

## **Solemn Declaration**

While writing this manual, we've been very cautious and prudent in order to guarantee the credibility of all the information provided here. However, if there exists any error, your precious advice and correction will be greatly appreciated. Meanwhile, the misinterpretation of this manual is not controllable, so we are not responsible for the accidents and the damage caused by misunderstanding this manual, the damage to the third party and thereby the compensation claimed by the third party and the deletion and loss of information and thereby other indirect loss caused by incorrect software operation, maintenance or other accidental situations.

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Any modification of the manual is not likely to be otherwise stated.

Please base on the software when any mismatch for this manual caused by software upgrading occurs.

Please read the user's manual carefully before using the product.

Make sure that your operation is complied with the operation procedure.

# **SMART SPEED DOME**



# **USER'S MANUAL**

Speed Dome of Security & Safety of CCTV System

**Part 10 【code Switch setting table】**

In the following table “1” stand for “ON” position in IP address switch.“0” stand for “OFF” position in IP address switch.

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Address Code	Address Switch							
	1	2	3	4	5	6	7	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
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
33	1	0	0	0	0	1	0	0
34	0	1	0	0	0	1	0	0
35	1	1	0	0	0	1	0	0
36	0	0	1	0	0	1	0	0
37	1	0	1	0	0	1	0	0
38	0	1	1	0	0	1	0	0
39	1	1	1	0	0	1	0	0
40	0	0	0	1	0	1	0	0
41	1	0	0	1	0	1	0	0

Address Code	Address Switch							
	1	2	3	4	5	6	7	8
42	0	1	0	1	0	1	0	0
43	1	1	0	1	0	1	0	0
44	0	0	1	1	0	1	0	0
45	1	0	1	1	0	1	0	0
46	0	1	1	1	0	1	0	0
47	1	1	1	1	0	1	0	0
48	0	0	0	0	1	1	0	0
49	1	0	0	0	1	1	0	0
50	0	1	0	0	1	1	0	0
51	1	1	0	0	1	1	0	0
52	0	0	1	0	1	1	0	0
53	1	0	1	0	1	1	0	0
54	0	1	1	0	1	1	0	0
55	1	1	1	0	1	1	0	0
56	0	0	0	1	1	1	0	0
57	1	0	0	1	1	1	0	0
58	0	1	0	1	1	1	0	0
59	1	1	0	1	1	1	0	0
60	0	0	1	1	1	1	0	0
61	1	0	1	1	1	1	0	0
62	0	1	1	1	1	1	0	0
63	1	1	1	1	1	1	0	0
64	0	0	0	0	0	0	1	0
65	1	0	0	0	0	0	1	0
66	0	1	0	0	0	0	1	0
67	1	1	0	0	0	0	1	0
68	0	0	1	0	0	0	1	0
69	1	0	1	0	0	0	1	0
70	0	1	1	0	0	0	1	0
71	1	1	1	0	0	0	1	0
72	0	0	0	1	0	0	1	0
73	1	0	0	1	0	0	1	0
74	0	1	0	1	0	0	1	0
75	1	1	0	1	0	0	1	0
76	0	0	1	1	0	0	1	0
77	1	0	1	1	0	0	1	0
78	0	1	1	1	0	0	1	0
79	1	1	1	1	0	0	1	0
80	0	0	0	0	1	0	1	0
81	1	0	0	0	1	0	1	0
82	0	1	0	0	1	0	1	0

## Part 9 【Simple Trouble Shooting】

Breakdown phenomenon	Possible causes	Solution
Speed dome has no movement and there is no picture in monitor when power is on.	1. The end of 24V AC power supply isn't connected with speed dome correctly. 2. Power failure or transformer breakdown.	1. Check whether speed dome is connected to 12V DC power supply. Make sure that connection with sockets is well. 2. Check whether the city power supply is working well and whether 12V DC transformer works well.
After self testing, keyboard can't control speed dome.	1. IP address Switch of speed dome is set incorrectly. 2. Reverse connection and open/short circuit of RS485 control bus. 3. RS485 control bus breaks down.	1. Reset DIP switches according to DIP switch setting table. Make sure that the IP address speed dome is the same with that of keyboard. 2. Check connection of RS485 control bus and guarantee well and correct connection. 3. Refer to common knowledge of RS485 control bus.
Dome can be controlled but without working smoothly.	A. Bad connection of RS485. B. One line of RS 485 is off. C. Main machine is too far from dome. D. Too many parallel connections.	A. Reconnect RS485; B. Change another RS485; C. Install a terminal matching resistance; D. Install a RS485 distributor.
Blurry picture	1. Focus of speed dome is in the manual status. 2. Transparent lower dome gets dirty.	1. Change the manual focus status to auto focus status. Or call the preset to adjust the focus. 2. Clean transparent lower dome.
No self-testing ,or with noise	Power supply not enough	Replacement to meet the requirements of power
	Mechanical failure	Need to overhaul
There are the vertical direction of the roll bar on the monitor, when switching between cameras	Different phase of the camera power	If several speed dome camera is connected to the same transformer, the power supply connection in each speed dome camera to be the same, that is, the transformer at one end of the outlet must be connected to the terminal on the same side of each speed dome camera
The self-testing successfully but can not operate high-speed dome camera	Control lines reversed or open circuit	Check the wiring of control lines, to ensure that wiring is correct and good contact
	The address or protocol baud rate of the speed dome camera is not set correctly	Refer to the manual reset

## Part 1 【Notice】

### 1.Handle with care while transportation.

Do not abuse the camera. Avoid pressing striking, shaking, etc. The camera could be damaged by improper handling or storage.

### 2.How to deal with malfunction

If smoke or unusual smell comes out or malfunction occurs, SHUT DOWN the power, STOP using the camera. Ask a qualified service person for servicing.

### 3. Do not attempt to disassemble the camera.

To prevent electric shock, do not remove screws or covers. There are no user serviceable parts inside. Ask a qualified service person for servicing.

### 4. Do Not put other objects into the camera

No metals or combustible materials inside. If water or other liquid floats in, SHUT DOWN the power immediately, and ask a qualified service person for servicing. Avoid raindrops and sea water.

### 5. Handle the camera with care while placing it

Do Not drop the camera or strike or shake it in 8. to avoid the unnecessary damage.

### 6. Install the camera where it's away from power source and magnetic fields.

Jamming pictures will be caused if the camera is installed near TV, radio, magnetic device, motor, transformer and loud-speaker, etc.

### 7. Avoid moisture, dust and high temperature

Do Not install the camera near smoke, steam, or dusty and over-heated places.

### 8. Do not use strong or abrasive detergents

when cleaning the camera body. Use a dry cloth to clean the camera when dirty. In case the dirt is hard to remove, use a mild detergent and wipe gently. Care should be taken not to scratch the dome when wiping it.

