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# **Network Speed Dome Installation Manual**

**Version 1.0.0**

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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!**

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# 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. Do not connect several speed domes to one power adapter. It may result in overheat or fire if it exceeds the rated load.
3. Before you connect the cable, install or uninstall, or begin the daily maintenance work, please turn off the power and unplug the power cable.
4. Please make sure the product is secured firmly on the wall or the ceiling.
5. 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 center for help.

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6. 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.
  - It is highly recommended to use the product with a lightning-proof device, which can realize better lightning-proof effect.

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# 1 Installation Preparation

## 1.1 Basic Requirement

- All installation and operation here should conform to your local electrical safety codes.
- Before installation, please open the package and check all the components are included. Please make sure the speed dome installation environment and installation mode can meet your requirement. If there is special requirement, please contact your local retailer for more information.
- We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

## 1.2 Installation Check

- Please make sure the installation environment has enough space to install the speed dome and its corresponding installation components.
- Please make sure the ceiling or wall can sustain 8X weight of the speed dome and its corresponding components.
- Please make sure the wall is thick enough to install expansion bolts (users need to prepare by themselves).

## 1.3 Cable Preparation

### 1.3.1 The Min Specification Requirements of Cable

- 75 ohm impedance.
- Full cable with copper conductor
- 95% knitted copper shield

### 1.3.2 Cable Selection

For DC 12V power supply device, please refer to appendix II for more details.

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## 2 Speed Dome Installation

### 2.1 Check Accessories

Before 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

Please open the box and then take out the device, which is shown in Figure 2-1.

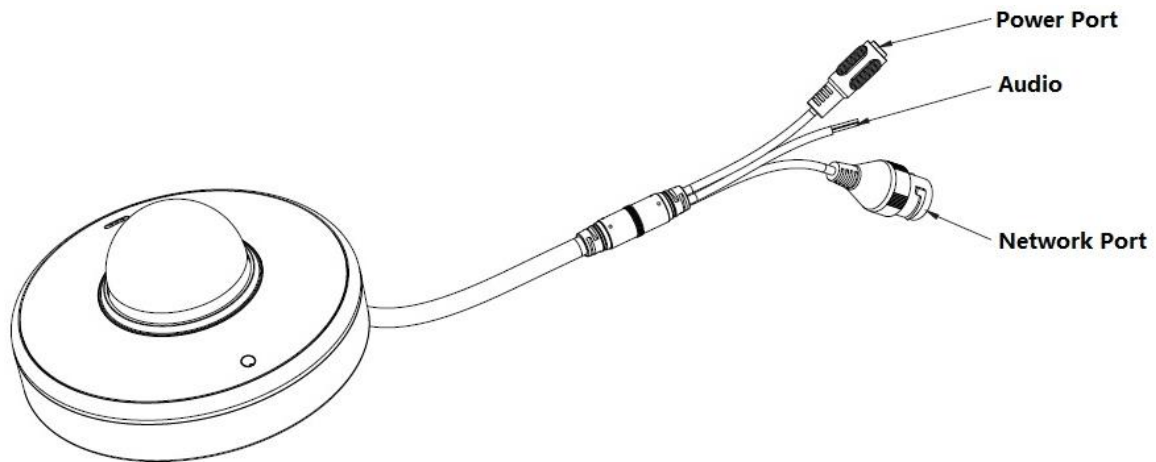


Figure 2-1

### 2.3 Micro SD Card Slot and Reset Button

Turn over the device and you can see there is a cover located on the bottom of the speed dome, which is shown in Figure 2-2.

