Speed Dome Manual v2.1

1. Precaution

Electrical safety

Conform to country and local electrical safety standard when using or installing the product. Using local special power adapter.

Transportation

The dome should be protected against extremes of pressure, vibration and humidity during storage and transportation. It should be shipped in parts disassembled as the original packing did. Damage caused by improper transportation is not within the warranty.

Installation with care

Do not install it in any other orientation. Do not squeezed structure parts, which may cause mechanical damage. Down cover is a precise optical product. Do not touch it directly to avoid scratches which can affect image quality.

Requirements to service personnel

All the service work should be done by qualified technicians.

Environmental requirements

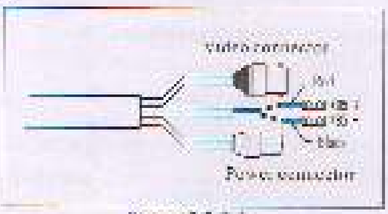
Operation environment temperature: -10°C ~ +60°C/-40~+50°C (Valid [illegible])
Humidity: < 90%
Air pressure: 86-106Kpa

Don't place the camera to be shoot by strong light objects

Don't place the camera to be shoot by strong light objects. Don't point the dome to the sun or other bright objects when in use or not. It may affect image quality.

2.2 Product schematic drawing

1. Connect the power line, video cable and RS485 cable



Picture 2.2.1-1

Attention:

[illegible] different adapter. Please refer to [illegible] the box with your products, [illegible] damage the product.

3 Performance and feature

This product is high technology surveillance product with high definition and color camera, variable-speed pan/tilt and multi-function decoder. It can reduce the connection and installation process between systematic parts at a max limit, and also can improve the stability and reliability of the system. Meanwhile it is easy to install and repair, and it has the following advantages: beautiful shape, rotate lightly and neatly, little noise, simple operation and so on.

1. Built-in digital camera

- High sensitivity, high resolution, and integrated digital processing
- Auto-focus
- Auto-Iris
- Auto brightness control
- Auto white balance
- IR cut filter
- Auto back light compensation
- Auto slow shutter

2. Integrated and multi-protocol decoder

- Figure design, all the data are stored in the inner of camera pan/tilt, when power off, the storage data can't be lose.
- Built-in decoder, integrated multi-protocol, including PELCO-D, PELCO-P, FACTORY, etc.
- 128 presets can be stored, preset 1-80 support auto tour, and each tour can store up to 32 presets.
- 4 narrows, 4 scans, 4 tours
- Built-in direction indicator and temperature indicator
- RS485 bus controlling in series, and dome ID 1-255 optional

3. Built-in pan/tilt

- Iron and carbon alloy armature, high intensity, and good heat dissipation.
- Precise stepping motor, rotate smoothly, reach sensitivity and orientate accurately.
- Exquisite mechanical drive, support pan 360° continuously and tilt 0-90°, and may rotate 180° with auto flip.
- Rotate slowly at pan 1°/s, and the image doesn't jitter.

4. OSD menu

- All the menu option are displayed in English.
- Video OSD menu. It is direct and simple to revise the dome information and parameter by keyboard and menu display.
- May set park action, and set power up action or carry out appointed action.

5. Internal temperature test

- When the temperature exceeds the upper limit, the screen will display alarm information.
- According to the real-time temperature, the fan will measure if it starts or not, and prolong the life of fan.

4. Function instruction

This passage mainly describes the main function and general principle of mini speed dome, and does not refer to the operation methods.

4.1 Auto-run motion

● Focus/speed proportion pan

When manually adjusting, for far focus situation, the dome responds at a high-speed so that touching rocker slightly may make picture move rapidly, thus cause the picture to lose. To base on humanized design, the dome automatically adjust pan and tilt rotation according to zoom near and far, which make it is convenient to operate manually to make tracks for the object. In the menu, you may change system parameter setting proportion pan as ON, thus you may use this function.

● Auto flip

If user holds the joystick in the down position, the camera rotates pan 180 degrees, then the camera rotates tilts up to 90 degrees, you may directly watch the rear view to realize surveillance all processes in normal 180 degrees. In the menu, you may set the system parameter setting AUTO FLIP as ON, thus you may use this function.