### 9. Never face the camera towards the sun, or it may damage the CCD.

### 10. Operate the camera under the required conditions

Without IR speed dome	IR speed dome
Temperature: -10~ 60° C	Temperature: -40~60° C
Humidity:<90%	Humidity:<90%
KPA::86-106kpa	KPA::86-106kpa
DC: 12v/ 2A 50/60Hz	DC : 12v/4A 50/60Hz

※ **Warning: Do Not install the indoor speed dome outdoors.**

## Part 2 【Product Features】

### 1.Auto-recognition zoom camera

- ◆ Our Intelligent speed dome is auto-recognizable for SONY, HITACHI, SANYO, SAMSUNG, LG, CNB, CANON etc. and some domestic zoom cameras. (Other zoom cameras should provide their protocols)

### 2.Built-in Decoder/PAN/TILT

Adopt the ARM design of high performance with high, stable stability. Setting data will not be lost when

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### 2. Built-in Decoder/PAN/TILT

- ◆ Adopt the ARM design of high performance with high, stable stability. Setting data will not be lost when power-off.
- ◆ Precision stepper electrode drive smooth operation, accurate positioning
- ◆ Infinitely variable speed Continuous 360°pan, tilt turning(180° auto flip), without any blind area.
- ◆ Automatic identification PELCO-D, PELCO-P Control Protocol
- ◆ Automatic identification Baud rate 2400,4800,9600
- ◆ Broadcast address 255 and Invalid address 0, Convenient control
- ◆ Software address ,Software Baud rate ,Software Protocol function ,Convenient setting
- ◆ 256 preset positions, 5 automatic programmable cruising function which can store 16 presets, including guarding point, cruising group,

64+50	Close camera module lens position OSD, (1X. 2X...), now support HIKVISION camera module	[64] + [Call] + [50] + [Call]
64+51	Set camera module protocol type, 【Call 64 and 51 preset + Call preset N,N is 1-10, Type is SAMSUNG/SONY/LG/HITACHI/LGE/SANYO/CNB/SAMSUNG2/SDM100/AUTO, Call 10 preset is Auto mode, Speed dome can check camera module, If speed dome check module fail, default is SONY protocol.	[64] + [Call] + [51] + [Call] + [N] + [Call]
64+52	Camera model setting, 【Call preset 64 + 52 + Call preset N, Now N is 1-9, 1:NULL/2:SONY480/3:SONY980/4:PTS/5:HK200W/6:HK130W/7:AHD720P/8:XM200W/9:WWA18X, for example: Set DS-2ZM2007 (Hikvision 2MP) 64+52+5. Before Set camera model, Must set camera protocol the first.	[64] + [Call] + [52] + [Call] + [N] + [Call]
64+53	Set time o'clock tour1 【Call preset 64+53+N+N, N is 1:00—24:00 clock, The first N is start time. The second N is ending time. For example set 8:00-9:00 running tour 1, Call 64+53+8+9 preset. Close time o'clock tour 1, Call 64+53+25 preset】	[64] + [Call] + [53] + [Call] + [N] + [Call] + [N] + [Call]
64+54	Set time o'clock tour 2 【Call preset 64+54+N+N, N is 1:00-24:00 clock, The first N is start time. The second N is ending time. For example set 8:00-9:00 running tour 2, Call 64+54+8+9 preset. Close time o'clock tour 2, Call 64+54+25 preset】	[64] + [Call] + [53] + [Call] + [N] + [Call] + [N] + [Call]
64+56	Set time o'clock tour 4 【Call preset 64+56+N+N, N is 1:00-24:00 clock, The first N is start time. The second N is ending time. For example set 8:00-9:00 running tour 4, Call 64+54+8+9 preset. Close time o'clock tour 4, Call 64+54+25 preset】	[64] + [Call] + [56] + [Call] + [N] + [Call] + [N] + [Call]
64+57	Set speed dome's time 【Call preset 64+57+X+Y,X is 1:00-24:00 (24:00 is 0:00) , Y is 1-60 minutes (60 minutes is 0) , for example : Set 8:00, Call preset 64+57+8+60】	[64] + [Call] + [57] + [Call] + [X] + [Call] + [Y] + [Call]
64+60	Call speed dome's software address.	[64] + [Call] + [60] + [Call]
64+61	Restore factory default	[64] + [Call] + [61] + [Call]
64+62+62	Restore to default settings and restart speed dome	[64] + [Call] + [62] + [Call]



64+35	Set the free action start time (call No.64+No.35+ Call Preset N, N is for 1-250 ,N stand for time.	[64] + [Call] + [35] + [Call] + [N] + [Call]
64+36	Start free action	[64] + [Call] + [36] + [Call]
64+37	Set PTZ maximum speed (Call NO.64 preset+ call NO.37 preset + call Preset N ending, X for 1-100,stand for the largest percentage of the speed dome)	[64]+ [Call] + [37] + [Call] + [N] + [Call]
64+38	IR cut close (Image and IR lights Synchronize switch)	[64] + [Call] + [38] + [Call]
64+39	IR-cut open (Image and IR lights Synchronize switch)	[64] + [Call] + [39] + [Call]
64+40	IR light near brightness and far light brightness switch with the lens zoom position.	[64] + [Call] + [40] + [Call]
64+41	All IR light brightness open with the lens zoom position.	[64] + [Call] + [41] + [Call]
64+43+N+M	Set the one to four channel alarm preset, N is 1-4 channel alarm number, M is alarm call preset number.	[64] + [Call] + [43] + [Call]+M
64+44+1-4	Set Alarm input & output on or off,1: Alarm input on, 2: Alarm input off, 3:Alarm output on. 4: Alarm output off.	64] + [Call] + [44] + [Call] + [1-4] + [Call]
64+45	<b>Set the lens ZOOM current position corresponding to multiple relationship ,Call 64 preset and Call 45 preset + camera lens moves to 1X and Call No. 1 preset+ camera lens move to 2X and call 2 preset... + camera lens moves to 20X and call No.20 preset + Call No.64 preset end. ( you can set up to 44X times)</b>	<b>Set the lens ZOOM current position corresponding to multiple relationship ,Call 64 preset and Call 45 preset + camera lens moves to 1X and Call No. 1 preset+ camera lens move to 2X and call 2 preset... + camera lens moves to 20X and call No.20 preset + Call No.64 preset end. ( you can set up to 44X times)</b>
64+46	Clear the lens of zoom position	[64] + [Call] + [46] + [Call]
64+47	Turn on wiper	[64] + [Call] + [47] + [Call]
64+48	Turn off wiper	[64] + [Call] + [48] + [Call]
64+49	Open camera module lens position OSD (1X, 2X...), now support HIKVISION camera module.	[64] + [Call] + [49] + [Call]

- ◆ Speed can be set by user, operation and functions.
- ◆ RS485 control bus

### 3. Build-in digital color camera

- ◆ Integrated digital processing camera with high sensitivity and high resolution.
- ◆ Auto focus, auto aperture, auto brightness compensation ,auto White Balance.
- ◆ Auto color/grayscale picture change, auto backlight supplement and auto shutter.

