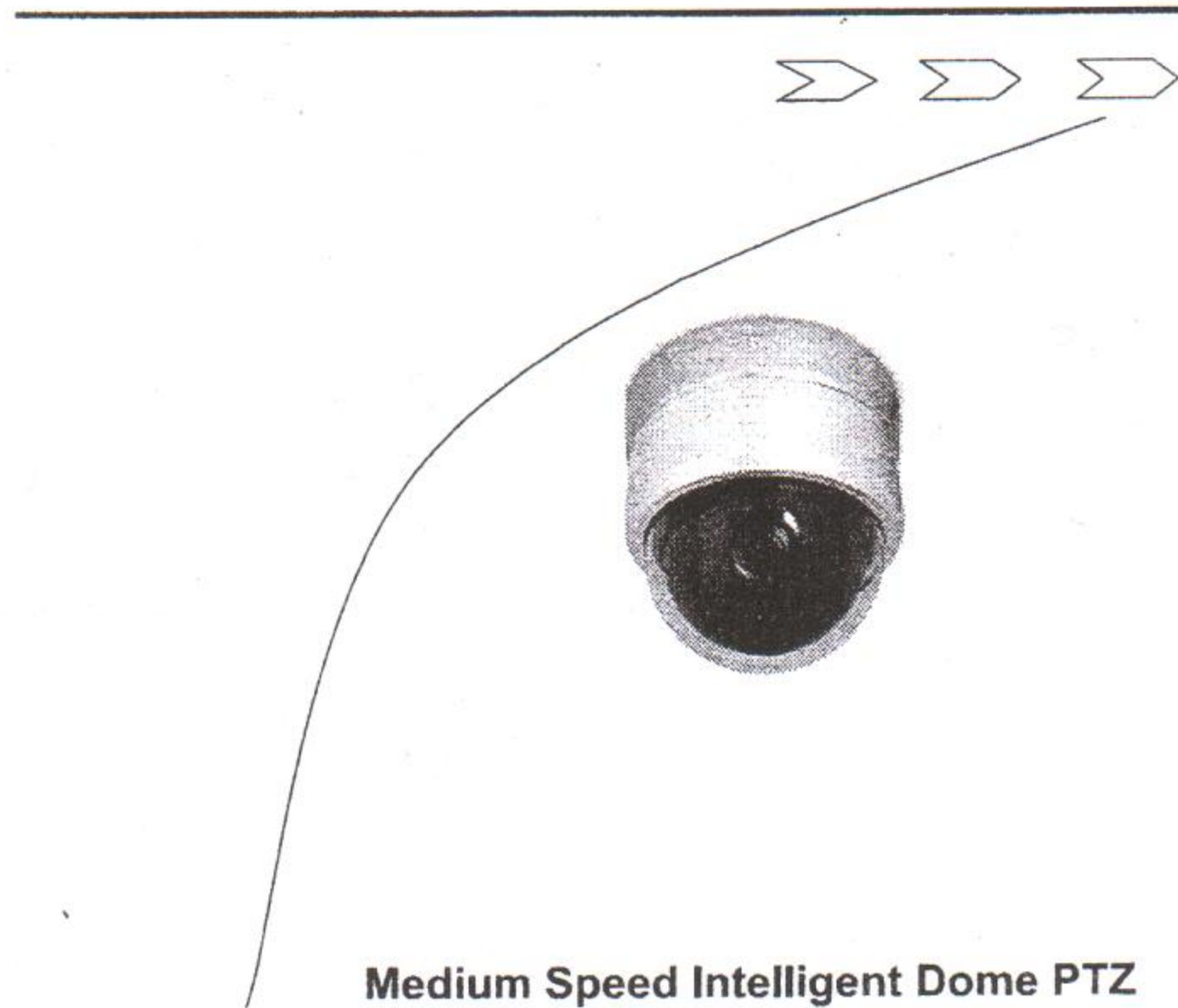


Instruction Manual



Medium Speed Intelligent Dome PTZ

Part 1 Performance Features

1. **Dome Parameter**
 - a) **Electric Index**
 - 【Video Output】: 1.0±0.2VP-P, 75Ω compound video signal
 - 【S/N】: ≥50dB
 - 【Manual Speed】: (0.5° ~50° /s) / Vertical (0.5° ~50° /s)
 - 【Preset Speed】: 50° /s
 - 【Rotation】: Horizontal 360° endless rotation Vertical 0~92° with auto overturn
 - 【Focus Speed auto-control】: control speed auto-adjusting according to the focal length
 - 【Preset Positions】: 128
 - 【Auto overturning】: Vertical 90° auto turning into 180°
 - 【Auto scanning】: 2 pieces, 1 auto scanning route and speed can be set
 - 【Synchronization System】: Internal / External optional
 - 【Communication Baud Rate】: 1200/2400/4800/9600/bps
 - 【Address Range】: 1~127
 - b) **Physics Index**
 - 【Video Output Interface】: BNC
 - 【Remote Control】: RS485 twisted cable
 - 【Operating Temperature】: -10°C~+50°C
 - 【Operating Humidity】: 0~95% (no congealing)
 - 【Internal Protection】: 24-hour protective housing, 3000V lighting-proof, surge voltage protective
 - 【POWER】: DC 12V/50Hz 1.2A
 - 【Dimension】: 125×125 (L×D)
 - 【Weight】: 1 kg (bracket and adapter not included)
 - 【casing】: transparent or semi-transparent
2. **CCTV Lens Parameter**

The intelligent dome sets for diverse single-board cameras: 420TVL, 480TVL, 540TVL, etc. For specific information, please refer to the camera.
3. **Dome Performance Feature**

The intelligent dome structures a new and compact body with fast heat yielding module. Its easy installation with black case inside fulfills hidden monitoring. The body rotates flexibly with less noise and wider view shooting. The multiple automatic functions capture excellent crisp images.

- a) **Built-in Decoder**
 - 1) Full digital design, all data saved in the module with memory function at accidental power-off
 - 2) All in one integrated design, high reliability
 - 3) 128 preset positions freely saved
 - 4) 1-80 preset positions support auto tracking function, while 1 tracking route can save 8 preset positions, each position pauses 6 seconds.
 - 5) With RS485 remote control interface
 - 6) Thanks to its expanding function, any keyboard can operate the control of the high speed dome.
- b) **Built-in PTZ**
 - 1) Precise stepping electrical motor, stable rotation, flexible response, correct location