● IDLE RUN

By the menu "IDLE RUN" and "idle action", user may set auto-call preset or run tour, pattern, and scan, etc after pointing a few minutes if the dome doesn't run any motions.

● Power up run

By the menu "power up run", after the dome powers up or restarts, user may set auto-resume motions before power up and auto- call preset or run tour, pattern, and scan etc.

4.2 Camera control

● Magnification control

The user can control 'Wide/Tele' to adjust zoom to send near of the image by keyboard controller to obtain panoramic image or close view that you need. The speed dome support digital zoom and optical zoom.

● Focus control

System default is Auto focus. When the lens changes, camera will auto-adjust focus according to the centre of the image to get legible image; user also can manually focus to get desire image by operating keyboard 'FAR/NEAR'. When operating keyboard joystick, camera resumes to auto focus.

The camera cannot auto focus in the following status:

- ●Target is not the centre of the image
- ●Observation the target near and far at the same time, can not see clear at the same time.
- ●Target is a strong light object, such as spotlight etc.
- ●Target moves too fast
- ●Target is reflective, such as wall
- ●Target is too dark or vague
- ●Target image is too small

ØIris control

System defaults Auto Iris. Camera can rapidly adjust size of Iris, through the automatically induct the changing of environment ray, and thus make the brightness of different image stable.

User may adjust Iris by controlling keyboard "OPEN/CLOSE" to get required brightness that you need. User also can resume auto Iris by joystick operation. When controlling the Iris manually, the dome locks correct position you manually controlled; when operate the joystick, the dome resume auto Iris.

ØAuto back light compensation

Camera sub-tiers can carry out auto back light compensation. Under a strong light background, camera will auto compensate light for the darker object and adjust daylight to the bright background. In order to avoid making the image lack fidelity by the back line is too bright, and the object is unable to recognize because of darkness, thus gain legible image.

ØAuto white balance

Camera can automatically adjust white balance in accordance with the alteration of background light-ness to reach a true colour.

4.3 Monitor function

Ø Set and call preset

Preset function is that dome stores current pan/tilt angle, zoom and other position parameters into the memory. When necessary dome recalls these parameters and adjust camera to that position. User can store and recall presets easily and promptly by using keyboard controlling. The dome can store up to 128 presets.

ØTour

Tour is the built-in function in the speed dome. It can appoint setting in advance, and make presets arranged in needful order in tour dwell. By inserting presets in tour dwell, to make the camera tour between these presets. Tour order can be programmed, each time you run tour, you can set park time. A tour can store 32 preset.

ØScan

User can easily preset right limit and left limit by controlling menu and menu, in order to make the camera scanned between right limit and left limit at a setting speed.

ØPattern

Pattern is built-in function in the speed dome: the dome can record the tracks that are no less than 180s, when running pattern, the dome moves repeatedly according to the recorded tracks. Each dome can set up to 4 pattern.

ØLens position display

The position that the speed dome has finished to self-testing as 0 point of pan rotation and tilt rotation. The pan range is 0-360°, and tilt range is 0-90°. According to the displayed information, to set the position of camera lens, and the position can display on the screen.

4.4 Constant temperature Function

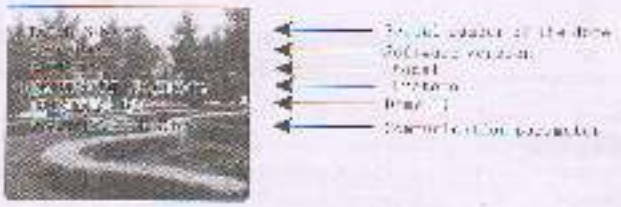
Inner temperature sensor surveille temperature inside of the dome. When the dome work in the high temperature, the dome will automatically to start up the fan to reduce the heat, to make sure the dome work in the reliable temperature environment, increase its stability and prolong the life time of the dome.

