

# HD-SDI High Speed Dome Camera

---

## Content

I、 Safety Precautions-----	2
II、 Warning-----	2
III、 Features-----	3
IV、 Installment Preparation-----	3
V、 Installation Type Guide-----	4
VI、 Installation Procedure Guide-----	6
1、 In-Ceiling Mount-----	6
2、 Wall Mount-----	8
3、 Corner Mount-----	10
4、 Pole Mount-----	11
5、 Pendent Mount-----	12
6、 Parapet Mount-----	15
VII、 Product connection -----	19
1、 Testing Connection-----	19
2、 Video Matrix Connection-----	19
VIII、 Function and Operation Guide-----	20
OSD Main Menu-----	20
1、 System setup-----	21
2、 Camera setup-----	22
3、 PTZ setup-----	22
4、 Auto set-----	23
5、 Exit-----	23
Appendix I. Lighting proof & Surge-----	24
Appendix II. The Cleaning Of Down Cover-----	24
Appendix III. RS 485 Basic Knowledge-----	24
Appendix IV. 24VAC Wire Diameter & Transmission Comparison Chart-----	26
Appendix V. Wire Standard Comparison Chart-----	27
Appendix VI. Trouble Shooting -----	27
Appendix VII. Preset Position Function Table-----	28

# HD-SDI High Speed Dome Camera

## I. Safety Precaution

1. Only qualified and experienced person can carry on this installation.
2. Always conform to national and local safety codes during installation.
3. Use reliable tools only, poor quality tools may cause danger. e.g. ladder.
4. Check the space and toughness of the site before installing. It should be able to bear 4 times the weight of the dome and its accessories
5. Do not install the speed dome to appropriate environment (Please refer to the chart below).
6. Keep all the original dome package materials in case of future repacking and transporting.

Model	Indoor	Outdoor
Max. Temperature Range	-10~+50°C	-40~+60°C
Humidity	<90%	<90%
Air Pressure	86~106Kpa	86~106Kpa
Power supply	24V/2.50A,50/60HZ	24V/2.50A,50/60HZ

7. Please refer to the user manual carefully.

## II. Warning

### 1. Mind Transportation

Avoid press or to be stroked furiously In the process of transportation.

The product must be shipped in the form of accessories, the product wouldn't within guarantee policy if product is not accordance with transportation term in the process of transportation.

### 2. Fault occur

If the products fumes or can't work well, user should turn off power, stop to use the speed dome immediately, then connect to supplier.

### 3. Don't dismantle or refit

Don't dismantle shell, otherwise it will cause speed dome camera damaged. if user need to set some function or maintain the products, please connect to supplier.

### 4. Don't put other substances into PTZ camera

Make sure there is not metal substance or flammable substance in camera. If there is other substances, it will cause camera short circuit or damage. If water or liquid leak into camera, please turn off power immediately, then connect to supplier directly. Keep camera carefully, avoid water or seawater to corrode.

### 5. Mind to carry product

In order to avoid damaged , don't drop the product on ground or let products be stroked forcefully.

### 6 .Fix product in places far from electric field or magnetic field

If camera is installed in those places near to TVL, wireless transmitter, Electromagnetism equipment, transformer, speaker, the electromagnetism from them will interfere image effect.

### 7. Avoid humidity and dust

In order to avoid camera damage, don't install camera in the place with dust or vapor or high temperature.

### 8. Avoid high temperature

Don't install camera in places where bring heat source to camera, or sunshine can irradiate, otherwise it will cause camera distort, fade or other damage.

### 9. Cleanness

Use soft cloth with scour to wipe off spot, then dry camera with soft cloth. Don't use gasoline, dope thinner or other chemistry substance

# HD-SDI High Speed Dome Camera

to clean product, otherwise it will cause product distortion or paint desquamated.

## 10. Don't let camera aim at strong light

## 11. Please use product according to working temperature

Usage environment for outdoor speed dome camera:

Working Temperature	-40~+60°C
Humidity	<90%
Atmospheric Pressure	86~106Kpa
Power supply	24V/2.50A,50/60HZ

Usage Environment for indoor speed dome camera:

Working Temperature	-10~+50°C
Humidity	<90%
Atmospheric Pressure	86~106Kpa
Power Supply	24V/1.25A,50/60HZ

## 12. Prohibit to install indoor camera in outdoor environment

### III. Main Features

#### 1、 Built-in decoder

Integrative design, high stability.

Auto work function

128 preset position, support auto tour, 8 sequences with 16 positions each

Support RS485, Multi-protocol

Auto switch between color and B/W

Auto home position

#### 2、 Build-in P/T

Precise Motor stepping drive, work steadily, sensitive reaction, Integrative design, compact structure;

Support 360°continuous pan, no blind area surveillance;

0.5°/S Pan, image don't wobble;

180 degree vertical tilt, continuous surveillance;

#### 3、 Built-in camera with zoom lens, high sensitivity, high resolution.

Auto Focus

Auto BLC

AGC

Auto White Balance

Color/ white and black switch

#### 4、 Speed dome OSD Menu

English OSD menu for speed dome setting, easy to operate

Preset title setting, camera title setting, scanning title setting via OSD menu (max.16 characters)

With OSD menu, presets, scanning tracks, patterns, two position scanning can be set easily.

### IV. Installation Preparation

# HD-SDI High Speed Dome Camera

---

## 1. Tools Lists:

You may need following tools for the installation:

Screws and nuts, screw driver, Small slotted screw driver, Wire cutter, Ladder, Drill, Saw.

## 2、Cables:

Video Coaxial Cable

The video coaxial cable should be:

- 1) 75 Ohm impedance.
- 2) Solid copper wire.
- 3) 95% braided copper shield.

Check the max transmission distance referring to the chart below.

International Gauge	Transmission Distance( Max.)
RG 59/U	750ft (229m)
RG 6/U	1,000ft (305m)
RG 16/U	1,500ft (457m)

- R S4 85 communication cable (refer to appendix III )
- 24VAC power cable (refer to appendix IV )

## 4、 Please keep all package materials

After you disconnect package, please keep all package materials well, in case there is something wrong with speed dome,user can re-pack speed dome and send it to agent or factory to repair it.

## V. Installation Type Guide

Three main kinds of installation are available for high speed dome:

- 1) In-ceiling Mount
- 2) Surface Mount
- 3) Bracket Mount

There are 5 bracket options for bracket mount:

- 1) Wall Mount
- 2) Corner Mount
- 3) Pole Mount
- 4) Pendant Mount

**NOTE:** Installation site should be able to withstand at least 4 times the weight of the dome.

Bracket mount dome has indoor type and outdoor type. Comparing to indoor type, outdoor type has extra sun-shield housing, temperature sensor and heater. Outdoor type conforms to IP66 standard.

**WARNING:** DO NOT install indoor dome in outdoor environment.

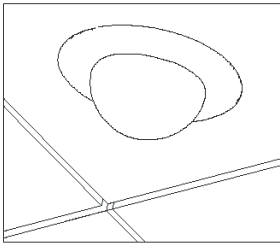
After installation, the outside appearance is following:

- (1) In-ceiling mount

Camera with ceiling mount is suitable for suspend ceiling of indoor environment

# HD-SDI High Speed Dome Camera

---

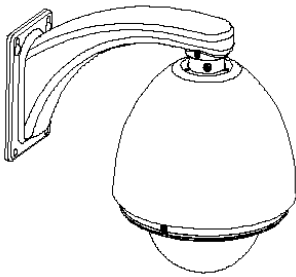


Picture1

(2) Bracket mount

① Wall mount

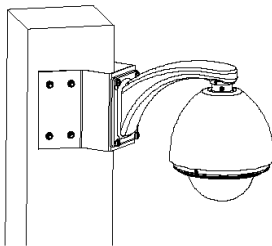
Wall mount is suitable for firm wall of indoor and outdoor environment



Picture 2

② Corner Mount

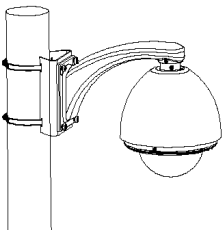
Corner mount is suitable for firm wall of indoor and outdoor environment, it has 90 degree angle between wall and corner mount



Picture3

③ Pole mount

Pole mount is suitable for firm pole of indoor and outdoor environment



Picture 4

④ Pendant mount

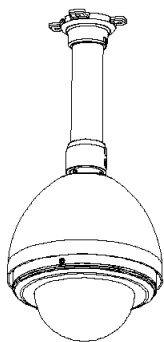
Pendant mount has following three kinds:

a. Thick pole pendant mount

This kind of pendant mount is suitable for firm ceiling structure of indoor and outdoor environment.

