
WELCOME

Thank you for using our high speed dome. This state-of-the-art speed dome will fulfill your wide range professional security surveillance need.

Features:

- 220 presets, 4 sequences with up to 30 presets each, 4pattern with min. 180 seconds each, 4autoscan, 8 regions.
- Auto runing, runs the assigned function automatically after a period of idling.
- Up to 8 privacy masks.
- With dome, preset, pattern, autoscan and region titles, the titles can be set to not display, display or display for a period of time.
- Powerful OSD menu, all the functions can be set via OSD menu.
- With RS485, Manchester, Bi-phase or Coaxitron control interface, support Factory, VCL, PELCO-P, PELCO-D, PELCO-C, PHILIPS, VICON, KALATEL, AMERICAN DYNAMICS, MOLYNX, PANASONIC etc. protocols.
- Built in DSP camera, with auto focus, auto BLC, auto light control, auto white balance etc. functions.
- Color/mono auto, manual or switch at a set time. (for day/night models).
- With 4000V video, data, power lightning proof and surge proof.
- Hi-accuracy motor drives with 0.5 degree preset accuracy, min. 0.5 degree moving without any vibration.
- 360 degree continuous pan, 90 degree tilt with auto flip.
- IP66 standardized for outdoor speed dome.

DECLARATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of FCC rules and European Union 89/336/EEC directive and its latest amended version. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in that case the user will be required to correct the interference at his own expense. Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under CE and FCC rules.

Precautions:

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. Do install the speed dome to appropriate environment (Refer to the chart below). This product conforms to IP66 standard as specified in "Housing Protection Classification (IP code)".
5. 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.
6. Keep all the original dome package materials in case of future repacking and transportation.

Model	Indoor	Outdoor
Maximum Temp Range	-10 °C~+50°C	-40 °C~+60°C
Humidity	<90%	<90%
Air Pressure	86~106KPa	86~106KPa
Power Supply	AC24V/1.25A, 50/60Hz	AC24V/2.5A, 50/60Hz

Warnings:

1. **DO NOT** install this speed dome in hazardous places where combustible or explosive materials are stored or used.
2. **DO NOT** install indoor dome in outdoor environment.
3. This speed dome runs on 24V AC. **DO NOT** connect higher or lower voltage to it.
4. **DO NOT** turn power on before completing installation.
5. **DO NOT** disassemble any part of the items.
6. Use soft towel to clean the down cover when necessary. **DO NOT** use caustic detergent.
7. To protect CCD, **avoid** facing the camera to direct strong light. e.g the sun.

INSTALLATION PREPARATION

Tools Lists:

You may need following tools for the installation:
Screws and nuts, Philips screw driver, Small slotted screw driver, Wire cutter, Ladder, Drill, Saw.

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)

RS485 Cable

0.56mm (24AWG) twisted pair's maximum transmission distances are as follows.

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

NOTE: Use RS485 distributor if you need to transmit further. To learn more about RS485, refer to appendix III.

DIP switches and jumpers settings

Refer to appendix I to set the followings:

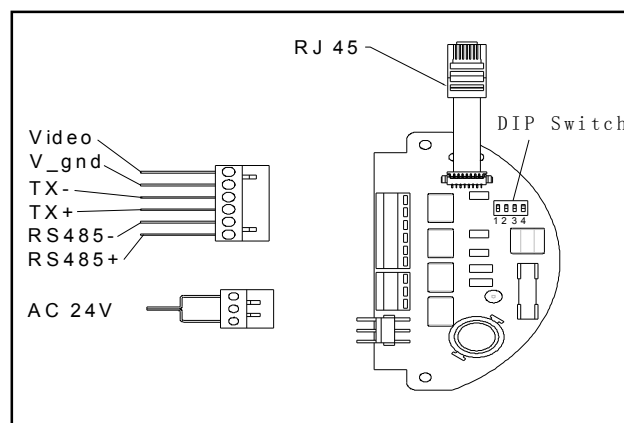
Protocol and Baud rate

Dome address

Video cable type

RS485 termination resistor

Wiring Diagram for video & RS485 and Power



Video: video signals

V_gnd: video ground signals

TX-/TX+: RS422 communication pattern and send signals

RS485-/RS485+: receive signals

AC 24v: AC power supply

INSTALLATION TYPE GUIDE

High speed dome is categorized into the following types :

- 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
- 5) Parapet Mount

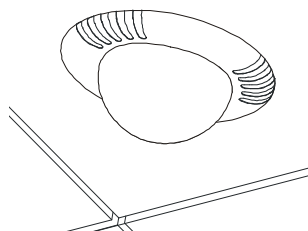
NOTE: Installation site should be able to withstand at least 4 times the weight of the dome.

Type	Weight (kg/lb)
Surface Dome	2.20kg (4.85lb)
Indoor Ceiling Dome	2.43kg (5.35lb)
Indoor Dome (excluding bracket)	2.93kg (6.45lb)
Outdoor Dome (excluding bracket)	3.78kg (8.33lb)
Pendant Bracket	1.53kg (3.37lb)
Wall Bracket	1.25kg (2.75lb)
Corner Bracket	1.90kg (4.19lb)
Pole Bracket	1.20kg (2.64lb)
Parapet Bracket	6.50kg (14.33lb)

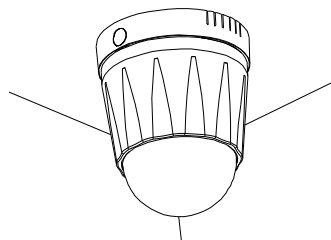
NOTE: Bracket mount dome is classified into indoor and outdoor type. Comparing to indoor type, outdoor type is featured with extra sun-shield housing and temperature sensor, as well as conforming to IP66 standard.

WARNING: DO NOT install indoor dome in outdoor environment.

In-ceiling Mount

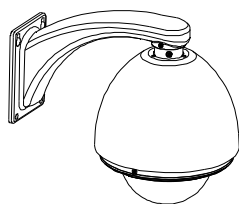


Surface Mount

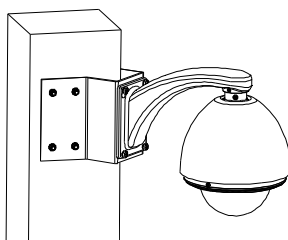


Bracket Mount

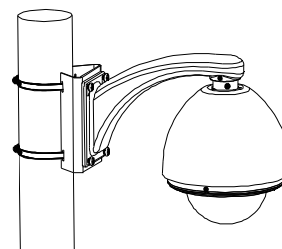
1. Wall Mount



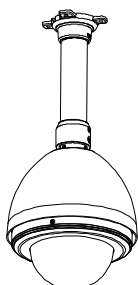
2. Corner Mount



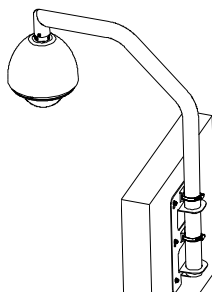
3. Pole Mount



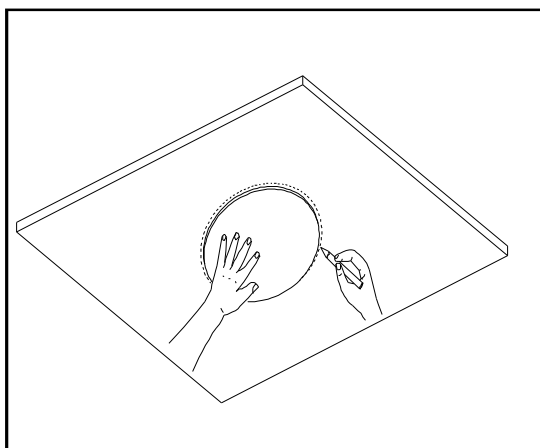
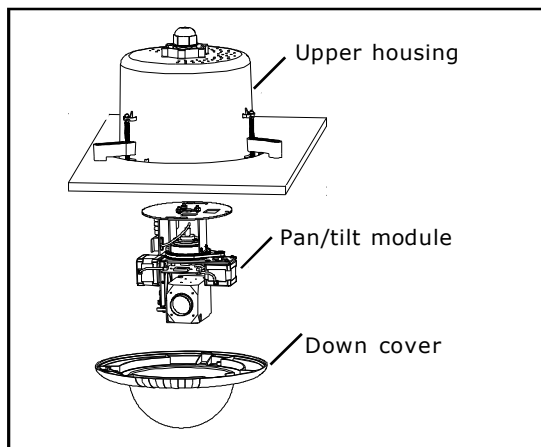
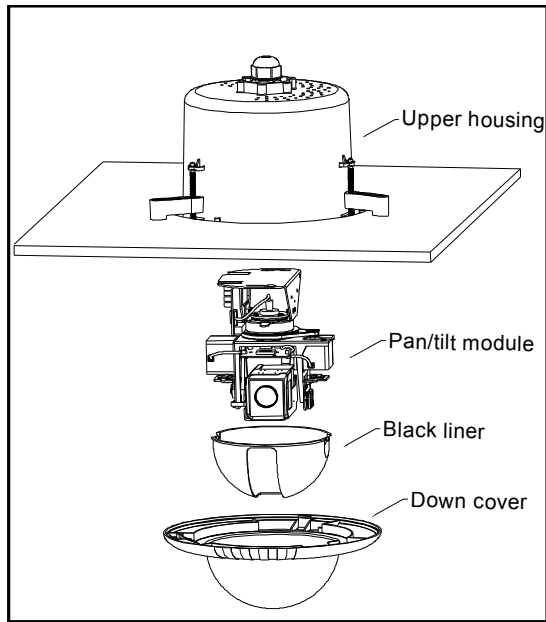
4. Pendant Mount



5. Parapet Mount



In-Ceiling Mount



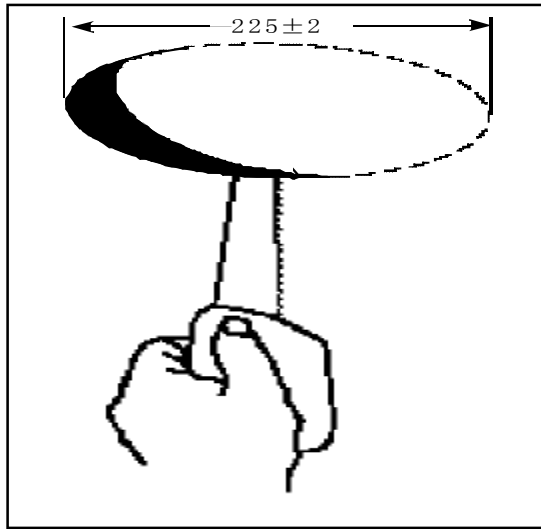
Installation requirements:

1. The thickness of the ceiling should be less than 42mm
2. The ceiling should be able to bear 4 times the weight of the speed dome.
3. Upper space should be at least 20cm high.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Draw a circle on ceiling

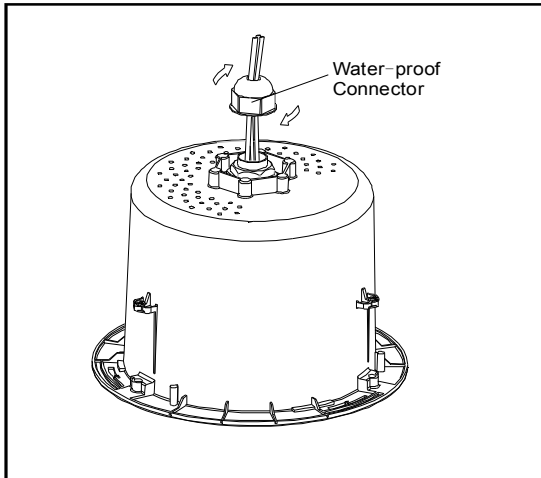
Determine the installation position and draw a circle on the ceiling according to the accessory paper pattern. The paper pattern's diameter is 225mm.



2 Cut circle off

Use a saw or proper tool to cut off the circle.

NOTE: MAKE SURE the diameter of the circle is 225 ± 2 mm before cutting the circle off.



3 Prepare cables

Pass the connection cables (Power/RS485/Video) through the water-proof connector and the top of housing, and then securely tighten the connector.

4 Connect cables

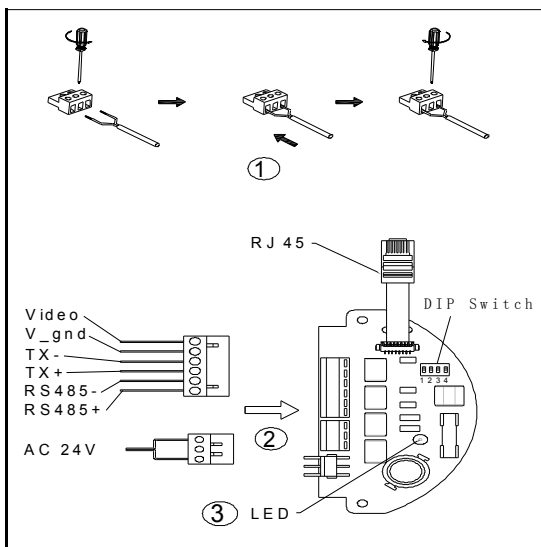
Insert cables into corresponding sockets on connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

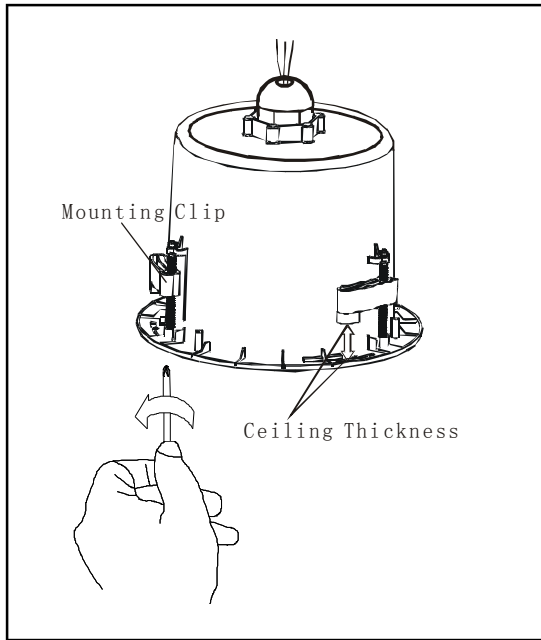
The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

NOTE:

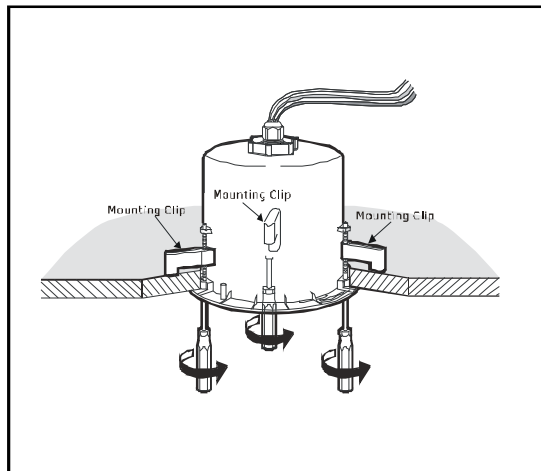
- There are signs for each port. Connect cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.
- Two video transmission interfaces are available on the dome. Please connect video cable with corresponding interface as your requirement.





5 Adjust clips

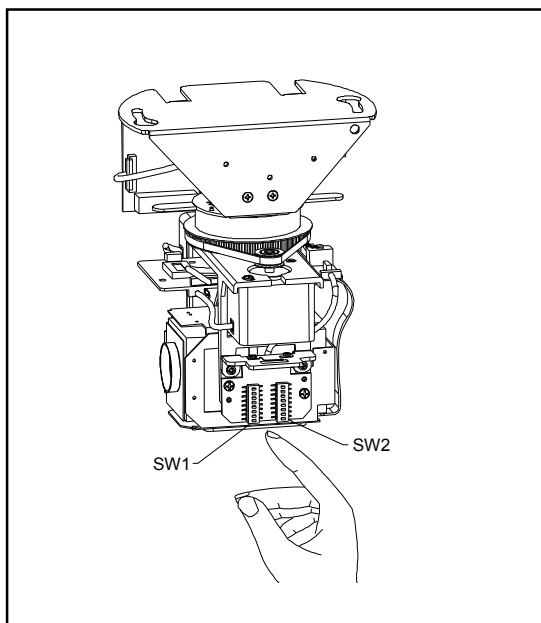
Adjust the height of the three mounting clips. Swing the three mounting clips to cling them to the housing.



6 Install housing

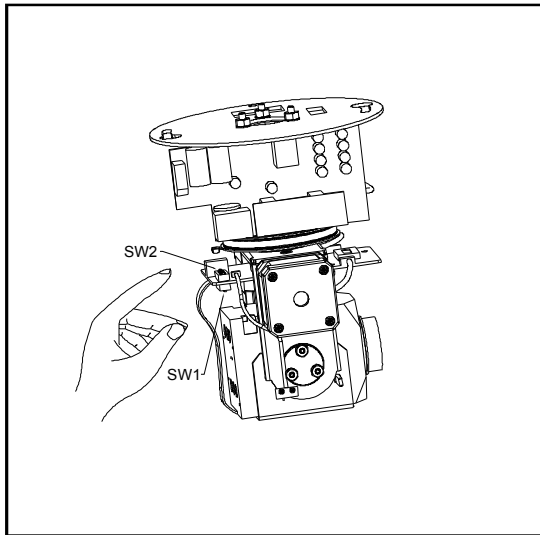
Push housing into ceiling and let the clips stretch out. Finally, screw the three clips to tighten the housing.

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



7 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (please refer to APPENDIX I).



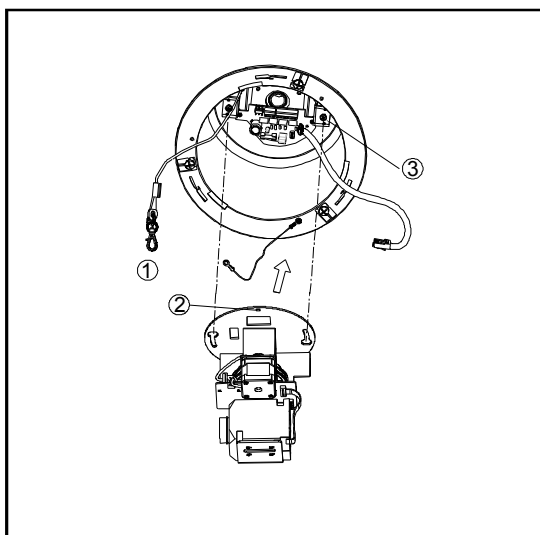
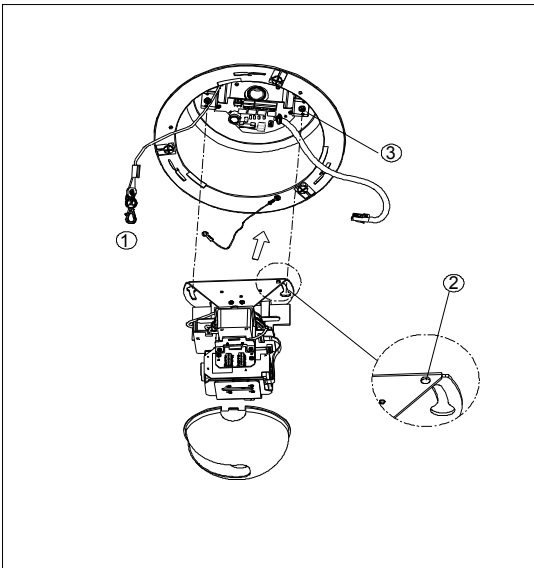
8 Install Pan/Tilt module and black liner

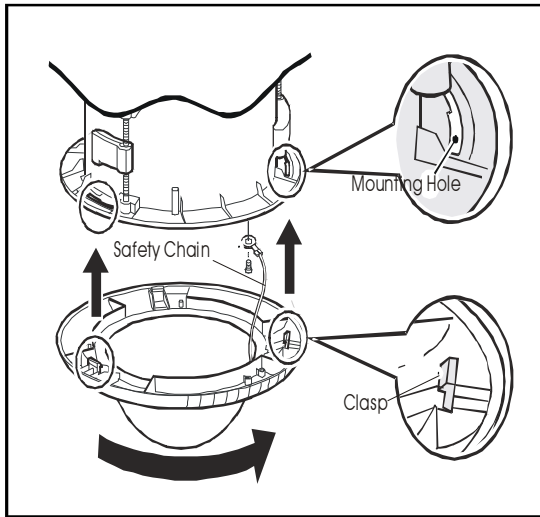
Take down the key ring ① from connection bridge in the housing and button hole ② on the base board with the key ring.

