IR Intelligent Speed Dome Installation Manual

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Welcome

Thank you for purchasing our speed dome!

Please read the following safeguards and warnings carefully before you install or use the product!

Important Safeguards and Warnings

Safety Measures

1. Qualified Engineer Needed

- The installation engineer or maintenance engineer shall have corresponding CCTV system installation certificate or maintenance qualification certificate.
- The installation engineer or maintenance engineer shall have qualification certificate for work at height.
- The installation engineer or maintenance engineer shall have the basic knowledge and operation technique for low-voltage cable layout and low-voltage electronic cable connection.
- Please read the installation manual carefully and keep it well for future reference,
- We are not liable for any problems caused by unauthorized modifications or attempted repair.

2. Lifting Appliance Requirement

- Please select the proper speed dome installation mode and use the lifting appliances at the safety environment.
- The lifting appliances shall have the enough capacity to reach the installation height.
- The lifting appliances shall have safe performance.

The precaution measures include two types: Warning and Note.

- **Warning**: It is to alert you there is an optional risk of death or series injury!
- **Note**: It is to alert you there is an optional risk of damage or property loss!

Warning

1. All installation and operation here should conform to your local electrical safety codes. We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.
2. Be sure to use all the accessories (such as power adapter) recommended by manufacturer.
3. Do not connect several speed domes to one power adapter. It may result in overheat or fire if it exceeds the rated load.
4. Before you connect the cable, install or uninstall, or begin the daily maintenance work, please turn off the power and unplug the power cable.
5. Please make sure the produce is secure firmly on the wall or the ceiling.
6. Please turn off the power and unplug the power cable, If there is any smoke, disgusting smell, or noise. Please contact your local retailer or customer service centre for help.
7. All the examination and repair work should be done by the qualified service engineers. We are not liable for any problems caused by unauthorized modifications or attempted repair.

Note

1. Safety Transportation

- Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
- This series product must use split type package during the transportation.
- We are not liable for any damage or problem resulting from the integrated package during the transportation.

2. When device is malfunction

Shut down the device and disconnect the power cable immediately if there is smoke, abnormal smell or abnormal function. Please contact your local retailer ASAP.

3. Do not try to dismantle or modify the device

- There is risk of personal injury or device damage resulting from opening the shell.
- Please contact your local retailer if there is internal setup or maintenance requirement.
- We are not liable for any problems caused by unauthorized modifications or attempted repair.

4. Do not allow other object falling into the device

- Please make sure there is no metal or inflammable, explosive substance in the speed dome.
- The above mentioned objects in the device may result in fire, short-circuit or damage.
- Please shut down the device and disconnect the power cable if there is water or liquid falling into the camera. Please contact your local retailer ASAP.
- Please pay attention to the camera. Avoid the sea water or rain to erode the camera.

5. Handle carefully

Do not allow this series product fall down to the ground.
Avoid heavy vibration.

6. Installation Environment Requirement

- This series speed dome should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.
- This series product shall be away from the strong electromagnetism radiant, please keep it away from wireless power, TV transmitter, transformer and etc.

7. Daily Maintenance

- Please use the soft cloth to clean dust on the shell, or you can use soft cloth with cleaning liquid to clean the shell and then use soft cloth to make it dry.
- Do not use gasoline, dope thinner or other chemical material to clean the shell. It may result in shell transfiguration or paint flake.
- Do not allow the plastic or rubber material to touch the shell for a long time. It may result in paint flake.

1 Installation Preparation

1.1 Basic Requirements

- All installation and operation here should conform to your local electrical safety codes, fire protection regulations and relevant regulations.
- Make sure if the application scenarios of speed dome conforms to the installation requirements. Please contact your local retailer if you have any confusion.
- Please use the product according to the operating environment.
- Please keep the original packing material well after opening the package, which is used to pack speed dome and send it back for repair in case problems happen.

1.2 Installation Check

- Please make sure the installation environment has enough space to install the speed dome and its corresponding mounting components.
- Please make sure the ceiling and wall can sustain 8X weight of the speed dome and its mounting components.
- Please make sure the wall is thick enough to install expansion bolts (Users need to purchase expansion bolts separately).
- It needs to guarantee that the mounting height has to be more than 6m if the speed dome is laser speed dome.

1.2.1 Select Needed Power Supply Cable According to Transmission Distance

Refer to appendix II for DC 12V power supply device.

2 Speed Dome Installation

2.1 Check Accessories

Before the installation, please check the accessories one by one according to the packing list. Please make sure all the components listed are included.