## HD-SDI High Speed Dome Camera

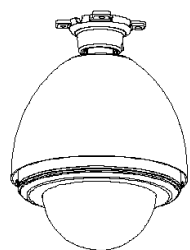
---



Picture 5

b. Pendant mount without pole

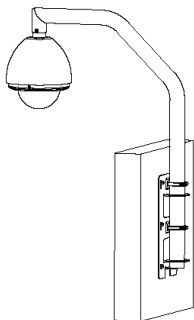
This kind of pendant mount is also suitable for firm ceiling structure of indoor and outdoor environment.



Picture 6

⑤ Parapet mount

Parapet mount is suitable for indoor and outdoor firm wall structure



Picture 7

## VI. Installation procedure guide

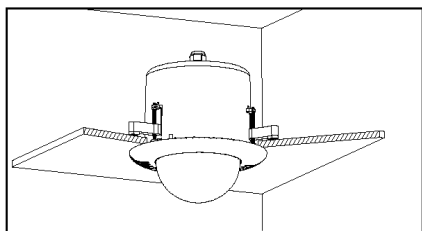
### 1、In-Ceiling camera installation

#### Installation environment

Embedded camera is suitable for indoor ceiling environment, Picture 8 is sketch map after installation, environment must meet following condition:

- (1) Upper space should be at least 200mm high;
- (2) The thickness of ceiling must be 5~42mm;
- (3) Ceiling should be able to withstand at least 4 times the weight of the dome.

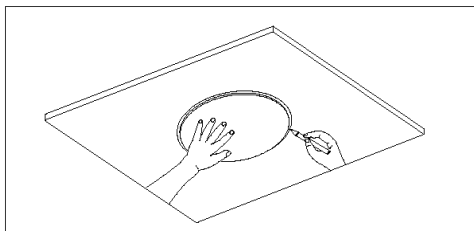
# HD-SDI High Speed Dome Camera



Picture 8

## 1). Draw a circle on ceiling

Take the paper pattern(accessory) as a template to draw a pattern on the ceiling. The paper pattern's diameter is 225mm.



Picture 9

## 2). Connect Cables:

- (1) connect power cable. RS485 control cable

Warning: Turn off power supply before connecting cable

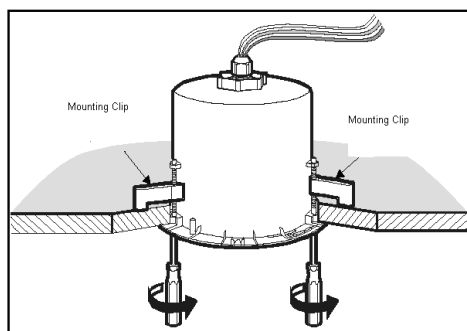
- (2) Connect Video output cable

## 3). Install Upper Cover:

- (1) Adjust the height of the three mounting clips, swing the three mounting clips to cling them to housing.
- (2) Push housing into ceiling and let the clips stretch out. Finally, screw the three clips to tighten the housing.

Note: Use even strength to adjust the three clips, or it may distort the shape of the housing.

( Picture 1 0 )



Picture 10

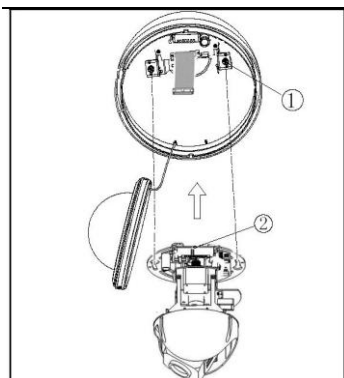
## 4). Install all-in-one Camera:

- (1) Pick up camera from carton to check it, then refer to "appendix VI" to set camera baud rate, protocol and address.

**Note:** If there is something wrong with camera in the process of using, please pack it well, then send it to supplier for repair.

- (2) Unscrew 2 bolts in the picture 1, put the screw into hole of key and screw it tightly, then connect IDE26 plug to relevant plug on the PCB board of camera. ( refer to 11 )

# HD-SDI High Speed Dome Camera



Picture 11

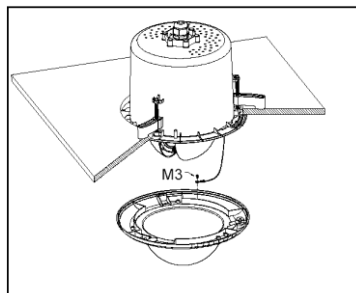
❖ **Note:** When screw down bolt, please hold camera by one hand, operate it by another hand, in case the camera revolve reverse in the process of screwing. After installing camera, please check whether camera can work well under power supply was provided, if it can't work well, please refer to appendix X.

## 5). Install down cover:

Fix the safety chain on housing. The safety chain prevents the down cover dropping down. Match the clasps and mounting holes then turn the down cover frame anti-clockwise.

**NOTE:** 1.Let the safety chain inside the arc groove of the down cover, otherwise it may scratch the lens.

2. If you found difficult to fit in the down cover, try readjusting the three clips. (refer to picture 12)



Picture 12

**Note:** Please make sure that safety chain is in the arc slot of down cover to avoid dust to entry into camera.

**Note:** If you found difficult to fit in the down cover, try readjusting the three clips.

## 2. Wall mount installation

### 1). Installation condition:

Camera with wall mount is suitable for firm wall indoor and outdoor, installation requirement as follows:

- (1) The wall mounting surface must be firm enough to install expansive screws
- (2) The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome

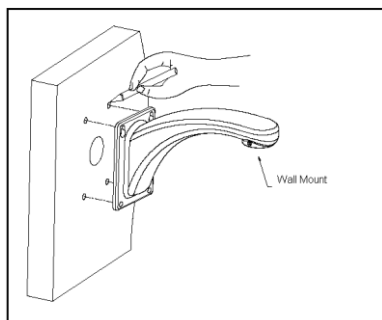
### 2). Install wall mount bracket:

#### 1. Mark Screws Positions

Take the bracket base as the template to mark the screws positions on wall, drill the holes, refer to picture 13

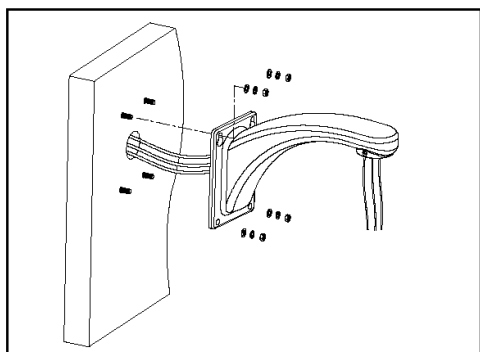


# HD-SDI High Speed Dome Camera



Picture 13

(2) refer to picture 14, insert M8 expansive screw, then let power cable, video/ control cable go through wall mount bracket and fix wall mount on the wall.



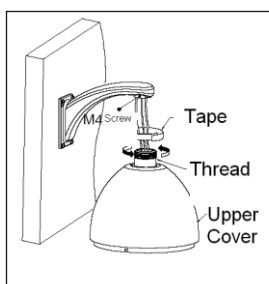
Picture 14

**Note:** Apply silicone to the gap between bracket and wall in the case of outdoor dome.

## 2. Install upper cover:

Loosen the M4 bolt and swing away the power board holder, let cables go through upper cover, then cling upper cover to pipe and tighten M4 screw.

(refer to Picture 15 )



Picture 15

**Note:** If the speed dome is used in outdoor environment, please wrap more belt on screw thread, then screw upper cover to wall mount.

## 3. Connect Cable:

(1) Connect power cable and RS485 control cable

Warning: must turn off power supply when connecting cable

(2) Connect video output cable,

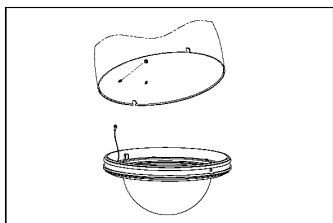
(3) Thunderproof ground cable connection

When speed dome is installed outdoor, ground wire must connect to ground alone, the resistance must be less than 4 ohm.

# HD-SDI High Speed Dome Camera

## 4. Connect down cover:

Refer to picture 16, after taking off M3 screw from upper cover, insert the M3 screw into safety chain of down cover, then screw it.



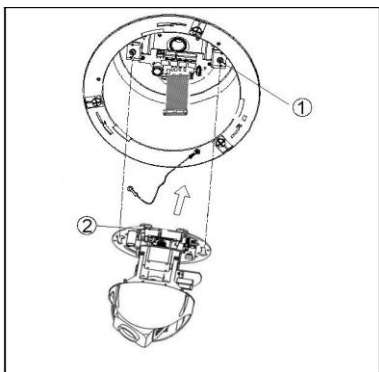
Picture 16

## 5. Install All-in-one Camera:

(1) Pick up camera from carton to check it, then refer to “appendix VI” to set camera baud rate, protocol, and address. (Before installing down cover, take off shield to set DIP, then install shield)

**Note:** If there is something wrong with camera in the process of using, please pack it well, then send it to supplier for repair.

