.2.5 PRIVACY MASK

PRIVACY MASK				
MASK NO:1				
ENABLE:OFF				
(SET)				
DELETE				
BACK	EXIT			

Privacy mask allows the user to mask the privacy areas with black frame. The User can set up to 4 privacy masks .

1)MASK NO.: Move the cursor here and press IRIS OPEN to enter the setup of Mask Number of the privacy zone.

2)ENABLE: To enable or disable this privacy mask function.

3)SET: Move the cursor here and press IRIS OPEN to enter the mode of setting the privacy mask. Move the joystick (Left/Right/Up/Down) on the screen to set up the privacy zone and press IRIS OPEN to confirm.

4)DELETE: Move the cursor here and press IRIS OPEN to delete the current No. of privacy mask zone.

#### 4.3.2.6 ADVANCED

ADVANCE	ED
FOCUS MODE: PUS	Н
FOCUS LIMIT:3M	
(DOME SPEED)	
(TILT ANGLE)	
BACK	EXIT

#### 4.3.2.6.1 <ADVANCED> → <DOME SPEED SETTING>

### DOME SPEED SETTING

DOME SPEED: 180

BACK

EXIT

#### 4.3.3 OTHERS

#### OTHERS

TEMP MODE:AUTO FAN ON TEMP:50 AUTO FLIP:ON STOP TIME:30 SEC MENU OFF:5MIN DISPLAY:OFF (AZIMUTH ZERO)

The user can set up TEMP MODE, INTERNAL FAN, AUTO FLIP, STOP TIME, MENU OFF here under the menu of "OTHERS"

1)TEMP MODE: To set up the control mode of dome fans and heaters. It includes three modes of AUTO, FAN HIGH SPEED and FAN LOW SPEED.

2)FAN ON TEMP: To set up the temperature that Fan start work

3)AUTO FLIP: When the camera tilts downward and goes just beyond the vertical position, the camera will rotate 180 degrees. The user can press IRIS OPEN to enter and choose to turn on/off this function.

4)STOP TIME: To set up the time that dome will stops after receiving the last command. Options include 5 / 15 / 30 / 60 Sec.

5)MENU OFF TIME: To set up the time that OSD menu be off when no operations. Options include 1 / 2 / 5 / 10 min.

#### 4.3.4MOTION

MOTION					
PRESET					
SCAN					
TOUR					
PATTERN					
BACK	EXIT				

The user can set up 4 motion detection scenes under this menu.

1)PRESET: The dome supports 255 presets.

2)SCAN: The dome supports 8 groups of auto scan.

3)Tour: The dome supports 4 groups of cruise.

4)PATTERN: The dome supports 4 pattern tours and each pattern cover at

5)most 10 Minutes of 500 commands.

#### 4.3.4.1 PRESET

PRESET					
PRESET NO: 001					
CALL					
(SET)					
DELETE					
SPEED:HIGH					
BACK	EXIT				

The dome supports 255 presets. Please check the following steps to set up a preset.

1) PRESET NO.: Move the cursor here and press IRIS OPEN to enter the

setup of Preset Number. Move the joystick to select a preset number (1-64 and 100-255) and press IRIS OPEN to confirm.

- 2) <SET>: Move the cursor here and press IRIS OPEN to enter. Move the dome to a defined position as preset point and press IRIS OPEN to save the preset position.
- CALL: Move the cursor here and press IRIS OPEN to call up the current preset.
- DELETE: Move the cursor here and press IRIS OPEN to delete the current preset.
- 5) SPEED: Move the cursor here and press IRIS OPEN to set up the preset call up speed of LOW, MID and HIGH.

4.3.4.2 SCAN

SCAN	
SCAN NO:001	
START	
(LEFT LIMIT)	
(RIGHT LIMIT)	
SCAN SPEED:10	
BACK	EXIT

The dome supports 8 groups of auto scan. Please check the following steps to set up a scan.

1)SCAN NO.: Move the cursor here and press IRIS OPEN to enter the setup of SCAN Number. Move the joystick to select a preset number (1-8) and press IRIS OPEN to confirm.