2.2 Open Device

Open the package and then take out the device. See Figure 2-1.
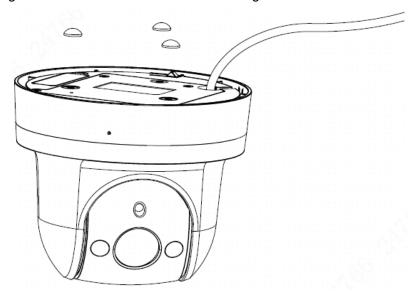

Figure 2-1

2.3 Use Instruction of Installation Position Map

The installation position map is used for drilling position on the hard ceiling and confirming the location of cable exit. The beeline part is the mechanical blind spot. Please paste it according to your actual requirement to avoid mechanical blind spot. See Figure 2-2.
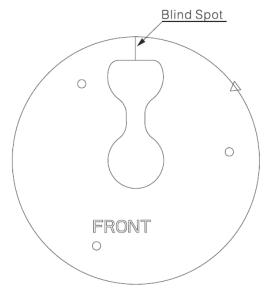

Figure 2-2

2.4 Micro SD Card Slot, Reset Button and WPS Button Location

Micro-SD card slot, reset button and WPS button are shown in Figure 2-3, the way of using each component is shown as follows:

- Please make sure SD card is in the non-read or write status when removing Micro-SD card, otherwise it may cause data loss and SD card damage.
- Press the WPS button on the speed dome and router respectively to make the speed dome connect to network.
- Press the WPD button for at least 10s, and then the system config info will be restored to factory default settings.
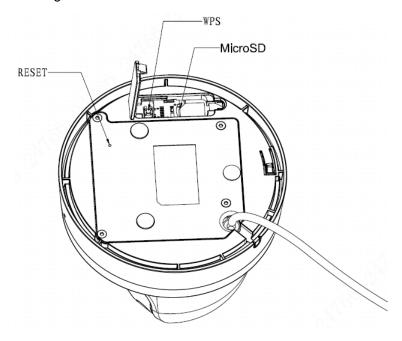

Figure 2-3

2.5 Speed Dome Cable

2.5.1 Cable Description

The camera is equipped with a multi-functional combination cable by default, which includes power cable, video cable, audio cable, RS485 control cable, alarm cable, network cable, high-frequency cable and optical fiber cable etc. The cable detail is shown in Figure 2-4.
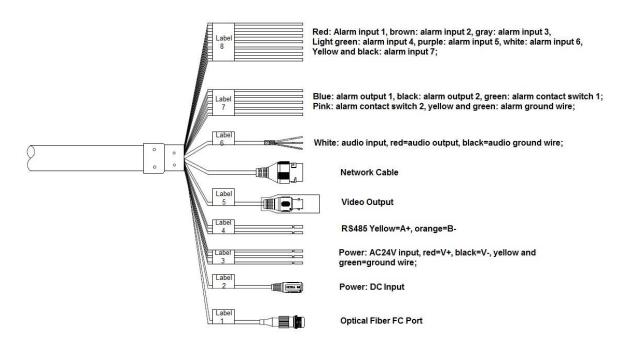
Figure 2-4

Note

Different models have different cable combinations; please refer to the actual cable combination for more details. The cable combination is the most comprehensive example shown in the figure above.

2.5.2 Cable Connection

Buckle the safety hook of speed dome on the quick mount connector; connect the integrated cable reserved by wall-mounted bracket to the corresponding power cable, video cable, audio cable, RS485 control cable, alarm cable, network cable, high-frequency cable and optical fiber cable etc. of the multi-functional combination cable of the speed dome (according to requirement), and then use insulated rubber tape to twine the cable connection well to make it waterproof. Refer to Figure 2-4 for more details.

2.5.3 Alarm Cable Connection

The alarm cable connection mode and config steps are shown as follows:

Step 1

Connect alarm input device to the ALARM_IN and ALARM_GND of the user cable.

Step 2

Connect alarm output device to the ALARM_OUT and ALARM_COM of the user cable, alarm output is the relay switch output.

Step 3

Open the device WEB interface, make corresponding settings to the alarm input and output device in "Setup > Event > Alarm Setup". The alarm input of WEB is corresponding to the alarm input of the user cable. It is to set the corresponding NO and NC output according to the high and low level signal generated by alarm input device when alarm triggers.

Step 4

Set the alarm output situation of user cable on the WEB.