Loosen two screws ③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws. ③

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

NOTE: When the dome module is installed, please turn on the power to make sure the dome module is in good condition.





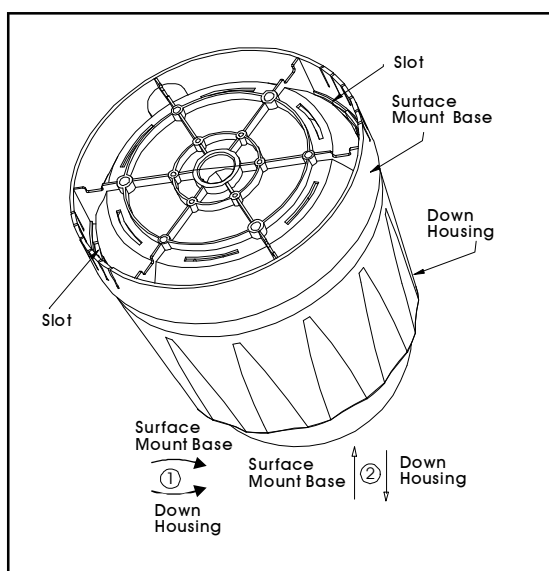
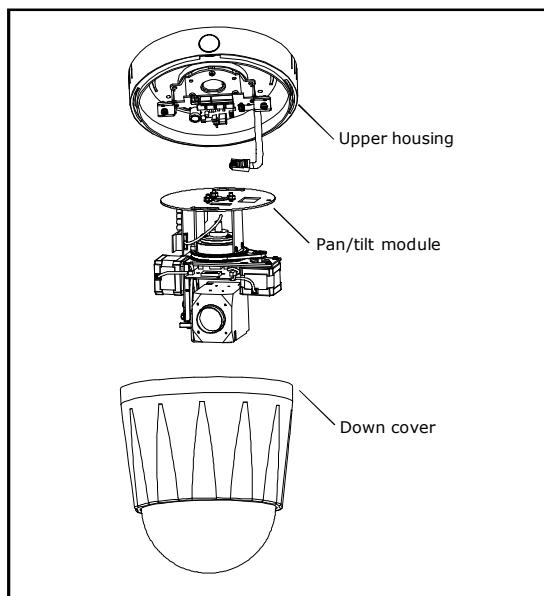
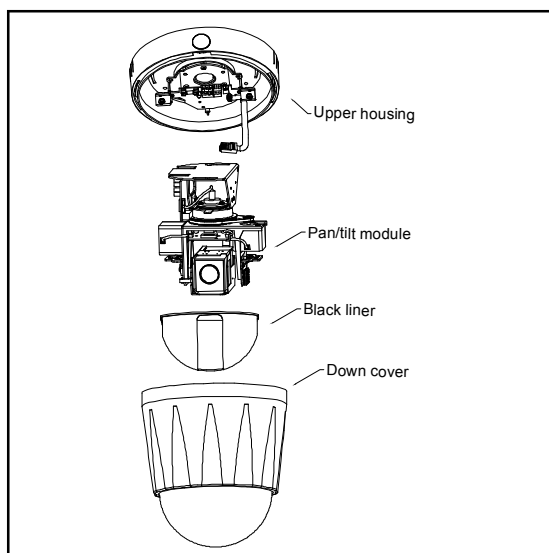
9 Install down cover

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

NOTE:

- Let the safety chain inside the arc groove of the down cover, otherwise it may scratch the lens.
- If you find it difficult to fit in the down cover, try to readjust the three clips.

Surface Mount



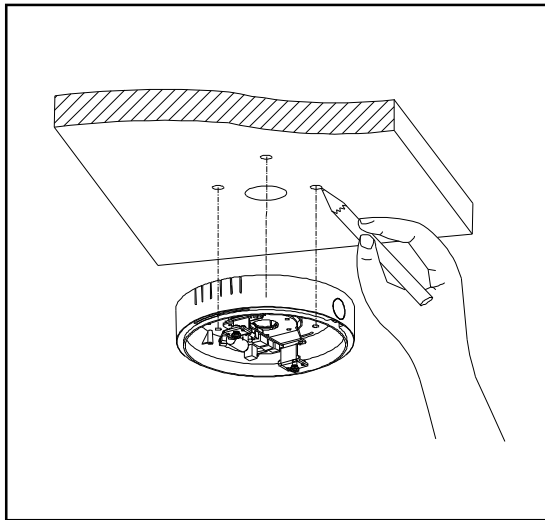
Installation requirements:

1. The ceiling should be hard and solid.
2. The ceiling should be able to bear 4 times the weight of the speed dome.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Detach down housing

Turn down housing anticlockwise and pull down the down housing.



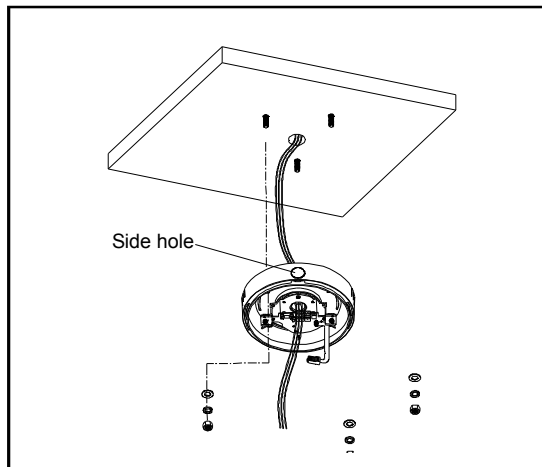
2 Mark screws positions

Using the surface mount base as a template to mark the fastener positions on the ceiling, and then drill 3 holes.

3 Install the surface mount base

Pass the Power/RS485/Video cables through the central hole of surface mount base and fix them on the ceiling.

NOTE: Wires can be also passed through the side hole of surface mount base.



4 Connect the cables

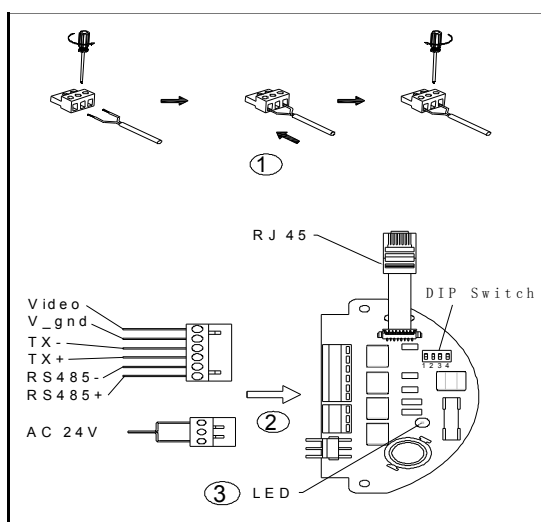
Insert cables into corresponding sockets on connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

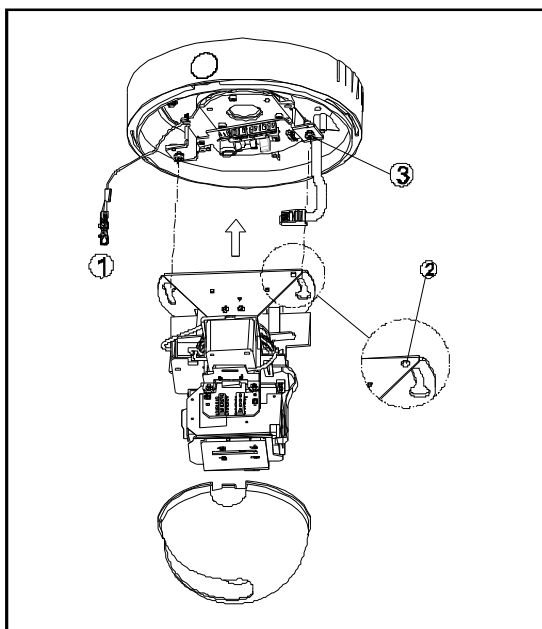
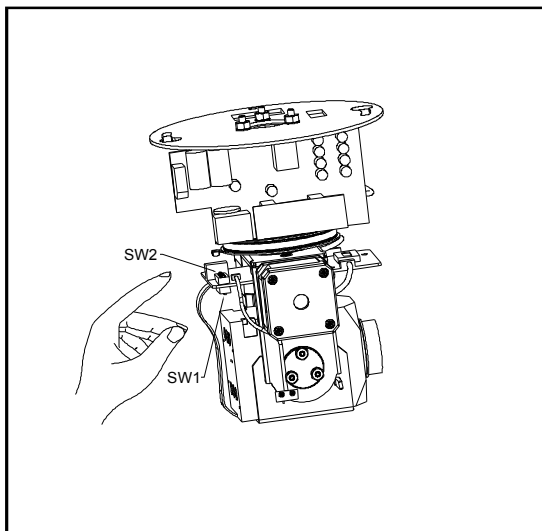
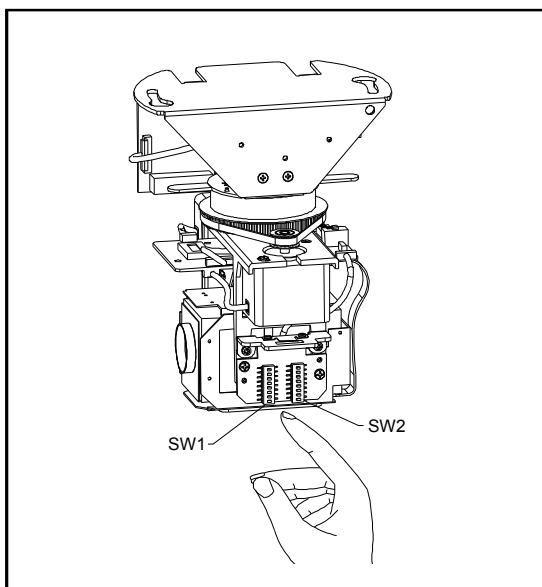
The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

NOTE:

- There are signs for each port.cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.
- Two video transmission interfaces are available on th dome. Please connect video cable with correspond- ing interface as your requirement.





5 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (refer to APPENDIX I). .

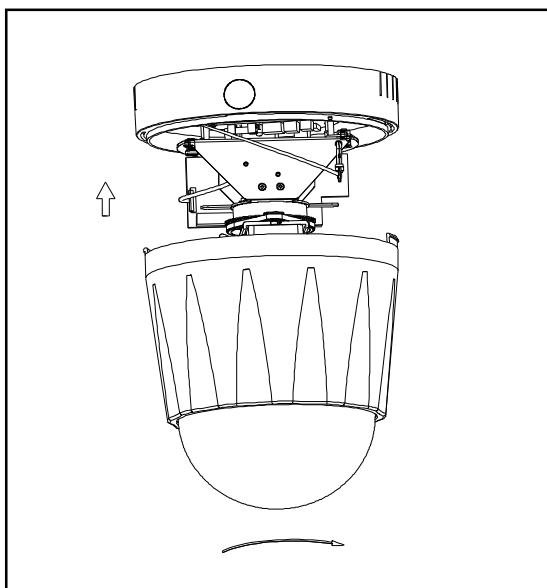
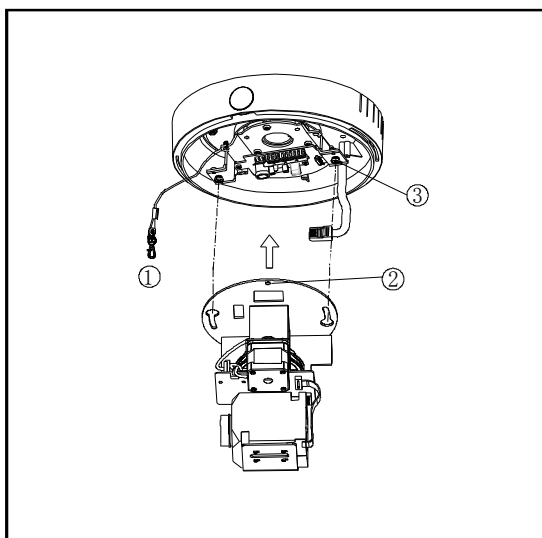
6 Install Pan/Tilt module and black liner

Take down the key ring① from connection bridge in the housing and button hole② on the base board with the key ring.

Loosen two screws③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws③

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

NOTE: When the dome module is installed, please power on to make sure the dome module is in good condition.

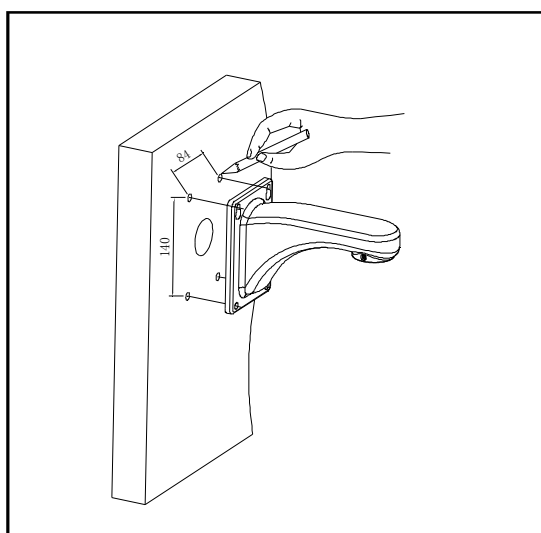
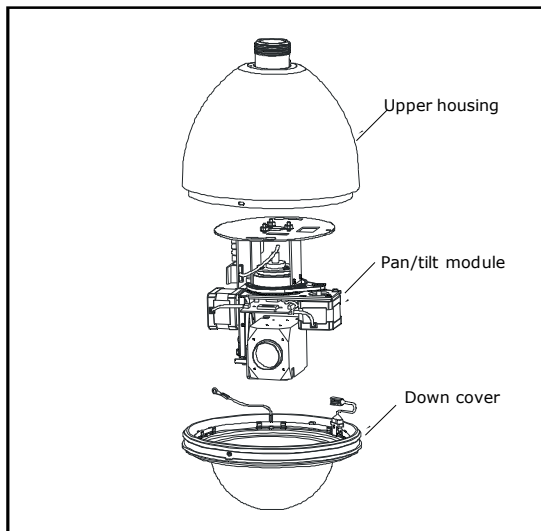
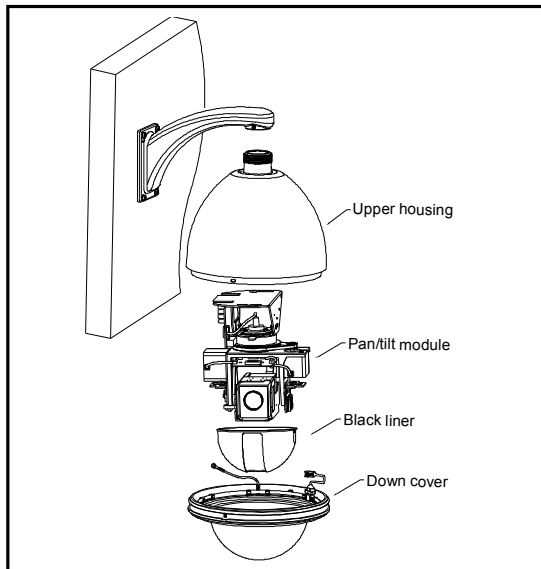


7 Install down housing

Match the tabs of down cover into the slots and turn anti-clockwise so as to fix the down housing.

NOTE: Check if it is tightly installed.

Wall Mount



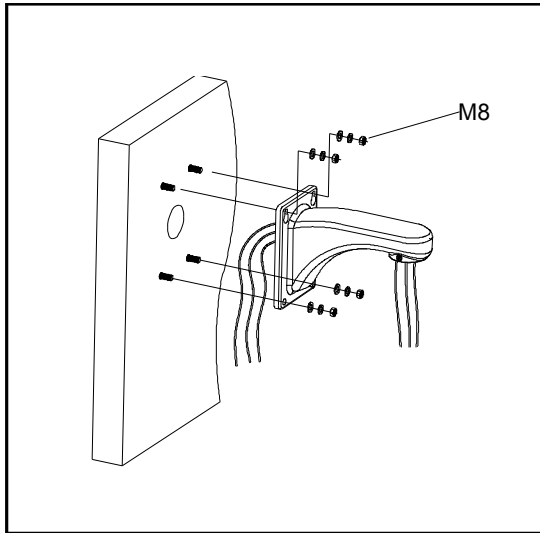
Installation requirements:

The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Mark screws positions

Take the bracket base as the template to mark the screws positions on the wall, and then drill the holes to insert expansion screws.



2 Install bracket

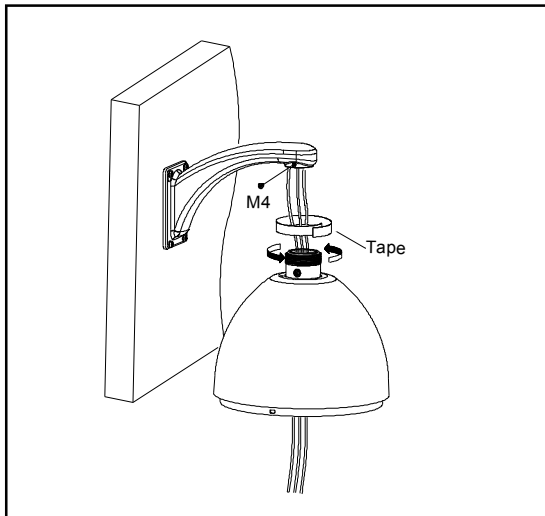
Pass the Power/RS485/Video cables through the cavity of the bracket, and then install bracket on the wall.

NOTE: Pass the cables through the wall or aside the bracket.

3 Install housing

Wind the accessory waterproof tape around the connecting part of the housing, and then pass the cables through the housing, finally screw the housing clockwise into the bracket and tighten the M4 screw.

NOTE: Apply silicon to the gap between the bracket and the wall in the event of outdoor dome.



4 Connect cables

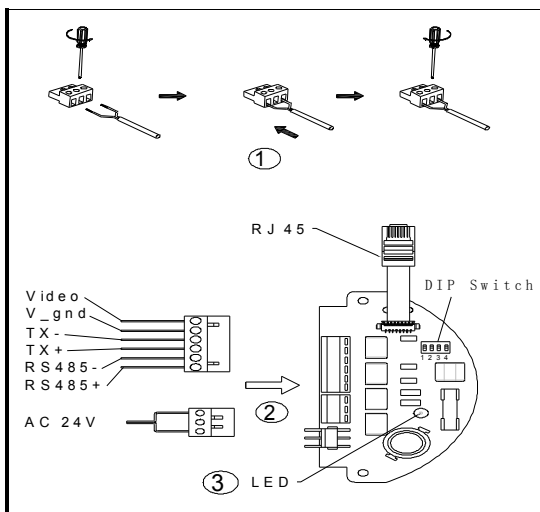
Insert cables into corresponding sockets on connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

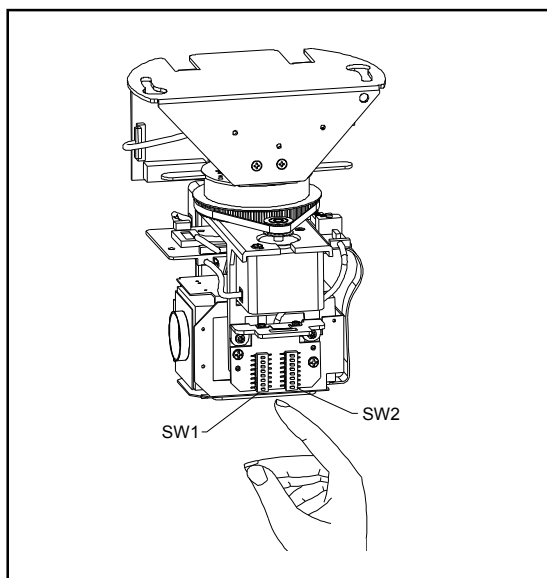
The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
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Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

NOTE:

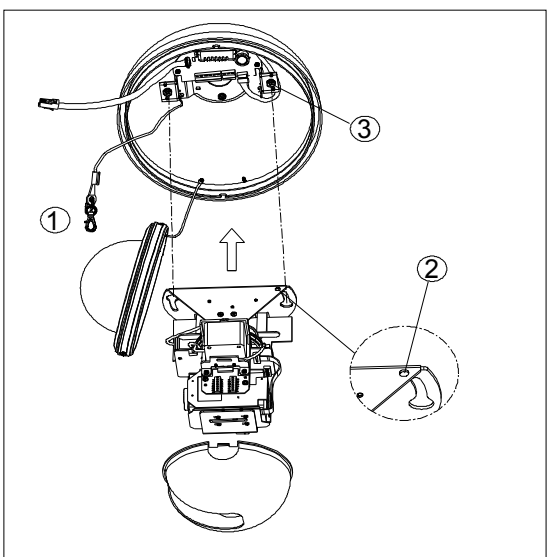
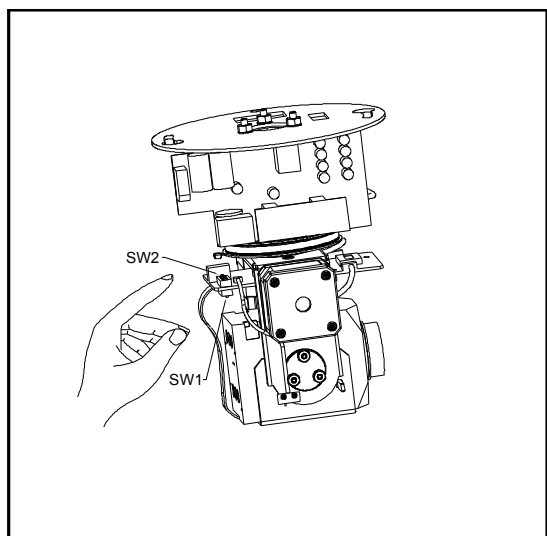
- There are signs for each port. Connect cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.
- Two video transmission interfaces are available on th dome. Please connect video cable with corresponding interface as your requirement.