(2) Unscrew 2 bolts in the picture 1, put the screw into hole of key and screw it tightly, then connect IDE26 plug to relevant plug on the PCB board of camera. (refer to 17)

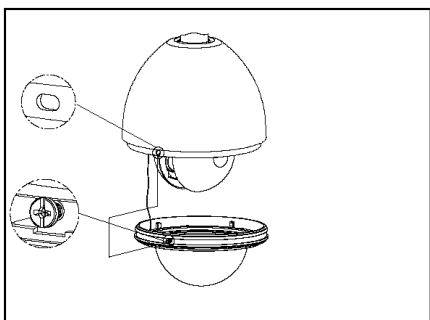


Picture 17

**Note:** When screw down bolt, please hold camera by one hand, operate it by another hand, in case the camera revolve reverse in the process of screwing. After installing camera, please check whether camera can work well under power supply was provided, if it can't work well, please refer to appendix X.

## 6. Install down cover:

Loosen the two M4 screws on down cover ring. Apply lubricant to the O-ring to make down cover easier to slip in. Push upward the down cover into the housing and then fasten down cover with two M4 screws.(refer to picture 18)



Picture18

## 3).Corner Mount installation

### 1. Installation Requirements:

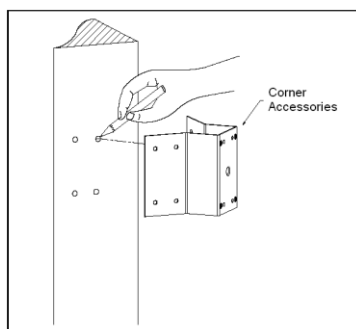
Camera with Corner mount is suitable for firm wall which has 90 degree angle between two walls indoor and outdoor. Installation environment as follows:

- (1) The wall mounting surface must be firm enough to install expansive screws
- (2) The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome

# HD-SDI High Speed Dome Camera

## 2. Install corner accessories, wall mount bracket:

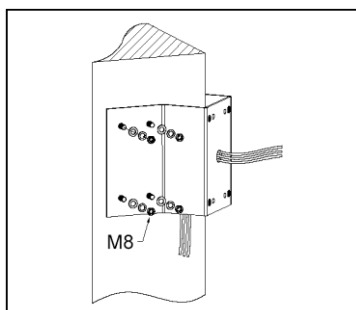
(1) Refer to picture 19, take the bracket base as the template to mark the screws positions on wall, drill the holes and put expansion screws inside.



Picture 19

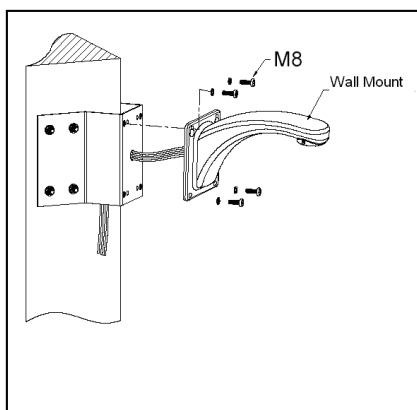
(2) Refer to Picture 20, Put power/ RS485/video cables through the hole of corner base and use M8 nuts to fasten corner base on the mounting surface.

Note: Put cables through the wall or aside the corner base



Picture 20

(3) Refer to picture 21, let power/RS485/video cables go through hole of wall mount and fix wall mount on corner accessories.



Picture 21

**Note:** If the camera is used outdoor environment, please seal gum water on the gap between wall mount bracket and corner mount accessory.

**Install upper cover:** refer to upper cover installation of wall mount.

**Connect cable:** refer to cable connection of wall mount.

**Connect down cover:** refer to down cover connection of wall mount.

**Install camera:** refer to camera installation of wall mount.

**Install down cover:** refer to down cover installation of wall mount.

4). Pole mount installation

# HD-SDI High Speed Dome Camera

Camera with pole mount is suitable for firm pole structure indoor and outdoor

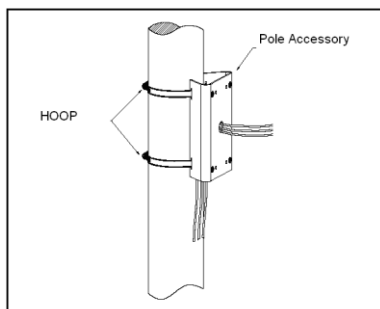
## 1. Installation requirements:

- 1) The outside diameter of the pole must be in the range of 130-150mm (5.12 ~6 inches).
- (2) The Pole structure must be firm enough to bear 4 times the weight of the speed dome.

## 2. Install Pole mount accessory and wall mount bracket:

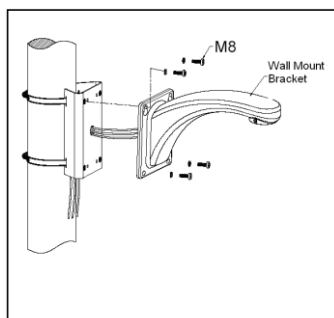
- 1) Refer to picture 22, put Power/RS485/Video cables through the hole of corner base and use M8 nuts to fasten corner base on the mounting surface.

**NOTE:** Put cables through the wall or aside the corner base.



Picture 22

- (2) Refer to picture 23, let power/RS485/video cables go through hole of wall mount, and fix wall mount on pole mount accessories



Picture 23

**Note:** If the camera is used outdoor environment, please seal gum water on the gap between wall mount bracket and corner mount accessory

**Install upper cover:** refer to upper cover installation of wall mount.

**Connect cable:** refer to cable connection of wall mount.

**Connect down cover:** refer to down cover connection of wall mount .

**Install camera:** refer to camera installation of wall mount.

**Install down cover:** refer to down cover installation of wall mount.

## 5) Pendent mount

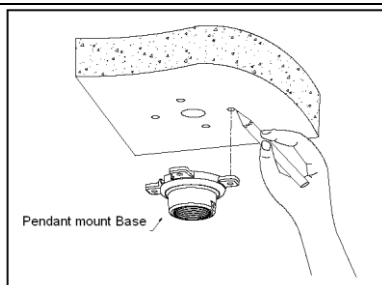
### Installation requirements:

- (1) The ceiling must be firm enough to bear 4 times the weight of the speed dome.
- (2) The wall mounting surface must be firm enough to install expansive screws.

### 1. Mark screws positions

Take the bracket base as the template to mark the screws positions on ceiling. Drill the holes and put expansion screws inside, refer to Picture 24.

# HD-SDI High Speed Dome Camera

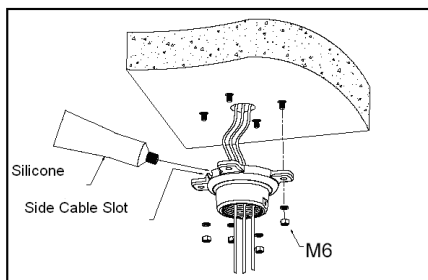


Picture 24

## 2. Install base

Put Power/RS485/Video cables through the central hole of the bracket base, and then fix it on ceiling, refer to picture 25.

**NOTE:** Apply silicone along the top of bracket base in the case of outdoor dome.

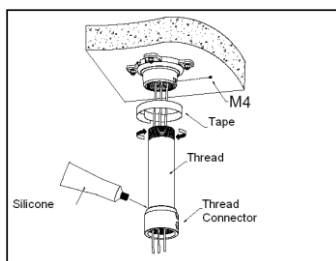


Picture 25

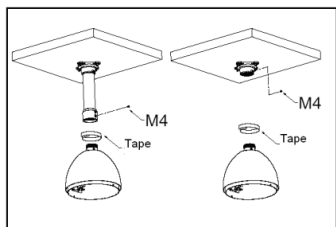
## 3. Install suspender

Put cables through the cavity of suspender. Apply water-proof tape to the thread. Then turn the thread pipe head into the bracket base and fasten the connection with an M4 screw, please refer to picture 26, also directly install upper cover on the base, refer to picture 27.

**NOTE:** Apply silicone to the suspender as picture shows in the case of outdoor dome.



Picture 26

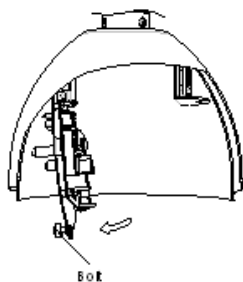


Picture 27

## 4. Unfasten the power board holder

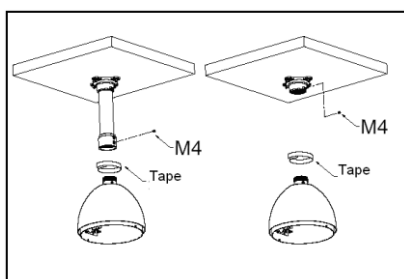
Loosen the bolt and swing away the power board holder.