2.5.4 Connect Speed Dome GND Cable

Connect the power line YELLOW/GREEN of the combination cable to the lightning protection device, and make sure the lightning protection device is well grounded.

3 Ceiling-mounted Installation

3.1 Mounting Components

The ceiling-mounted installation of the device is shown in Figure 3-1.
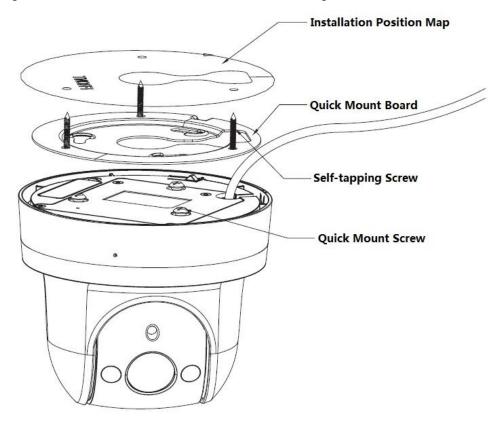

Figure 3-1

3.2 Ceiling-mounted Installation Steps

3.2.1 Installation Conditions

The ceiling-mounted speed dome can be installed on the hard ceiling structure in the indoor environments. The ceiling needs to satisfy the following conditions.

● The ceiling is thick enough to install expansion bolts.
● The ceiling can sustain at least 8X weight of the speed dome.

3.2.2 Installation Steps

There are two wiring modes for ceiling-mounted installation.

● It supports open wiring from side of the device if it fails to dig holes on the ceiling.
● It supports concealed wiring inside the ceiling if it digs holes on the ceiling.

Here it is to take concealed wiring mode inside the ceiling as an example and introduce the installation steps of the speed dome. The steps are shown in Figure 3-2.

Step 1

Confirm mounting location and cable exit mode, take installation position map as template, mark the punching position on the ceiling and dig holes, and then insert three plastic expansion bolts into the holes you have dug.

Step 2

Twist the three quick mount screws into the holes of pedestal, lay the outgoing line well according to the wiring mode, and then use three self-tapping screws to fix the quick mount metal plate on the ceiling, twist the screws into the expansion bolts, which is shown in Figure 3-2.
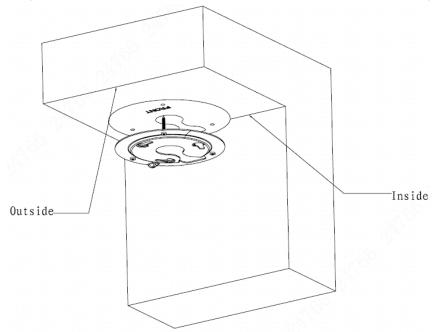

Figure 3-2

Step 3

Align the three quick mount screws at the bottom of the pedestal and the concave with the three holes and the U slot at the quick mount metal plate respectively. Turn the speed dome anticlockwise to secure the speed dome and the metal plate closely. Please refer to Figure 3-3.

Note
When the arrow on the installation position map turns to the character "open" at the side of the speed dome, you can see the speed dome and then metal plate are closely secured.
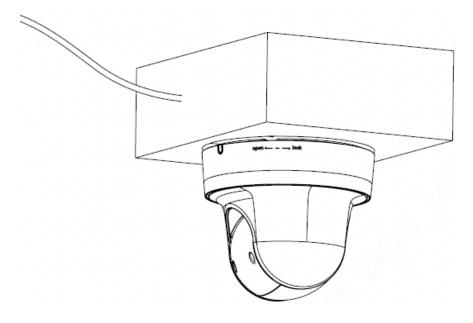

Figure 3-3

4 Wall-mounted Installation

4.1 Mounting Component

The wall-mounted bracket is shown in Figure 4-1.

Wall-mounted Bracket

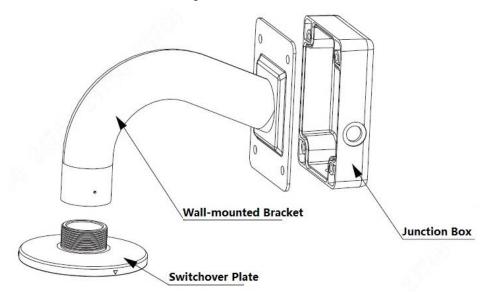**Junction Box**

Switchover Plate

Figure 4-1

4.2 Wall-mounted Installation Steps

4.2.1 Installation Conditions

The wall-mounted speed dome can be installed on the hard wall structure in the indoor environments. The wall needs to satisfy the following conditions.