## Part 3 【Function Description】

This section only mentions main functions and their operation principles , the detailed operation will be in other section..

### 1.Target tracking

Users can control the moving direction of lens by pushing joystick up and down, left and right to trace the target or change the view-angles. The size of visual angle or target image can be adjusted by changing focus.

### 2.Focus length/auto matching technology of rotation speed

In the situation where focal length is long, the image will be easily distorted because speed dome responses so fast that even a slight touch of joystick could make the picture shift rapidly. Based on people-oriented design, this speed dome camera can automatically adjust pan and vertical speed according to the focal length to make the manual trace operation easier.

### 3.Auto-rotate

If operator keeps pressing the joystick after reaching the limitation in vertical direction, the lens would automatically rotate 180°, so we can monitor the hind-scene

### 4.Set and transfer preset

Preset is a function that we can store parameters like the angle of PAN and the length of focus in the memory, and the speed dome could adjust itself to reach the angle of PAN and the length of focus when you transfer the preset.

### 5. Tour

Automatic tour, which arranges presets in the desired order and interval by programming, is a build-in function of this intelligent speed dome. With a command, the camera of speed dome would tour automatically and continuously according to the route and interval preprogrammed.

### 6.Auto-- scan

The high speed dome camera can automatically and repeatedly scan 360°at both high speed and slow speed.

### 7.Limit scan

To set the starting point of limit scan by using the start command in the control keyboard, and then use the joystick to move to the end point of limit scan at a certain speed. After calling the limit scan, camera will automatically scan between the start and end points at the speed of joystick moving.

### 8.Guarding point

Guarding point is a function that if there is no operation for a long time, dome camera would be back to an important preset position. It usually takes about 3-254 seconds before the start or stop of guarding point function.

### 9.Track record route patterns

4 tour route patterns at most. Each route can continuously record the controlling operation of the PAN and camera within at least 1 minutes.

## Part 4 【Technical Parameters】

CPU	ARM32, Support power-off memory
Camera	Support all mainstream camera currently on the market
Focus Iris	Auto
IR light electricity	50-100%( IR speed dome support)
IR detection threshold	User can be set (IR speed dome support)
IR switcher	Auto, ON, OFF, Timing mode
IR Distance	120M/200M, variety of optional distance
IR light control	the camera focal length automatic switch the light at night
Power supply	DC 12V, 50HZ, IR speed dome: 50W , without IR: 15W
Power consumption	15W( without heating ),50W(with heating )
Preset	255Presets
Tour	5(Editable)
Guarding position	3-254 seconds (settable)
Boot action	All the action of running any can be set
Pattern Tracking Record	4 (256 preset can recording )
Privacy Protection	8 ( need for cameral supported )
3D locate	support
Regular Operation Function	7 days a week, 8 hours a day, each period of 4 weeks
Auto tracking	Multi-scene can be set
Auto Scan	4 differ in speed can be set
Left and right limitation scan	359° can be set
PTZ Speed	1-100 kind speed can be set
Auto Overturn	ON / OFF
Horizontal Overturn Scan	360° continuous overturn
Manual Horizontal overturn speed	0.1° -350° / s
Vertical Revolving Range	0.01° -250° / s
Communication Protocol	RS485 or Netware(RJ45), PELCO-D,PELCO-P / Hikvision / Dahua auto recognition (IP speed dome: onvif, DDNS, P2P , Rtsp... support more NVR)
Correspondence Baud Rate	2400/4800/9600 auto recognition
Address Code	Hardware / software configuration (analogy support hardware address)
Operation Temperature	-20° to +60°

64+17	Start the tracking Corresponding to the first set of 1-16 presets a cruise	[64] + [Call] + [17] + [Call]
64+18	Set the low sensitivity	[64] + [Call] + [18] + [Call]
64+19	Set the middle of sensitivity	[64] + [Call] + [19] + [Call]
64+20	Set the high sensitivity	[64] + [Call] + [20] + [Call]
64+21	Tracking lens zoom close	[64] + [Call] + [21] + [Call]
64+22	Tracking lens zoom open	[64] + [Call] + [22] + [Call]
64+23	Set Auto-tracking maximum zoom lens, call 64 + 23 preset + call N preset, N: 1-11 is 1(OFF), 2,4,6, 8... 20X, example set 12 X, Call 64 + 23 + 7 preset	[64] + [Call] + [23] + [Call] + [N] + [Call]
64+24	Set Auto-tracking maximum zoom time, Call 64 + call 24 preset + Call preset N, N: 1-8 is 100ms, 200ms... 800ms,example set 300ms, call 64 + 24 + 3 preset	[64] + [Call] + [24] + [Call] + [N] + [Call]
64+25	Set Auto-tracking zoom time-out time, Call 64 + call 25 preset + Call preset N, N: 5-100 is second, example set 15s, call 64 + 24 + 15 preset	[64] + [Call] + [25] + [Call] + [N] + [Call]
64+26	Set the first Auto-tracking time o'clock, Call 64 + call 26 preset + Call preset N + Call preset N + Call preset M, N: 01:00-24:00(the first N is Start time, the second N is stop time, M is 1-4 : 1-3 scene and tour scene, example set 08 : 00— 09:00 running the first scene, Call 64 preset + call 26 preset + call 8 preset + call 9 preset + call 1 preset. Close the first group , call 64 + 26 + 25 preset	[64] + [Call] + [26] + [Call] + [N] + [Call] + [N] + [Call] + [M] + [Call]
64+27	Set the Second Auto-tracking time o'clock, Call 64 + call 27 preset + Call preset N + Call preset N + Call preset M, N: 01:00-24:00(the first N is Start time, the second N is stop time, M is 1-4 : 1-3 scene and tour scene, example set 08 : 00— 09:00 running the first scene, Call 64 preset + call 26 preset + call 8 preset + call 9 preset + call 1 preset. Close the first group , call 64 + 26 + 25 preset	[64] + [Call] + [27] + [Call] + [N] + [Call] + [N] + [Call] + [M] + [Call]
64+28	Set the Third Auto-tracking time o'clock call 64+28+N+N+M, close Third Auto-tracking time o'clock Call 64+28+25	[64] + [Call] + [27] + [Call] + [N] + [Call] + [N] + [Call] + [M] + [Call]
64+29	Set the Fourth Auto-tracking time o'clock call 64+29+N+N+M, close Third Auto-tracking time o'clock Call 64+28+25	[64] + [Call] + [27] + [Call] + [N] + [Call] + [N] + [Call] + [M] + [Call]
64+31	Start the first pattern scan	[64] + [Call] + [31] + [Call]
64+32	Set the first pattern scan (the end [32] + [CALL] for exit this command).	[64] + [CALL] + [32] + [CALL] + [ACTION] + [32] + [CALL]
64+33	Free action on	[64] + [Call] + [33] + [Call]
64+34	Free action off	[64] + [Call] + [34] + [Call]