5 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (please refer to APPENDIX I).



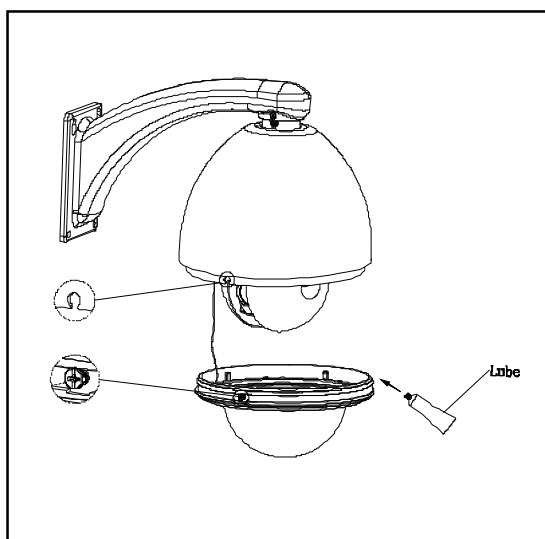
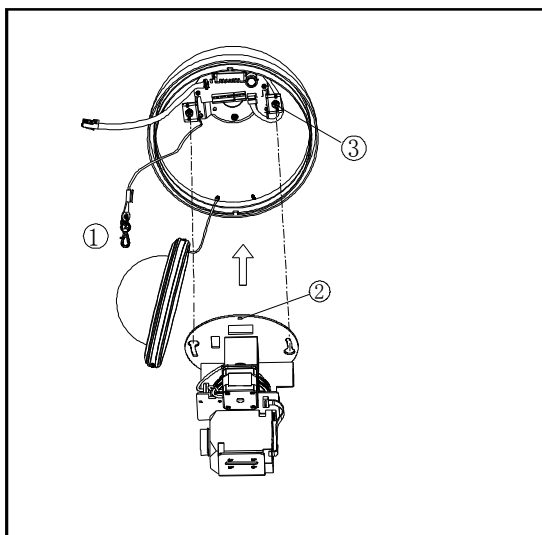
6 Install Pan/Tilt module and black liner

Take down the key ring① from connection bridge in the housing and button hole② on the base board with the key ring.

Loosen two screws③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws③

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

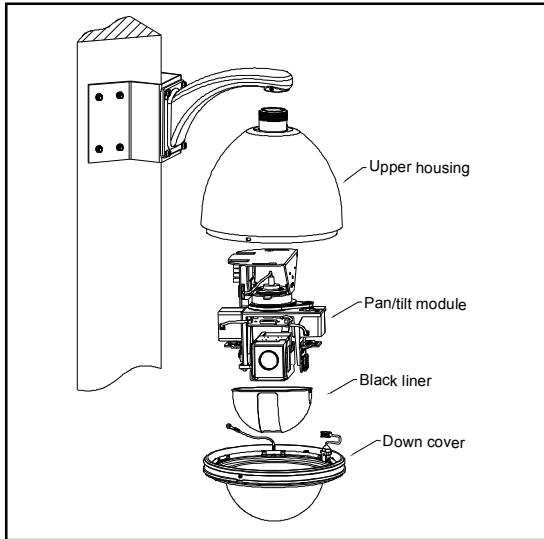
NOTE: When the dome module is installed, please power on to make sure the dome module is in good condition.



7 **Install down cover**

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

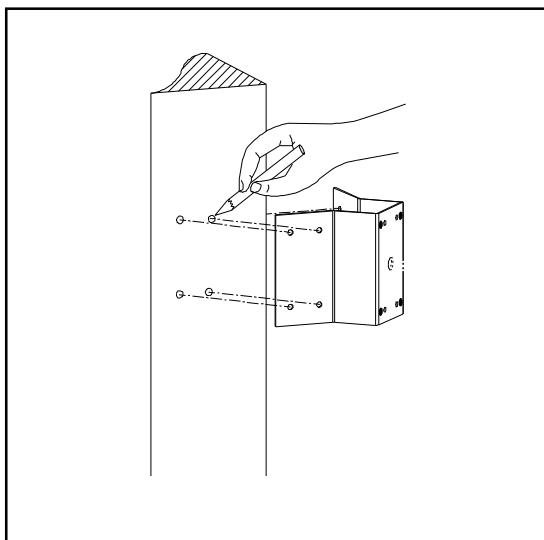
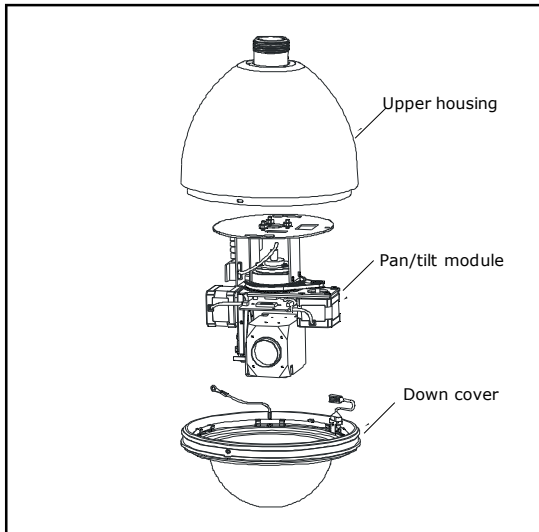
Corner Mount



Installation requirements:

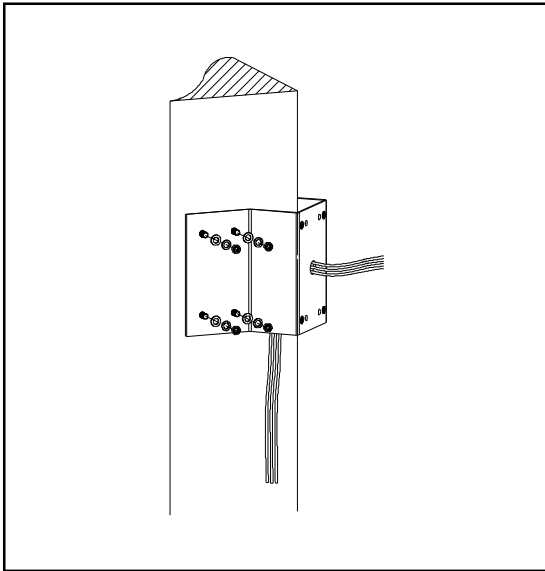
The corner mounting surface must be firm to bear 4 times the weight of the speed dome.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.



1 Mark screws positions

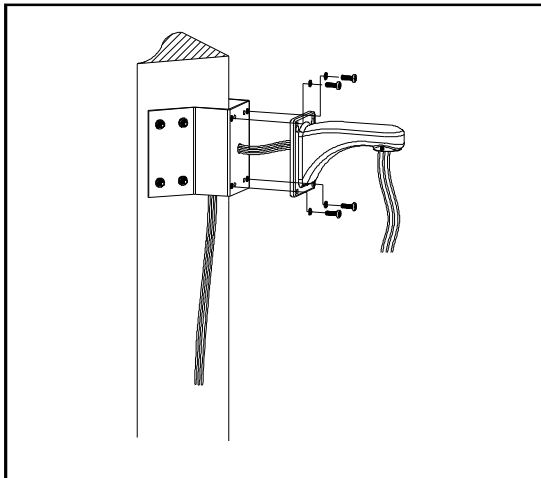
Take the bracket base as the template to mark the screws positions on the wall, and then drill the holes to insert expansion screws.



2 Install base

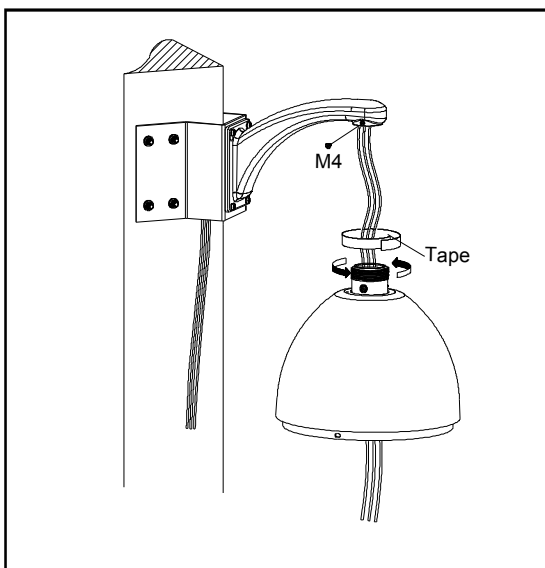
Pass the Power/RS485/Video cables through the hole of corner base and use M8 nuts to fasten the corner base on the mounting surface.

NOTE: Pass the cables through the wall or aside the corner base.



3 Install bracket

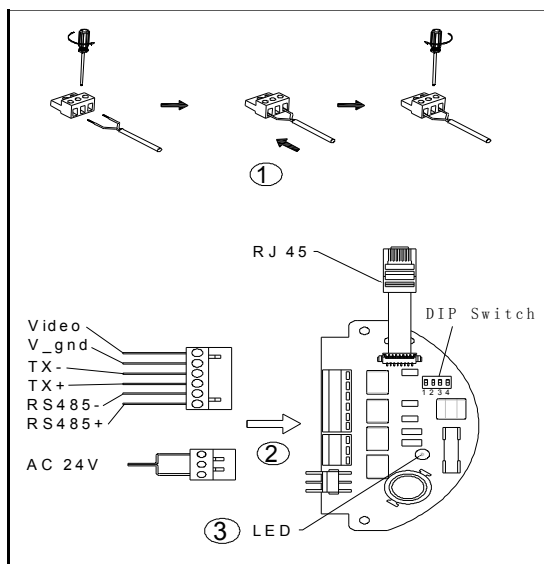
Pass the cables through the cavity of bracket and fasten bracket on the base.



4 Install housing

Wind the accessory waterproof tape around the connecting part of the housing, and then pass the cables through the housing, finally screw the housing clockwise into the bracket and tighten the M4 screw.

NOTE: Apply silicon to the gap between the bracket and the wall in the event of outdoor dome.



5 Connect cables

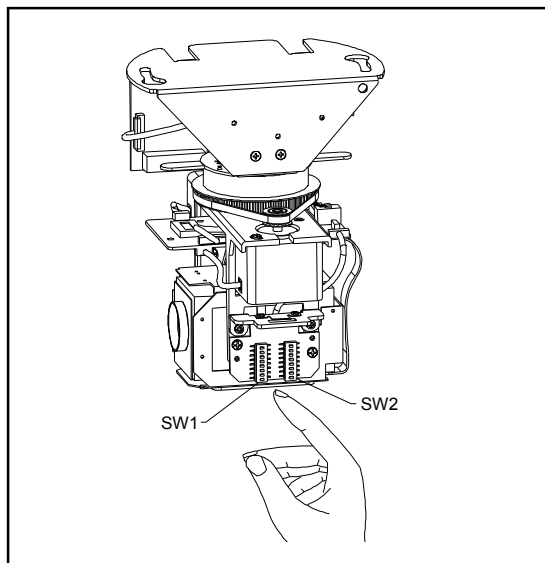
Insert cables into corresponding sockets on connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

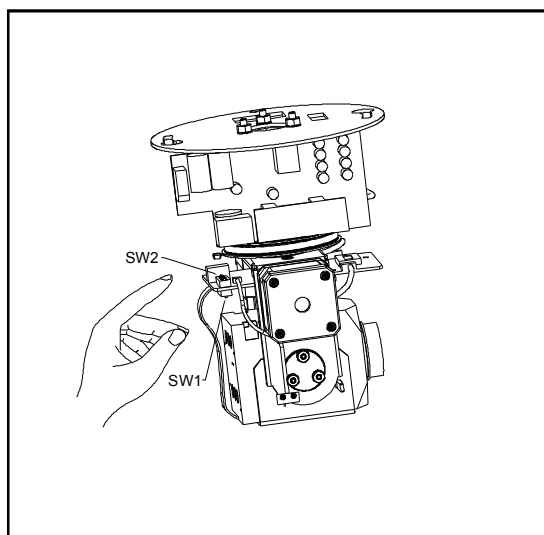
NOTE:

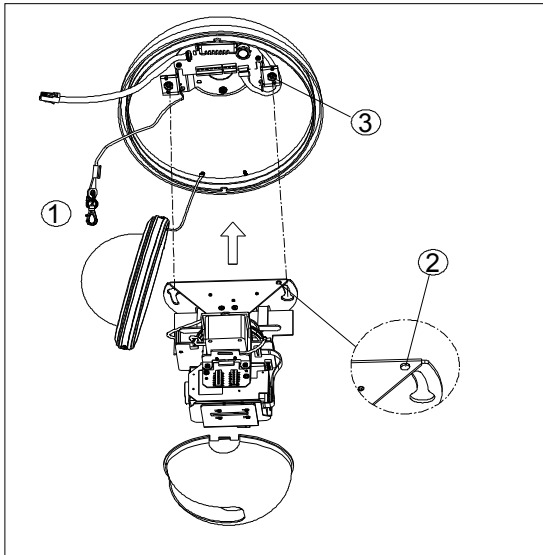
- There are signs for each port. Connect cables as picture showed in page 3. Please **MAKE SURE** power is off before doing connection.
- Two video transmission interfaces are available on the dome. Please connect video cable with corresponding interface as your requirement.



6 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (please refer to APPENDIX I).





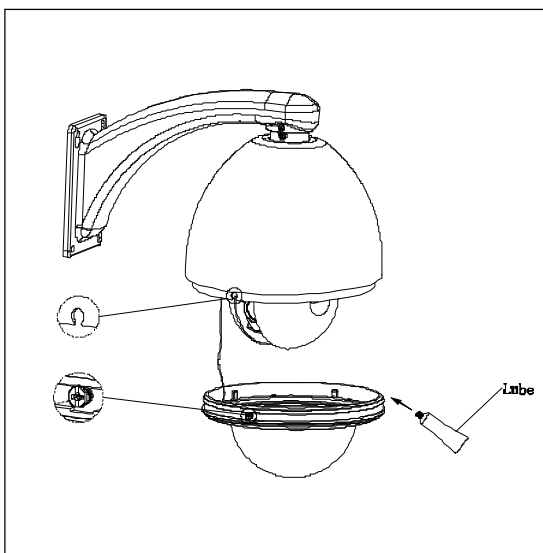
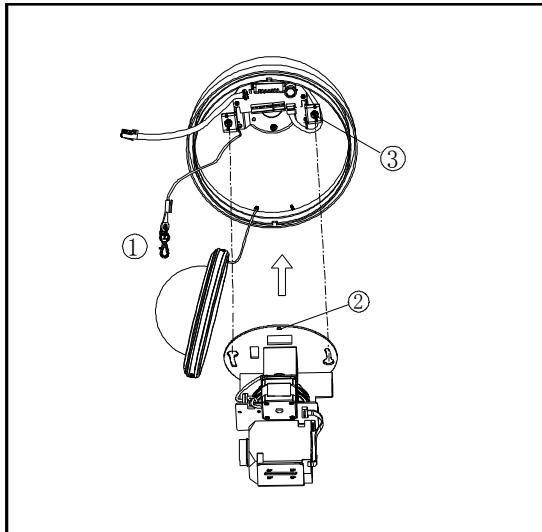
7 Install Pan/Tilt module and black liner

Take down the key ring ① from connection bridge in the housing and button hole ② on the base board with the key ring.

Loosen two screws ③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws.

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

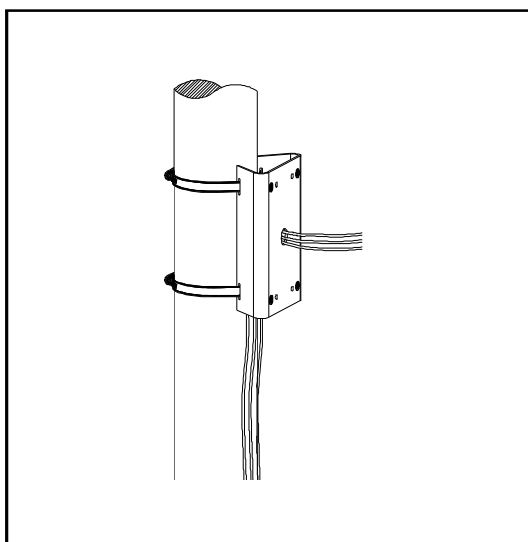
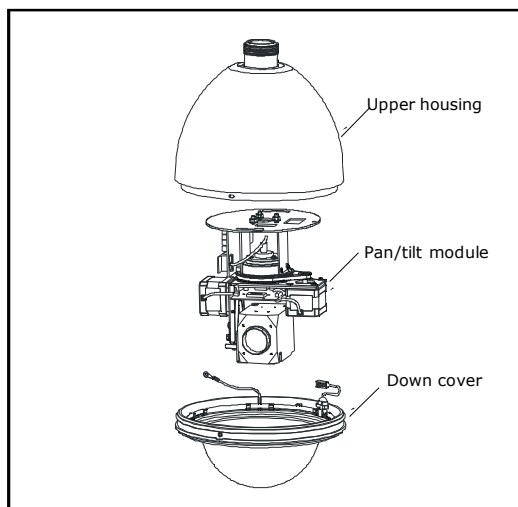
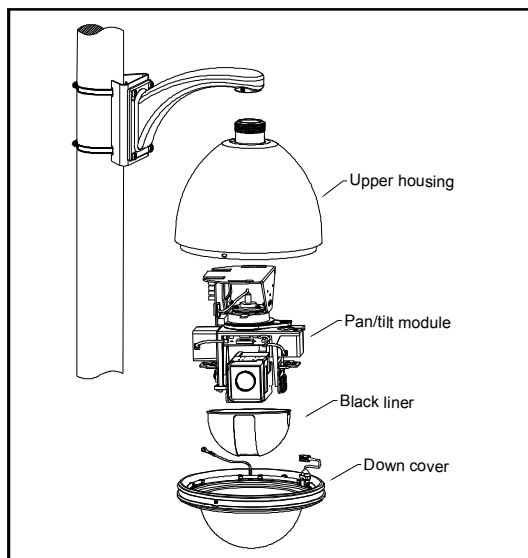
NOTE: When the dome module is installed, please power on to make sure if the dome module is in good condition.