● The wall is thick enough to install expansion bolts.
● The wall can sustain at least 8X weight of the speed dome and bracket.

4.2.2 Installation Steps

Step 1

Take the mounting holes on the bottom of junction box as template, mark the punching position on the wall and dig holes, then insert the expansion bolts into the holes which have been dug. Use four hex nuts and flat gasket to twist the junction box into the expansion bolts which have been well dug. Please refer to Figure 4-2 for more details.
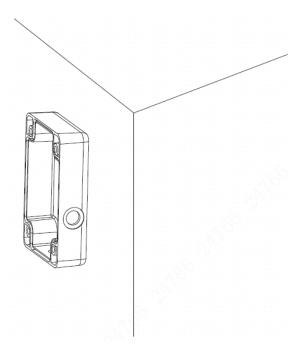
Figure 4-2

Step 2

Twist the switchover plate into the internal thread of the wall-mounted bracket, twist screws into the holes on the right of wall-mounted bracket to fix the switchover plate, it has to be tightened completely, otherwise it will cause the risk of device falling due to improper installation. Use three M4 screws to fix the quick mount metal plate on the switchover plate, which is shown in Figure 4-3.

Be aware of the direction of cable exit

Figure 4-3

Step 3

Insert three quick mount screws into the holes on the pedestal; insert the device combination cable into the switchover plate and cylindrical end of wall-mounted bracket and pull it out from the other end of the wall-mounted bracket. Align the three quick mount screws and concave on the device pedestal with three holes and U groove on the metal plate, rotate the speed dome anticlockwise to secure the speed dome and metal plate closely, which is shown in Figure 4-4.

Figure 4-4

Step 4

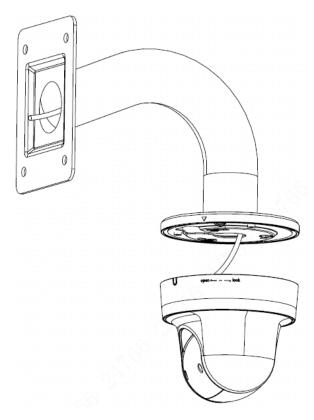Complete cable connection in the junction box and use four M4 screws to fix the wall-mounted bracket into the junction box, so far the speed dome installation has been completed, which is shown in Figure 4-5.
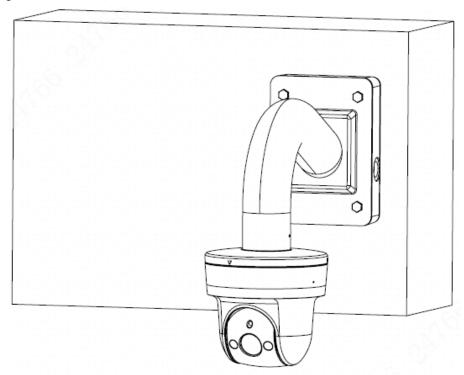

Figure 4-5

5 APPENDIX I LIGHTENING PROTECTION AND SURGE PROTECTION

5.1 Outdoors

This series speed dome adopts TVS lighting protection technology. It can effectively prevent damages from various pulse signals below 6000V, such as sudden lighting and surge. While maintaining your local electrical safety code, you still need to take necessary precaution measures when installing the speed dome in the outdoor environment.

- The distance between the signal transmission cable and high-voltage device (or high-voltage cable) shall be at least 50 meters.
- Outdoor cable layout shall go under the penthouse if possible.
- For vast land, please use sealing steel tube under the land to implement cable layout and connects one point to the earth. Open floor cable layout is forbidden.
- In area of strong thunderstorm hit or near high sensitive voltage (such as near high-voltage transformer substation), you need to install additional high-power thunder protection device or lightning rod.
- The thunder protection and earth of the outdoor device and cable shall be considered in the building whole thunder protection and conform to your local national or industry standard.
- System shall adopt equal-potential wiring. The earth device shall meet anti-jamming and at the same time conforms to your local electrical safety code. The earth device shall not short circuit to N (neutral) line of high voltage power grid or mixed with other wires. When connect the system to the earth alone, the earth resistance shall not be more than $4\,\Omega$ and earth cable cross-sectional area shall be no less than 25 mm^2. See Figure 5-1.
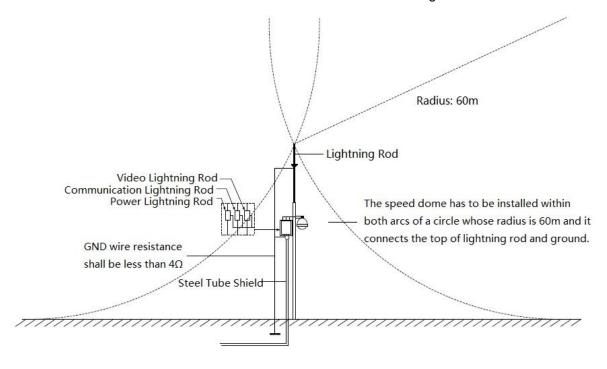