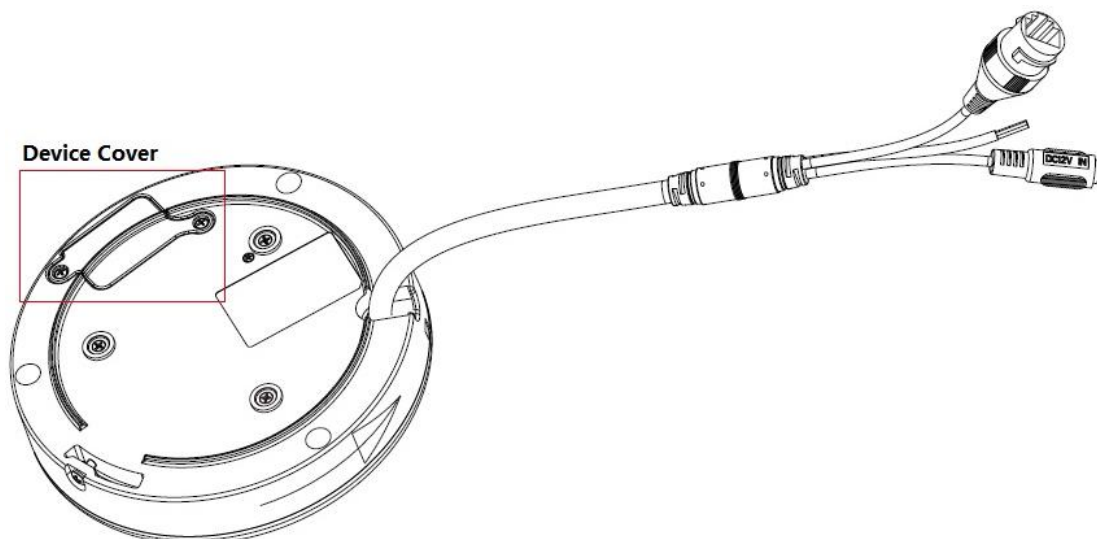


Figure 2-2

Use screwdriver to open the cover, and then you can see the reset button and Micro SD card slot, which is shown in Figure 2-3.



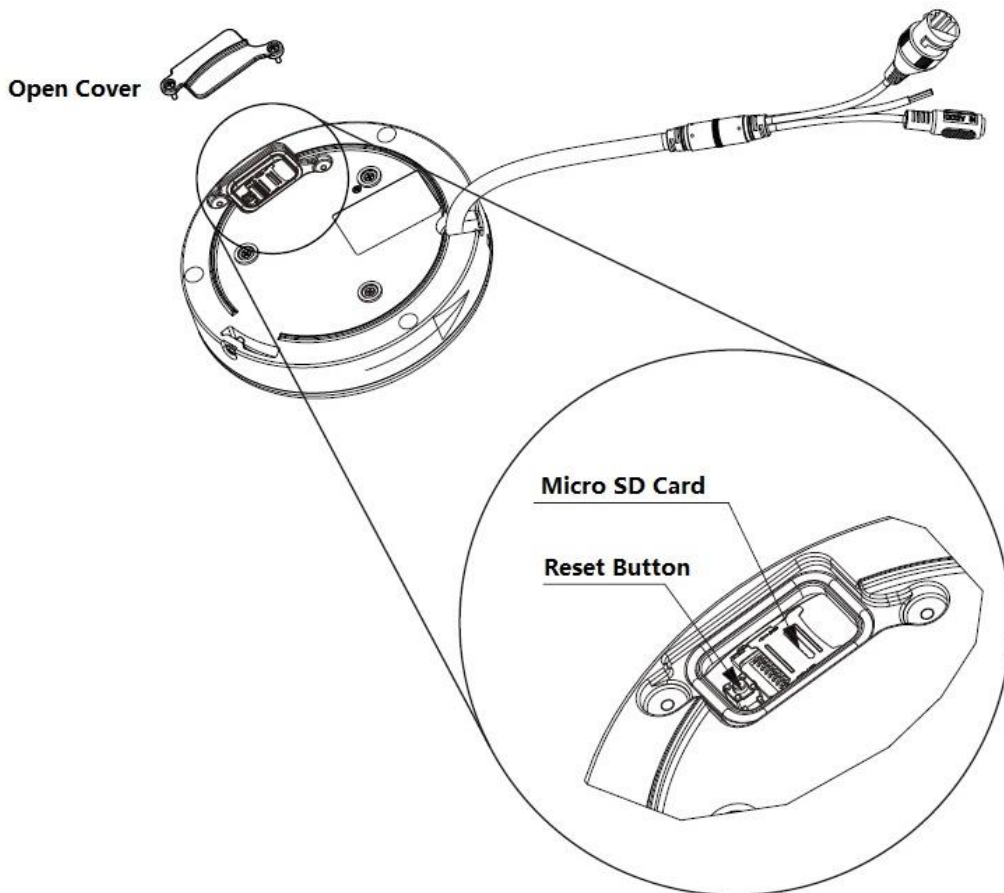


Figure 2-3

### 2.3.1 Use Reset Button

Reset button is used to reset the network system.