5. System setting

5.1 Basic operation

5.1.1 Power up and self-testing

The dome conducts self-testing after current-on ring, and it rotates slowly until displaying pan origin that is default setting, then moving to tilt origin, when self-testing is finished, there is relevant system information displaying on the screen, as follows:



The information will not disappear until you stop to operate the system. If you set "power up action", the dome will automatically activate motions after self-testing. How to operate the function? We will explain detail introduction in following passages.

5.1.2 Call the main menu

The system enters into the main menu by 95preset or "menu" to select 9 preset in 2 seconds. All the menu setting must enter into the main menu at first.

5.1.3 Menu and keyboard operation

Ø Keyboard operation:

【OPEN】 when choosing menu, it means to enter the next menu or enter into setting, or save after finish to set.

【CLOSE】 when choosing menu, it means to close to cancel, or exit to the former menu.

Joystick to up: When choosing menu, it means to choose the former one; when choosing picture, it makes camera tilt up.

Joystick to down: when choosing menu, it means to choose the next one; when choosing picture, it means camera tilt down.

Joystick to left: when choosing menu, it is equal with 【Close】, when choosing picture, it means camera pan left.

Joystick to right: when choosing menu, it is equal with 【Open】, when choosing picture, it means camera pan right.

Press 【TELE】 and 【WIDE】 at the same time, it means 3D joystick makes joystick use.

Ø Menu operation:

"BACK" : Back to the former menu.

"EXIT" : Exit to menu

"ON" : Open some setting

"OFF" : Close some setting

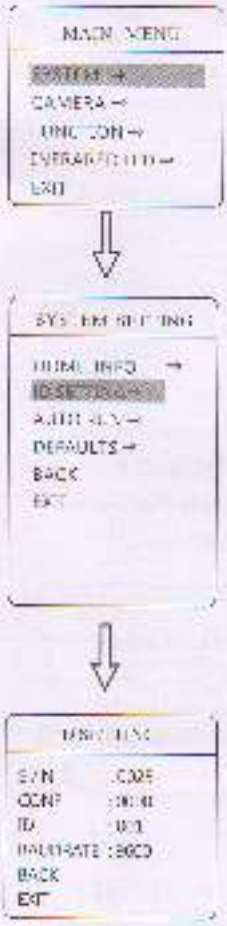
5. 3 Dome initial information

1. Call 95 preset or trace 5 preset twice in three seconds to enter the main menu.

2. Operate the joystick up and down and move the cursor to 【SYSTEM】, press 【OPEN】 to enter submenu.

3. Operate the joystick up and down and move the cursor to 【DOME INFO】, press 【OPEN】 to display initial information as the left picture shows.

Initial information includes S/N of the dome, software edition, protocol, dome ID, communication parameter. SYSTEM may change the numerical value of initial information.



5.4 ID Setting

1. Call 95 preset or call 9 preset twice within 3 seconds, to enter into main menu.

2. Operate the joystick up and down and move the cursor to【SYSTEM】, press【OPEN】to enter submenu.

3. Operate the joystick up and down and move the cursor to【ID SETTING】, press【OPEN】to call dome parameter setting menu.

【S/N】: Series number of the dome

【CONF】: Confirm S/N and input the same number with S/N

【ID】: Set dome address (ID range: 001-255)

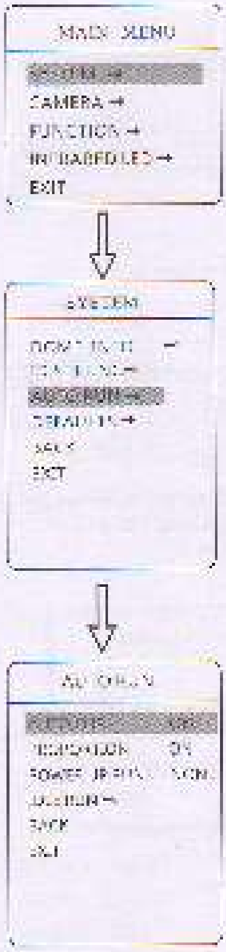
The shortcut of Dome ID setting: call 001-116 preset twice within 3 seconds, to set dome ID as 1 to 16. For example, call 003 preset twice within 3 seconds, then dome ID be setted as 3.