8 Install the down cover

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

Pole Mount



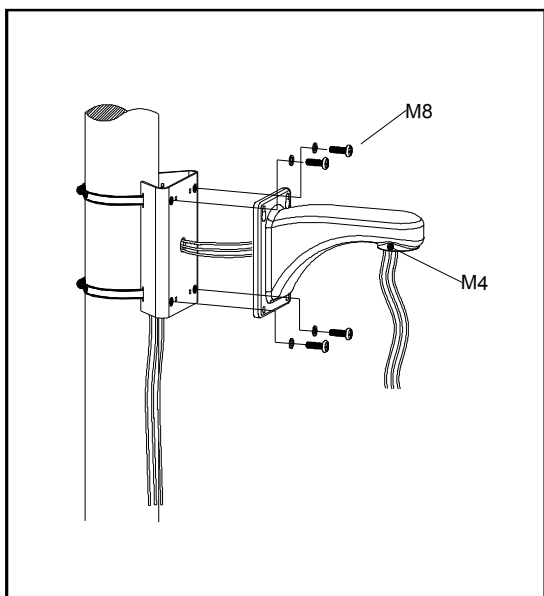
Installation requirements:

The outside diameter of the pole must be in the range of 130-150mm (5.12 ~6 inches).

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Install base

Mount the pole adaptor to the pole with two mounting clamps. Pass the Power/RS485/Video cables through the central hole of the bracket base, and then fix them around the pole.



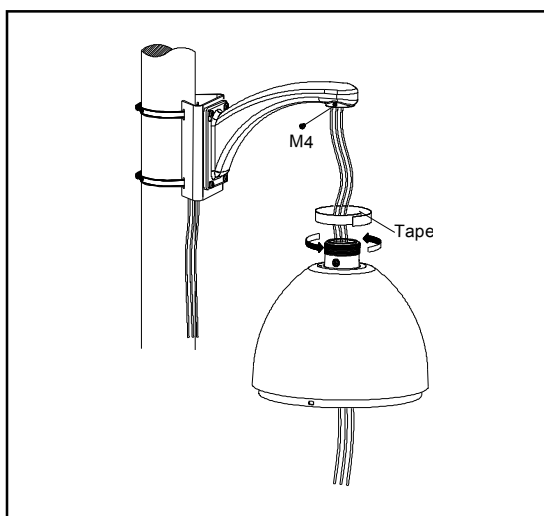
2 Install wall mount bracket

Pass the cables through the cavity of wall mount bracket and fasten them on the base.

3 Install housing

Wind the accessory waterproof tape around the connecting part of the housing, and then pass the cables through the housing, finally screw the housing clockwise into the bracket and tighten the M4 screw.

NOTE: Apply silicon to the gap between the bracket and the wall in the event of outdoor dome.



4 Connect cables

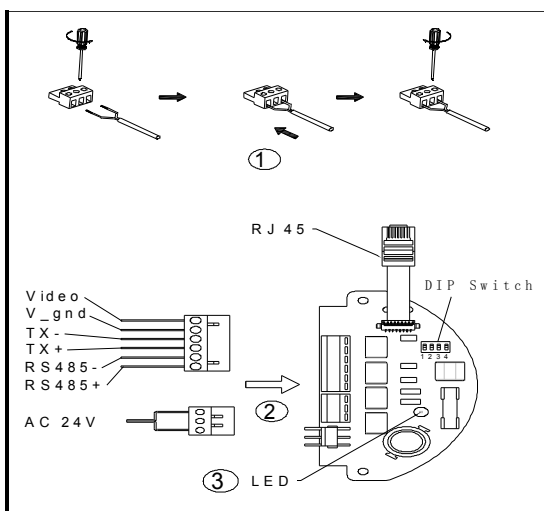
Insert the cables into corresponding sockets on the connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

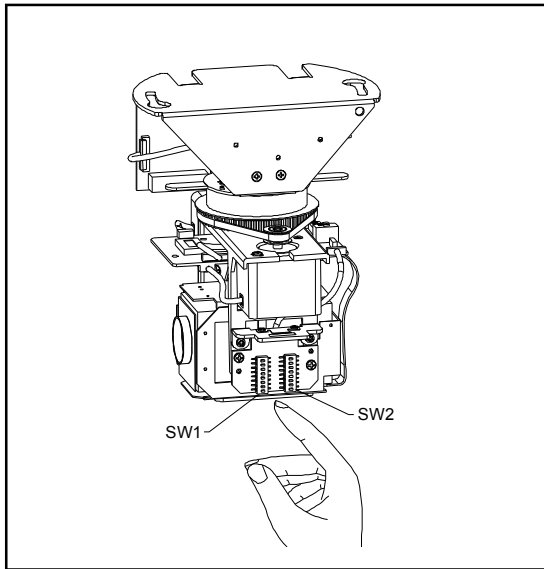
The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

NOTE:

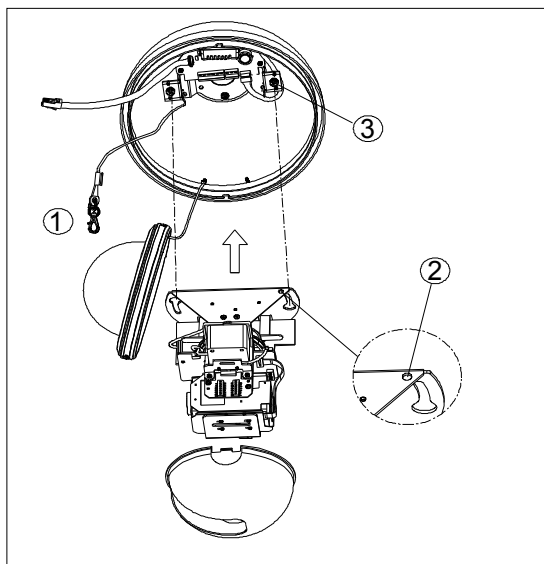
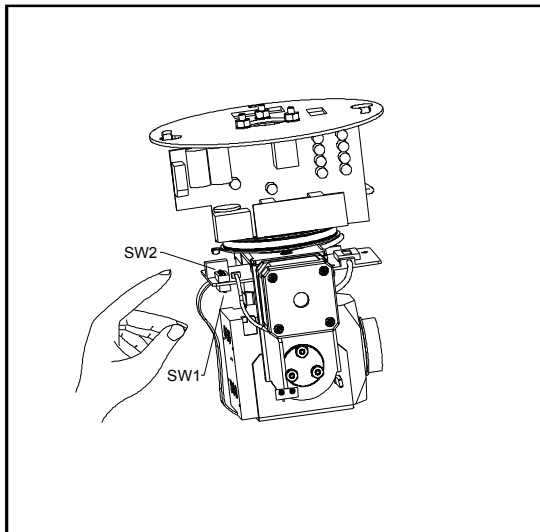
- There are signs for each port. Connect cables as picture showed in page 3. Please **MAKE SURE** power is off before doing connection.
- Two video transmission interfaces are available on the dome. Please connect video cable with corresponding interface as your requirement.





5 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (please refer to APPENDIX I).



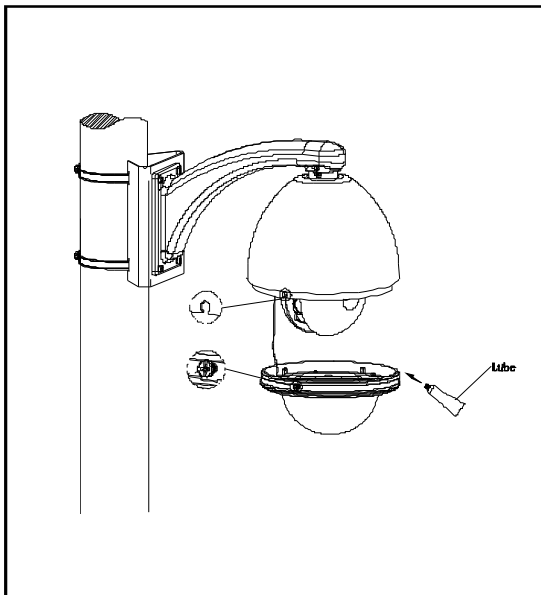
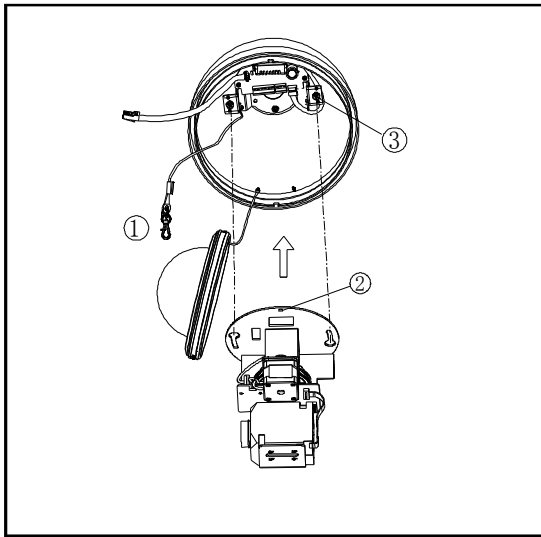
6 Install Pan/Tilt module and black liner

Take down the key ring ① from connection bridge in the housing and button hole ② in the base board with the key ring.

Loosen two screws ③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws. ③

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

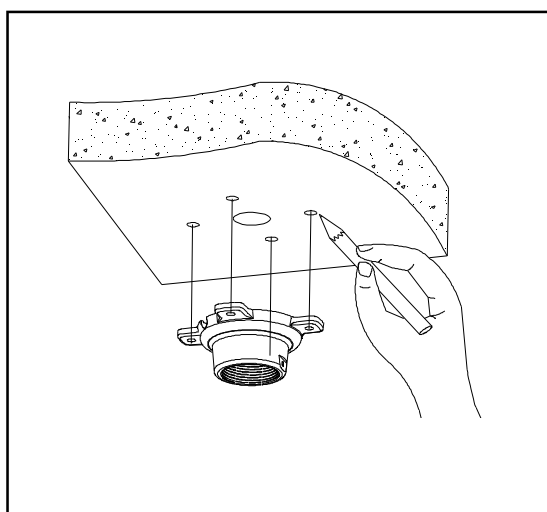
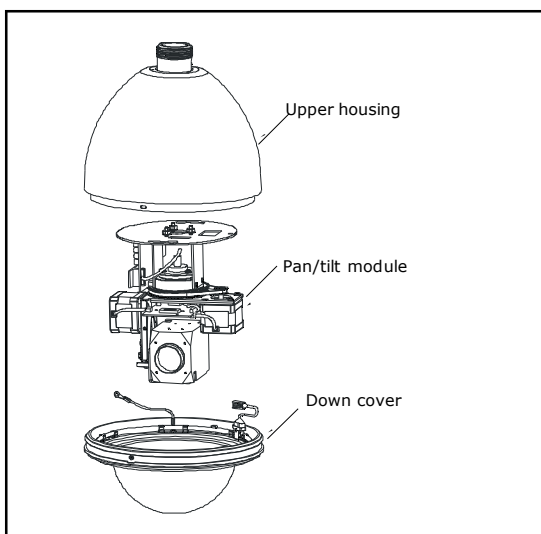
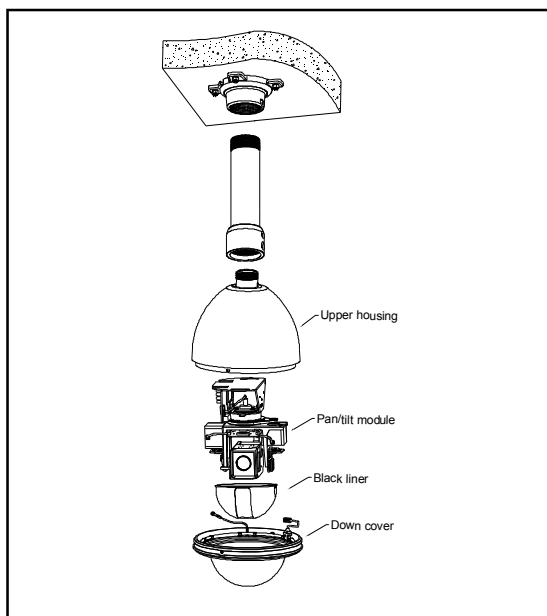
NOTE: When the dome module is installed, please power on to make sure the dome module is in good condition.



7 **Install down cover**

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

Pendent Mount



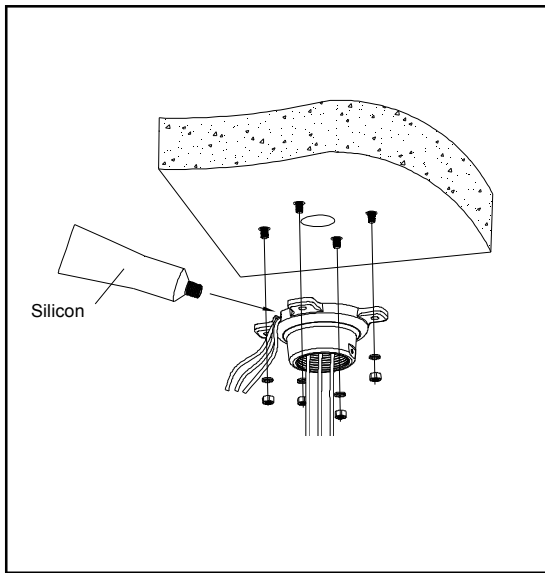
Installation requirements:

The ceiling must be firm enough to bear 4 times the weight of the speed dome.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Mark screws positions

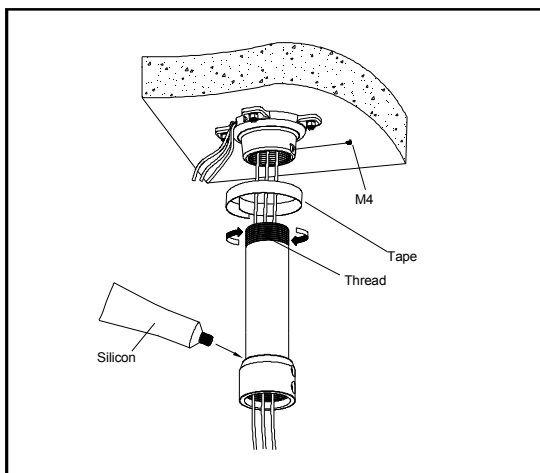
Take the bracket base as the template to mark the screws positions on the wall, and then drill the holes to insert expansion screws.



2 Install base

Pass the Power/RS485/Video cables through the central hole of the bracket base, and then fix them on the ceiling.

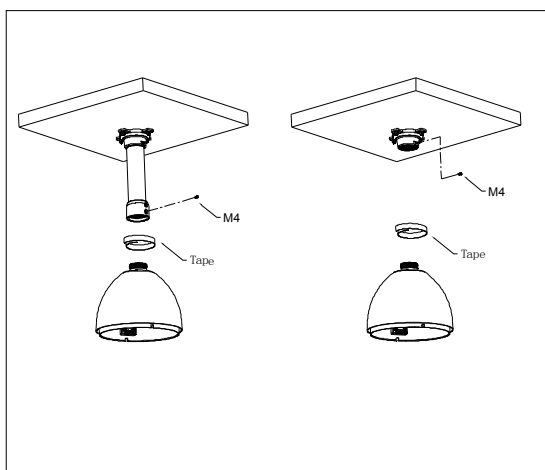
NOTE: Apply silicon along the top of bracket base in the case of outdoor dome.



3 Install suspender

Put the cables through the cavity of the suspender, wind the water-proof tape to the thread, screw the thread pipe headed into the bracket base and finally tighten the M4 screw.

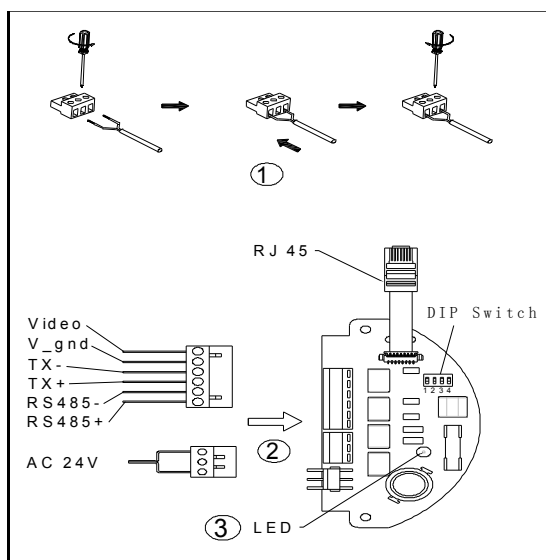
NOTE: Apply silicon to the suspender as shown in the left illustration in the event of outdoor dome.



4 Install housing

Wind the waterproof tape around the connecting part of the housing, and then put the cables through the housing, finally screw the housing clockwise into the bracket and tighten the M4 screw.

NOTE: Apply silicon to the gap between the bracket and the wall in the event of outdoor dome.



5 Connect cables

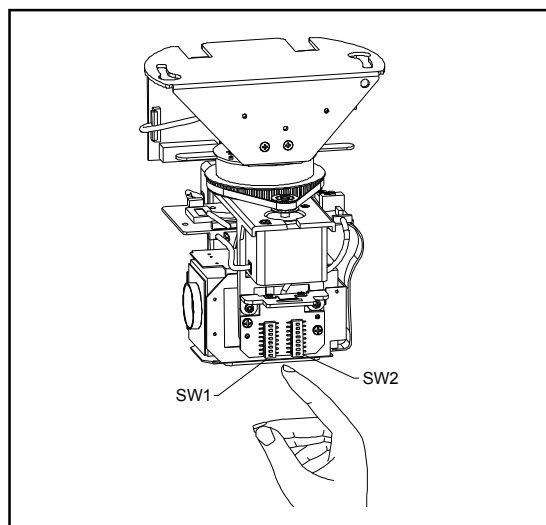
Insert cables into corresponding sockets on connection board. After completing cable connection, turn on the power. The red LED will light up. Turn off the power after checking. If the red LED is not lit up, check the cable connection.

The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

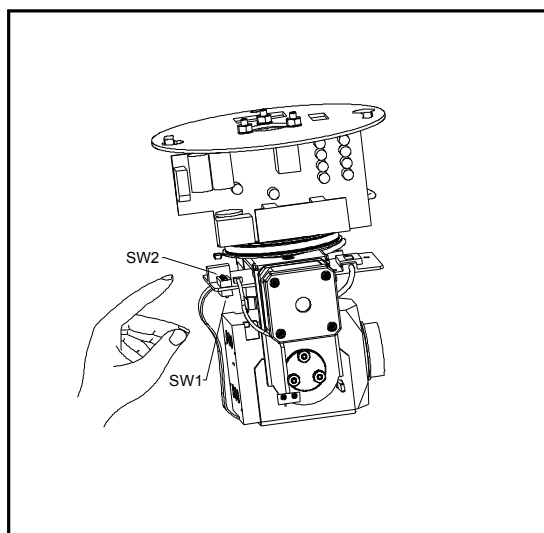
NOTE:

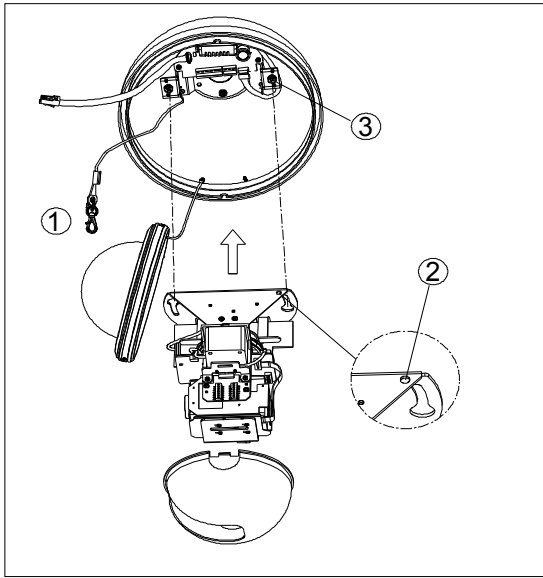
- There are signs for each port. Connect cables as picture showed in page 3. Please MAKE SURE power is off before doing connection.
- Two video transmission interfaces are available on the dome. Please connect video cable with corresponding interface as your requirement.



6 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (please refer to APPENDIX I).