Open the device cover, long press the reset button for over 10 seconds to reset the device, and then all the settings will be restored back to factory default.

### 2.3.2 Install Micro SD Card

Micro SD card is used for data storage, the installation steps are shown as follows:

Step 1

(Pay attention to the pull and insert direction of Micro SD card slot) First press down the card slot slightly and open it towards the OPEN direction (refer to the instruction on the slot), then the card slot will become loose.

Step 2

Lay the Micro SD card; please be aware that the card metal surface is corresponding to the golden finger of the card slot.

Step 3

Press the slot slightly and pull it according to the direction of CLOSE.

#### Note

Please make sure the Micro SD card is in the status of non-read & write when removing the Micro SD card, otherwise it may cause data loss and SD card damage.

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## 3 Ceiling Mount

### 3.1 Installation Component

It needs to use installation position map when the speed dome adopts ceiling mount, which is shown in Figure 3-1.

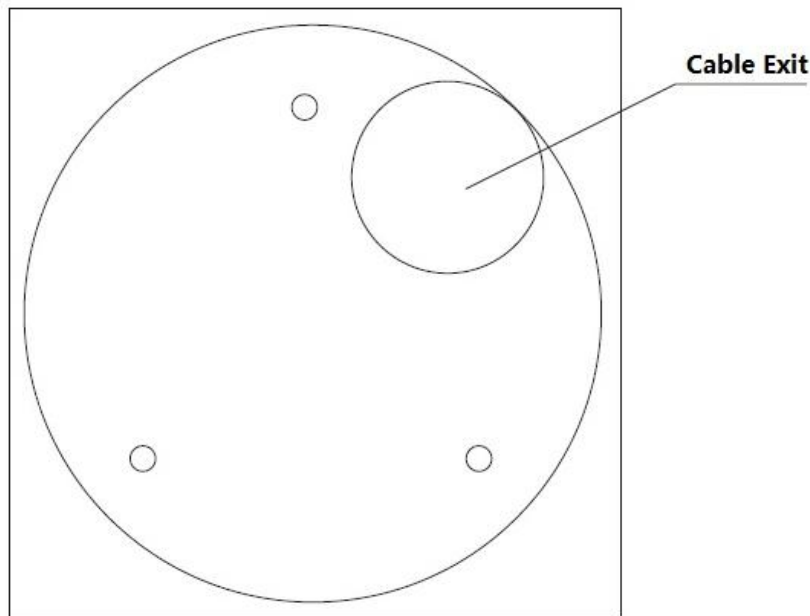


Figure 3-1

### 3.2 Device Installation

#### 3.2.1 Installation Conditions

Ceiling-mounted speed dome can be installed on the hard ceiling structure both indoors and outdoors, the ceiling needs to meet the following installation conditions:

- The ceiling shall be thick enough to install expansion bolts.
- The ceiling shall sustain at least 8X weight of the speed dome, bracket and other accessories.

#### 3.2.2 Installation Steps

##### Step 1

Stick the installation position map of the speed dome on the ceiling after installation location is confirmed, which is shown in Figure 3-2.

##### Note

Make sure the cable outlet is located in the range which needs no monitoring due to the optics reason; otherwise, it will affect image effect and monitoring range.

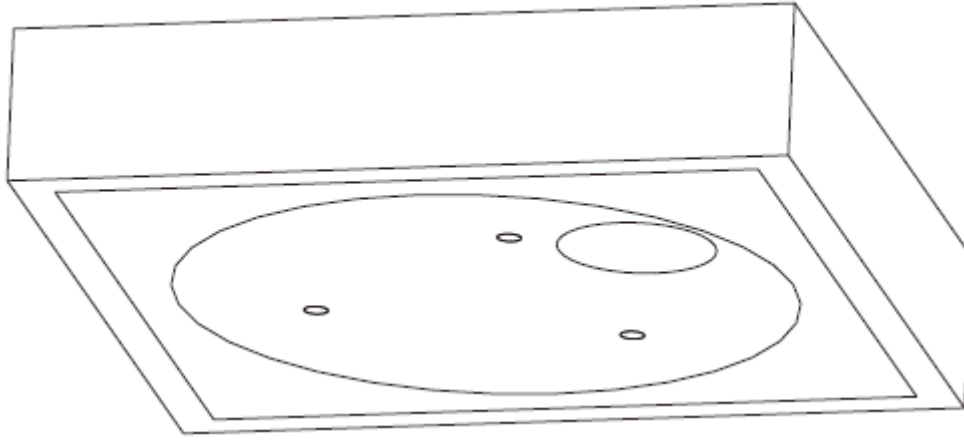


Figure 3-2

**Step 2**

Knock the expansion bolts into the mounting holes and use screws to fix the changeover plate on the ceiling, which is shown in Figure 3-3.