NOTICE

1.If [S/N] and [CONF] are SAME, the above operation can be implemented.

2.The dome address should be set as 255 by setting SW1 as ON. Then, there will be display the item [DOME ID]

3.After modify dome address, the dome need to restart, then the new address will be effective.



5.5 AUTO RUN

Systematic motion controlling may control a series of common movement of the dome, and plays an important role in controlling the image of the dome.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2. Operate the joystick up and down and move the cursor to【SYSTEM】, press【OPEN】to enter submenu.

5.5.1 AUTO FLIP

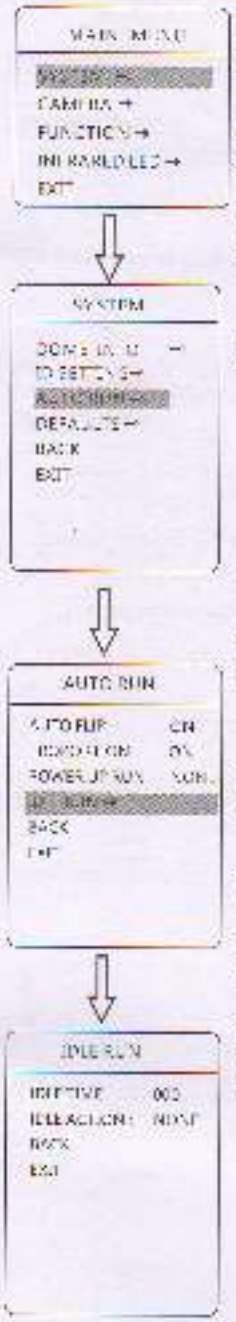
Operate the joystick up and down and move the cursor to【AUTO RUN】, press【OPEN】to enter and choose【AUTO RUN】. Operate the joystick up and down to choose ON to open "auto flip", and choose OFF to close "auto flip". Press【OPEN】to save.

OPERATION KNACKS

When manually adjusting the far focus function, the dome responds at a high-speed and at touching rocker slightly may make picture move rapidly, thus cause the picture to lose. To have an humanized design, the dome automatically adjusts speed and its rotation according to zoom near and far, which makes it is convenient to operate manually to an after object.

5.5.2 PROPORTION

Operate joystick and move the cursor to【PROPORTION】, press【OPEN】to enter "proportion" setting, operate joystick up and down to choose, if choosing【ON】, it means to open proportion pan. If choosing【OFF】, it means to close proportion pan, press【OPEN】to save.



5.5.3 Power up run

The dome startup to run actions after self-testing, if nobody intervenes with it, the dome will repeatedly run this action continuously, if default sets as 【NONE】.

Operate joystick, move the cursor to 【POWER UP ACTION】 press 【OPEN】 to jump to the following choise, then up/down joystick to choose "power up action", press 【OPEN】 to save.

- 【NONE】: none action
- 【AUTO】: the dome resumes the primary action and direction before power up
- 【PRESET】: use preset
- 【SCAN】: run scan
- 【PAT】: run pattern
- 【TOUR】: run tour

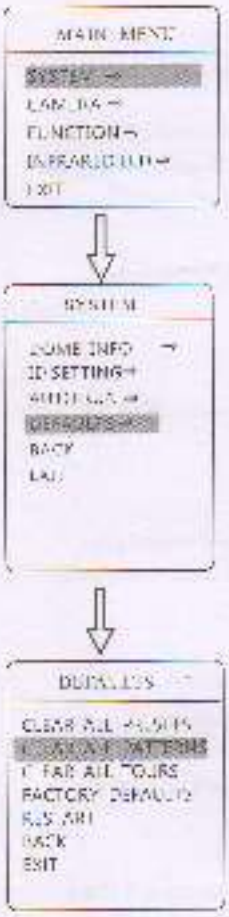
5.5.4 IDLE RUN

This setting allows the dome to run a appointed action after it enters vacancy for a fewer time (1-240minutes). If default sets as 0, it means not to run this action.