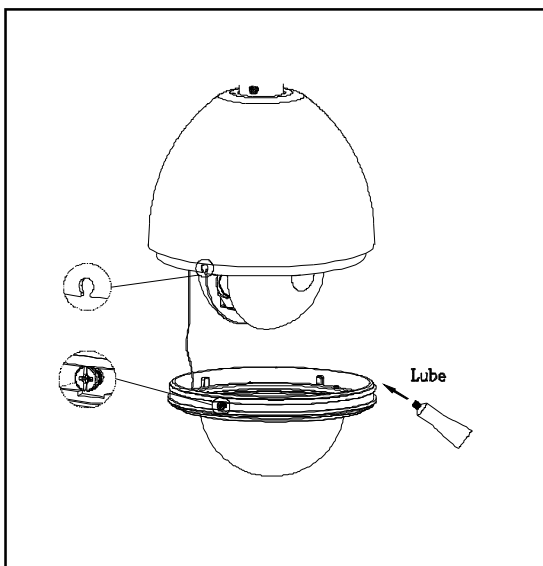
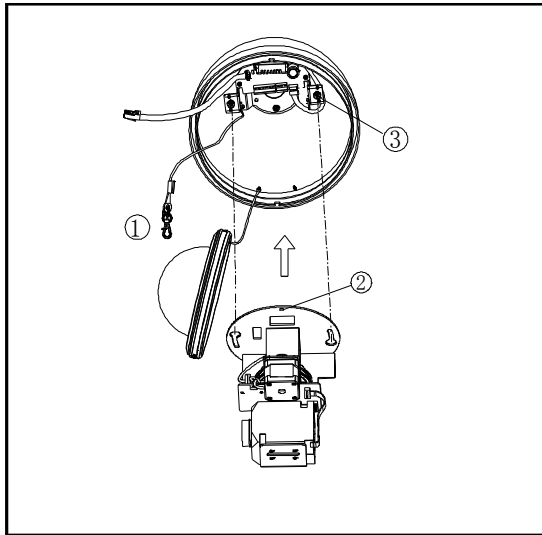
7 Install Pan/Tilt module and black liner

Take down the key ring (1) from connection bridge in the housing and button hole (2) on the base board with the key ring.

Loosen two screws (3) and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws (3).

Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

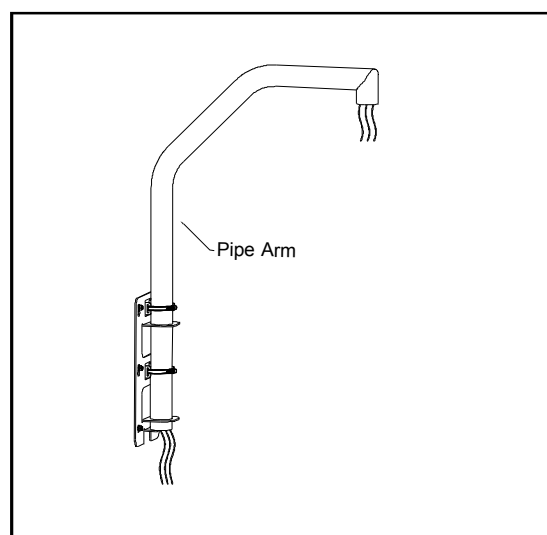
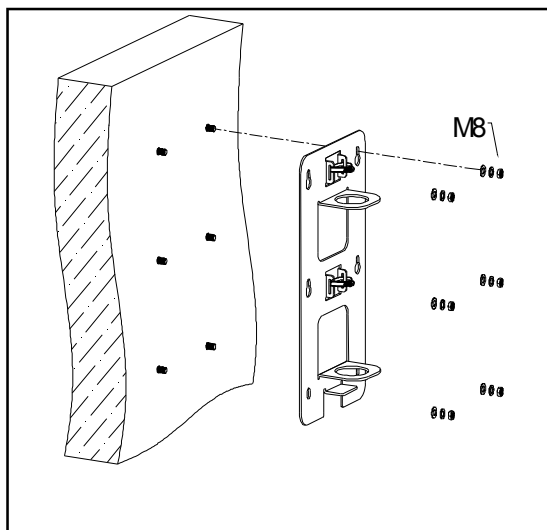
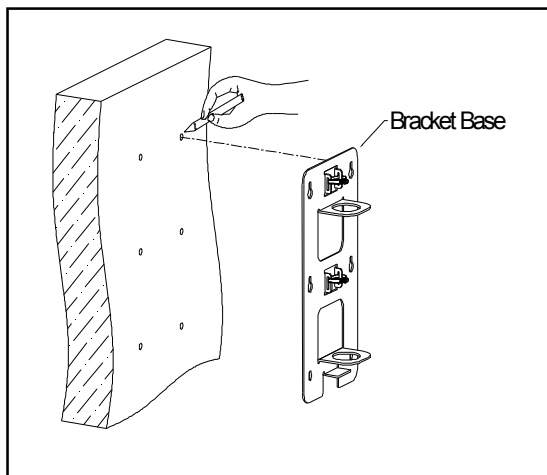
NOTE: When the dome module is installed, please power on to make sure the dome module is in good condition.



8 Install the down cover

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

Parapet Mount



Installation Requirements:

The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome.

NOTE: there are two kinds of pan/tilt modules available as the left picture illustrated. The user should be aware of the differences of two pan/tilt modules during the installation.

1 Mark screws positions

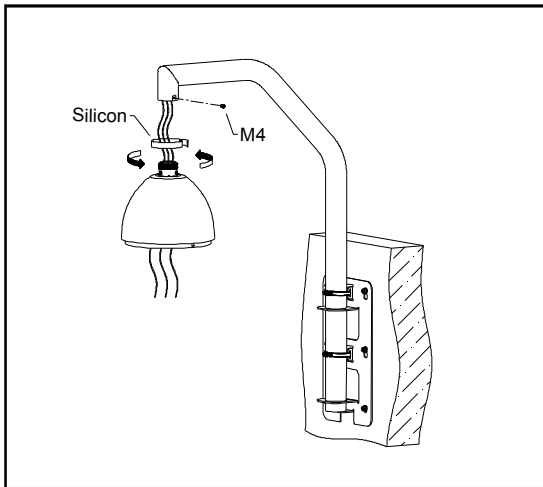
Take the bracket base as the template to mark the screws positions on the wall, and then drill the holes to insert expansion screws.

2 Install base

Tighten the M8 expansion screws to secure the bracket base on the wall .

3 Install pipe arm

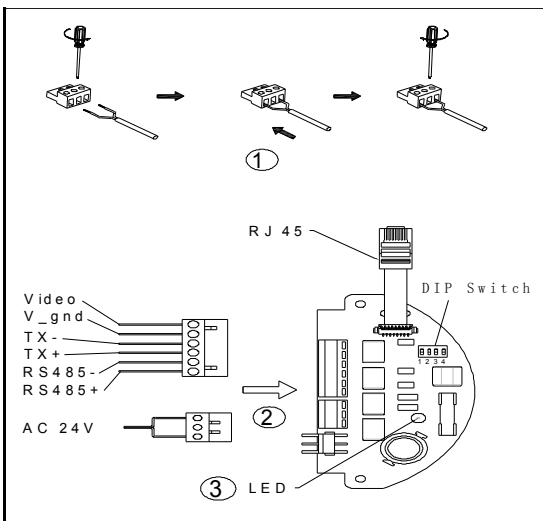
Put the cables through the two trays of the base and pipe arm, and then plug the pipe arm into two trays.



4 Install housing

Wind the waterproof tape around the connecting part of the housing, and then pass the cables through the housing, finally screw the housing clockwise into the bracket and tighten the screw M4.

NOTE: Apply silicon to the gap between the bracket and the wall in the event of outdoor dome.



5 Connect cables

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

The dome can be set for either coaxial or twisted-pair communication through DIP switch as shown in the following illustration.

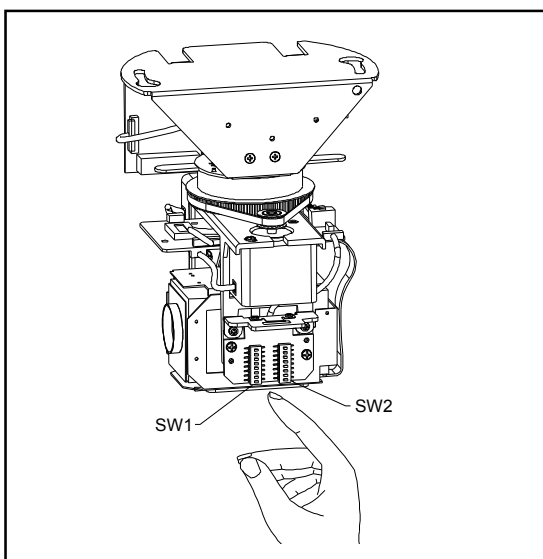
connection method settings	Pin positions			
	1	2	3	4
Coaxial	OFF	OFF	ON	ON
Twisted-pair	ON	ON	OFF	OFF

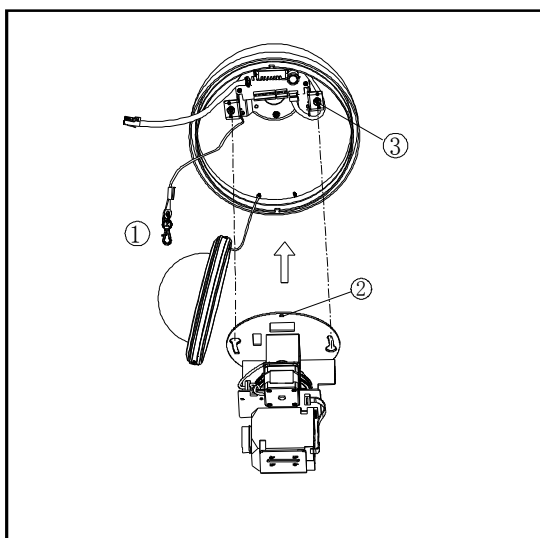
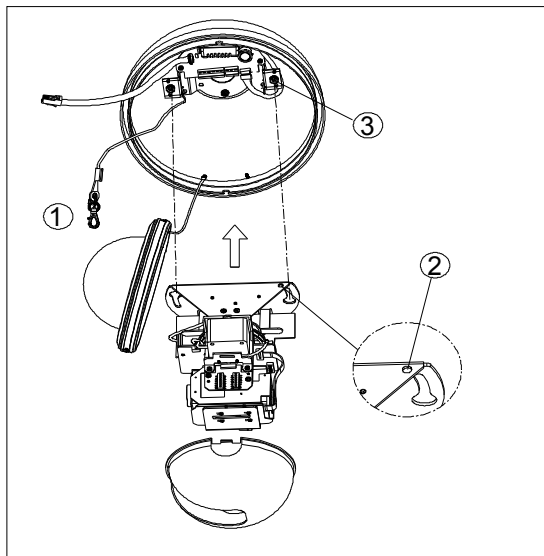
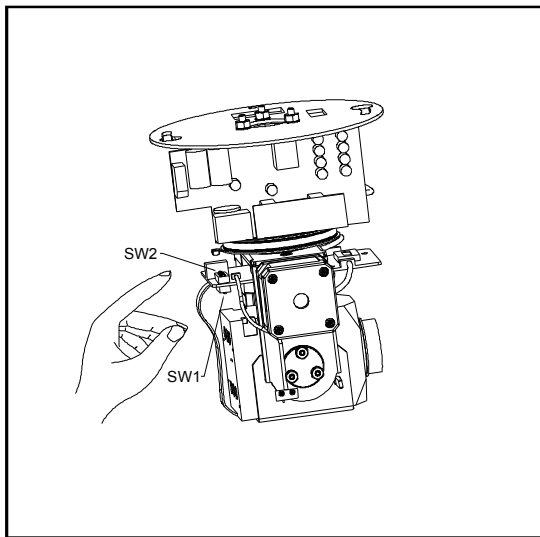
NOTE:

- There are signs for each port. connect cables as picture showed in page 3. Please **MAKE SURE** power is off before doing connection.
- Two video transmission interfaces are available on th dome. Please connect video cable with

6 Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches (refer to APPENDIX I).





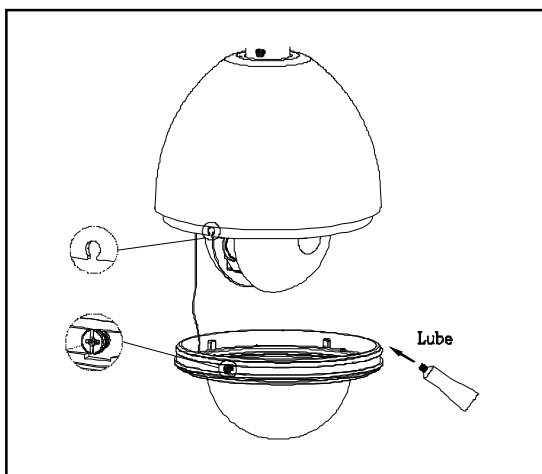
7 Install Pan/Tilt module and black liner

Take down the key ring ① from connection bridge in the housing and button hole ② on the base board with the key ring.

Loosen two screws ③ and match them with two guidance holes on the base board. Then push dome module upward and turn it anticlockwise to the end. Fasten screws. ③

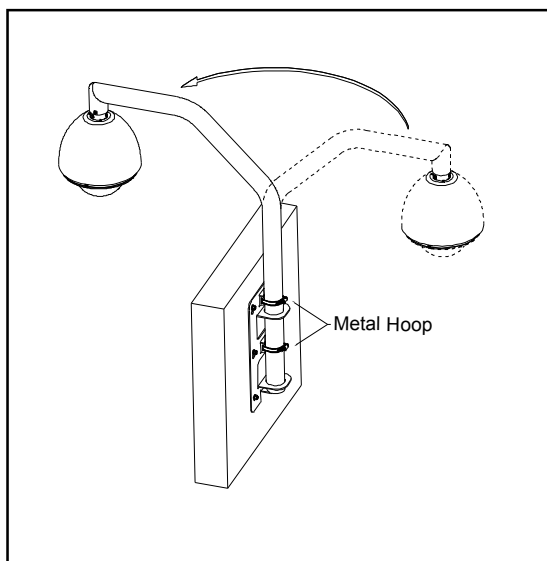
Plug RJ45 connector into the socket on the power board of the dome module. Push the black liner into the two locking tabs.

NOTE: When the dome module is installed, please power on to make sure the dome module is in good condition.



8 Install down cover

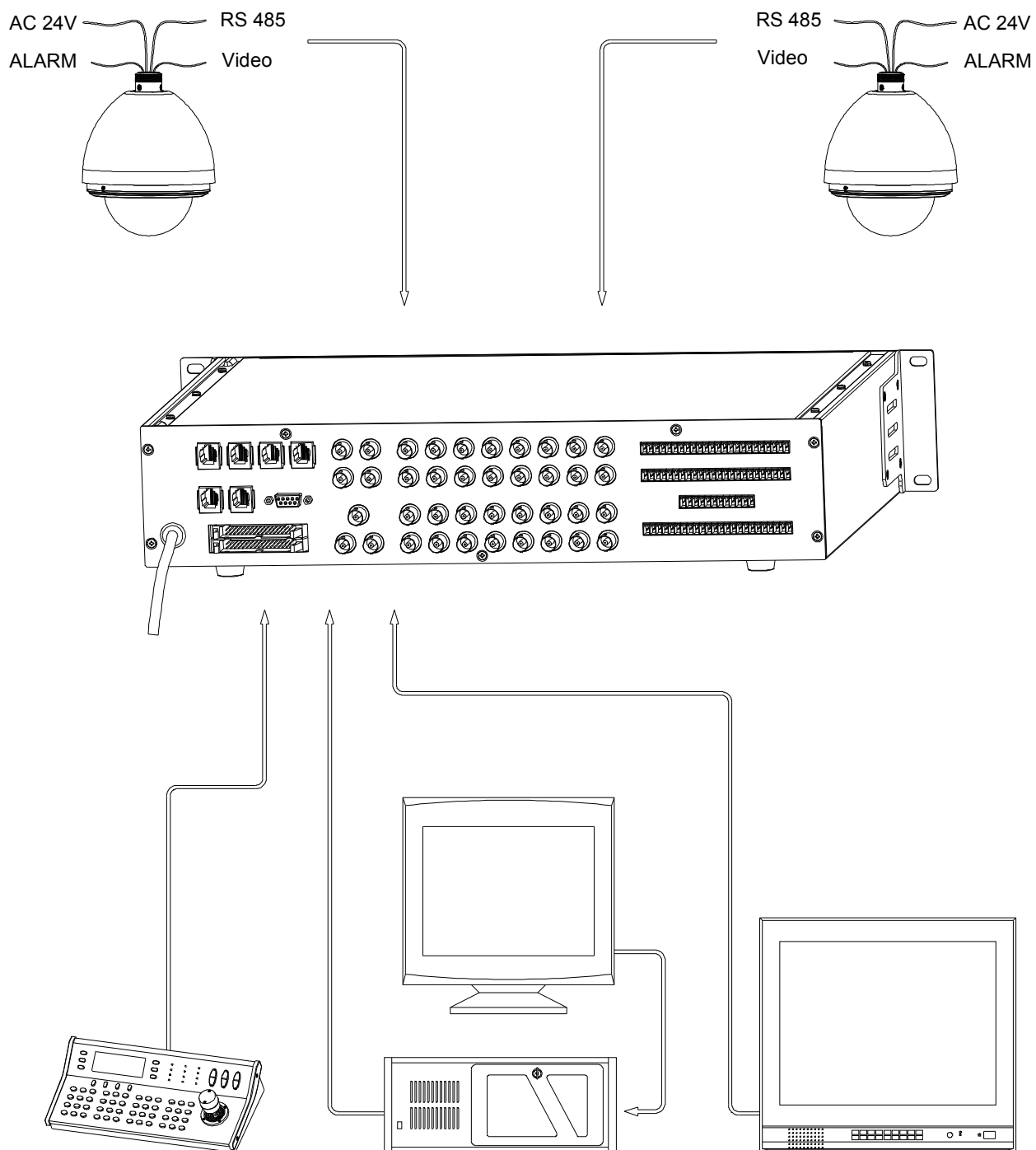
Loosen the two M4 screws on the down cover ring. Apply lubricant to the O-ring to make the down cover easier to slip in. Push upward the down cover into the housing and then fasten down cover with two M4 screws.



9 Fix pipe arm

Adjust the pipe arm to the proper place, and then fix them to the base with the two metal hoops.

System Connection



OPERATION

Operation Instruction

Two methods are available for carrying out the operation by the system controller.

1. Pressing combined hot keys to operate different functions. Please refer to the system controller manual for the detailed commands.
2. Access to the OSD menu and operate according to the following instruction.

Initial Information

When turn on the power or restart the dome, the dome begins its self-testing. The initial information below will be displayed on screen after its self-testing. The information will disappear after the dome receives the first effective command.

```
CAMERA S/N : 2241027273
CAMERA ID : 0001<SOFT>
BAUD RATE : 4800BPS
PROTOCOL : FACTORY
MODEL : E588SE-HP
```

```
Version 0.01 051205
Copy right 2003,2005
```

```
System ready to go...
```

Camera S/N: The dome's serial number

Camera ID: The dome ID address set by DIP switch or keyboard.

Baudrate: Baud rate for dome control bus.

Protocol: The dome's controlling protocol. (please refer to appendix I for more details)

Model: The dome model number.(based on actual product)

Accessing the System Menu

- Access the dome's main system menu on your monitor by calling preset 95 once or calling preset 1 twice within 5 seconds.

Note: The way to call a preset may vary among keyboards with different manufactures. Please read those manuals to learn keyboard operation.