Preset NO.	Speed dome / camera control content	Call pre-set	Set preset
149	IR lights automatic mode		☒
149	IR lights turn invariable OFF	☒	
150	IR lights turn invariable ON		☒
150	IR lights time o'clock mode ON, time follows 64+58 to change, System default IR-lights ON is 18: 00-6: 00 (this functions suggest use on the have clock chip speed dome)	☒	
64+58	Change IR lights time o'clock: call 64 + 58 + N + N, N is 1-24 o'clock. For example: set 20:00 - 9:00 open rights, call 64+ 58 + 20 + 9, Restore default time call 64 + 58 + 25	☒	

### 5. Less than 64 presets NVR and DVR operation express

This function use for less than 64 presets NVR and DVR, If your NVR and DVR less than 64 presets, You can't use a lot of functions, So, you can use this sheet's command call this speed dome's function.

Operation way: Call 64 preset + call preset N (N is the functions preset, Please see next sheets)

Notes: if you aren't operation next command into this program above 30 second, Speed dome automatic exit Pan/Titl working model.

Preset NO.	Speed dome / camera control content	operation
64+1	Start the first programmed tour 1-16 scanning	[64] + [Call] + [1] + [Call]
64+2	Start the second programmed tour 17-32 scanning	[64] + [Call] + [2] + [Call]
64+3	Start the third programmed tour 33-48 scanning	[64] + [Call] + [3] + [Call]
64+4	Start the fourth programmed tour 49-63 scanning	[64] + [Call] + [4] + [Call]
64+5	Start the fifth programmed tour 65-80 scanning	[64] + [Call] + [5] + [Call]
64+6	Set the speed of the tour ( Call NO.64 + No.6 preset + Call Preset N, N stand for the lever of speed )	[64] + [Call] + [6] + [Call] + [N] + [Call]
64+7	Set stay time of the tour ( Call NO. 64 + No.7 preset + Call Preset N, N is for 1-250 ,N stand for time )	[64] + [Call] + [7] + [Call] + [N] + [Call]
64+8	To start the lever of 360 degree clockwise automatic scanning	[64] + [Call] + [8] + [Call]
64+9	To start the lever of 360 degree anti-clockwise automatic scanning	[64] + [Call] + [6] + [Call]
64+10	To start the lever of 360 degree return automatic scanning	[64] + [Call] + [10] + [Call]
64+11	Set the speed of automatic scan( Call NO.64 and No.11 preset + Call Preset N, N stand for the lever of speed )	[64] + [Call] + [11] + [Call] + [N] + [Call]
64+13	Close Auto-Tracking	[64] + [Call] + [13] + [Call]
64+14	Start the tracking scene 1 the corresponding preset 88	[64] + [Call] + [14] + [Call]
64+15	Start the tracking scene 2 the corresponding preset 89	[64] + [Call] + [15] + [Call]
64+16	Start the tracking scene 3 the corresponding preset 90	[64] + [Call] + [16] + [Call]

## Part 5 【Installation Preparation】

### 1.Basic requirements

- ◆ All electrical work should comply with the latest local electrical regulations, fire-proof precautions and other relative legislations and regulations.
- ◆ Check whether accessories are as complete as the packing list shows. If not, please contact the supplier.
- ◆ Make sure that the place where it's applied and installed meets the requirements of installation.

### 2.Check the structure of the place of installation.

- ◆ Make sure that there is enough room to install this product and its accessories.
- ◆ Make sure that the ceiling, wall and bracket where this product is installed should be able to endure 4 times as heavy as speed dome.

### 3. Set DIP switch

- ◆ Set DIP switch according to speed dome IP address (Detailed information refers to page 24)
- ◆ Setting IP address by software address refers to page 13 【Communication settings】

### 4.Please keep all the packing material of dome

Please keep the packing material of dome after taking apart the package. If problems occur, please re-pack it with the original package and send it back to manufacturer.

※NOTE: Non-original package will cause the unexpected damage during transportation.

## Part 6 【Installation Guidance】

### A、 Intelligent speed dome camera mainly has three types of installations:

①: insert type; ②: ceiling type; ③: rack mounting

### B、 In according to installation type, there are three ways on rack mounting below :

①: wallhung type ②: column type ③: lifting type

Rack mounting fits for indoor or outdoor installation. Outdoor dome camera has an extra sun-shade shell. Dome camera IP rate is 66.

### 1、 Dome-Insert Installation conditions:

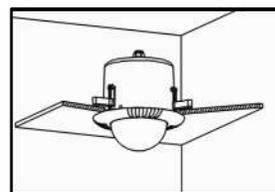


figure (1)

Insert dome camera is applied to indoor ceiling setting

- (1) At least 200mm above the ceiling
- (2) ceiling thickness is 5mm—42mm
- (3) ceiling must bear 4 times the weight of camera at least.

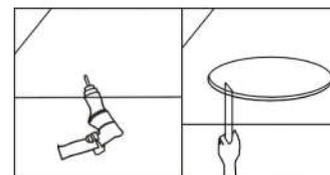


figure (2)

#### Step a. Drill a hole in the ceiling

- (1) Use proper tools to drill a hole with 3mm diameter in the center of installation place. On one side of the hole twist a self-drilling screw and fix it on the ceiling.
- (2) Draw a circle with pencil in ceiling, and then remove the material inside the circuit.