1. Operate the joystick up and down and move the cursor to 【IDLE RUN】, press 【OPEN】 to edit up/down joystick to set idle time, the range is 0-240 (minute), press 【OPEN】 to save. 【PARK ACTION】 is running action at park time, when 【PARK TIME】 sets as 0, this item can't be set.

2. Operate the joystick up and down and move the cursor to 【IDLE ACTION】, press 【OPEN】. Here will be a sign "☼" in the front of 【IDLE ACTION】, the cursor jump to right, after flip up/down joystick to choose "idle action", there are options for choosing as follows, press 【OPEN】 to save.

- 【NONE】: (default) no action
- 【PAT】: run pattern
- 【TOUR】: run tour
- 【SCAN】: run scan
- 【PRESET】: use preset



5.6 Defaults

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2. Operate the joystick up and down and move the cursor to【SYSTEM】, press【OPEN】to enter submenu.

3. Operate the joystick up and down and move the cursor to【DEFAULTS】, press【OPEN】to enter submenu, as left picture shows:

- 【CLEAR ALL PRESETS】
- 【CLEAR ALL PATTERNS】
- 【CLEAR ALL TOURS】
- 【FACTORY DEFAULTS】: resume the factory default.

Run this function, the camera parameter and system parameter will resume before product on, clear all windows and alarm setting. Please be cautious to use this function.

- 【RESTART】: restart the dome.

NOTICE

Once clear all commands in the curise up menu, they don't resume, so please be careful when using.

6. Function setting

6.1 Preset

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. Click each command to enter "preset menu" according to the order of the left picture. As follows:

- 【PRESET NUMBER】
- 【SET PRESET】
- 【SHOW PRESET】
- 【CLEAR CURRENT PRESET】

Define preset and call preset function can be set by keyboard operation, input preset number at first, then click the key "save/call preset" to carry out.

2. Define current preset number: move the cursor to 【PRESET NUMBER】, press 【OPEN】 to choose preset number, the range 001-128 as the left picture shows, here choose number 5 as current preset, the following operations aim at the current preset.

3. Define current preset: move the cursor to 【SET PRESET】, press 【OPEN】, by operating joystick to adjust magnification, to choose good objective image, press 【OPEN】 to save. If the image is very dim, the image is belong to digital zoom, when setting preset, the image will jump to maximal optical zoom.

OPERATION KNACKS

Preset function can only store one current pan/tilt angle, zoom and other position parameters into the memory. When necessary come to call those parameters and correct to that position.

4. Display current preset: move the cursor to 【SHOW PRESET】, press 【OPEN】, the screen will display the current preset.

5. Clear current preset: move the cursor to 【CLEAR PRESET】, press 【OPEN】, the current preset is cleared.

6.2 Scan

Scan is that pre-set two points, the other camera repeatedly scan between the two points at a stable speed, the same magnification and pan. Each camera has four scan.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds. Click menu to enter "scan" menu, as the left picture shows.
   - 【SCAN NUMBER】
   - 【SCAN SPEED】
   - 【SET LEFT LIMIT】
   - 【SET RIGHT LIMIT】
   - 【RUN SCAN】
   - 【CLEAR SCAN】

2. Define current scan number: operate joystick, move the cursor to 【scan number】, press【open】, tilt up/down joystick to choose scan number, press【open】to save. The following operations aim at the current scan number.

3. Scan speed setting: operate joystick to 【SCAN SPEED】, press 【OPEN】, tilt up/down joystick to adjust scan speed, press 【OPEN】 to save.

4. Left limit settings: operate joystick to【SET LEFT LIMIT】, press 【OPEN】, operate joystick to choose objective range, press【OPEN】 to save. Right limit setting is the same as left limit setting.