 - 2) All in one integrated design, compact structure, fast wiring connection, facility for use
 - 3) Exquisite mechanical driving equipment, horizontal 360° endless rotation, vertical 0-92° rotation, 180° auto overturning.
 - 4) Horizontal slow rotation at 1° /s, no vibrating images
 - 5) The former movement automatically recovered after power-on
- c) **Built-in all in one camera**
 - 1) Auto Focus, Auto Iris, Auto-Bright Control, AWB
 - 2) Color and B/W auto change, BLC, AES

Part 2 Functions and Operation

This part mainly describes the leading functions and common principles of the all in one intelligent PTZ dome camera.

1. **Set CCTV encoding**

The control board of the dome has an 8-DIP-switch, used to set the address, communication and control protocols (refer to "DIP switch set") control protocol PELCO-D. Any command should agree with the targeted camera address, and cameras only response when the address around is the same..
2. **Auto-execute the function of the movement**

Users can control the movement of the lens by rotate the keyboard joystick from up to down, from left to right. They can also track the target or shift the view. And, the focal length can be adjusted to fulfill the size of the view angle and the targeted image.

The technology of matching focal length with speed
Manual adjusting the farther focal length when the speed dome moves at a high speed, the image would move fast and info could be lost by rotating the joystick. The speed dome can adjust the horizontal and vertical speed in an automatic way, such function can be realized by setting the "zoom" as "open" in the OSD menu.

3. CCTV Camera Operation

4. Zoom control

User can adjust the image farther/nearer to get a panoramic view by controlling the keyboard **[ZOOM-]** / **[ZOOM+]**. The speed dome supports both digital and optical vari-focus. Digital vari-focus can be set.

In the following cases, the camera's target is unable to auto focus:

- 1) The target is not in the center of the image;
- 2) Watching the farther or nearer objects, the former or the latter part are neither clear;
- 3) The target is strong light object, like neon light, spot light;
- 4) The object moves too fast;
- 5) large square of monotonous object, like wall;
- 6) The object is too dark or vague;
- 7) The targeted picture is too small.