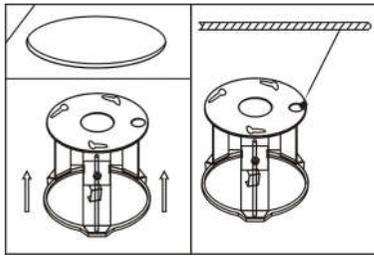


figure (3)

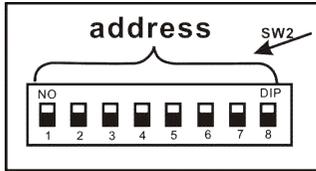


figure (4)

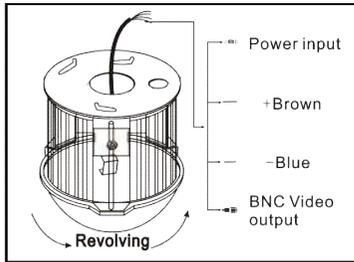


figure (5)

**2、Ceiling-mounted installation :**

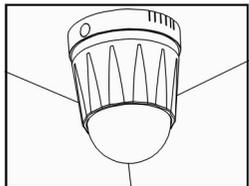


figure (6)

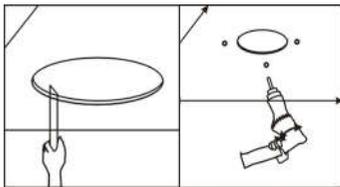


figure (7)

**Step b. Install ceiling mount**

- (1) First, keep pushing the ceiling mount into the hole in the ceiling until the mount is totally inside the hole. Second, unfold the three brackets and screw them up. Last, when the metal pieces are fully expanded, tighten the screws to fix the mount into ceiling firmly.

**Warning: A steel safe belt must be used between ceiling mount and ceiling to avoid that speed dome accidentally drops. Safe belt should be provided by user .**

**Step c. Set speed dome**

- (1) Set (DIP switches) SW2 under the bottom of dome machine to control speed dome IP address. (Detailed information can be found in PART 11)
- (2) Without SW2 DIP switches , setting the IP address by software address refer to Page24 【Communication settings】

**Step d. Connect dome lines**

- (1) Put video line, power supply line and signal control line through the round hole in the ceiling mount, and connect the lines with the corresponding places in dome.( The type of wire is shown as figure 5)

**Steps e. Dome installation**

- (1) Insert the three screws which are in the bottom of dome into the holes in ceiling mount, and then turn the mount as figure 5 shows to make sure that the screws are inside positioning slot firmly.

**Installation conditions:**

This installation way is applied to stiff ceiling indoor

- (1) The thickness of ceiling must be enough to set up the screws
- (2) Ceiling must bear 4 times the weight of camera at least.

**Step a. drill a hole in the ceiling**

- (1) Draw a circle according to the size of hole with a pencil in ceiling, and then remove the material inside the circuit.
- (2) Drill three holes around the hole in the ceiling according to the corresponding position in the mount and insert set-screws in each hole. (Setscrews should be provided by users).

**3.Camera Function Express**

Preset NO.	Speed dome / camera control content	Call preset	Set preset
109	Open the camera menu ( Some camera module can use)	☐	
109	Close the camera menu (Some Camera module can use)		☐
127	The protocol of the camera settings( set preset 127 + set preset 1-9 number , preset 1-9 corresponding SANSUNG/LG/HITACHI/LGE/SANYO/CNB/SANSUNG2/SDM100)		☐
104	Set the lens ZOOM current position corresponding to multiple relationship ( Page 15 )		☐
104	Clear the lens ZOOM current position corresponding to multiple relationship ( Page 15 )	☐	
106	Turn on the speed dome of camera initialization	☐	
106	Turn off the speed dome of camera initialization		☐

**4.IR Function Express**

101	The user can arbitrarily set the distance light according to the camera multiple switching mode 1	☐	
102	The user can arbitrarily set the distance light according to the camera multiple switching mode 2	☐	
103	IR-cut open (Image and IR lights Synchronize switch)	☐	
103	IR-cut close (Image and IR lights Synchronize switch)		☐
133	IR light near brightness with the lens set multiple relationship ( Page 15 )		☐
134	IR light brightness with the lens set multiple relationship ( Page 15 )		☐
135	IR light far brightness with lens multiple relationship ( Page 15 )		☐
136	The maximum brightness settings for all lamp: [set No. 136 preset + set 50-100 preset, (where 50-100 corresponds to the maximum brightness 50% -100%) ]		☐
137	An infrared detection threshold setting: [ Set No. 137 preset +set 36-100 preset, (where 36-100 corresponding infrared sensitivity values lower easily switch to the infrared mode)]		☐
128	Set fan start temperature: (set No. 128 preset + set 1-80preset, 1-80 corresponds to 1-80 degrees)		☐
129	Close the lamp with the fan linkage function		☐
129	IR light with fan linkage function to open the lamp and fan synchronous open	☐	



## 2. Dome Controlling Function Express

Preset NO.	Speed dome / camera control content	Call preset	Set preset
91	Setting software address		☒
92	Clear the software address ( From software address , baud rate, protocol switch to hardware and automatic identification protocol, baud rate)	☒	
91	Communication protocol automatic recognition on	☒	
92	Communication protocol automatic recognition off (default)		☒
<b>93</b>	<b>Restore factory settings</b>	☒	
93	Clear all presets		☒
94	The PTZ recalibration	☒	
107	Auto-overturn on	☒	
107	Auto-overturn off		☒
108	lens/over-turn auto-match Open	☒	
108	lens/overturn auto-match Off		☒
143	Setting the PTZ slow down 2 times corresponding to the zoom		☒
144	Setting the PTZ slow down 4 times corresponding to the zoom		☒
145	Setting the PTZ slow down 8 times corresponding to the zoom		☒
131	Set speed dome down/up max speed (Page 13)		
132	Set PTZ maximum speed ( Page 13 )		☒
135	Set video output format as PAL (effective for dome menu )	☒	
136	Set video output format as NTSC (effective for dome menu )	☒	
138	Alarm function open		☒
138	Alarm function close	☒	
139	Alarm output open		☒
139	Alarm output close	☒	

## 3. Auto-Tracking Function Express

96	Close Auto-Tracking		☒
97	Start the tracking scene 1 the corresponding preset 88	☒	
98	Start the tracking scene 2 the corresponding preset 89	☒	
99	Start the tracking scene 3 the corresponding preset 90	☒	
100	Start the tracking Corresponding to the first set of 1-16 presets	☒	
97	Set the low sensitivity		☒
98	Set the middle of sensitivity		☒
99	Set the high sensitivity		☒
100	Tracking lens zoom close		☒
101	Tracking lens zoom open		☒
117	Set pan tracking speed		☒
118	Set titl tracking speed		☒

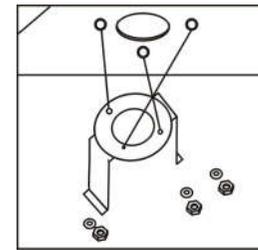


figure (8)

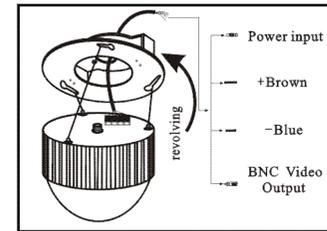


figure (9)