# HD-SDI High Speed Dome Camera



## 5. Install housing

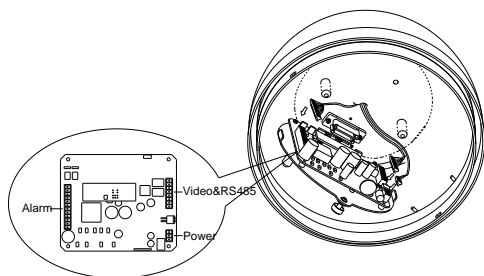
Insert cables through the hole at the top of the housing. Apply water-proof tape to the housing thread. Then turn the housing onto the wall mount bracket and retain the connection with an M4 screw. If installation height is not high enough, mount housing directly into the base



**NOTE:** Apply silicone to the gap between bracket and wall in the case of outdoor dome.

## 6. Connect cables

Insert cables into corresponding sockets on power board. After completing cable connection, swing the power board holder back and then turn on the power. The red LED will light up. Turn off the power after checking. If not light up, check the cable connection.



**NOTE:** There are signs for each port. Please connect cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.

## 7. Down cover preliminary installation

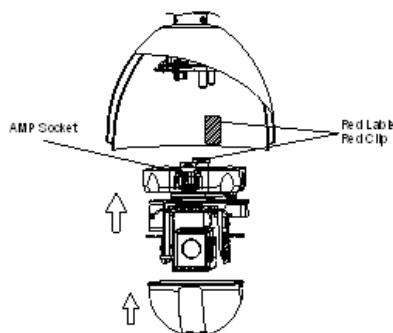
Attach the safety chain with an M3 nut as picture shows. The safety chain prevents the down cover from dropping down.

**NOTE:** Connect the heater plug into the socket in the case of outdoor dome.

## 8. Install black liner and Pan/Tilt Module

Push the black liner into the two locking tabs. Align the pan/tilt module to the two clips, red to red, black to black and match the holes in pan/tilt module and the two guide poles. Gently push the module upward until you hear two click sound.

# HD-SDI High Speed Dome Camera

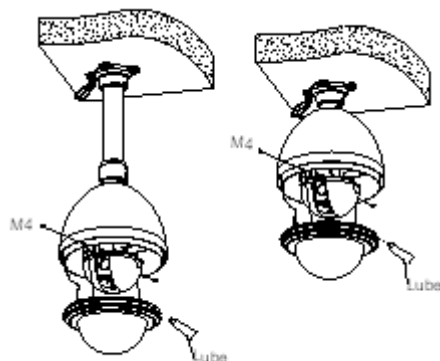


**NOTE:** BE SURE the AMP sockets are clean without dust. DO NOT forget to remove the lens cover.

## 9. Install down cover

Loosen the two M4 screws on down cover ring.

Apply lubricant to the O-ring to make down cover easier to slip in. Push upward the down cover into the housing and then fasten down cover with two M4 screws.



## 6. Parapet mount installation

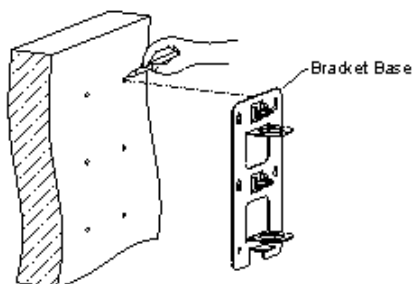
### Installation Requirements:

Camera with parapet mount is suitable for firm mount of indoor and outdoor environment, installation requirement as follows:

- (1) The wall mounting surface must be firm enough to install expansive screws
- (2) The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome

### 1. Mark Screws Positions

Take the bracket base as the template to mark the screws positions on wall, drill the holes

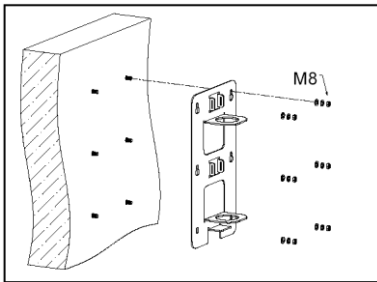


Picture 28

# HD-SDI High Speed Dome Camera

## 2. Install Base

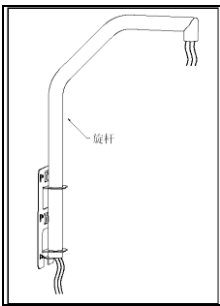
Fix the bracket base on the wall with the M8 expansive screws.



Picture 29

## 3. Install Pipe Arm

Put the cables through the two trays of the base and pipe arm, and plug the pipe arm into two trays

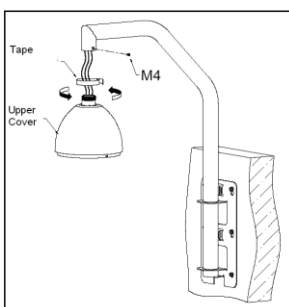


Picture 30

## Unfasten the power board holder

Loosen the M4 bolt and swing away the power board holder, let cables go through upper cover, then cling upper cover to pipe and tighten M4 screw.

(Refer to Picture 3 1)



Picture 3 1

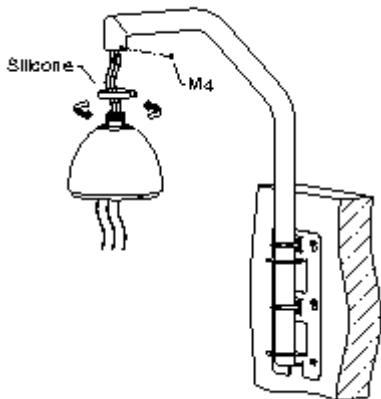


# HD-SDI High Speed Dome Camera

## 5 Install the Housing

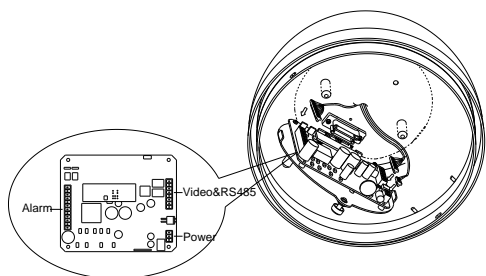
Insert cables through the hole at the top of the housing. Apply water-proof tape to the housing thread. Then turn the housing onto the wall mount bracket and retain the connection with an M4 screw.

**NOTE:** Apply silicone to the gap between bracket and wall in the case of outdoor dome.



## 6. Connect cables

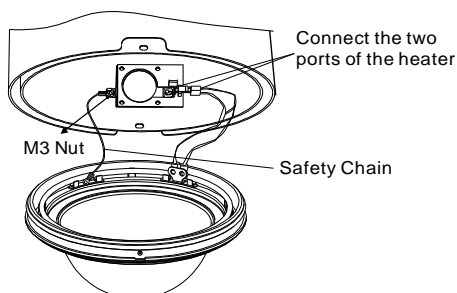
Insert cables into corresponding sockets on power board. After completing cable connection, swing the power board holder back and then turn on the power. The red LED will light up. Turn off the power after checking. If not light up, check the cable connection.



**NOTE:** There are signs for each port. Please connect cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.

## 7. Down cover preliminary installation.

Attach the safety chain with an M3 nut as picture shows. The safety chain prevents the down cover from dropping down.

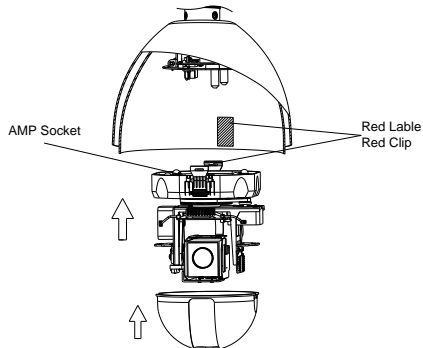


**NOTE:** Connect the heater plug into the socket in the case of outdoor dome.

# HD-SDI High Speed Dome Camera

## 8. Install black liner and Pan/Tilt Module

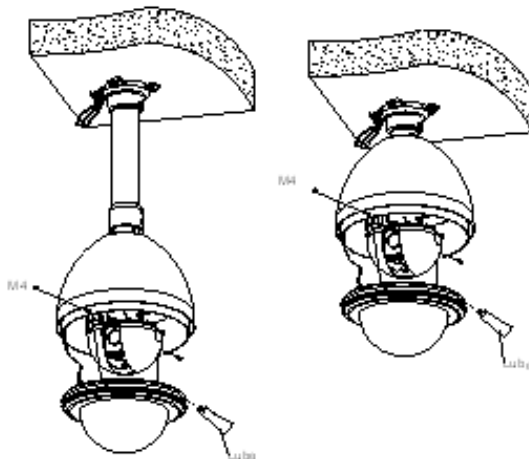
Push the black liner into the two locking tabs. Align the pan/tilt module to the two clips, red to red, black to black and match the holes in pan/tilt module and the two guide poles. Gently push the module upward until you hear two click sound.