2)TITLE: Move the cursor here and press IRIS OPEN to enter the setup of

SCAN Title. Check the detailed above in DOME TITLE settings.

3)<LEFT LIMIT>: Move the cursor here and press IRIS OPEN to enter. Move the dome to a defined position as left limit and press IRIS OPEN to save this left boundary.

4)<RIGHT LIMIT>: Move the cursor here and press IRIS OPEN to enter. Move the dome to a defined position as right limit and press IRIS OPEN to save this right boundary.

5)START: Move the cursor here and press IRIS OPEN to start the current scan.

6)SCAN SPEED: Move the cursor here and press IRIS OPEN to set up the scan speed ranging 1-10.

4.3.4.3 TOUR

TOUR					
EXIT					

The dome camera will run repeatedly as the given sequence of presets at certain dwell time by one command. Max. 4 tours available (16preset/tour).

1)TOUR NO: Set current tour number from 001~004.

2)DWELL: Set the default dwell time from 000~255 seconds for each preset.

User can still set independent dwell time for each preset when editing the tour.

3)EDIT: Edit presets and corresponding dwell time in a tour.

4.3.4.4 PATTERN

PATTERN	
PATTERN NO:1	
START	
(SET)	
DELETE	
BACK EXIT	

The dome supports 4 pattern tours and each pattern cover at most 10 Minutes of 500 commands. Please check the following steps to set up a pattern.

- PATTERN NO.: Move the cursor here and press IRIS OPEN to enter the setup of Pattern Number. Move the joystick to select a pattern number (14) and press IRIS OPEN to confirm.
- START: Move the cursor here and press IRIS OPEN to start the current pattern tour.
- 3) <SET>: Move the cursor here and press IRIS OPEN to enter. Move the dome up/down/left/right, make the zoom in/out and press IRIS OPEN to save the pattern tour.
- DELETE: Move the cursor here and press IRIS OPEN to delete the current pattern tour.

## 4.5 Advanced Camera Menu:

For advanced Menu, Call preset #69.

<u>PLEASE NOTE:</u> Scrolling and changing values in the advanced menu is done with different controls:

- 1) The controller joystick has effect.
- 2) Scrolling up and down is done by pressing IRIS+/IRIS-

 Changing Values of the selected feature is done by pressing ZOOM+/ZOOM-

<u>IMPORTANT!!!</u> Changing any values the advanced menu might result in the camera malfunctioning

OSD-DISP	ON
D&N	AUTO
MIRROR	OFF
AGC	15
BRIGHT	40
CONTRAST	0
SHARPNESS	5
SAT	42
WDR	AUTO
2D-NR	1
3D-NR	2
BLC	OFF
WB	ATW
RGAIN	00
BGAIN	00

- **<OSD-DISP >:** Do Not Change
- <ADDR-DISP>: Do Not Change
- <D&N>: Do Not Change
- <MIRROR>: Turning Mirror effect ON/OFF
- <AGC>: changing the value of AGC
- **<BRIGHT>**: Changing the brightness value.

- <CONTRAST>: Changing the contrast value.
- <**SHARPNESS**>: Changing the sharpness value.
- **<SAT**>: Changing the saturation value.
- <WDR>: Turning Digital WDR effect ON/OFF
- <2D-NR>: Adjusting the level of 2D-NR noise reduction
- <3D-NR>: Adjusting the level of 3D-NR noise reduction
- **<BLC>**: switching OFF/ON.
- <WB>: White Balance is normally compensated for by the automatic white balance gain control. In some lighting conditions, user may want to manually adjust the red and blue settings for optimal viewing. There are 6 options:
- [AUTO]: Auto White Balance (default setting).
- [ATW]: Auto track White Balance.
- [PUSH]: Once touch White Balance
- [OUTDOOR]: Suitable for outdoor use.
- [INDOOR]: Suitable for indoor use.
- [MANUAL]: Manually set the red and blue values
- <BGAIN>: Set the blue value (Only effective if WB is set to Manual)
- <RGAIN>: Set the red and value (Only effective if WB is set to Manual)
- <DE-FOG>: Change level of defog effect.
- **COUTPUT>:** Manually set the output between AHD / TVI / CVBS
- <FORMAT>: Manually set the output between 25&30 (PAL/NTSC)
- <**ZOOM**>: Do Not Change.
- <FOCUS>: Do Not Change
- <F-RANGE >: Do Not Change
- <RESET >: Reset All settings to factory Default