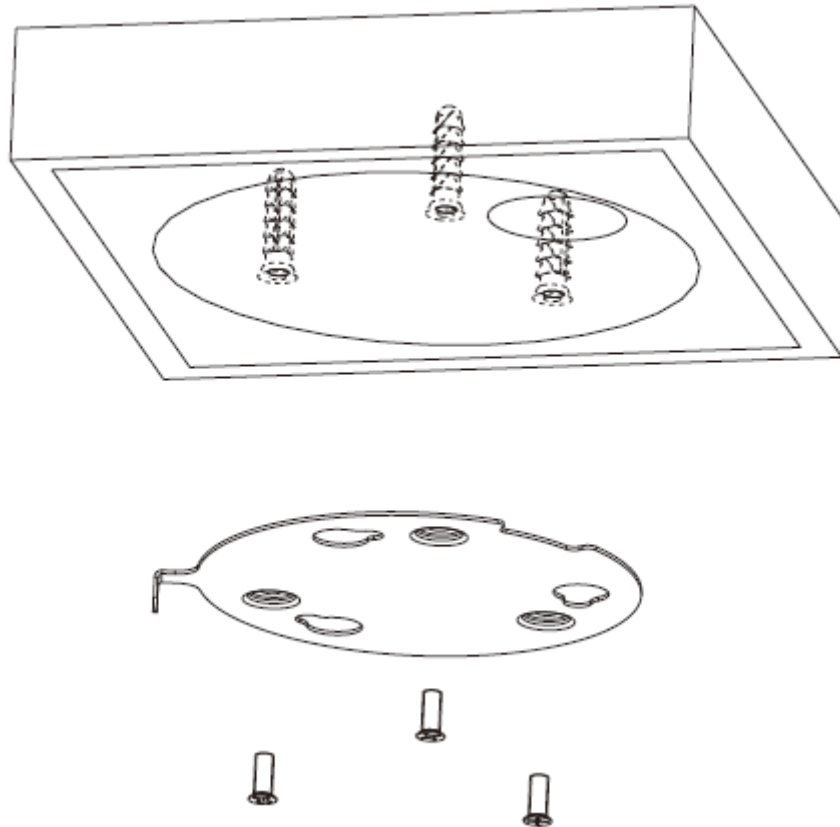


Figure 3-3

**Step 3**

Place the speed dome pedestal closely to the changeover plate after pulling the cable through the hole, rotate it according to the arrow shown on the device edge and hang the speed dome on the changeover plate, which is shown in Figure 3-4.