**NOTE:** Be sure the AMP sockets are clean without dust. DO NOT forget to remove the lens cover.

## 9. Install down cover

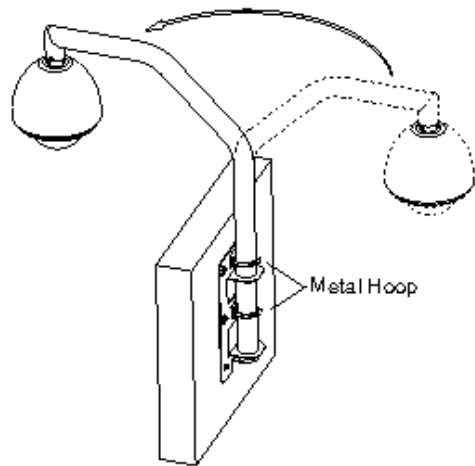
Loosen the two M4 screw on down cover ring. Apply lubricant to the O-ring to make down cover easier to slip in. Push upward the down cover into the housing and then fasten down cover with two M4 screws.



# HD-SDI High Speed Dome Camera

## 10. Fix the Pipe Arm

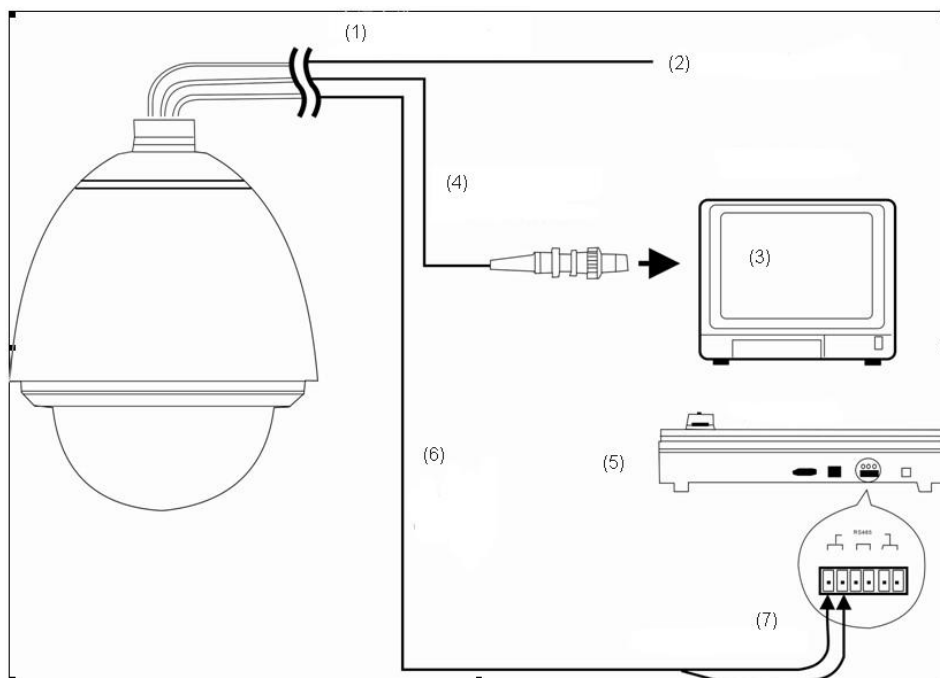
Rotate the pipe arm to the proper place, fix the pipe arm to the base with the two metal hoops.



Picture 32

## VII. Products Connection

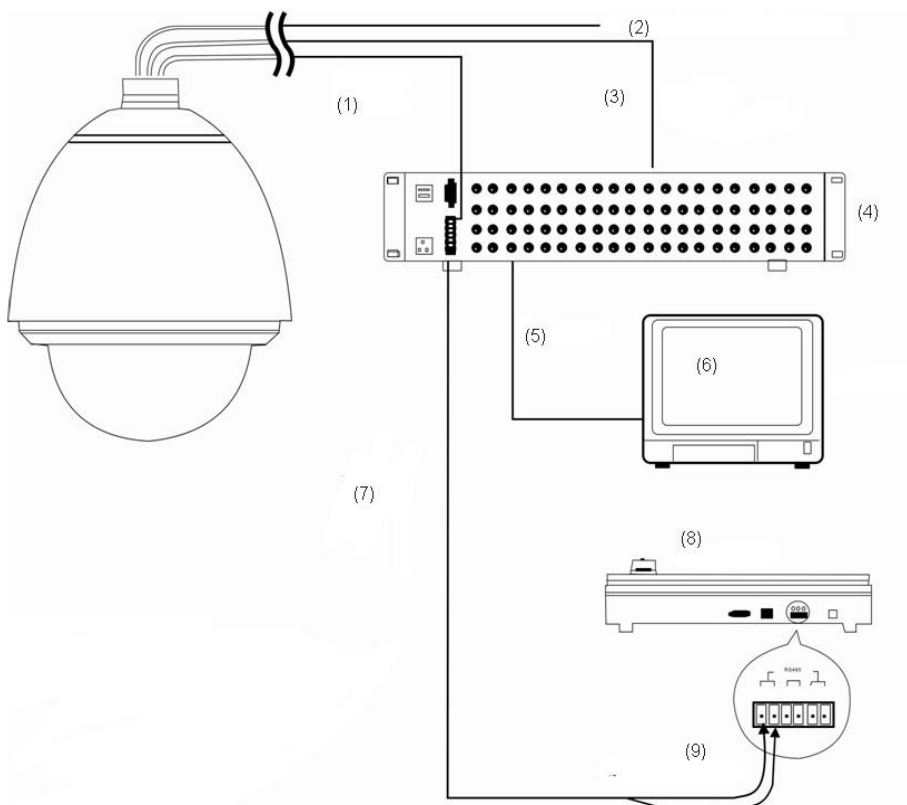
### 1. Test Connection



- 1). Power cable (AC24V, 50 Hz)
- 2). adapter connected to AC 24V power
- 3). TV Monitor
- 4). Monitor cable
- 5). System controller
- 6). Communication cable
- 7). Port connected to RS485 A / B

# HD-SDI High Speed Dome Camera

## 2、Connect Matrix system



- |                              |                      |                                 |
|------------------------------|----------------------|---------------------------------|
| 1) communication Cable       | 2). Power cable      | 3). Video Cable                 |
| 4). Video switcher or matrix | 5). Video output     | 6). Monitor                     |
| 7). communication cable      | 8) system controller | 9). Port connected to RS485 A/B |

## VIII、 Function Introduction and Operation Guide

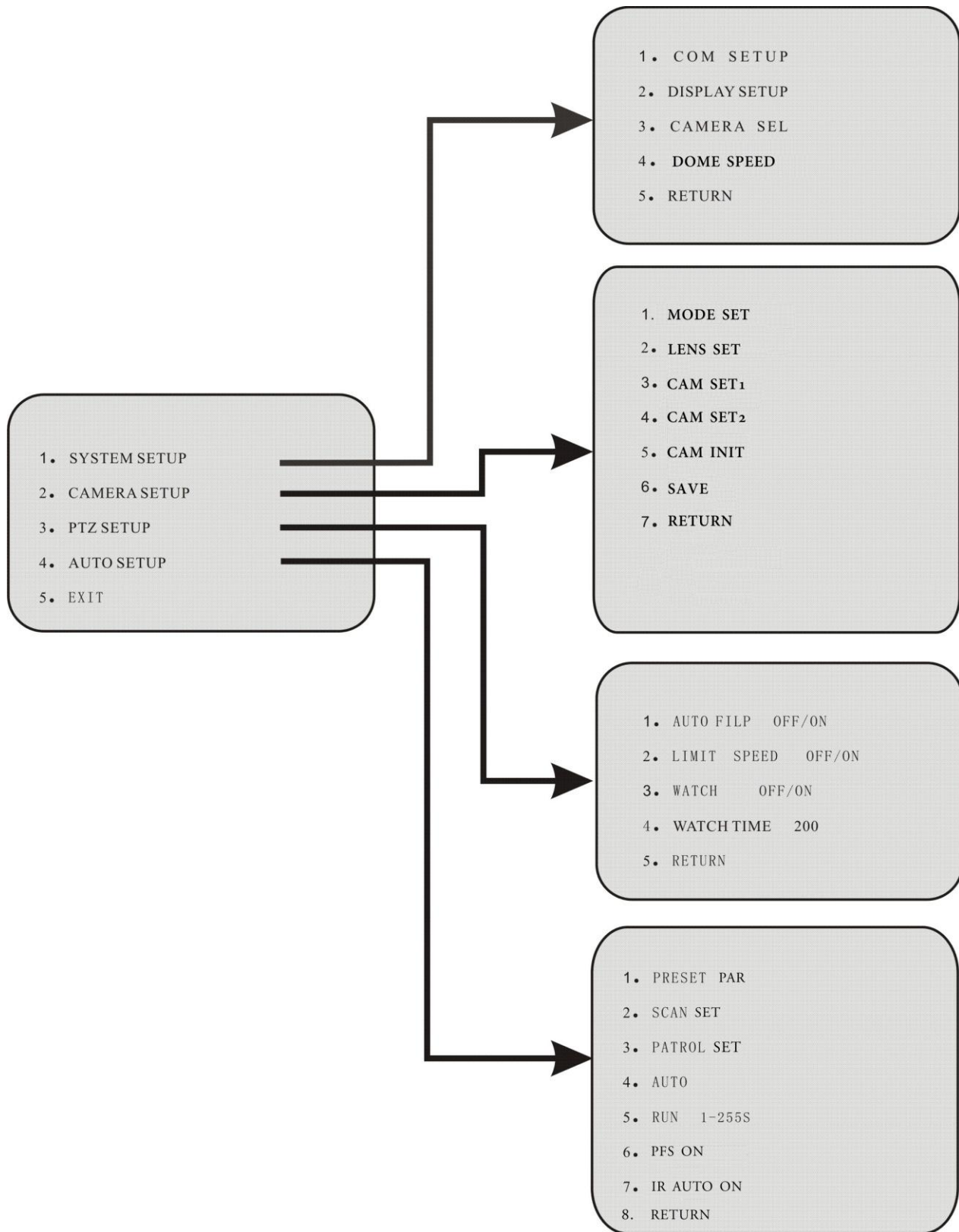
**Call main menu: call preset 95 or call preset 1 twice within 5 seconds**