## **APPENDIX I: DIP SWITCH SETTING:**

DIP Switch consists of 8 numbers from 1-8, use 8421 binary code, max 255 address. When the switch is in the "ON" position, the number from 1-8 corresponding to 1, 2, 4, 8, 32, 64, 128. For example, if you set 1, 3, 5, 7 switch to the "ON" position, the corresponding address will be 1+4+16+64=85, please refer to the blow details.

Add	SW-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8
1	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0
5	1	0	1	0	0	0	0	0
6	0	1	1	0	0	0	0	0
7	1	1	1	0	0	0	0	0
8	0	0	0	1	0	0	0	0
9	1	0	0	1	0	0	0	0
10	0	1	0	1	0	0	0	0
11	1	1	0	1	0	0	0	0
12	0	0	1	1	0	0	0	0
13	1	0	1	1	0	0	0	0
14	0	1	1	1	0	0	0	0
15	1	1	1	1	0	0	0	0
16	0	0	0	0	1	0	0	0
17	1	0	0	0	1	0	0	0
18	0	1	0	0	1	0	0	0
19	1	1	0	0	1	0	0	0

Sheet 1 (	1=ON.	0=OFF)
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20	0	0	1	0	1	0	0	0
21	1	0	1	0	1	0	0	0
22	0	1	1	0	1	0	0	0
23	1	1	1	0	1	0	0	0
24	0	0	0	1	1	0	0	0
25	1	0	0	1	1	0	0	0
26	0	1	0	1	1	0	0	0
27	1	1	0	1	1	0	0	0
28	0	0	1	1	1	0	0	0
29	1	0	1	1	1	0	0	0
30	0	1	1	1	1	0	0	0
31	1	1	1	1	1	0	0	0
32	0	0	0	0	0	1	0	0
254	1	0	1	1	1	1	1	1
255	0	1	1	1	1	1	1	1

## **APPENDIX II Shortcuts Key Chart:**

AHD/TVI/CVBS Command					
Shortcut Key	Function (Set Preset)				
Set #84preset	Proportional P/T OFF				
		N=1	AHD		
Set #85preset,Call	Call the preset number of the desired video type	N=2	TVI		
N	signal:	N=3	CVI		
		N=4	CVBS		
Set # 89preset	Delete all presets				
Set #90 preset	Set left limit Position				
Set #91preset	Set right limit Position				
Set #92 preset	Delete left/right limit				
Set #93preset	Dome restart				
Set #94 preset	Restore Factory Setting				
Set #95preset	Open main menu				
Set #96 preset	Park OFF				
Set #97 preset	60S Park time ON				
Set #98preset	120S Park time ON				
Set #99 preset	scan and tour scan speed is automatic				
Set #100 preset	scan and tour scan speed is high, 15°/sec				
Set #101preset	scan and tour scan speed is middle, 10°/sec				
Set #102preset	scan and tour scan speed is low, 5°/sec				
Set #103 preset	Record Pattern scan 1				
Set #104 preset	Record Pattern scan 2				

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Set #105 preset	Record Pattern scan 3	
Set #106 preset	Record Pattern scan 4	
Set #107 preset	Set cruise 1	
Set #108 preset	Set cruise 2	
Set #109 preset	Set cruise 3	
Set #110 preset	Set cruise 4	
Set #111 preset	Set color-to-black function	
Set #112 preset	the preset-dwell: 0S	
Set #113preset	the preset-dwell: 5S	
Set #114preset	the preset-dwell: 10S	
Shortcut Key	Function (Call Preset)	
Call #67preset	Change system to PAL	
Call #68preset	Change system to NTSC	
Call #69 preset	Open Advanced Settings menu	
Call #70 preset	Preset Error Correction	
Call #71 preset	Proportional P/T ON	
Call #72 preset	Start Cruise scan and switch the cruise scan direction	
Call #73 preset	Start Pattern 1	
Call #74 preset	Start Pattern 2	
Call #75 preset	Start Pattern 3	
Call #76 preset	Start Pattern 4	
Call #77 preset	Call cruise 1 (default number 1~16 preset)	
Call #78 preset	Call cruise 2 (default number 17~32 preset)	
Call #79 preset	Call cruise 3 (default number 33~48 preset)	
Call #80preset	Call cruise 4 (default number 49~64 preset)	
Call #81 preset	Camera IR-CUT switch	