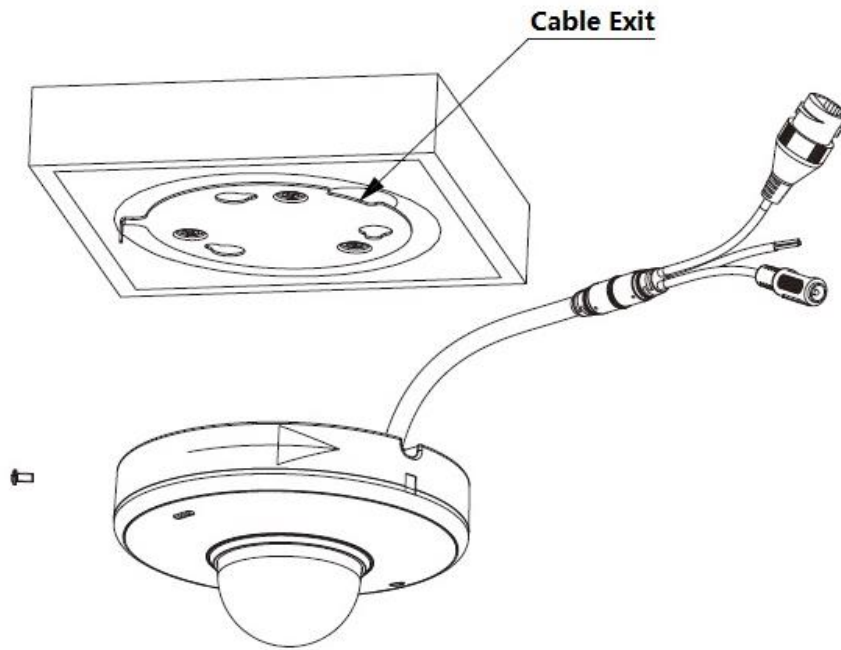


Figure 3-4

**Step 4**

Insert the screws into the holes on the side of changeover plate to fix the speed dome together with the changeover plate, which is shown in Figure 3-5.

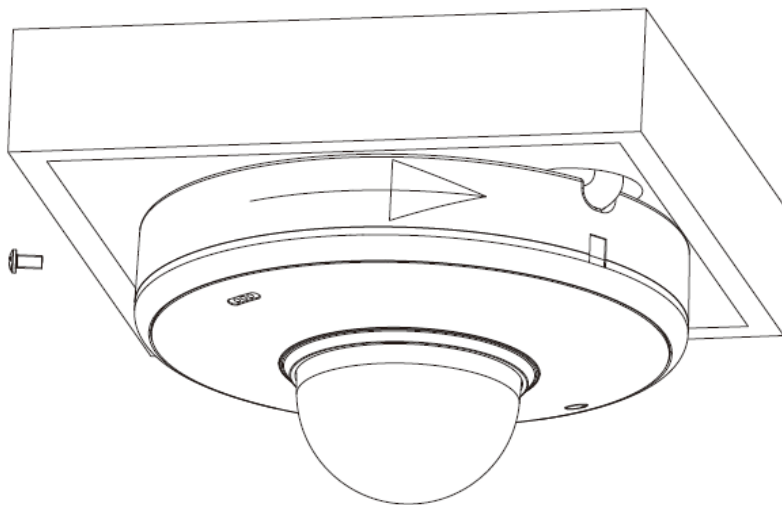


Figure 3-5

Installation is completed, which is shown in Figure 3-6.

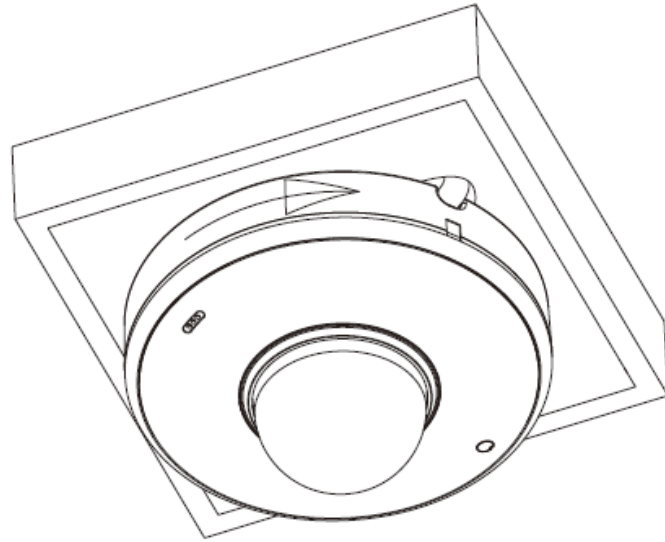


Figure 3-6

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## 4 Wall Mount

### 4.1 Installation Component

As for wall mount, it needs to use wall-mounted bracket and ceiling bracket, which is shown in Figure 4-1 and Figure 4-2 respectively.