5. Run scan: operate joystick to 【RUN SCAN】, press 【OPEN】 to exit the menu, and it starts to run scan.

6. 3 Pattern

Pattern is built-in function in camera. The speed dome can record tracks that are no less than 180s. (A series of pan/tilt controlling and lens controlling commands). Each dome may set up to 4 patterns.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

2. Operate the joystick up and down and move the cursor to【FUNCTION SETTING】, press【OPEN】to enter submenu.

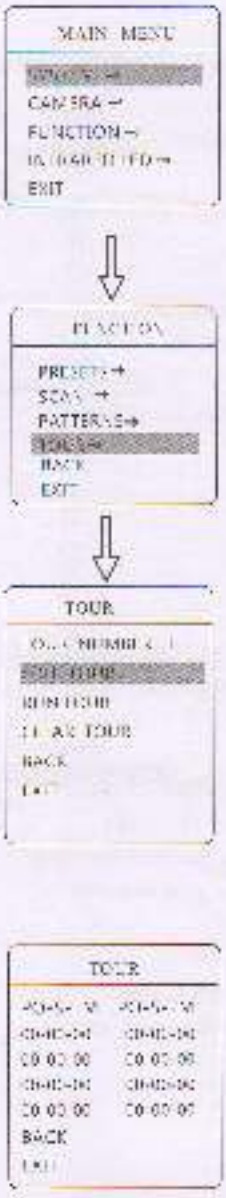
3. Operate the joystick up and down and move the cursor to【PATTERN】, press【OPEN】to enter menu 'Pattern'.

- 【PATTERN NUMBER】
- 【RECORD PATTERN】
- 【RUN PATTERN】
- 【CLEAR PATTERN】

4. Choose pattern number: move the cursor to【PATTERN NUMBER】, press【OPEN】, the pattern you choose as current one, the following operations aim at the current pattern.

5. Define current pattern: you move the cursor to【RECORD PATTERN】, press【OPEN】to set pattern track, move the image random, and draw the zoom. Each dome has a route that is no less than 180s, a series of pan/tilt, time, magnification, focus will be recorded, press【OPEN】to save.

6. Run pattern: operate joystick to【RUN PATTERN】, press【OPEN】to run, the dome will continuously and repeatedly record the specific track.



6. 4 Tour

Tour is the built-in function in the speed dome, it will arrange the presets into the queue of auto tour, and can set Dwell time, it will patch or preset. Operate auto tour is a process of incessantly trace for each preset. One tour can store 32 presets at most.

1. The system enters into the main menu by calling 95 preset or by calling 9 preset twice within 3 seconds.

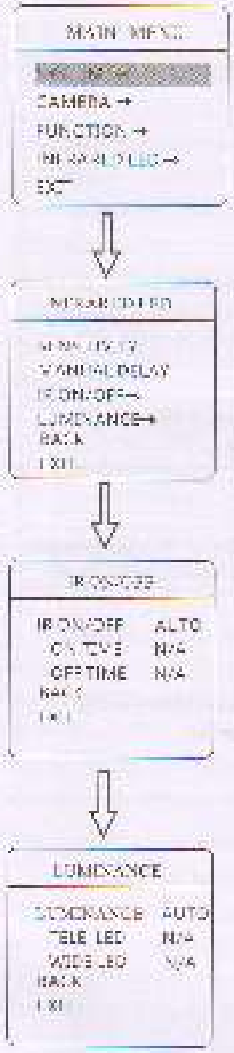
2. Operate the joystick up and down and move the cursor to 【FUNCTION】, press【OPEN】enter submenu.

3. Operate the joystick up and down and move the cursor to 【TOUR】, press【OPEN】to enter menu "tour".

- 【TOUR NUMBER】
- 【EDIT TOUR】
- 【RUN TOUR】
- 【CLEAR TOUR】

4. Set tour: move the cursor to【EDIT TOUR】, press【OPEN】to set tour interface. 【PO-S-TM】set preset, speed and time, press【OPEN】, the first dwell is activated, tilt up/down joystick to choose preset number, the preset numerical value should be within 1-80 preset, a tour can set up to 32 presets. Press【OPEN】,the cursor jump to the next dwell, tilt up/down joystick to choose current arrival preset speed, total is level of speed, increasingly from level 1 to level 8. Press【OPEN】, the cursor jumps to the next dwell, tilt up/down joystick to set current preset dwelling time, 60 seconds maximum. If set the presets of the second line, move the cursor to the second line, press【OPEN】to continue edit. Press【OPEN】to save after setting, press【CLOSE】to exit.