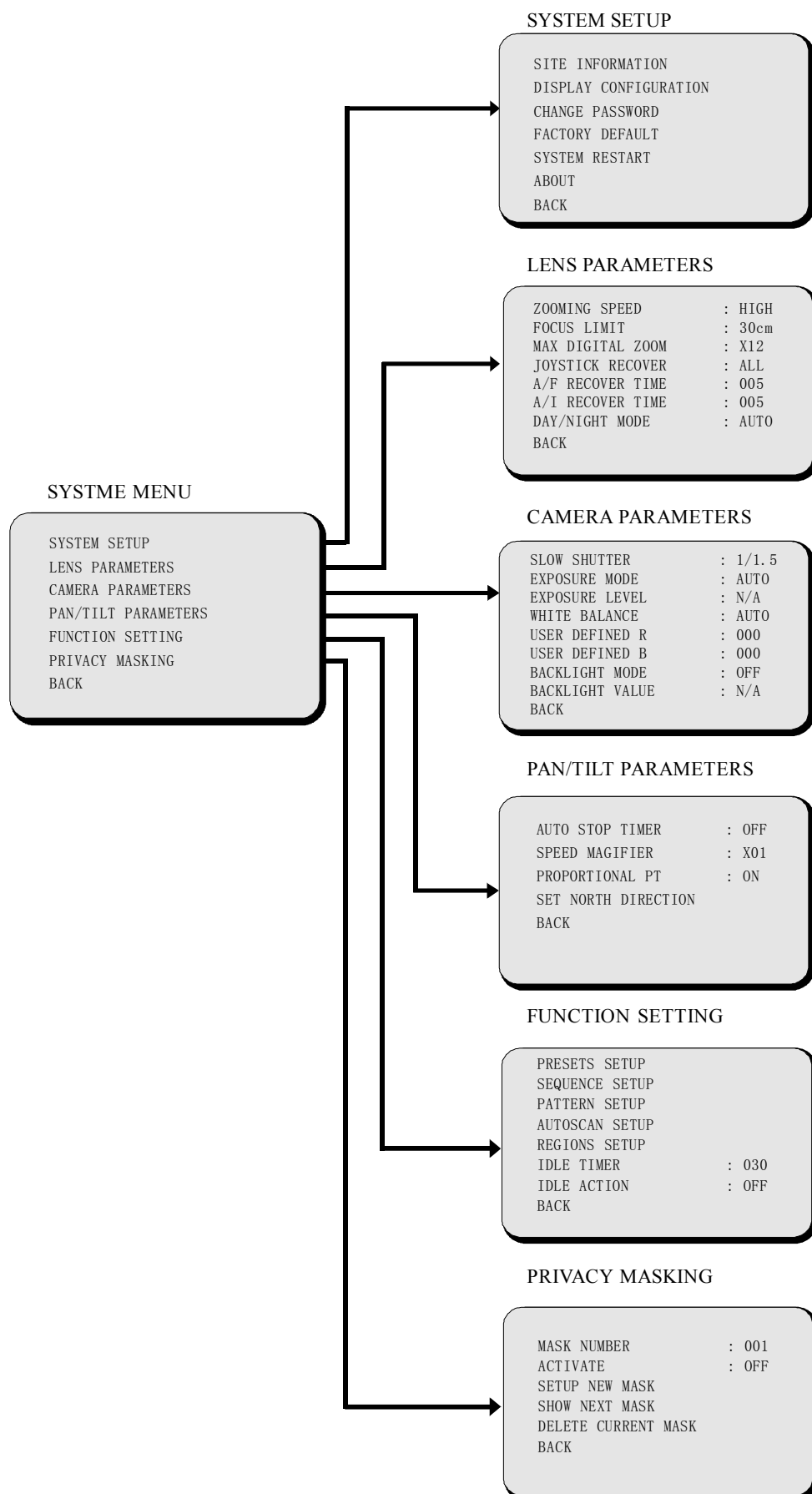
- When there is password protection, user needs to input the correct 6-bit password to access the OSD menu. (Default password is 000000).
- To input the password, move the joystick up or down to select number (0-9), move the joystick left or right to choose password digit. If the input password is wrong, the password input window will close.

Note: You still can control the dome if you input a wrong password, but the OSD menu can not be accessed.

```
SYSTEM SETUP
LENS PARAMETERS
CAMERA PARAMETERS
PAN/TILT PARAMETERS
FUNCTION SETTING
PRIVACY MASKING
BACK
```

The menu screen will clear automatically if no operational command is carried out in 60 seconds. All the settings will be saved automatically in case of unexpected problems such as power cuts.

MENU TREE



MENU OPERATION

Selecting item

- In the main menu, the cursor flashes on the left, move the joystick up or down to move the cursor to the desired setting item. Move the joystick to the right to select the item.
- Select an item to ① access its sub-menu or ② run a specific function or ③ change its value or ④ edit its title.

F: ABOUT

It is initial information. You can view dome S/N, dome ID, baud rate, protocol, dome model, software version.

Changing values

Move the joystick up or down to change the value, move the joystick to the left to save the setting and to exit. In the case of more than one value, move the joystick left or right to select place, move up or down to change value. Move the joystick to the leftmost to save the setting and to exit.

Note: To increase the value changing speed, hold the joystick in up or down position for more than 10 seconds.

A: SITE INFORMATION

It uses to set dome ID, title, and broadcast.

B: DISPLAY CONFIGURATION

The dome title, preset title, autoscan title, and zoom title can be displayed on the monitor screen via the settings.

C: CHANGE PASSWORD

The default password is “000000”, and the password protection function can be closed or modified.

D: FACTORY DEFAULT

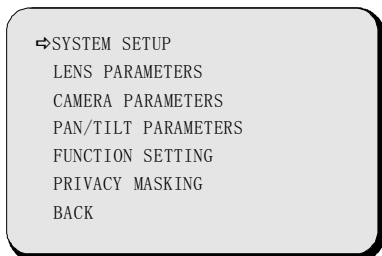
It enables all current settings to return to the default settings.

E: SYSTEM RESTART

It means that all current operations are stopped and the settings are returned to the initial settings that were active when the power was turned on.

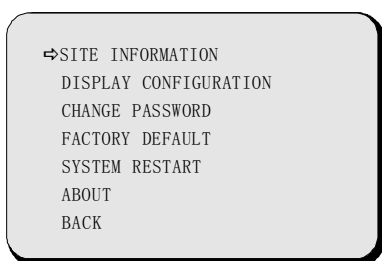
1. System Setup

System menu → System Setup

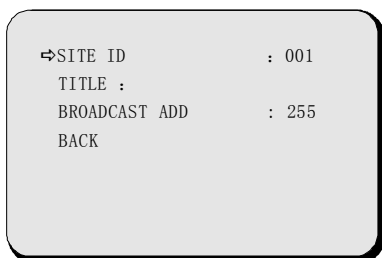


1.1 Site Information

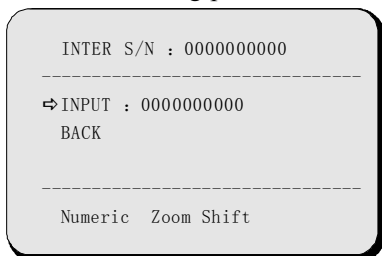
System Setup → Site Information



- **Site ID:** Site ID shows the current dome's ID number. Each dome has its unique ID ranging from **001 to 255** (255 is default broadcast ID). The Dome ID can be set only when DIP switch is in Programmable ID mode.



Move the cursor to Site ID and then move the joystick to the right to access dome ID setting sub-menu showed as the following picture.



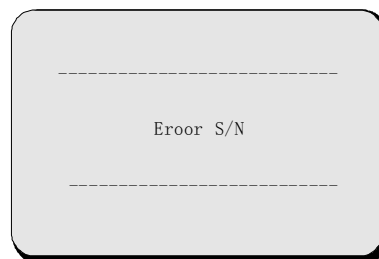
Move the cursor to **Input** and then move the joystick to the right, input the S/N in accordance with the number above the line.

Move the joystick up or down to change the value and then move the joystick to the left to save the setting.

- 1) Move the cursor to “INPUT”, then the input content will flashing, which means that it can set the S/N.
- 2) Move the joystick up or down to select the figure. The current input figure must be the same as the “Insert S/N”.

Note: During input the S/N, “upper case, lower case or Numeric” can be switched through operating Zoom IN/OUT.

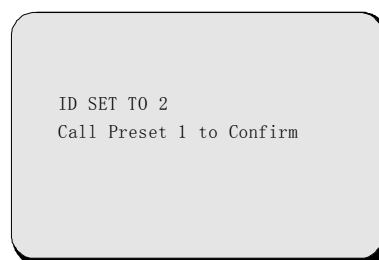
- 3) After inputting the S/N, move the joystick left or right to exit the S/N setting areas.
- 4) Move to “BACK” to exit from the S/N setting. If the S/N input is not correct, “Error S/N” will be displayed on the OSD menu, which means that it is necessary to enter again.



Only if the Dome S/N input correctly, the ID can be changed.

select “SITE ID” to set the ID No.

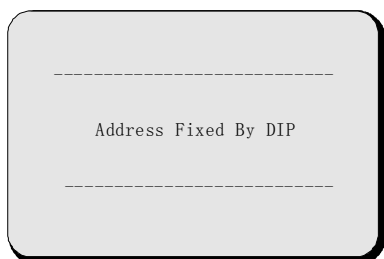
- 5) Another OSD menu will pop out as below,



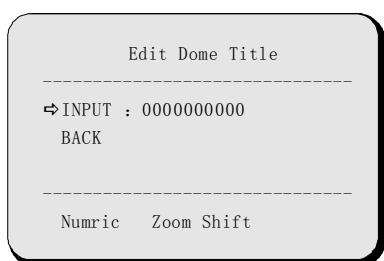
The dome can't be controlled if the dome ID is not the same as the setting. Thus, try to reset the dome ID.

- 6) After correct the dome ID, call preset No.1 to confirm the resetting.

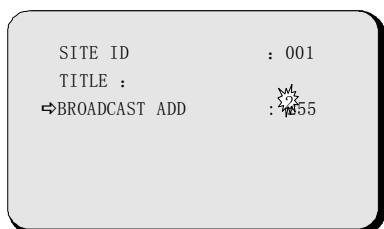
NOTE: If move the joystick right after selectting “SITE ID” and, then below information will be displayed on the screen: *Address fixed by dip* means that the current ID is hard address which can’t be programmed.



- **TITTLE :**



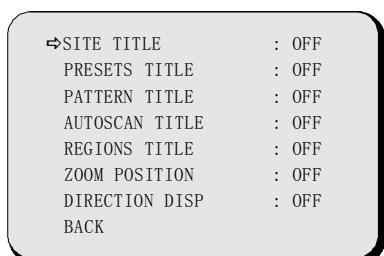
- **BROADCAST ADD**



- **BACK**

1.2 Display Configuration

System Setup → Display Configuration



This sub-menu allows the user to select either display information on the screen or not. Those information includes:

Site Title (ON/OFF):

To set whether display dome title or not.

Preset Title (ON, OFF, 2s,5s,10s,15s,30s,60s) :

To set ON or OFF or display time for preset title when calling preset.

Pattern Title (ON, OFF, 2s,5s,10s,15s,30s,60s):

To set ON or OFF or display time for pattern title when replaying pattern.

AutoScan Title (ON, OFF,2s,5s,10s,15s,30s,60s) :

To set ON or OFF or display time for autoscan title when performing a autoscan.

Region Title (ON, OFF,2s,5s,10s,15s,30s,60s) :

To set ON or OFF or display time for region title when the camera moves to the region.

Zoom Position (ON, OFF,2s,5s,10s,15s,30s,60s):

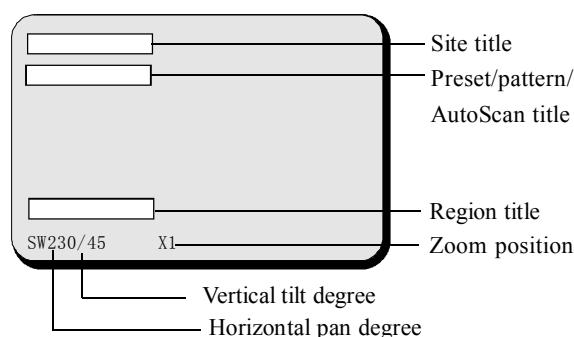
To set ON or OFF or display time of the zoom times.

Direction Disp (ON, OFF, 2s,5s,10s,15s,30s,60s):

To set ON or OFF or display time of camera pointing direction.

NOTE: “ON” means display; “OFF” means close; 2s,5s,10s,15s,30s,60s, means the tittle displaying period on the screen.

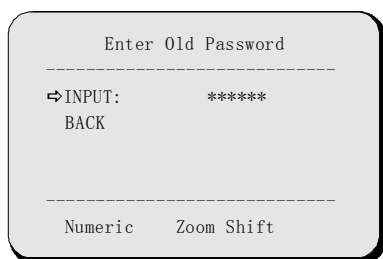
- **Information text position**



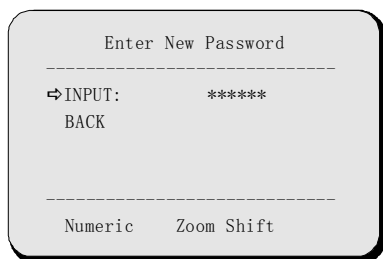
1.3 Change Password

System Setup → Change password

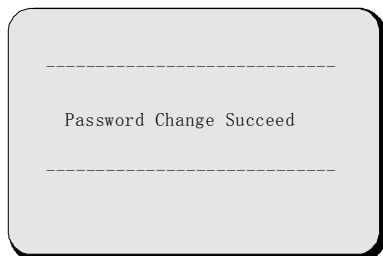
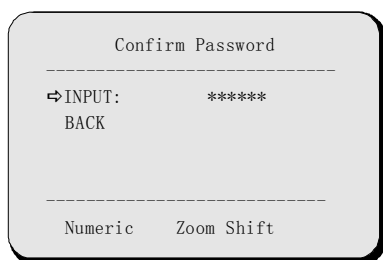
- 1) If there is no old password, start the setting from step 5.
- 2) If the dome already has an old password, move the joystick right to select “INPUT”, and then enter the old password.



- 4) Set New password as below OSD submenu:



- 5) Confirm the new password

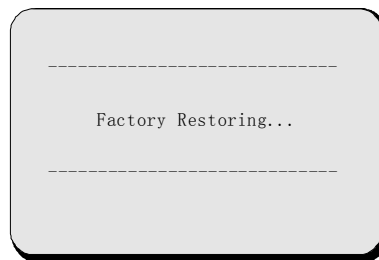


Note: The factory default password is “000000”. If the password sets as “000000”, it means to close the password protection function, which is unnecessary to enter the password to access the OSD menu.

1.4 Factory Default

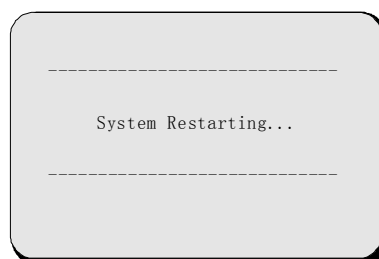
System Setup → Factory Default

All camera settings except for preest, Auto scan, Pattern, Region setting, Password, Tittle, and Privacy can be restored to factory default setting.



1.5 System Restart

System Setup → System Restart



1.6 ABOUT

System Setup → About



1.7 BACK

2. Lens Parameters

System Menu → Lens Parameters

⇒ZOOMING SPEED	: HIGH
FOCUS LIMIT	: 30cm
MAX DIGITAL ZOOM	: OFF
JOYSTICK RECOVER	: ALL
A/F RECOVER TIME	: 005
A/I RECOVER TIME	: 005
DAY/NIGHT MODE	: AUTO
BACK	

2.1 Zooming Speed

The following zooming speed can be selected for the lens:

- HIGH: High zooming speed
- LOW: Low zooming speed

2.2 Focus Limit:

Set a minimum distance from the lens, the camera will not focus on objects in that distance. E.g. This feature can prevent camera from focusing on the down cover.

2.3 Max Digital Zoom

Digital zoom magnifies the picture by duplicating pixels. The picture is enlarged but the resolution remains the same. This menu item sets max. digital zoom magnification times.

OFF : Turn off digital zoom

X12 : Max. digital zoom times

Different camera has different Max. digital zoom times.

2.4 Joystick Recover

To set automatically restoring mode. When the joystick moves, the selected function will start.

Function options are:

ALL : Joystick movement triggers both auto focus and auto iris. (default)

Focus : Joystick movement triggers auto focus only.

Iris : Joystick movement triggers auto iris only.

None : Joystick movement triggers none of the functions.

2.5 A/F Recover Time

System default of Auto Focus is to adjust automatically the focus to get clear image.

Focus can also be controlled manually by key board or matrix. For manual operation details, please refer to keyboard or matrix operation manual.

The setup is used to restore auto focus function after focus has been adjusted manually.

OFF : Never restore auto focus. That means focus is always in manual mode.

001-255 : The dome will start auto focus in the number of seconds that have been set (001 to 255) after user adjusts focus manually .

Note : The camera might not be able to auto focus in the following conditions:

- 1) Target is not in the center of image.
- 2) Near and far targets in the same picture can not be both clear.
- 3) Target is an object with strong light, such as spotlight etc.
- 4) Target is behind the glass with water drop or dust.
- 5) Target moves too fast.
- 6) Target is large area such as wall.
- 7) Target is too dark or vague.
- 8) Joystick Auto set Off or Joystick Auto set Iris, or Focus is set OFF.

2.6 A/I Recover Time

Light passes through the iris and reaches CCD to form an image. A larger iris lets more light pass through which enables the image more bright. Iris can be controlled automatically or manually. For manual operation detail, please refer to keyboard or

matrix manual.

The setup is used to restore auto Iris function after Iris has been adjusted manually.

OFF: Never restore auto iris. That means iris is always in manual mode.

001-255: The dome will start auto iris in the number of seconds that have been set (001 to 255) after user adjusts iris manually.

2.7 Day/Night Mode

To set the dome color/monochrome switching mode. Color mode is appropriate to work in daytime because it needs higher illumination. On the contrary, light sensitivity of mono mode is much higher. It fits working at night in low illumination environment but the video is black and white.

Auto: The dome will change modes automatically in accordance with the environment illumination.

Day: The dome is always in colorful mode.

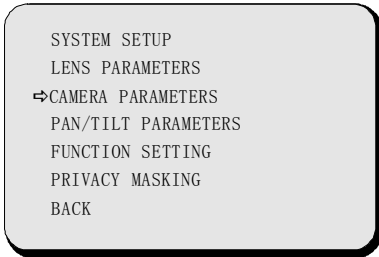
Night: The dome is always in monochrome mode.

Note: You need to set exposure mode to “Auto” in order to get Auto Day/Night mode.

Note: Iris PLC, IRF Control, Day Mode Time can only be set in certain dome models.

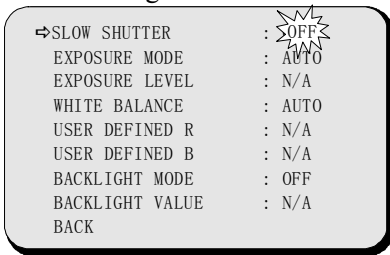
3. Camera Parameters

System Menu → Camera Parameters



3.1 Slow Shutter

In extremely low illumination circumstance, the images retrieved by the dome are very dark. Slow shutter gathers more light. Pictures will be brighter.



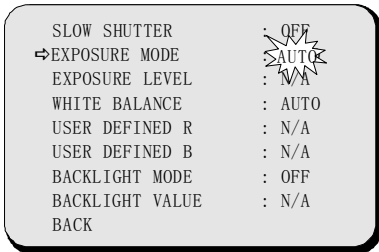
OFF: Disable this function. (default)

1/1.5, 1/3, 1/6, 1/12, 1/25: The smaller value represents brighter pictures.

Note: High sensitivity will make video sluggish.

3.2 Exposure Mode

System Menu → Camera Parameters → Exposure Mode



To set exposure mode. The value options are: **Auto**, **Bright**, **Shutter** and **Iris**. They are available for some models.

Auto: In this setting, the Exposure level will be N/A.

Bright: In this setting, the Exposure level are ranges from 0~31.

Shutter: Set Shutter speed in priority, available settings are 1/1.5, 1/3, 1/6, 1/12, 1/25, 1/100, 1/150, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000

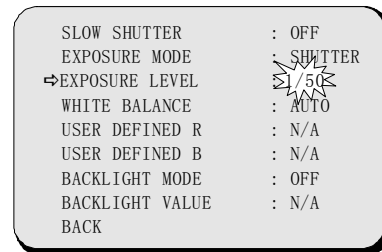
Iris: Set Iris in priority. Values are: F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34

AGC: Set Auto gain control in priority. Values are: 0dB, 6dB, 12dB, 18dB, 24dB, 30dB. Higher dB value makes image brighter.

Note: Day/Night auto mode and Sensitivity Up will be void if Exposure mode is not Auto mode.

3.3 Exposure Level

System Menu → Camera Parameters → Exposure Level

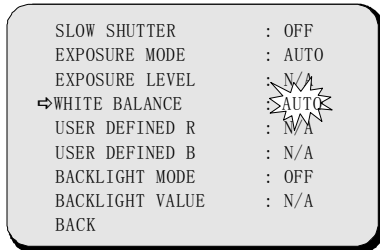


Only one of settings for Shutter, Bright, Iris and AGC will take effect.