## 3. Wall-hung installation

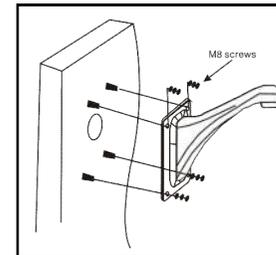


figure (10)

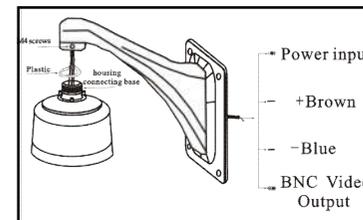


figure (11)

## Step b. fix ceiling mount

There are two connection ways:

One is from center hole, the other is from the hole beside

(1) Make sure the installation position and the connection way. Insert the three setscrews in the holes respectively, and then fasten the screws with gasket and screw cap. (Take the example of putting the wire through the center of ceiling mount)

## Step c. Set speed dome

(1) Set (DIP switches) SW2 under the bottom of dome machine to control speed dome IP address. (Detailed information can be found in PART 11)

(2) Without SW2 DIP switches, setting the IP address by software address refer to Page 24 【Communication settings】

## Step d Line connection:

(1) Put video line, power supply line and signal control line through the round hole in the ceiling mount. (The type of wire is shown as figure 9)

## Steps e. Dome installation

Insert the three setscrews which are in the bottom of dome into the holes in the ceiling mount, and then turn the mount as figure 9 shows to make sure that the screws are inside positioning slot firmly.

## Step a. . drill a hole on the wall.

(1) As shown in figure 10, taking the installation holes of bottom surface of wall bracket as the template, draw the drilling positions and drill the holes:

## Step b. Install bracket and housing:

(1) Put the video lines, power lines and signal-control lines through the hollow tube of the wall mounting bracket as the figure 11 shows.

(2) Install the speed dome camera on the bracket, and fix it with 3 PCS screws.

(3) Fix the installed dome camera to the wall with bulgy screws.

**Note :if the camera is used for outdoor environment, please seal it to be waterproof.**

① After winding enough PTFE tapes around the screw thread, screw the housing firmly to the wall mounting bracket

② Seal the joint face between wall and the bracket, holes, and the joint face between bracket and around the housing with silica gel to be waterproof.

# Part 8 【Common functions operating Express】

## 1. Dome Function Express

Preset NO.	Speed dome / camera control content	Call preset	Set preset
110	Left Limit position		☒
111	Right Limit position		☒
112	Start left and right limit scan	☒	
112	Save left and right limit scan		☒
110	Set the speed of left and right scan ( Page 14 )	☒	
115	Start the first programmed tour 1-16 scanning	☒	
116	Start the second programmed tour 17-32 scanning	☒	
117	Start the third programmed tour 33-48 scanning	☒	
118	Start the fourth programmed tour 49-64 scanning	☒	
119	Start the fifth programmed tour 65-80 scanning	☒	
115	Set the speed of the tour ( Page 14 )		☒
116	Set stay time of the tour ( Page 14 )		☒
120	To start the lever of 360 degree clockwise automatic scanning	☒	
121	To start the lever of 360 degree anti-clockwise automatic scanning	☒	
122	To start the lever of 360 degree return automatic scanning	☒	
120	Set the speed of automatic scan ( Page 13 )		☒
124	Free action on	☒	
124	Free action off		☒
125	Set the free action ( Page 14 )	☒	
125	Set the start time of free action ( Page 14 )		☒
126	Set the boot action ( Page 14 )		☒
130	Start the first pattern scan	☒	
134	Set the first pattern scan ( Page 14 )	☒	

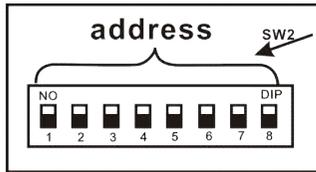


Figure (12)

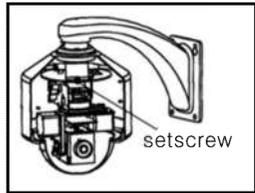


figure (13)

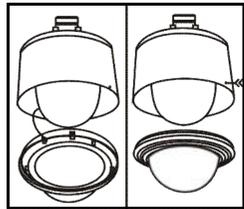


figure (14)

### 4、Pillar installation of dome :

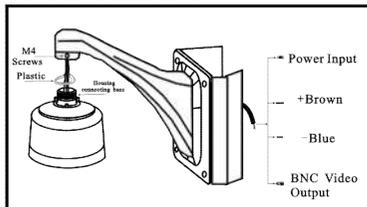


figure (15)

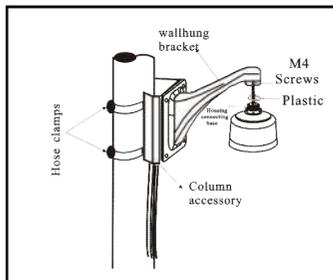


figure (16)

#### Step c. Set speed dome

- (1) Set (DIP switches) SW2 under the bottom of dome machine to control speed dome IP address. (Detailed information can be found in PART 11)
- (2) Without SW2 DIP switches ,setting the IP address by software address refer to Page24 【Communication settings】

#### Step d. Install the speed dome core

- (1). Hold the module with a hand, put the 2 waist-holes at the module bottom accordingly into the 2 screws of top bracket, and screw it to the bottom of the waist-holes. Screw the 2 screws firmly with a screwdriver.

#### Step e. install dome

- (1). Insert two setscrews which are in the bottom of dome into the waist-shape holes in top mount and turn the mount to make sure that two screws are in the positioning slot.

#### Step a. Install pillar accessory

- (1) Put the line though the pillar accessory and fix it with hose clamps.
- (2) Install the dome on the bracket; fix it tightly with a 3PCS screw.
- (3) Put the line though the wall bracket and fix it with column accessory together. ( Shown as figure 15)

※NOTE: If the machine is installed outside, seal the speed dome to be water proof.

① Tape around the joint, and then fasten the housing.

② make sure the joint with silica gel to be waterproof

#### Step b. Install wall bracket

- (1) Put the line though the wall bracket and fix it with column accessory together as figure 16 shows.

Step C. Set driver of dome: refer to the drive setting of wall-hung dome on Page 10

Step D. Install the module : refer to the installation of wall-hung dome module on Page 10

Step E. Install the lower housing : refer to the installation of lower housing of wallhung dome on Page 10

## 15. Restore factory settings

Call no.93 preset number to clear content and restore to factory default. the all data will lose in this operation.

## 16. Zoom magnification settings( Default SONY480)

When start IR light function ,auto-tracking function and zoom follow function, in order to make the best result of auto-tracking and IR light . Please match the lens of the camera ZOOM ratio with the speed dome .