5. Run tour: Operate joystick, move the cursor to 【RUN TOUR】, press【OPEN】to exit the menu, it starts to run tour.



7. Infrared led setting

7.1 IR SENSITIVITY:

Infrared automatic open sensitivity settings, range 0~100, the user can according to the environmental illumination status modulates infrared automatic open.

7.2 MANUAL DELAY:

infrared light manual opening, closing time, if time is 0, Do not automatically close infrared lamp.

7.3 IR ON/OFF:

IR control mode can be divided into 3, AUTO, MANUAL, TIME three models. In TIME model, according to the user set time to switch IR; in MANUAL mode, Call the 62 preset command to open the infrared light, open the 63 preset closed lamp.

7.4 IR LUMINANCE:

Infrared brightness control method in infrared light open effect after. Divided into: AUTO, GROUP, MANUAL three states. AUTO mode, infrared automatic brightness matching lens distance, according to the [illegible] lens changes. Infrared high beam and dipped beam headlights will automatically adjust the brightness, reach the intensity of illumination and brightness automatic matching. And can improve the infrared lamp life.

GROUP mode: packet [illegible] mode. infrared high beam and dipped beam headlights will [illegible]. According to the lens distance packet opened at the same time.

MANUAL mode: the manual control [illegible] infrared brightness from the lens parameters influence. The user can set the high beam and dipped beam brightness, range 0~100

8 Trouble shooting

Trouble	Possible causes	Solution
No action, no video after power up	Power supply is damage or power consumption is not enough	Replace
	Power line connected wrong	Correct
	Engineering line is malfunction	Check and repair
Self-testing and image are normal, but the dome is uncontrollable	The dome ID setting is incorrect	Refer to ID setting
	Rs485 may carry out a very	Check Rs485 connection, confirm the connection is correct, and good in a manner
	Rs485 is in malfunction	Please refer to appendix 「Rs485 Technical knowledge」
Video image is not steady.	Video line is bad connection	Eliminate
	Power consumption is not enough	Replace right power adapter, it is better to put the switch and power adapter near the dome
Video image is not steady and the motion is jerked	Power consumption is not enough	Replace the power
Dome controlling is not smooth	Controlling line connected wrong, or Rs485 loads too much, or the distance of communication is too far	1.Connect 120Ω resistance in the dome parallel for a far from the controller 2.Increase distributor

8.1 The cleaning of clear down cover

To obtain constant clear videos, user should clean the down cover periodically.

- Be caution when cleaning, hold the down cover ring only to avoid direct touch to the acrylic down cover. The acid sweat, mark of fingerprint will corrode the coating of down cover and scratch on down cover will cause vague image.
- Use soft dry cloth or the substitute to clean the inner and outer surfaces.
- For hand contamination, use neutral detergent. Any cleanser for high grade furniture is applicable.

8.2 RS485Bus basic knowledge

Characteristics of Rs485 Bus

As specified by Rs485 standard, Rs485 Bus is of half duplexed data transmission cables with characteristic impedance as 120Ω. The maximum load capacity is 32unit loads(including main controller and controller equipment)

Transmission distances of Rs485 Bus

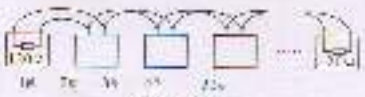
When user selects the 0.56mm(24AWG) twisted pair wires as data transmission cable, the max theoretical transmitting distance are as follows:

Band rate	Max distance
2400bps	1800m
4800bps	1200m
9600bps	800m
19200bps	600m

If user selects thinner cables, or installs the cable in an environment with strong electromagnetic interference, or connects lots of equipment to the Rs485Bus, the max transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

Connection and termination resistor

The Rs485Bus standards require a daisy-chain connection between the equipment. There must be termination resistors with 120Ω(as the picture 9.4-1). Please refer to picture 9.4-2 for simple connection. D should not exceed 7m.