The method to call main menu is different between different control keyboards, so it depends on the keyboard you are actually using.

The speed dome camera can be controlled by control keyboards and active via keyboard commands, such as presets setting, presets calls, scanning setting, start scanning, start cruising, etc. For more information, please refer to the manual of the control device you are actually using.

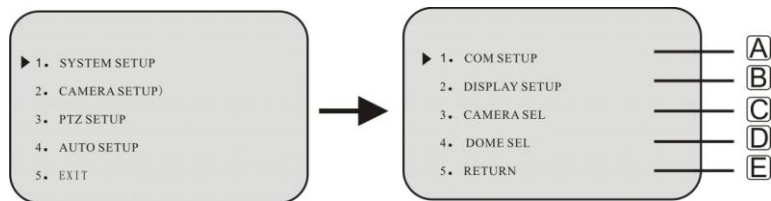
# HD-SDI High Speed Dome Camera

## OSD Main Menu



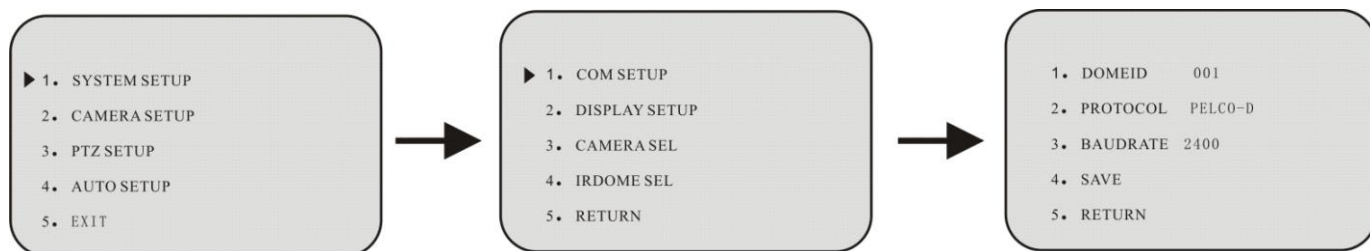
# HD-SDI High Speed Dome Camera

## 1. System setup



### A. Communication setup

In this submenu, you can set dome ID, communication protocol and baud rate.



Move the joystick to set the parameters, “up” and “down” is used to select the submenu, “left” and “right” is used to enter into the submenu and set the value.(Dome ID:1~255 optional), then remember to save the settings, move the cursor to “return” and move joystick to right to exit the submenu.

**Note: After setting, please select “save” to save all settings, or all setting is invalid.**

### B. Display setup

In this submenu, you can set dome’ s directions and camera zoom



Move the joystick to set the parameters, “up” and “down” is used to select the submenu, “left” and “right” is used to enter into the submenu and set the value.

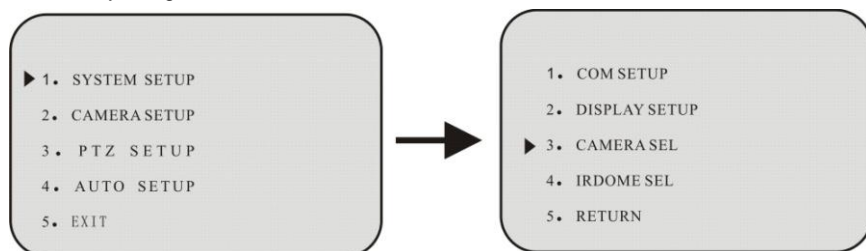
The submenu “CAM DISPLAY” is used to set the vertical direction display (ON/OFF),

The submenu “PT DISPLAY” is used to set the horizontal direction display (ON/OFF).

The submenu “ZOOM DISPLAY” is used to the set camera zoom display (ON/OFF).

### C. Camera Select

The speed dome can compatible with different camera modules, In this submenu, you can select the suitable camera module you are actually using.



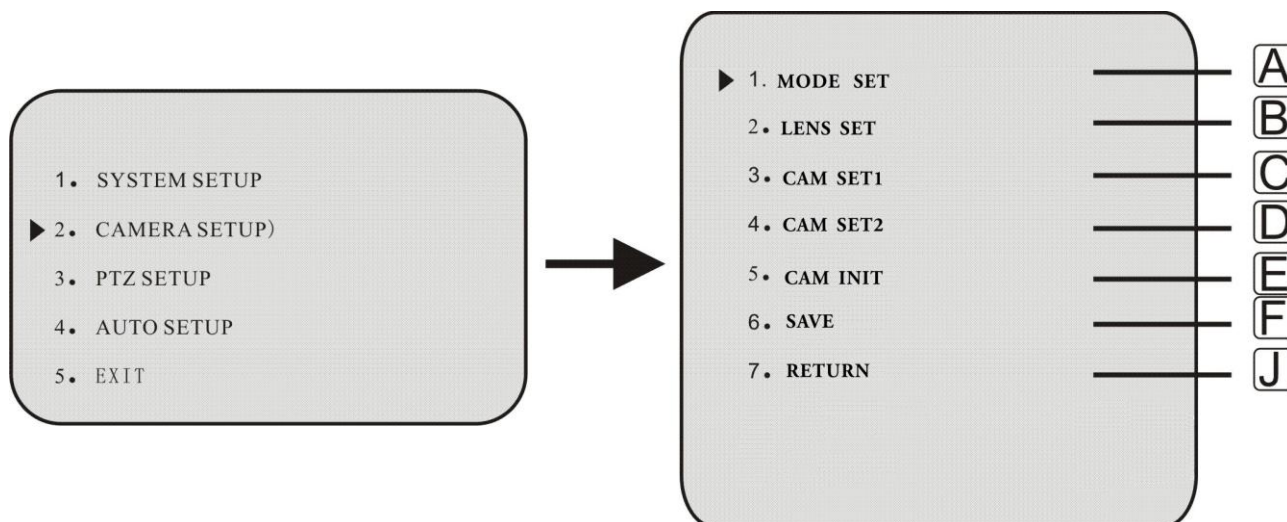
### D. Dome speed Select

High speed and Medium speed can be set.

### E. Return to previous menu

# HD-SDI High Speed Dome Camera

## 2. Camera Setup



Move the joystick to set the parameters, “up” and “down” is used to select the submenu, “left” and “right” is used to set the value.

### A. MODE SET

Setting: cam mode/video sync./restart

### B. LENS SET

Lens focus/iris/D zoom/auto ICR/BLC/ICR on or off.

### C. CAM SET1

Cam AE/slowshut/shutspeed/Wide D/HR/NR/HS/CAM WB/Maxgain

### D. CAM SET2

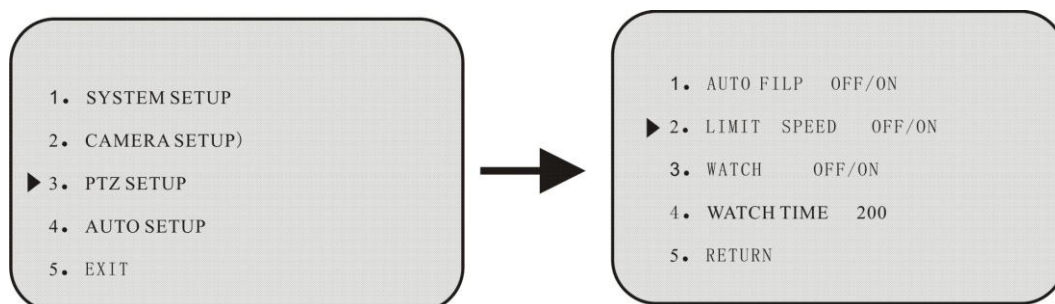
Expcomp/AE/RESPONSE/THRE/ICR Threshold/Bright/THRESHOLD.