Set the 104 preset + camera lens moves to 1X and set the preset position 1+ camera lens move to 2X and set the preset position 2... + camera lens moves to 20X and set the preset position N0.20 + set 104 end. (you can set up to 44 times)

Note: If the user does not pursue the accuracy , it can be arranged at interval rate relation ,such as: 1.5.10.15.20

Call 104 preset: Clear the relationship between magnification lens with the zoom current position.

## 17. Auto-tracking settings

When the zoom function is open, For the best auto-tracking, Please match the lens of the camera ZOOM ratio with the speed dome like the PART 16.

Set / Add No. 96 preset: Close Auto-tracking.

Set / Add No. 97 preset : Set the low sensitivity

Set / Add No. 98 preset: Set the middle sensitivity.

Set / Add No. 99 preset : Set the high sensitivity

Set / Add No. 100 preset: Zoom close in Auto-Tracking.

Set / Add No. 101 preset : Zoom open in Auto-Tracking.

**Call No. 97 preset : Start the tracking scene 1 the corresponding preset 88.**

Call No. 98 preset : Start the tracking scene 2 the corresponding preset 89.

Call No. 99 preset : Start the tracking scene 3 the corresponding preset 90.

Call No. 100 preset : Start the tracking the first tour(No.1-No.16 Preset) .

Set auto-tracking max zoom: Call 64 + 23 + N preset, N is 1-11, (1: off, 2, 4,6,8,10,...20X,for example: set 12X is max, call 64 + 23 + 7 preset.

**Set auto-tracking timing function: call 64+26+N+N+M preset. N is 1-24 clock (the first N is begin time, the second N is stop time, M is 1-4, this M is 1-3 tracking scene, 4 is tour tracking scene. For example: set 8:00 - 9:00 running No,1 tracking scene, call 64+26+8+9+1 preset. Tutn off is call 64+26+25 preset.**

## 18. IR light settings

**A. set the brightness with multiple relationship between camera (Far IR lights)**

[133]+[PRESET]+[N]+[PRESET] (1X)... [N]+[PRESET](20X)+[133]+[PRESET]

Set the 133 preset + set 1X times the brightness value N+ set 2X times N value... + set 20X times the brightness value N+ is set 133 preset end, (where N is respectively 1, 10,20, 30, 40, 50, 60, 70, 80, 90, 100, a total of 11 levels, setting 1 preset point infrared light is off, set the 10 preset light degree is 10%, set the 20 preset light degree 20%...Set the 100 preset light degree is 100%)

**B. IR light brightness with camera multiple relationship**

[135]+[PRESET]+ (1X) [N]+[PRESET]... (20X)[N]+[PRESET]+[135]+[PRESET]

Set the 135 preset + set 1X times the brightness value N+ set 2X times N value... + set 20X times the brightness value N+ is set 135 preset end, (where N is respectively 1, 10,20, 30, 40, 50, 60, 70, 80, 90, 100, a total of 11 levels, setting 1 preset point infrared light is off, set the 10 preset light degree is 10%, set the 20 preset light degree 20%...Set the 100 preset light degree is 100%)

**The maximum brightness settings for all lamp:** [set No. 136 preset + set 50-100 preset, (where 50-100 corresponds to the maximum brightness brightness 50%-100%)]

**An infrared detection threshold setting:** [Set No. 137 preset +set 36-100 preset, (where 36-100 corresponding IR sensitivity values lower easily switch to the infrared mode)

**Call 101 preset:** The user can arbitrarily set the distance light according to the camera multiple switching mode 1

**Call 102 preset:** The user can arbitrarily set the distance light according to the camera multiple switching mode 2

**Call 103 preset:** IR-CUT ON

**Set 103 preset:** IR-CUT OFF

**Call 113 preset:** into IR far lights adjust function, press IRIS+ or IRIS- for adjust, call 113 preset exit.

**Call 114 preset:** into IR near lights adjust function, press IRIS+ or IRIS- for adjust, call 114 preset exit.

**Call 149 preset:** turn off IR lights.

**Set 150 preset:** turn ON IR lights.

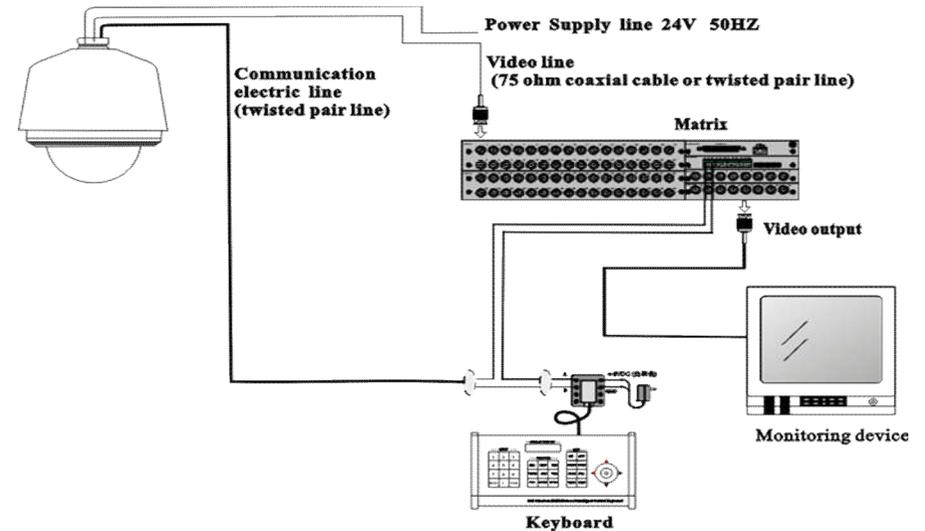
**Set 149 preset:** IR lights Auto on & OFF (control by light sensitive)

**Call 150 preset:** IR lights timing function ON, time through call 64 + 58 change. Speed dome default time is 18:00 - 6:00 (this function use for have o'clock IC speed dome)