Call #82 preset	Call all valid presets cruise				
Call #83 preset	Call 360° scan				
Call #95preset	Open main menu (Same response as "Set")				
Call #95preset	Open main menu (Same response as "Set")				
CVI Command					
Shortcut Key Function (Set Preset)					
		N=1	AHD		
Set #50preset,Call	Call the preset number of the desired video type	N=2	TVI		
N	signal:	N=3	CVI		
		N=4	CVBS		
Set #51preset	Proportional P/T OFF				
Set # 54preset	Delete all presets				
Set #55 preset	Restore Factory Setting				
Set #56 preset	Park OFF				
Set #57 preset	60S Park time ON				
Set #58preset	120S Park time ON				
Set #59preset	scan and tour scan speed is high, 15°/sec				
Set #60preset	scan and tour scan speed is middle, 10°/sec				
Set #61preset	scan and tour scan speed is low, 5°/sec				
Set #62preset	Set color-to-black function				
Set #63preset	the preset-dwell: 0S				
Set #64preset	the preset-dwell: 5S				
Set #65preset	the preset-dwell: 10S				
Shortcut key	Function (Call preset)				
Call #50preset	Camera IR-CUT switch				
Call #51preset	Call all valid presets cruise				

Call #52preset	Open main menu (Same response as "Set")	
Call #53 preset	Open Advanced Settings menu	
Call #54 preset	Preset Error Correction	
Call #55 preset	Proportional P/T ON	
Call #56 preset	Start Cruise scan and switch the cruise scan direction	
Call #57 preset	Start Pattern 1	
Call #58 preset	Start Pattern 2	
Call #59 preset	Start Pattern 3	
Call #60 preset	Start Pattern 4	
Call #61 preset	Call cruise 1 (default number 1~16 preset)	
Call #62 preset	Call cruise 2 (default number 17~32 preset)	
Call #63 preset	Call cruise 3 (default number 33~48 preset)	
Call #67preset	Change system to PAL	
Call #68preset	Change system to NTSC	

## APPENDIX III Trouble Shooting

Troubles	Reason	Solution
	1. The power supply is not	1. Correct the connection.
No action when power on	connected correctly.	2. Check the power supply LED
	2. The fuse is broken.	power indicator.
		3. Replace the fuse.
	1. The dome DIP switch	1. Confirm DIP settings on camera
Self-testing and image are	setting is incorrect.	power up screen.
normal but the dome is out	2. RS485 cable is	2. Reset the DIP Switch according
of control	disconnected or reversed.	to the DIP switch chart.
	3. Control device is not	3. Check the wiring.
	properly configured.	4. Check the control device settings
	1. RS485 communication	1. Connect $120\Omega$ resistor to the
Some function is out of	signal is not balance.	RS485 line.
control	2. Control protocol is not	2. Change protocol type.
	compatible.	
	1. Focus is in manual state.	1. Reset the focus mode to Auto.
Unclear image	2. Digital Zoom is on and in	2. Cancel/reduce digital zoom.
	full ratio (If applicable)	3. Clean the dome cover.
	3. Dome cover is dirty.	
	1. Camera is in Color mode.	1. Reset the day/night function to
No night vision	2. backlight on the top or	Auto.
	back of the dome camera	2. Remove the direct light source.



The AHD Ultra-Z IR PTZ Camera gives you more of everything: Faster movenments, higher accuracy, HD video performance, and easier installation.