Mode	Bright	Shutter	Iris	AGC
Auto	N/A	N/A	N/A	N/A
Bright	0,1,2,3...29, 30, 31	N/A	N/A	N/A
Shutter	N/A	1/1.5, 1/3, 1/6, 1/6, 1/12, 1/25, 1/50, 1/100, 1/150, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000	N/A	N/A
Iris	N/A	N/A	F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34	N/A
AGC	N/A	N/A	N/A	0dB, 6dB, 12dB, 18dB, 24dB, 30dB

3.4 White Balance

System Menu → Camera Parameters → White Balance



White balance simulates sun light circumstance. However, in certain lighting conditions, user may want to adjust manually the red (R Gain) and blue (B Gain) settings for optimal viewing. The setting options are:

USER Set the red and blue values manually.

AUTO Auto white balance. (default setting)

OUTDR Auto white balance setting for shooting in sunlight.

INDR Auto white balance setting for shooting in indoor light.

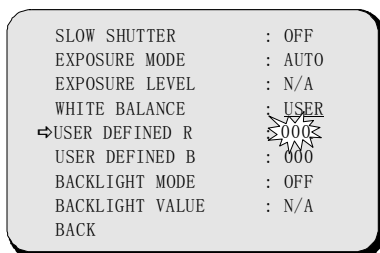
ATWB Auto tracking white balance.

OPWB Auto adjust the white balance.

3.5 User Defined R

System menu → Camera Parameters → User Defined R

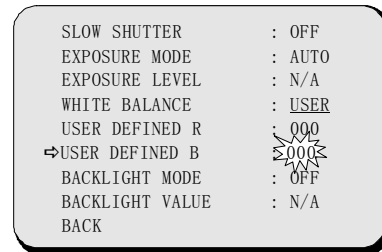
Red Gain : Set red color depth(0~255).



3.6 User Defined B

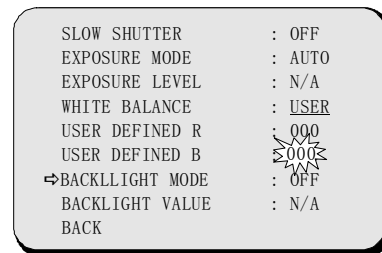
System menu → Camera Parameters → User Defined B

Blue Gain: Set blue color depth(0~255).



3.7 BackLight Mode

System Menu → Camera Parameters → BackLight mode



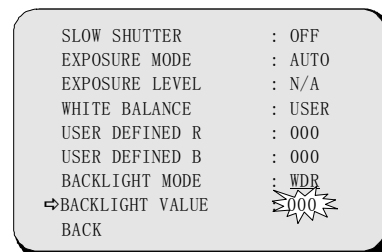
If the backlight is bright, the objects in the center of the picture may appear dark. The dome can adjust the brightness of the whole image automatically according to the brightness of center point.

Therefore backlight compensation can increase the brightness of the objects in the center.

Mode	BLC	WDR
Off	N/A	N/A
BLC	000-255	N/A
WDR	N/A	000-128

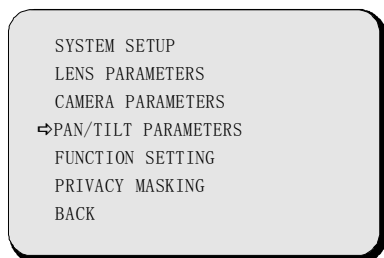
3.8 BackLight Value

System Menu → Camera Parameters → BackLight Value



4. Pan/Tilt Parameters

System Menu → Pan/Tilt Parameters



4.1 Auto Stop Timer

For some particular protocols, the dome will keep moving even there is no operation on controller. However, the Auto Stop Timer has been designed to set the time that, after a specified period, the dome will stop itself. Values are in 50ms unit:

OFF: Disable this function (default setting)

001~100: After value x 50ms the dome will stop moving automatically. For example: 003 means the dome will stop moving automatically after 150ms.

4.2 Speed Magnifier

Some protocols' controlling speed is either faster or slower, set Speed Adjust to adjust the dome movement. Options are as below:

X1: Original speed (default setting)

↑ 2 ~ ↑ 32: Times faster than original speed.

↓ 2 ~ ↓ 32: Times slower than original speed.

4.3 Proportional PT

The dome moves at a speed of certain degrees per second. Objects on screen move much faster in telescope than in widescope. However it's not desired to move so fast in some cases. Proportional PT can slow down the pan/tilt movement of the dome while zooming in.

ON : Enable the function (default setting)

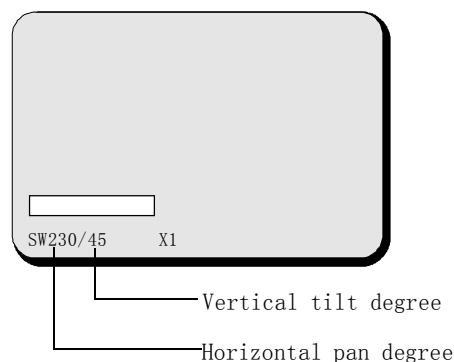
OFF: Disable the function

4.4 Set North Direction

User can set dome's orientation on screen by using joystick to point to north.

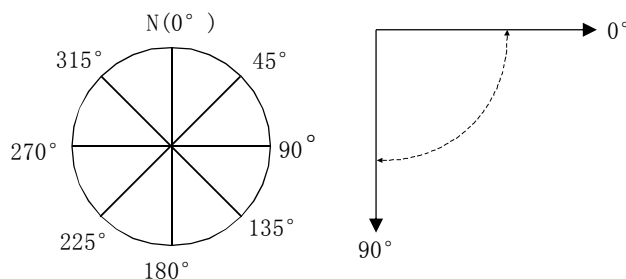
Pan degree is the relative degree to a specific direction which called NORTH.

Note: Not restrict to geographical north.



Horizontal 0~360

Vertical 0~90



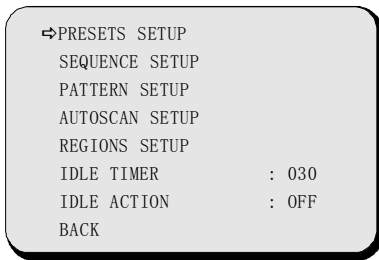
For example



- Move to a position and call preset 1 to save.

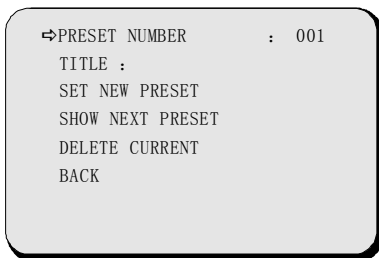
5. Function Setting

System Menu → Auto Running Setup



5.1 Preset Setup

System Menu → Function Setting → Presets Setup



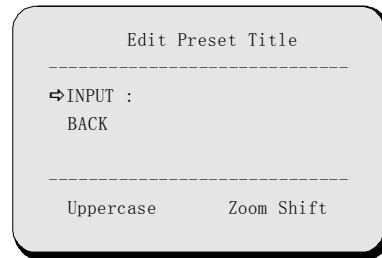
Preset is the point that user saves for frequent use. A preset saves both direction and zoom parameters, the camera will quickly and precisely go and zoom to a specific point if a preset is called. E.g. If you often want to see the door, you can set the point of door as preset P, then you can see the door simply by calling the preset P. This dome has 220 presets.

PRESET NUMBER: Move the joystick up/down to set the Preset Number.

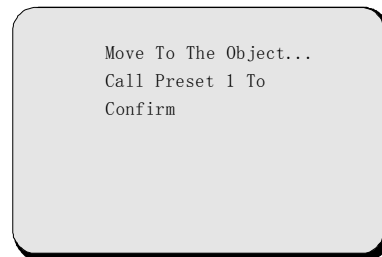
- 1) If the current preset number is existed, then it will go to the Preset position directly.
- 2) If the current preset number has never been set yet, then screen will show “Preset Not Available”.

Note: Preset 95 is reserved for accessing dome menu.

TITLE: To set the preset title. Move the joystick left or right to select the target letter, turn joystick clockwise or anticlockwise to select input method. Move up or down to select the desired letter, number or character.



SET NEW PRESET: Select a preset number then move right. The following information will be displayed.



Move to the desired position and zoom to a suitable level, call preset 1 to save the current preset.

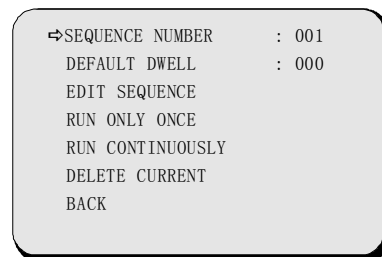
SHOW NEXT PRESET: Select a preset number and show the preset position.

DELETE CURRENT: Select a preset number and delete.

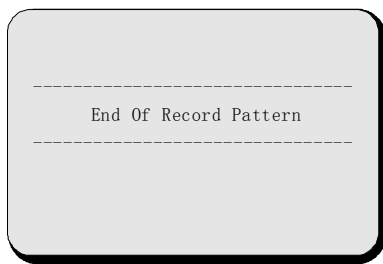
BACK: Return to previous menu.

5.2 Sequence Setup

System Menu → Function Setting → Sequence Setup



A “sequence” is defined as a sequential moving from preset to preset and dwell for a specific time at each preset. It is useful if you need to repeat switching among a number of presets. E.g. A shopping mall has several entrances. A sequence can loop the position automatically of each entrance.



Column on the left shows the time lapses and the capability of the pattern memory.

Note: Pattern memory only records the operation of pan/tilt and lens command.

Run Only once: To run the current pattern once. Use this function to check the pattern.

If the pattern has not been set yet, then screen will show "Invalid Date"

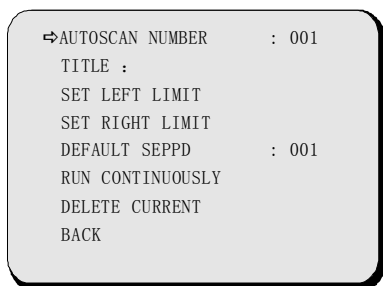
Run Continuously: To run the current pattern continually. System will loop the pattern.

Delete Current: To delete current pattern.

Back: Return to previous menu.

5.4 Auto Scan Setup

System Menu → Function Setting → AutoScan Setup



Auto Scan enables user to scan an area back and forth between two parallel sites (with the same horizontal degree) at a definable speed. E.g. If two sites (A & B) are set, the camera will loop between the two sites. A→B→A→B→.....

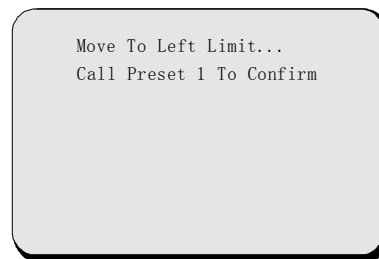
Note: Dome makes horizontal movement only.

Tips: Cameral will keep panning when zooming in during the course of panning.

AutoScan Number: Move the joystick up/down to set the AutoScan Number.

Title: Designate the title of the AutoScan.

Set Left Limit: To set the start position. The following picture shows the setting menu.



Move the camera to a particular position and call preset 1 to save or call preset 2 to cancel.

Set Right Limit: To set the ending position. Set it in the same way of setting start position.

Default Speed: Sets the Autoscan speed (Dome movement speed). Value ranges from **001 to 255**, the higher value represents the higher speed. Pan right to select, tilt up or down to change value.

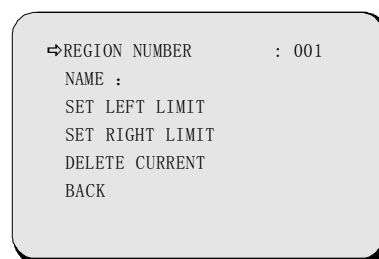
Run continuously: To run the Autoscan continuously.

Delete Current: To delete the current Autoscan.

Back: Return to previous menu.

5.5 Regions Setup

System Menu → Function Setting → Region Setup



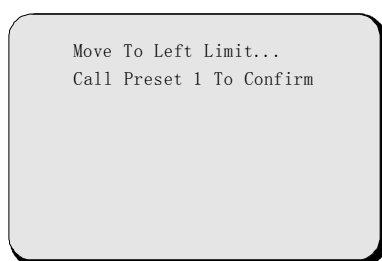
User can designate a title for a REGION which is the area between two sides (E.g. Dangerous area). Whenever the camera moves into the region, the title will be displayed on the screen to alert the user.

RegionNumber: Displays the current region number.

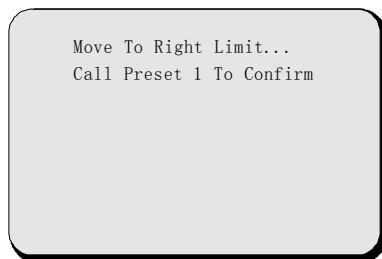
Values ranges from **001~008**. Pan right then tilt up or down to select another region.

Name: To set the region title.

Set Left Limit: Move to desired position and call preset 1 to save left limit .



After setting the left limit, below menu will pop-up.



Set Right Limit: Set it in the same way of setting Left Limit.

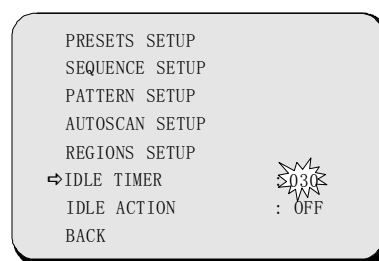
Delete: Delete current region.

Back: Return to previous menu.

5.6 Idle Timer

When an operator breaks the currently running function(sequence, pattern, autoscan etc.) to do other work, the dome still can carry automatically on the former function after a period of time once the operator finishes other work.

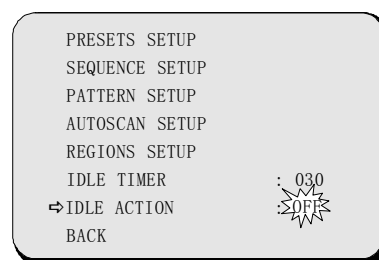
System Menu → Function Setting → Idle Timer Setup



Idle Timer : It is a specific time without any operation being performed. The values include: **Off**, **005s~255s**.

5.7 Idle Action Setup

System Menu → Function setting → Idle Action



Idle Action: Idle action refers to the function that the system will automatically run when idle time is out. The function could be:

OFF: Disable this function

Pattern 1: Run pattern

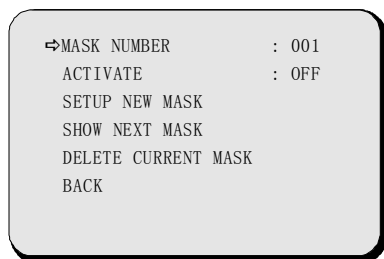
Sequence (1~2): Run sequence 001~002

Autoscan : Run autoscan

Preset (1~80): Call preset 001~080

6. Privacy Masking

System Menu → Privacy Masking



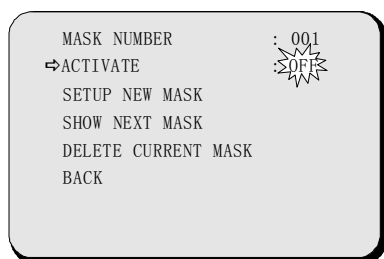
The feature of privacy masking can be used to protect public privacy. E.g. a resident's window, a toilet. Integrated Speed Dome can cover a black square on some particular locations.

Mask Number: Display the current masking zone number. Values are 1~8. Pan right then tilt up or down to select another masking zone.

Activate: Enable / disable the current privacy masking.

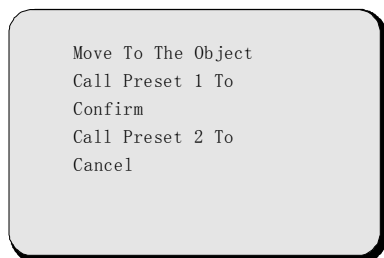
ON: enable, **OFF:** disable.

The zoom times for Privacy Masking activation are effective for certain models only. When zoom times is higher than a specific value, the dome will auto activate the privacy mask.



Setup New Mask :

Move cursor to point at “ SETUP NEW MASK”, and enter into it's submenu.



1. Move the joystick to select the target position till the back flame appears on screen for setting privacy mask. Call preset No. 1 to confirm the position, call preset No.2 to cancel the target

position.

Note: There is limited number of privacy mask on one screen. If the masking number exceeds, system will pop up an alert message. User can choose other place or delete one of original maskings to set a new one.

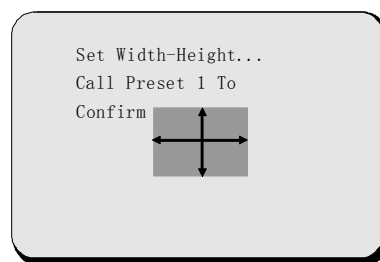
&: If the new masking exceeds the allowed setting area, screen will show “The title degree over 45”, you need move to another position to set the privacy mask.

2. Move the joystick up/down to adjust the width - height to cover the object position.

There are two methods of masking setting for different model domes, if you are not sure which method you should choose, please ask your supplier for guide.



Method A



Method B

Call preset No.1 to save the privacy mask and exit the setting.

Show Next Mask: To show next privacy mask on screen.

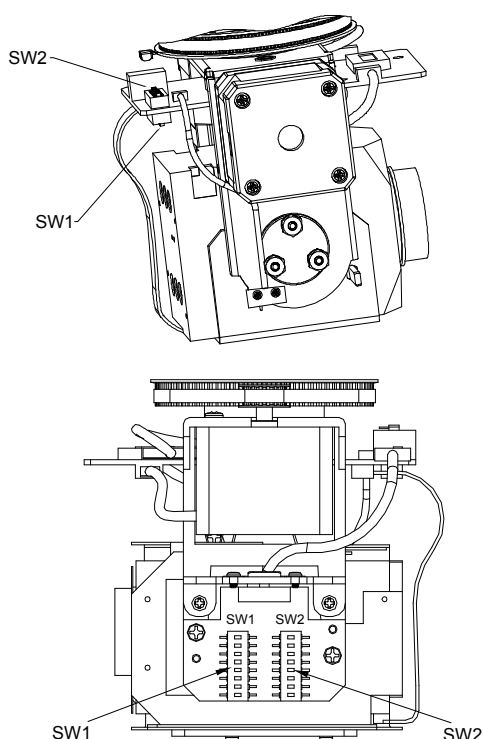
Delete Current Mask: To delete current privacy masking.

Appendix I: DIP Switch & Jumper Settings

This appendix guides you to set protocol, baud rate, dome address, video cable type, alarm output method and resistor jumper.

DIP Switches' position

The corresponding DIP-switches' positions are shown as below,



Protocol and Baud rate setting

SW2 is used to set protocol and baud rate. The first six (1-6) bits of SW2 are for protocol setting and the last two (7-8) bits are for baud rate setting. Below chart shows the setting details. O means ON, blank means OFF. Default setting is 4800 bps.

Baud Rate	Switch Number							
	ON 1	2	3	4	5	6	7	8
2400bps								
4800bps							O	
9600bps								O
19200bps							O	O

NOTE: If you are using AD or PHILIPS or BBV protocol, please set the baud rate to 19200 bps.

This speed dome supports multi-protocol. The setting chart is showed as below, O means ON, blank means OFF, X means either ON or OFF. Default setting is FACTORY protocol.

Protocol	Switch Number							
	ON 1	2	3	4	5	6	7	8
FACTORY								
VCL	O							
PELCO_P		O						
PELCO_D	O	O						
MOLYNX			O					
VICON	O		O					
DIAMOND		O	O					
KALATEL	O	O	O					
Reserved				O				
Reserved	O			O				
Reserved		O		O				
PELCO_C*	O	O		O				
Reserved			O	O				
Reserved	O		O	O				
Reserved		O	O	O				
AD*	O	O	O	O				
Reserved					O			
PANASONIC	O				O			
Reserved		O			O			
SENSORNET*	O	O			O			
Reserved			O		O			
BBV*	O		O		O			
Reserved		O	O		O			
Reserved	O	O	O		O			
Reserved				O	O			
Reserved	O		O	O	O			
Reserved		O	O	O	O			
Reserved	O	O	O	O	O			
PHILIPS*	X	X	X	X	X	O		

NOTE: Protocols marked with * need other protocol board.