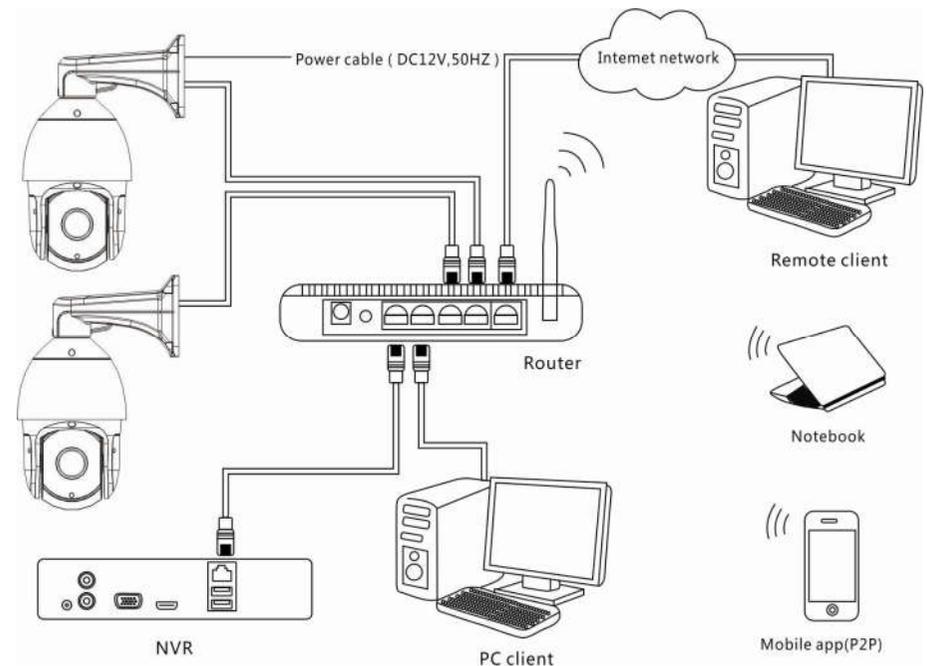
**Change IR timing clock:** call 64 + 58 + N + N, N is 1:00 - 24:00, for example : set 20:00 - 9:00 turn on IR, call 64 + 58 + 20 + 9, restore to default: call 64 + 58 + 25, default time is 18:00 - 6:00

## 6. connect structure

### 6.1 Analogy / AHD / TVI / CVI



### 6.2 IP structure





## Part 7 【Function Operation and Description】

### 1. Communication settings (Default PELCO-D/2400)

**A. Baud rate protocol:** The baud rate protocol of the speed dome is automatic recognition.(PELCO-D,PELCO-P,2400bps,4800bps,9600bps)

Automatic recognition is divided into two states:

First: Automatic recognition on boot, it fixed after recognition, and restart the system to modify the baud rate protocol next time. (default)

Second: Automatic recognition in every time.

Call no.91 preset: Communication and baud rate protocol automatic recognition in every time

Set (ADD) no.92 preset: Communication and baud rate protocol automatic recognition only on boot (default).

**B. Address code settings (The factory default for hard address code)**

The software address settings: by set 91+call N (N for 1-255), make sure the operation effect in controlling state.

Clear soft address: Call NO.92 preset( from soft address switch to hard address state)

### 2. Set the pan maximum speed ( as far as the factory value)

**Pan:** speed the users can define the pan speed ( set NO.132 preset+ set NO. x preset ending, X for 1-100,stand for the largest percentage of the speed dome ) [ 132]+[PRESET]+[N]+[PRESET]

**Titl:** speed the users can define the titl speed ( set NO.131 preset+ set NO. x preset ending, X for 1-100,stand for the largest percentage of the speed dome ) [ 131]+[PRESET]+[N]+[PRESET]

### 3. Control the speed dome up ,down and left right rotation

Users can control the speed dome up and down movement by NVR & client soft-ware & mobile app (P2P) & keyboard Joystick's movement can control the speed dome's action. when the joystick turn right, the speed dome also turn right. So the speed dome's movement agree with joystick's movement.

### 4. Preset settings

[N]+[PRESET] ,N is preset point, 1-255 number can be optional (But the command Preset isn't include).

### 5. Call preset( need set the corresponding preset point)

[N]+[CALL] ,N for preset point, 1-255 number can be optional, camera can move to preset point after call, Zoom, focus and aperture lens will automatically change to preset parameters , camera preset display on the monitor.

### 6. Delete preset point

[N]+[CALL]+[CLEAR], input the preset point N what you want to delete ,press CALL key and press CLEAR key.

### 7. Delete all preset point

[93]+[PRESET] ,set no.93 preset, clear the all preset [9]+[3]+[PRESET] .

### 8. Auto scan

[120]+[CALL], call No.120 ,the lever of 360 degree clockwise automatic scanning

Modify the speed of auto-scan:[120]+[PRESET]+[N]+[PRESET], set No.120 preset+ set preset point N, N is for 1-100, ( N stand for the lever of speed ) default 10° /S

### 9. The inspection group programming

[115]+[CALL] call the first tour of 1-16 to scan

[116]+[CALL] call second tour of 17-32 to scan

[117]+[CALL] call the third tour of 33-48 to scan

[118]+[CALL] call the fourth tour of 49-64 to scan

[119]+[CALL] call the fifth tour of 65-80 to scan

**modify the speed of tour:** set No.115 preset + set preset N, N is for 1-100( N stand for the lever of the speed ) default 10° /S.

**Modify the stay time of the tour:** set No.116 preset +set preset No. N, N is for 1-250( N stand for time ) default 5 second.

### 10. Left and right limit scan settings

The users can set left and right limit point in the range of the rotation, the speed dome can return scan in setting range

Set No. 110 preset [110]+[PRESET]: left limit , control speed dome to start rotation

Set No. 111 preset [111]+[PRESET]: right limit, control speed dome to rotation 30°

**Call** No.112 preset [112]+[CALL]: start right and left limit scan

**Set** No.112 preset [112]+[PRESET]:save left and right limit scan

**Modify the speed and right and left limit scan:** [110]+[CALL]+[N], CALL No.110 preset +call preset N,N is for 1-100( stand the lever of the speed ) default 10° /S.

### 11. Free action settings

[124]+[CALL], call No.124 preset : free action ON.

[124]+[PRESET], set No.124 preset: free action OFF.

[125]+[CALL]+[N]+[CALL] ( N stand for corresponding preset point)

**Free action settings:** Call No.125 preset+ call the corresponding preset ( need the corresponding function)

Default is No.1 preset

[125]+[PRESET]+[N]+[PRESET] ( N stand for time/S)

**Start free action time settings:** Set No.125 preset+ set preset point N , N is for 1-250(N stand for time /S)

### 12. Boot action settings

[126]+[PRESET]+[N]+[PRESET] ( the corresponding function number in function sheet)

Set No.126 preset+ set the corresponding preset no. (need the corresponding function)

### 13. Set the first pattern scan

[134]+[CALL]+[ACTION](operation the speed dome)+[134]+[CALL]

This is the first pattern scan function. The users can call 134 preset to go into pattern scan mode , the speed dome can automatic record to CPU, when the users move the PTZ or lens. If the record need stop, call NO.134 preset to save and exit.

**Start the first pattern scan:** Call No.130 preset point.

### 14. Camera model settings( default automatic recognition )

The users can defined the camera model by itself 's. [127]+[PRESET]+[1-9]+[PRESET]

Set No.127 preset + set 1-9 No. preset, No. 1-9 preset corresponding to SANSUNG/SONY/LG/HITACHI/LGE/SANYO/CNB/SANSUNG2/SDM100)