### E. CAM INIT

### F. SAVE

### J. Return to previous menu

## 3. PTZ setup



### A. Auto flip

“ON/OFF” is optional. When auto flip is on, and the user hold down the joystick continuously, the camera will pan rotation 180° then Tilt 90° , so the camera can monitor all direction and no blind area.

### B. Limit speed

“ON/OFF” is optional. When ON is set, the PTZ will automatically adjust the pan/tilt speed according to the zoom, which will make the user to track the object more easily

### C. Watch

“ON/OFF” is optional. Watch position setup, When ON is set, if there is no operation after a settings time, The PTZ camera will automatically return to the watch position you have set. The preset 50 is default as watch position, the user can set preset 50, watch time, watch position ON or OFF.

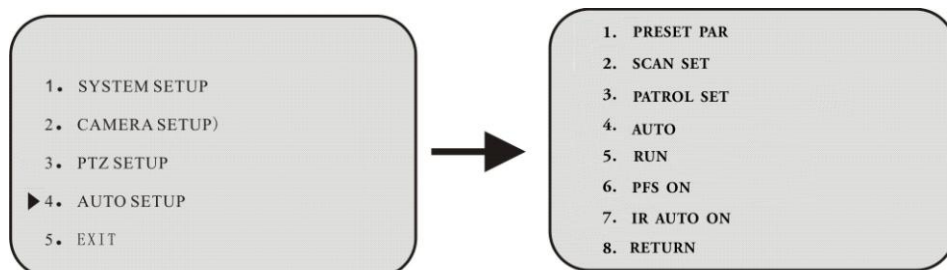
# HD-SDI High Speed Dome Camera

## D. Watch Time

1~200 seconds can be set.

## E. Return to previous menu

## 4. Auto setup



## A. Preset setup

Preset setup means, the current camera angle, zoom and other camera parameters can be saved as a preset position, and it can be called quickly if need.

- a) Preset No.: 1~128 presets can be set
- b) Speed: 1~63 speed can be set
- c) Dwell: preset delay time, 1~60seconds can be set

## B. Scan set

The PTZ camera can record the normal operation at least one minute. Then the camera can scan circularly according to the recorded tracks. 4 tracks can be recorded. (This function is available for some special PTZ with pattern function only)

## C. Patrol set

The presets can be programmed in together as groups. 8 groups tracks can be set for this PTZ camera, 16 presets for each group tracks. The camera can automatically scanning after setting.

## D. Auto set

The user can set the camera run automatically according to this setting.

“OFF” : auto off

“Area-S Fast” : auto area scanning at high speed

“Area-S Medi” : auto area scanning at medium speed

“Area-S Slow” : auto area scanning at slow speed

“Presetgr01” :auto scanning as preset group 01

...

“Presetgr08” :auto scanning as preset group 08

## E. Run

“ON/OFF” is optional, Start to run the auto settings.

## F. Power Fail Safeguard (PFS)

“ON/OFF” is optional, when it is set ON, the camera will recover to the working status after power is on. All settings can be saved.

## G. IR AUTO ON or OFF

## H. RETURN

## 5. Exit

Exit menu

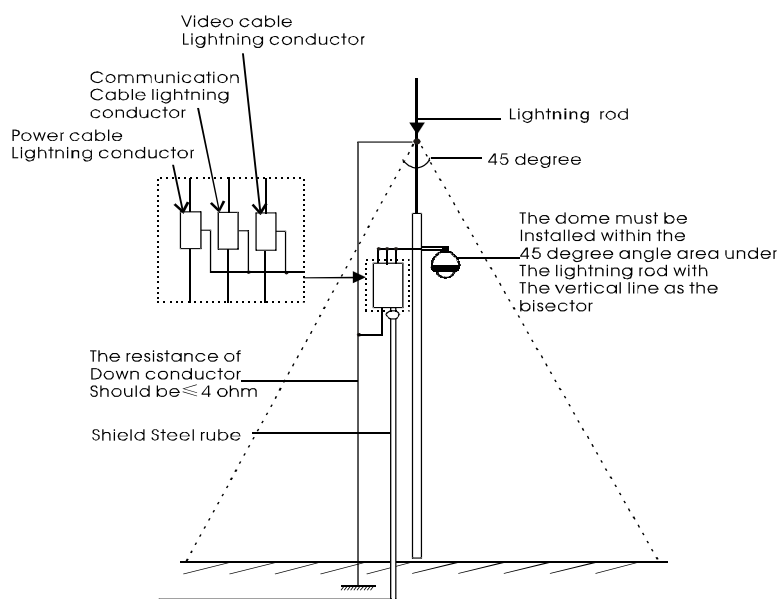
## Appendix I: Lightning Protection & Surge protection

The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical



## HD-SDI High Speed Dome Camera

safety requirements and must not short circuited with high voltage electricity net. When the system is grounded separately, the impedance of down conductor should be less than 4 Ohms and the sectional area of down conductor should be greater than 25 square mm (refer to following picture).



### Appendix II: The Cleaning Of Down Cover:

Use soft dry cloth or the substitute to clean the inner and outer surfaces.

For hard contamination, use neutral detergent. Any cleanser for high grade furniture is applicable.

### Appendix III: RS485 Bus Basic Knowledge:

#### 1. Characteristics of RS485 Bus

As specified by RS485 standards, RS485 Bus is of half-duplex data transmission cables with characteristic impedance as 120 Ohm. The maximum load capacity is 32 unit loads (including main controller and controlled equipment).

#### 2. Transmission distances of RS485 Bus

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

Baud Rate	Transmission Distance (Max.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

If user selects thinner cables, or installs the dome in an environment with strong electromagnetic interference, or connects lots of equipment to the RS485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

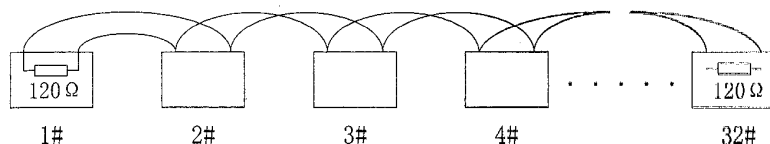
#### 3. Connection and termination resistor

3-1 The RS485 standards require a daisy-chain connection between the equipment.

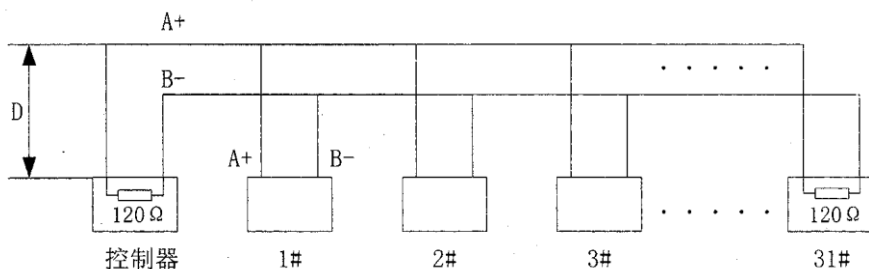
There must be termination resistors with 120 Ohm impedance at both ends of the connection (refer to following pictures).

# HD-SDI High Speed Dome Camera

Please refer to below picture for simple connection. Distance "D" should not exceed 7 meters.



(Picture 1)



(Picture 2)

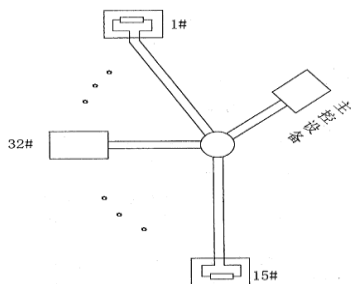
### 3-2 The connection of 120 Ohm termination resistor:

The termination resistor is ready on the Protocol PCB. There are two kinds of connection. Please refer to the Protocol PCB jumper setting form (refer to following pictures).

- 1) In the Picture it is the factory default connection. The jumper is seated on Pin2&Pin3 and the termination resistor is not connected.
- 2) when connecting the 120 Ohm termination resistor, user should pull out the protocol PCB and plug the jumper on Pin1&Pin2. Install the PCB back and the termination resistor is connected. (**Appendix 9:** 5、RS-485 terminal resistor connection and operation )

## 4. Problems in practical connection

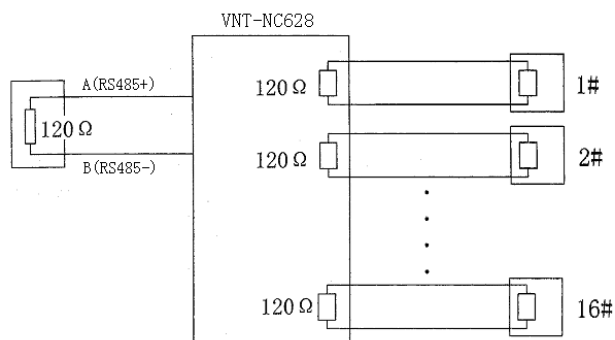
In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment that are farthest away from each other, such as equipment 1# and 15# in the Picture as below. As the star configuration is not in conformity with the requirements of RS485 standards, problems such as signal reflections, lower anti-interference performance arise when the cables are long in the connection. The reliability of control signals is decreased with the phenomena that the dome does not respond to or just responds at intervals to the controller, or does continuous operation without stop. ( refer to the following picture).