5. Surveillance function

a) Set & Transfer the preset points

The function of preset positions is, temporarily storing such location parameter as horizontal angle / inclination / lens' focus in a memory and transferring them whenever they're needed. User can quickly transfer the preset positions via the keyboard or something else. The speed dome supports 127 preset points.

b) Automatic Cruise

Automatic Cruise is internal set function, which insert the points and realize the automatic cruise among preset positions by beforehand programming them in the cruise lists. The cruise order and pausing timing can be programmed and one cruise route can store 8 points and timing.

c) Auto Scanning

Cameras would level scan back and forth among the left & right limits at the set speed via the keyboard and menu setting the left and right limit well beforehand.

d) Power-off Protective

When correct or incorrect power-off happens, the camera would auto-protect the movement state before the power-off. After power-on, the camera would auto-recover the former protected movement.

Part 3 Extended Functions

This part mainly describes extended functions and common principles of the all in one intelligent dome camera. It does not refer to the specific operational methods. Different systematical platforms have different methods. In some cases, special requirement & operational method would exist, subject to systematical manufacturer's manual.

1. Set the scanning

The speed dome can be set in two fixed locations and scan back and forth at the set speed. Set #126 for linear scanning. Set#xxx preset position, xxx is the scanning speed (1-50 adjustable), then, move the joystick, the image would move to the beginning locations. Set #127 as scanning beginning location, move the image to the ending location and set #128 as the ending scan points.

Example : scan setting at the speed of 50s around.

Setting Method:

- 1) Set #126 preset position.
- 2) Set #50 as speed index.
- 3) Move the joystick and adjust the image as the scanning one.
- 4) Set #127 as the beginning location.
- 5) Move the joystick
- 6) Set #128 as the ending location

2. Transfer the cruise group

Transfer #101-102 preset point; accordingly transfer #1-2 cruise group.

For example: start #1 cruise group.

Method: transfer #101 preset position.

3. Start the linear scanning

Transfer #128 preset position.

4. Start auto-scanning

Transfer #125 preset position or press auto-start button. Auto 360 degrees scanning back and forth. The speed is fixed internal.

Power-on with self-testing image, but the controller does not work	1. setting of DIP switches is incorrect 2. RS485 interface wrongly-connected or open 3. RS-485 line mal-functional	1. Referring to setting instruction reset the DIP switches. 2. Check RS485 interface and assure it's well connected in a correct way 3. Referring to the Appendix: RS485
Blurred Image	Ball case is dirty	Clean the ball case

2. Setting of DIP Switches

3. The internal black case has 8 DIP switches. 1, 2, 3, 4, 5, 6 are for Address setting, while 2, 1 are for Communication Baud Rate. In the following table, tag "1" for DIP switch "ON"; tag "0" for DIP switch "off".

a) Setting of Baud Rate

Baud Rate	Switch # (SW2)		Baud Rate	Switch # (SW2)	
	BIT 8	7		BIT 8	7
2400bps	0	1	1200bps	1	1
4800bps	1	0	9600bps	0	0

b) Setting of Address Code

In a system, decoder includes intelligent speed dome camera and common decoder. No repeating address codes exist. Below is the setting method of DIP switches on the decoder and Address Codes on the speed dome. As you see in the table, "1" for "ON", "0" for "OFF"

Address	Address Switch (6 digits)	Address	Address Switch (8 digits)
Code	1 2 3 4 5 6	Code	1 2 3 4 5 6
1	1 0 0 0 0 0	33	1 0 0 0 0 1
2	0 1 0 0 0 0	34	0 1 0 0 0 1
3	1 1 0 0 0 0	35	1 1 0 0 0 1
4	0 0 1 0 0 0	36	0 0 1 0 0 1
5	1 0 1 0 0 0	37	1 0 1 0 0 1
6	0 1 1 0 0 0	38	0 1 1 0 0 1
7	1 1 1 0 0 0	39	1 1 1 0 0 1
8	0 0 0 1 0 0	40	0 0 0 1 0 1
9	1 0 0 1 0 0	41	1 0 0 1 0 1
10	0 1 0 1 0 0	42	0 1 0 1 0 1
11	1 1 0 1 0 0	43	1 1 0 1 0 1
12	0 0 1 1 0 0	44	0 0 1 1 0 1
13	1 0 1 1 0 0	45	1 0 1 1 0 1
14	0 1 1 1 0 0	46	0 1 1 1 0 1