Dome address setting

The control commands contain target dome's ID. The dome only reacts to the command sent to its own address or broadcast address. So, each dome should be assigned an address. Four kinds of IDs are applicable for domes:

- **Hard ID:** Hard ID is set via DIP SW1, it can not be changed from OSD menu. Hard ID ranges from 1 to 255.
- **Programmable ID:** Set all 8bits of SW1 to ON to activate programmable address. Input 10-bit camera SN number, and then set dome ID by controller (The dome SN number can be found on the side of the camera or on the package.).
- **Debug ID:** Set all the bites of the SW1 to 0 (all OFF), the dome will react to any command for any ID.

NOTE: Debug ID only works with FACTORY protocol.

- **Broadcast ID:** When a command is sent to broadcast ID, all domes connected to the control bus will respond to that command. Broadcast ID is definable, ranges from 1 to 255, the default broadcast ID is 255.

SW1 is used for seting dome ID. The setting is strictly in accordance with binary system, if you are not familiar with binary system please look up the address setting chart.

NOTE: When using Philips protocol, the first 5 bits of SW2 and all bits of SW1 are for address setting. Max address can be 8191. Example: in order to set address 2657, set bit 1, 6, 7 of SW1 and bit 2, 4 of SW2 ON. (2657=1+32+64+512+2048)

Address setting chart

O means ON, blank means OFF.

ID	Switch Number							
	1	2	3	4	5	6	7	8
0								
1	O							
2		O						
3	O	O						
4			O					
5	O		O					
6		O	O					
7	O	O	O					
8				O				
9	O			O				
10		O		O				
11	O	O		O				
12			O	O				
13	O		O	O				
14		O	O	O				
15	O	O	O	O				
16					O			
17	O				O			
18		O			O			
19	O	O			O			
20			O		O			
21	O		O		O			
22		O	O		O			
23	O	O	O		O			
24				O	O			
25	O			O	O			
26		O		O	O			
27	O	O		O	O			
28			O	O	O			
29	O		O	O	O			
30		O	O	O	O			
31	O	O	O	O	O			
32						O		
33	O					O		
34		O				O		
35	O	O				O		
36			O			O		
37	O		O			O		
38		O	O			O		
39	O	O	O			O		
40				O		O		
41	O			O		O		
42		O		O		O		
43	O	O		O		O		

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
44			○	○		○		
45	○		○	○		○		
46		○	○	○		○		
47	○	○	○	○		○		
48					○	○		
49	○				○	○		
50		○			○	○		
51	○	○			○	○		
52			○		○	○		
53	○		○		○	○		
54		○	○		○	○		
55	○	○	○		○	○		
56				○	○	○		
57	○			○	○	○		
58		○		○	○	○		
59	○	○		○	○	○		
60			○	○	○	○		
61	○		○	○	○	○		
62		○	○	○	○	○		
63	○	○	○	○	○	○		
64							○	
65	○						○	
66		○					○	
67	○	○					○	
68			○				○	
69	○		○				○	
70		○	○				○	
71	○	○	○				○	
72				○			○	
73	○			○			○	
74		○		○			○	
75	○	○		○			○	
76			○	○			○	
77	○		○	○			○	
78		○	○	○			○	
79	○	○	○	○			○	
80					○		○	
81	○				○		○	
82		○			○		○	
83	○	○			○		○	
84			○		○		○	
85	○		○		○		○	
86		○	○		○		○	
87	○	○	○		○		○	

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
88				○	○		○	
89	○			○	○		○	
90		○		○	○		○	
91	○	○		○	○		○	
92			○	○	○		○	
93	○		○	○	○		○	
94		○	○	○	○		○	
95	○	○	○	○	○		○	
96						○	○	
97	○					○	○	
98		○				○	○	
99	○	○				○	○	
100			○			○	○	
101	○		○			○	○	
102		○	○			○	○	
103	○	○	○			○	○	
104				○		○	○	
105	○			○		○	○	
106		○		○		○	○	
107	○	○		○		○	○	
108			○	○		○	○	
109	○		○	○		○	○	
110		○	○	○		○	○	
111	○	○	○	○		○	○	
112					○	○	○	
113	○				○	○	○	
114		○			○	○	○	
115	○	○			○	○	○	
116			○		○	○	○	
117	○		○		○	○	○	
118		○	○		○	○	○	
119	○	○	○		○	○	○	
120				○	○	○	○	
121	○			○	○	○	○	
122		○		○	○	○	○	
123	○	○		○	○	○	○	
124			○	○	○	○	○	
125	○		○	○	○	○	○	
126		○	○	○	○	○	○	
127	○	○	○	○	○	○	○	
128								○
129	○							○
130		○						○
131	○	○						○

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
132			○					○
133	○		○					○
134		○	○					○
135	○	○	○					○
136				○				○
137	○			○				○
138		○		○				○
139	○	○		○				○
140			○	○				○
141	○		○	○				○
142		○	○	○				○
143	○	○	○	○				○
144					○			○
145	○				○			○
146		○			○			○
147	○	○			○			○
148			○		○			○
149	○		○		○			○
150		○	○		○			○
151	○	○	○		○			○
152				○	○			○
153	○			○	○			○
154		○		○	○			○
155	○	○		○	○			○
156			○	○	○			○
157	○		○	○	○			○
158		○	○	○	○			○
159	○	○	○	○	○			○
160						○		○
161	○					○		○
162		○				○		○
163	○	○				○		○
164			○			○		○
165	○		○			○		○
166		○	○			○		○
167	○	○	○			○		○
168				○		○		○
169	○			○		○		○
170		○		○		○		○
171	○	○		○		○		○
172			○	○		○		○
173	○		○	○		○		○
174		○	○	○		○		○
175	○	○	○	○		○		○

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
176					○	○		○
177	○				○	○		○
178		○			○	○		○
179	○	○			○	○		○
180			○		○	○		○
181	○		○		○	○		○
182		○	○		○	○		○
183	○	○	○		○	○		○
184				○	○	○		○
185	○			○	○	○		○
186		○		○	○	○		○
187	○	○		○	○	○		○
188			○	○	○	○		○
189	○		○	○	○	○		○
190		○	○	○	○	○		○
191	○	○	○	○	○	○		○
192							○	○
193	○						○	○
194		○					○	○
195	○	○					○	○
196			○				○	○
197	○		○				○	○
198		○	○				○	○
199	○	○	○				○	○
200				○			○	○
201	○			○			○	○
202		○		○			○	○
203	○	○		○			○	○
204			○	○			○	○
205	○		○	○			○	○
206		○	○	○			○	○
207	○	○	○	○			○	○
208					○		○	○
209	○				○		○	○
210		○			○		○	○
211	○	○			○		○	○
212			○		○		○	○
213	○		○		○		○	○
214		○	○		○		○	○
215	○	○	○		○		○	○
216				○	○		○	○
217	○			○	○		○	○
218		○		○	○		○	○
219	○	○		○	○		○	○

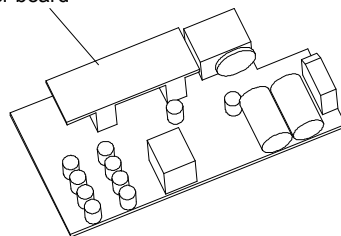
ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
220			○	○	○		○	○
221	○		○	○	○		○	○
222		○	○	○	○		○	○
223	○	○	○	○	○		○	○
224						○	○	○
225	○					○	○	○
226		○				○	○	○
227	○	○				○	○	○
228			○			○	○	○
229	○		○			○	○	○
230		○	○			○	○	○
231	○	○	○			○	○	○
232				○		○	○	○
233	○			○		○	○	○
234		○		○		○	○	○
235	○	○		○		○	○	○
236			○	○		○	○	○
237	○		○	○		○	○	○
238		○	○	○		○	○	○
239	○	○	○	○		○	○	○
240					○	○	○	○
241	○				○	○	○	○
242		○			○	○	○	○
243	○	○			○	○	○	○
244			○		○	○	○	○
245	○		○		○	○	○	○
246		○	○		○	○	○	○
247	○	○	○		○	○	○	○
248				○	○	○	○	○
249	○			○	○	○	○	○
250		○		○	○	○	○	○
251	○	○		○	○	○	○	○
252			○	○	○	○	○	○
253	○		○	○	○	○	○	○
254		○	○	○	○	○	○	○
255 Program- mable Address	○	○	○	○	○	○	○	○

Resistor jumper setting

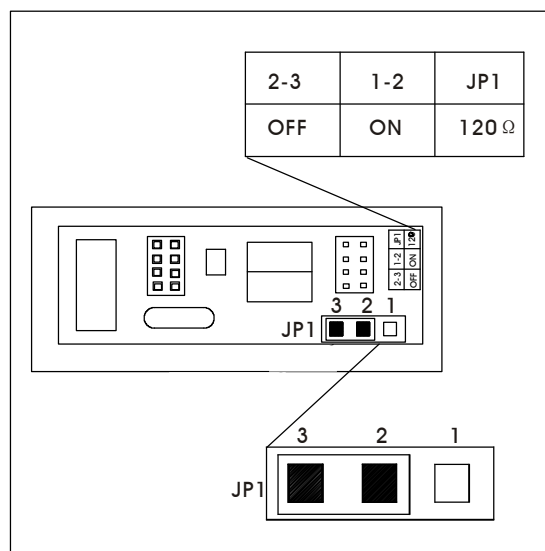
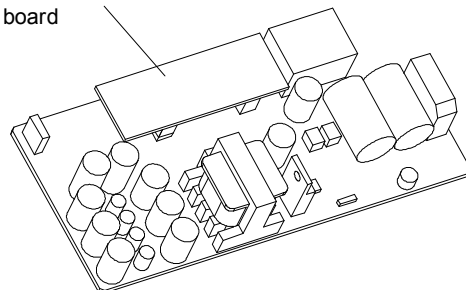
RS485 bus needs two 120 Ohm resistors at both ends. Set on the 120 Ohm resistors of the two devices (keyboard or dome) in the farthest distance on RS485 bus. Refer to page 57 for more RS485 details.

When connecting pins 1&2 in JP1, the 120 Ohms termination resistor is connected. When connecting pins 2&3 in JP1, the termination resistor is unconnected. Default setting is OFF(unconnected).

Protocol board



Protocol board



Appendix II: Wire Diameter & Transmission Distance Comparison 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.

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 (183)
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)	89 (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 (9)	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)

Power (VA)

Transmission Distance (Feet(m))

Wire Gauge Conversion Chart

Bare wire diameter metric size (mm)	AWG (approximate)	SWG (approximate)	QQ-1 type maximum outer diameter (mm)	Bare wire cross-sectional area (mm)
0.050	43	47	0.065	0.00196
0.060	42	46	0.080	0.00283
0.070	41	45	0.090	0.00385
0.080	40	44	0.100	0.00503
0.090	39	43	0.110	0.00636
0.100	38	42	0.125	0.00785
0.110	37	41	0.135	0.00950
0.130	36	39	0.155	0.01327
0.140	35		0.165	0.01539
0.160	34	37	0.190	0.02011
0.180	33		0.210	0.02545
0.200	32	35	0.230	0.03142
0.230	31		0.265	0.04115
0.250	30	33	0.290	0.04909
0.290	29	31	0.330	0.06605
0.330	28	30	0.370	0.08553
0.350	27	29	0.390	0.09621
0.400	26	28	0.440	0.1257
0.450	25		0.490	0.1602
0.560	24	24	0.610	0.2463
0.600	23	23	0.650	0.2827
0.710	22	22	0.760	0.3958
0.750	21		0.810	0.4417
0.800	20	21	0.860	0.5027
0.900	19	20	0.960	0.6362
1.000	18	19	1.07	0.7854
1.250	16	18	1.33	1.2266
1.500	15		1.58	1.7663
2.000	12	14	2.09	3.1420
2.500			2.59	4.9080
3.00				7.0683

Appendix III: RS485 Bus Basic Knowledge

1. Characteristics of RS485 Bus

As specified by RS485 standards, RS485 Bus is of half-duplexed 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:

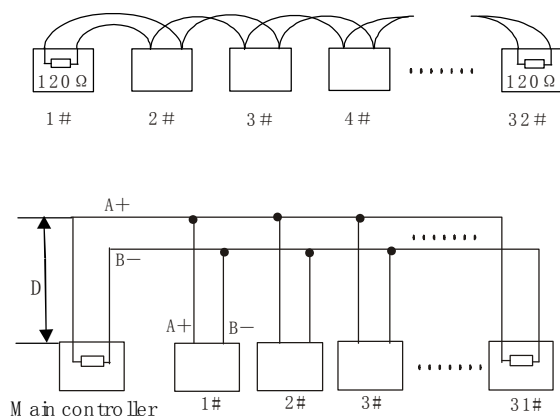
Baud Rate	Transmission Distance (Max.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

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).

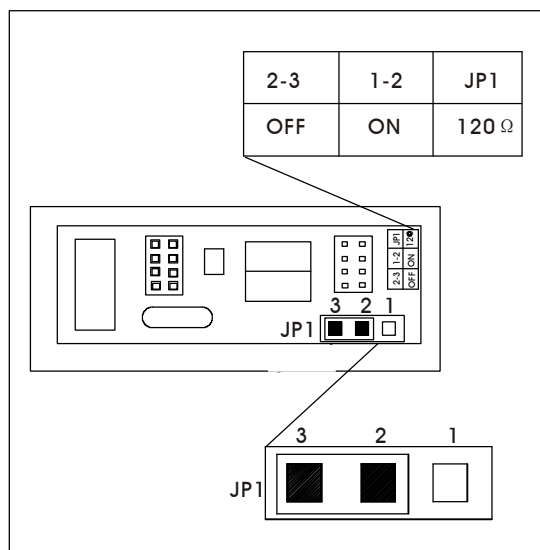
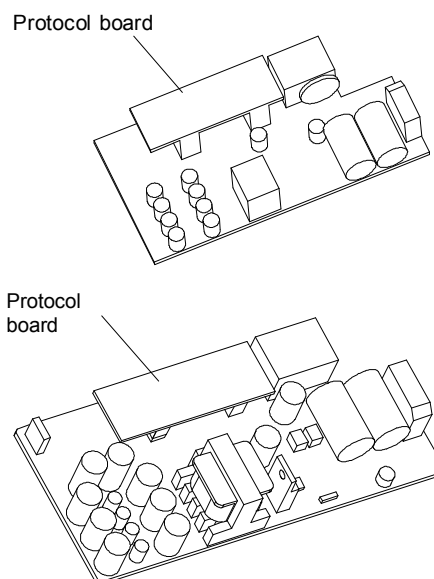
Please refer to below pictures for simple connection. Distance "D" should not exceed 7 meters.



3-2 The connection of 120 Ohm termination resistor:

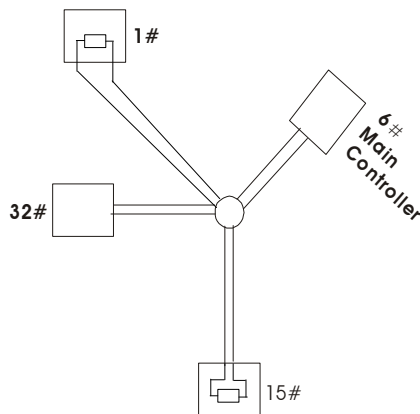
The termination resistor is ready on the Protocol PCB. There are two kinds of connection. Refer to the Protocol PCB jumper setting form (refer to following pictures).

- 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.

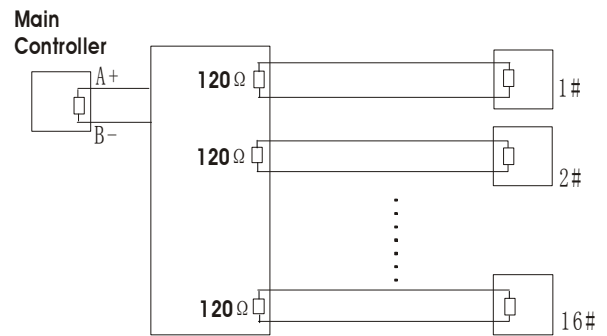


4. Problems in practical connection

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).



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).



5. RS485 Bus Troubleshooting (refer to following form)

Trouble	Possible Cause	Solution
Dome can do self-testing but cannot be controlled	1. The address and baud rate settings of dome are not in conformity with those of controller 2. The "+" and "-" connection of RS485 Bus is incorrect 3. Wiring is not fully seated 4. There is breakage in the middle section of the RS485 Bus	1. Change the address and baud rate of controller or dome 2. Correct the connection 3. Make sure the connections are fully seated
The dome can be controlled but the operation is not smooth	1. The RS485 Bus line is not in good contact with the connectors 2. One wire of the RS485 Bus is broken 3. The dome is very far away from controller 4. There are too many domes connected in the system	1. Secure the connection 2. Replace RS485 Bus wires 3. Add termination resistors to the system 4. Install RS485 distributor

Appendix IV: Lightning Proof & Surge Proof

The product adopts TVS lightning proof technology to prevent from damage by lightning strike below 4000V and impulse signals such as surge; but it is also necessary to abide by the following precautions to ensure electrical safety based on practical circumstances:

Keep the communication cables at least 50 meters away from high voltage equipment or cables.

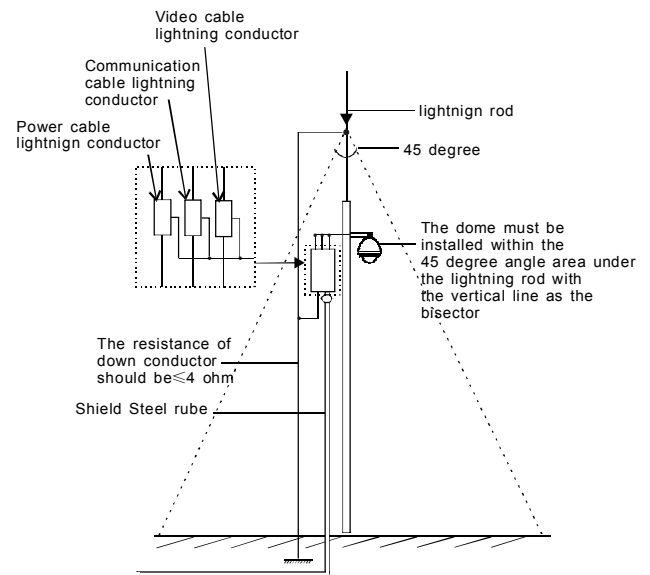
Make outdoor cable laying-out under eaves as possible as you can.

In open area shield cables in steel tube and conduct a single point ground to the tube. Trolley wire is forbidden in such circumstances.

In strong thunderstorm or high faradic zone (such as high voltage transformer substation), extra strong lightning proof equipment must be installed.

Take the building lightning proof requirements into account to design the lightning proof and grounding of outdoor equipment and cable laying-out in accordance with the national and industrial standards.

The system must be grounded with equal potentials. The earth ground connection must satisfy the anti-interference and electrical 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 V: The Cleaning of Down Cover

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

Be cautious 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 images.

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 VI: Trouble Shooting

Trouble	Possible Causes	Solution
No action, no video after powered up	If the red LED on the connection board in the housing is not lit, causes may be: 1. The 24V AC power supply is not connected to the port of the connection board or the contact is not good 2. The municipal power supply has been cut off or the 24V AC transformer is in malfunction If the red LED on the connection board in the housing is lit, causes may be: 1. Fuse is bad or it is not installed 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 contact 3. 24V AC transformer outputs voltage is too low 4. The power PCB is faulty	1. Check if the power supply is connected, or confirm if the plug contacts well 2. Check to see if the municipal power supply has been cut off. Check to see if the 24V AC transformers is ok 1. Replace the fuse. The fuse is a 4-ampere one 2. Check and confirm all the wire connections are correct and good in contact 3. Use a voltmeter to check the voltage load to the dome. If the voltage is less than 24V AC, the voltage is not applicable 4. Please contact factory or distributor for replacement of power PCB
Self-testing and image are normal but the dome is uncontrollable	1. The dome DIP switch setting is incorrect 2. The two poles of the control cables are connected wrongly or the connection is open	1. Reset the DIP switches as per the DIP switch setting chart 2. Check the control cables and confirm the connection is correct and good in contact
Fan does not function	1. Wire connection of fan is faulty	1. Connect the fan wire. If the fan still does not function, contact the distributor or factory
Vague image	1. Manual focus has been set 2. Unclean down cover	1. Operate dome or call any preset 2. Clean the down cover

User Manual

High Speed Dome



① Before using the product, please read this manual carefully.

CE FC

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