Figure 5-1

5.2 Indoors

The yellow and green GND wire or GND screw of the speed dome should be reliably connected by several strands of copper wire with no less than 25mm^2 and indoor equipotential GND terminal. Please refer to Figure 5-2 for lightningproof installation mode.

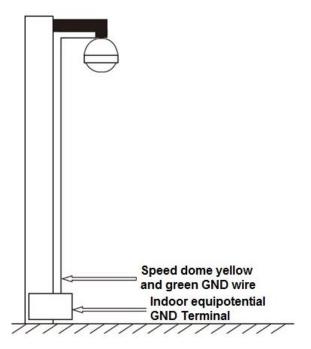Speed dome yellow and green GND wire

Indoor equipotential GND Terminal

Figure 5-2

6 APPENDIX II DC 12V WIRE GAUGE AND TRANSMISSION DISTANCE RELATIONSHIP SHEET

It is the recommended transmission distance when the cable diameter is fixed and the DC12V power consumption is below 10%. For the DC device, the max permission voltage power consumption is 10%. The cables used in the following sheet are all copper wires. (The resistivity of copper is $\rho = 0.0175\Omega * mm^2/m$)

Feet（m） w ＼ mm	0.8000	1.000	1.250	2.000
5	122.13（37.23）	190.83（58.16）	298.17（90.88）	763.31（232.66）
10	61.06（18.61）	95.41（29.08）	149.08（45.44）	381.66（116.33）
15	40.71（12.41）	63.61（19.39）	99.39（30.29）	254.44（77.55）
20	30.53（9.31）	47.71（14.54）	74.54（22.72）	190.83（58.16）
25	24.43（7.45）	38.17（11.63）	59.63（18.18）	152.66（46.53）
30	20.35（6.20）	31.80（9.69）	49.69（15.15）	127.22（38.78）
35	17.45（5.32）	27.26（8.31）	42.60（12.98）	109.04（33.24）
40	15.27（4.65）	23.85（7.27）	37.27（11.36）	95.41（29.08）
45	13.57（4.14）	21.20（6.46）	33.13（10.10）	84.81（28.85）
50	12.21（3.72）	19.08（5.82）	29.82（9.09）	76.33（23.27）
55	11.10（3.38）	17.35（5.29）	27.11（8.26）	69.39（21.15）
60	10.18（3.10）	15.90（4.85）	24.85（7.57）	63.61（19.39）
65	9.39（2.86）	14.68（4.47）	22.94（6.99）	58.72（17.90）
70	8.72（2.66）	13.63（4.15）	21.30（6.49）	54.52（16.62）
75	8.14（2.48）	12.72（3.88）	19.88（6.06）	50.89（15.51）
80	7.63（2.33）	11.93（3.64）	18.64（5.68）	47.71（14.54）
85	7.18（2.19）	11.23（3.42）	17.54（5.35）	44.90（13.69）
90	6.78（2.07）	10.60（3.23）	16.56（5.05）	42.41（12.93）
95	6.43（1.96）	10.04（3.06）	15.69（4.78）	40.17（12.25）
100	6.11（1.86）	9.54（2.91）	14.91（4.54）	38.17（11.63）

7 APPENDIX IV WIRE GAUGE REFERENCE SHEET

Metric bare wire diameter （mm）	AWG	SWG	Bare wire cross section （mm^2）
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	0.1257
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		1.7663
2.000	12	14	3.1420
2.500	/	/	4.9080
3.000	/	/	7.0683

Note

- This manual is for reference only. Slight difference may be found in the user interface.
- All the designs and software here are subject to change without prior written notice.
- All trademarks and registered trademarks mentioned are the properties of their respective owners.
- If there is any uncertainty or controversy, please refer to the final explanation of us.
- Please visit our website or contact your local service engineer for more information.