Part 4 Appendix

1. Clearing of fault

Phenomenon	Possible reason	Solution
without movement and image at power-on	1. check the connection of power 12VDC 2. city electricity power off and check the transformer	1. check the power 12VDC and assure the socket is well connected 2. check electricity working well and transformer

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Address	Address Switch (6 digits)	Address	Address Switch (8 digits)
Code	1 2 3 4 5 6	Code	1 2 3 4 5 6
14	0 1 1 1 0 0	46	0 1 1 1 0 1
15	1 1 1 1 0 0	47	1 1 1 1 0 1
16	0 0 0 0 1 0	48	0 0 0 0 1 1
17	1 0 0 0 1 0	49	1 0 0 0 1 1
18	0 1 0 0 1 0	50	0 1 0 0 1 1
19	1 1 0 0 1 0	51	1 1 0 0 1 1
20	0 0 1 0 1 0	52	0 0 1 0 1 1
21	1 0 1 0 1 0	53	1 0 1 0 1 1
22	0 1 1 0 1 0	54	0 1 1 0 1 1
23	1 1 1 0 1 0	55	1 1 1 0 1 1
24	0 0 0 1 1 0	56	0 0 0 1 1 1
25	1 0 0 1 1 0	57	1 0 0 1 1 1
26	0 1 0 1 1 0	58	0 1 0 1 1 1
27	1 1 0 1 1 0	59	1 1 0 1 1 1
28	0 0 1 1 1 0	60	0 0 1 1 1 1
29	1 0 1 1 1 0	61	1 0 1 1 1 1
30	0 1 1 1 1 0	62	0 1 1 1 1 1
31	1 1 1 1 1 0	63	1 1 1 1 1 1
32	0 0 0 0 0 1	64	

Part 8 PELCO-D Protocol

Data Form: 1 beginning position, 8 pieces for data, 1 ending position, invalid checking point

Baud Rate: 2400, 4800, 9600, 19200Bit/S

Command Form:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synchronized Byte	Address Code	Command Code 1	Command Code 2	Data Code 1	Data Code 2	Confirmation Code

1. All data in the Protocol as REX;

2. Synchronized Byte is 0FFH;

Address Code is the logical address number of cameras, Address Range : 01H -0FFH;

4. Form of Command Code as follows ,

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Command Code1	0	0	0	Auto Scan	0	Iris Close	Iris Open	Focus Near
Command Code2	Focus Far	Zoom Wide	Zoom Tele	Down	Up	Left	Right	0

(1) Command Code 1: BIT7, BIT6, BIT5, BIT4 is 0 without exception ;

BIT4 is auto-scanning control points (1/0: ON/OFF) BIT2 Iris smaller (1 valid) ; BIT1 Iris larger (1 valid) ; BIT0 focus nearer (1 valid) ;

(2) Command Code 2: BIT7 focus farther (1 valid) ; BIT6 & BIT5 for the control of the zoom. BIT6 far away from the object (1 valid) , BIT5 near the object (1 valid) BIT4, BIT3, BIT2, BIT1 separately control the movement of down, up, left, right (1 valid) ; BIT0 is 0 without exception.

5. Data Code 1 controls the horizontal direction of speed 00-3FH

6. Data Code 2 controls the vertical direction of speed 00-3FH

7. Confirmation Code index [(Byte 2 + Byte 3 + Byte 4 + Byte 5 + Byte

6) /100H];

8. Confirmation Code = MOD [Byte 2 + Byte 3 + Byte 4 + Byte 5 + Byte 6) /100H]

9. Setting and Transferring of preset command:

(a) Set the command of preset positions

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synchronized Byte	Address Code	00H	03H	00H	Preset Point #	Confirmation Code

(b) Transfer the command of preset positions

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synchronized Byte	Address Code	00H	07H	00H	Preset Point #	Confirmation Code

Preset Point # Range: 00 - FFH

10. Turn on and off the command of auxiliary switches:

(a) Turn on the command of auxiliary switches

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synchronized Byte	Address Code	00H	09H	00H	Auxiliary Switch #	Confirmation Code

(b) Turn off the command of auxiliary switches

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Synchronized Byte	Address Code	00H	0BH	00H	Auxiliary Switch #	Confirmation Code

Auxiliary Switch # Range: 01 to 08