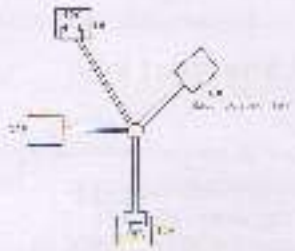


Picture 9.4-1

Picture 9.4-2

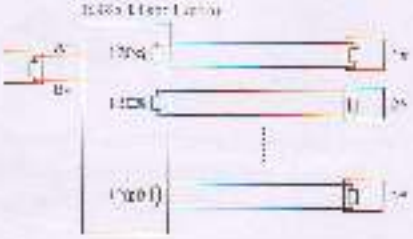
Problems in practical connections

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment far and near in picture 9.4-3. As the star configuration is not in conformity with the requirements of RS485 standards, problems such as signal reflections, lower anti-interference performances arise when the cables are long in the connection. The reliability of control signals is decreased with the phenomena that the connections not respond or just responds at intervals to the controller, or does continuous operation without stop.



Picture 9.4-3

In such circumstances the factory recommends the usage of RS485 distributer. The distributor can change the star configuration connection to the mode of connection stipulated in the RS485 standards. The new connection achieves reliable data transmission (Refer to Picture 9.4-4)



Picture 9.4-4

RS485Bus troubles shooting

Trouble	Possible cause	Solution
Dome can do self-testing, but can not be controlled	1. The address and baud rate setting of dome are not in conformity with those of control lac. 2. The "+" and "-" connection of RS485 Bus is incorrect. 3. Bad connection. 4. There are circuit in the RS485 Bus.	1. Chage the address and baud rate.(control-ler or dome) 2. Adjust the "+" and "-" connection of Rs485. 3. Make sure the connections are fully soared. 4. Change RS485 bus wires.
The dome can be controlled for the open-ness is not smooth	1. The RS485Bus is not in good contact with the connectors. 2. One wire of RS485 bus is broken. 3. The dome is very far from controller. 4. There are too many dome connected to the system.	1. Secure the connection. 2. Replace RS485 bus wires. 3. Add terminator resistances to the system. 4. Install RS485 distributor.

9.Shortcut key:

CALL+"N"+PRESET	Show preset
SET "N" PRESET	Save preset
CALL+"95"+PRESET	Enter menu
CALL+"94"+PRESET	Restart
CALL+"92"+PRESET	Set scan1 Left limit
CALL+"93"+PRESET	Set scan1 Right limit
CALL+"97"+PRESET	Run scan1
CALL+"98" PRESET	Run tour1
CALL+"99" PRESET	Run scan1
CALL+"62"+PRESET	Open IR LED(manual state)
CALL+"63"+PRESET	Close IR LED(manual state)

9. Maintenance

(1) Range of warranty

- The product will be maintained free for one year.
- The product will be obtained the free maintenance service if the same malfunction appears again within three months.
- Malfunction of products caused by force majeure (such as war, earthquake, lightning strike and so on), abuse, non-standard operation, change of construction, non-normal wear or accident etc are not free of warranty.
- Please prevent from the damage which is caused by heavy pressure, the fierce vibration and soaks in the process of transportation and storage, which does not belong to the free maintenance scope.
- Please adopt the way of fission package or original package to transport because the product damage does not belong to the free maintenance scope if you use the whole packing way, not the original packing way.
- The maintenance services will not be free when the pan-tilt module is disassembled or serviced by the user voluntarily.
- Our company implements the lifetime payable service if the product is malfunction has surpassed the warranty period.
- To the products with defect (s) in the period of warranty, please fill in the form of warranty information correctly, describe the trouble in details, and provide the trouble in details, and provide original sales invoice or its copy.
- For the damage and loss which was caused by the user's specifically application, factory won't bear any risk and responsibility. The factory compensation made by breach of faith, negligence or tort etc won't exceed the amount of the product's. The factory won't bear any responsibility for the special, unexpected and continue damage caused by any other reasons.
- Our company has the final right of explanation for the above terms.

(2) Warranty terms

If the products are within the warranty time, the buyer should fill in the warranty card and send back together with the products.

(3) Shipping

If the product needs repaired, you can return it to the manufacturer through the supplier or directly. If you choose the later, please contact us in order to speed up the process. And our company only undertake the one-way freight from manufacturer to customer after maintenance.