(Picture 3)

In such circumstances the factory recommends the usage of RS485 distributor. 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 following picture).

# HD-SDI High Speed Dome Camera



(Picture 4)

### Appendix IV: 24V AC Wire Diameter and Transmission Distance Chart:

The transmission distance listed below are farthest ones recommended for each given wire diameter when the 24V AC voltage loss ratio is below 10% (for equipment powered by AC, the allowed maximum voltage loss ratio is 10%). For example, a set of equipment with nominal power as 80VA, installed 35 feet (10m) away from transformer, needs a wire with a minimum diameter of 0.8000mm.

Transmission Distance feet(m) Power VA	Wire Diameter (mm)			
	0.8000	1.000	1.250	2.000
10	283 (86)	451 (137)	716 (218)	1811 (551)
20	141 (42)	225 (68)	358 (109)	905 (275)
30	94 (28)	150 (45)	238 (72)	603 (283)
40	70 (21)	112 (34)	179 (54)	452 (137)
50	56 (17)	90 (27)	143 (43)	362 (110)
60	47 (14)	75 (22)	119 (36)	301 (91)
70	40 (12)	64 (19)	102 (31)	258 (78)
80	35 (10)	56 (17)	98 (27)	226 (68)
90	31 (9)	50 (15)	79 (24)	201 (61)
100	28 (8)	45 (13)	71 (21)	181 (55)
110	25 (7)	41 (12)	65 (19)	164 (49)
120	23 (7)	37 (11)	59 (17)	150 (45)
130	21 (6)	34 (10)	55 (16)	139 (42)
140	20 (6)	32 (9)	51 (15)	129 (39)
150	18 (5)	30 (9)	47 (14)	120 (36)
160	17 (5)	28 (8)	44 (13)	113 (34)
170	16 (4)	26 (7)	42 (12)	106 (32)
180	15 (4)	25 (7)	39 (11)	100 (30)
190	14 (4)	23 (7)	37 (11)	95 (28)
200	14 (4)	22 (6)	35 (10)	90 (27)

## HD-SDI High Speed Dome Camera

### Appendix V: Wire Diameter & Transmission Comparisons Chart:

Bare wire diameter Metric Size (mm)	AWG (Approximate)	SWG (Approximate)	Bare wire cross-sectional area (mm <sup>2</sup> )
0.050	43	47	0.00196
0.060	42	46	0.00283
0.070	41	45	0.00385
0.080	40	44	0.00503
0.090	39	43	0.00636
0.100	38	42	0.00785
0.110	37	41	0.00950
0.130	36	39	0.01327
0.140	35		0.01539
0.160	34	37	0.02011
0.180	33		0.02545
0.200	32	35	0.03142
0.230	31		0.04115
0.250	30	33	0.04909
0.290	29	31	0.06605
0.330	28	30	0.08553
0.350	27	29	0.09621
0.400	26	28	0.1237
0.450	25		0.1602
0.560	24	24	0.2463
0.600	23	23	0.2827
0.710	22	22	0.3958
0.750	21		0.4417
0.800	20	21	0.5027
0.900	19	20	0.6362
1.000	18	19	0.7854
1.250	16	18	1.2266
1.500	15		1.7665
3.000			7.0683
2.500			4.9080
2.000	12	14	3.1420

## HD-SDI High Speed Dome Camera

### Appendix VI: Trouble Shooting

Trouble	Possible Causes	Solution
<p>No action, no video after power on</p>	<p>If the red LED on the power board in the housing not lit, causes may be:</p> <ol style="list-style-type: none"> <li>1. The 24V AC power supply is not connected to the port of the power board or the contactation is not good</li> <li>2. The municipal power supply has been cut off or the 24V AC transformer is in malfunction</li> </ol> <p>If the red LED on the power board in the housing is not lit, causes may be:</p> <ol style="list-style-type: none"> <li>1. Fuse is bad or it is not installed</li> <li>2. The MOLEX is not connected to RJ45 or the connection is not good in contact; the power PCB is not connected to receiver PCB or the connection is not good in contacts</li> <li>3. 24V AC transformer outputs voltage is too low</li> <li>4. The power PCB is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Check if the power supply is connected, or confirm if the plug contacts well</li> <li>2. Check to see if the municipal power supply has been cut off. Check to see if the 24V AC transformers is ok.</li> </ol> <ol style="list-style-type: none"> <li>1. Replace the fuse. The fuse is a 4-ampere one</li> <li>2. Check and confirm all the wire connections are correct and good in contact</li> <li>3. Use a voltmeter to check the voltage load to the dome. If the voltage is less tan 24V AC, the voltage is not applicable</li> <li>4. Please contact factory or distributor for replacement of power PCB</li> </ol>
<p>Self-testing and image are normal but the dome is uncontrollable</p>	<ol style="list-style-type: none"> <li>1. The dome DIP switch setting is incorrect</li> <li>2. The two poles of the control cables are connected wrongly or the connection is open</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset the DIP switches according to the DIP switch chart</li> <li>2. Check the control cables and confirm the connection is correct and good in contact</li> </ol>
<p>Fan does not function</p>	<ol style="list-style-type: none"> <li>1. Wire connection of fan is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the fan wire. If the fan still does not function, contact the distributor or factory</li> </ol>
<p>Vague image</p>	<ol style="list-style-type: none"> <li>1. Manual focus has been set</li> <li>2. Unclean down cover</li> </ol>	<ol style="list-style-type: none"> <li>1. Operate dome or call any preset</li> <li>2. Clean the down cover</li> </ol>

# HD-SDI High Speed Dome Camera

## Appendix VII: Preset Position Function Table

Preset position	Function Specification	
	Pick Up" N" number preset position	Set "N" number reset position
80	Startup No.2 group Preset position Scan (No.17-32 preset position)	Home position ON
81	Startup No.3 group Preset position Scan (No.33-48 preset position)	Home position OFF
82	Startup No.4 group Preset position Scan (No.49-64 preset position)	Set home position for 5 seconds
83	Startup No.5 group Preset position Scan (No.65-80 preset position)	Set Home position for 10 seconds
84	Startup No.6 group Preset position Scan (No.81-96 preset position)	Digital Zoom ON
85	Startup No.7 group Preset position Scan (No.97-112 preset position)	Digital Zoom OFF
86	Startup No.8 group Preset position Scan (No.113-128 preset position)	Auto Flip ON
87	Startup low speed two points Scan [359°]	Auto Flip OFF
88	Startup middle speed two points Scan [359°]	
89	Startup high speed two points Scan [359°]	
90		
91		
92	Set the beginning point of two points scan	Alarm association cancel
93	Set the end point of two points scan	
<b>95</b>		<b>Enter camera menu</b>
96	Startup low speed auto scan[360°]	Menu Cursor Up
97	Startup middle speed auto scan[360°]	Menu Cursor Down
98	Startup No.1 group Preset position Scan (No.1-No.16 preset position)	Menu Data Choose
99	Start high speed auto scan [360°]	Menu Data confirmation

## HD-SDI High Speed Dome Camera

---

### Appendix VIII: Technology Parameter

Model No	SDI Camera
Signal System	SD: NTSC/PAL
Image sensor	1/3-type Exmor TM CMOS imager
Resolution	HD-SDI 1080P
Video Input	HD: 1080p/29.97, 1080p/25, 1080i/59.94, 1080i/50, 720p/50, 720p/29.97, 720p/25
Horizontal Viewing Angle	54.1° (wide end) to 2.9° (tele end)
S/N	≥50DB
Illumination	Less than 1.7 lx (F1.6, 50 IRE), 0.5 lx in High Sensitivity Mode
Sync System	Internal
AGC	Auto/Manual
Wide Dynamic Range	Auto/Manual
Lens	20x Optical Zoom, f=4.7 mm (wide) ~ 94.0 mm (tele), F1.6 to F3.5
Digital Zoom	12x
Minimum Illumination	Less than 1.7 lx (F1.6, 50 IRE), 0.5 lx in High Sensitivity Mode
Preset position	128
Auto Cruise group	8 groups
Communication	RS485 control
Baud Rate	2400bps、4800bps、9600bps
Address Code Range	0-255
Input Voltage	24VAC
Power supply	20W(without heater) /50w (with heater)
Temperature	-25°C-70°C(Without heater) /-50°C-70°C(with heater)
Humidity	≤95% No condensing
Housing Size	6 Inch