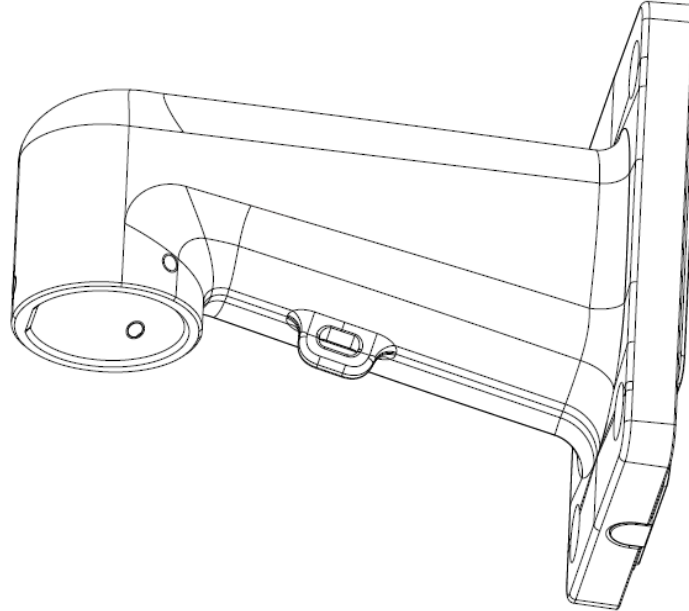


Figure 4-1

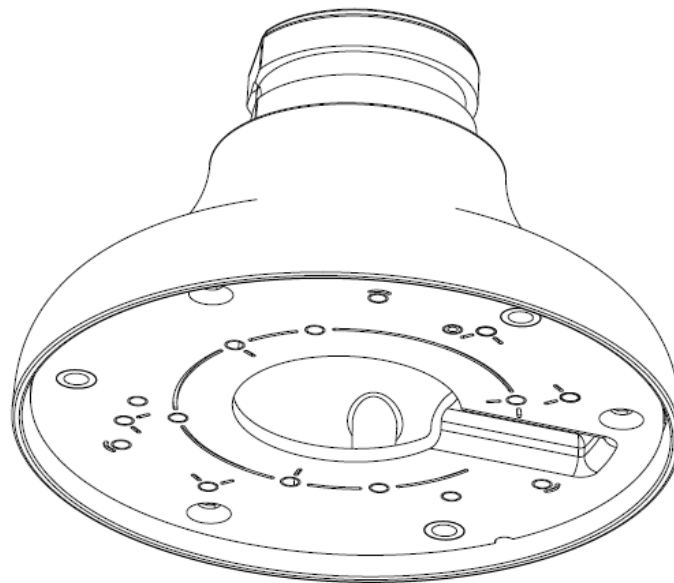


Figure 4-2

### 4.2 Device Installation

#### 4.2.1 Installation Conditions

Wall-mounted speed dome can be installed on the hard wall structure both indoors and outdoors, the wall needs to meet the following installation conditions:

- The wall shall be thick enough to install expansion bolts.

- 
- The wall shall sustain at least 8X weight of the speed dome, bracket and other accessories.

## 4.3 Installation Steps

### Step 1

Pull the device cable through the ceiling changeover plate, which is shown in Figure 4-3.

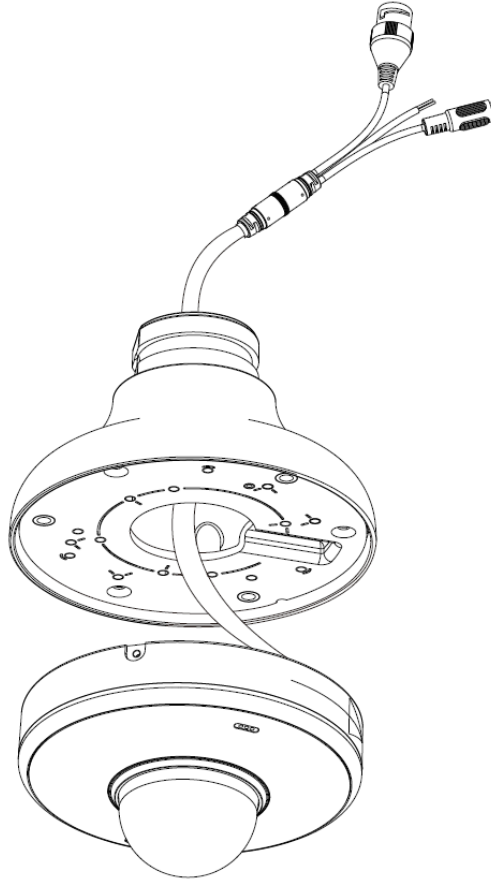


Figure 4-3

### Step 2

Place the device cable closely into the wiring channel and use screws to install changeover plate of speed dome on the ceiling changeover plate, which is shown in Figure 4-4.

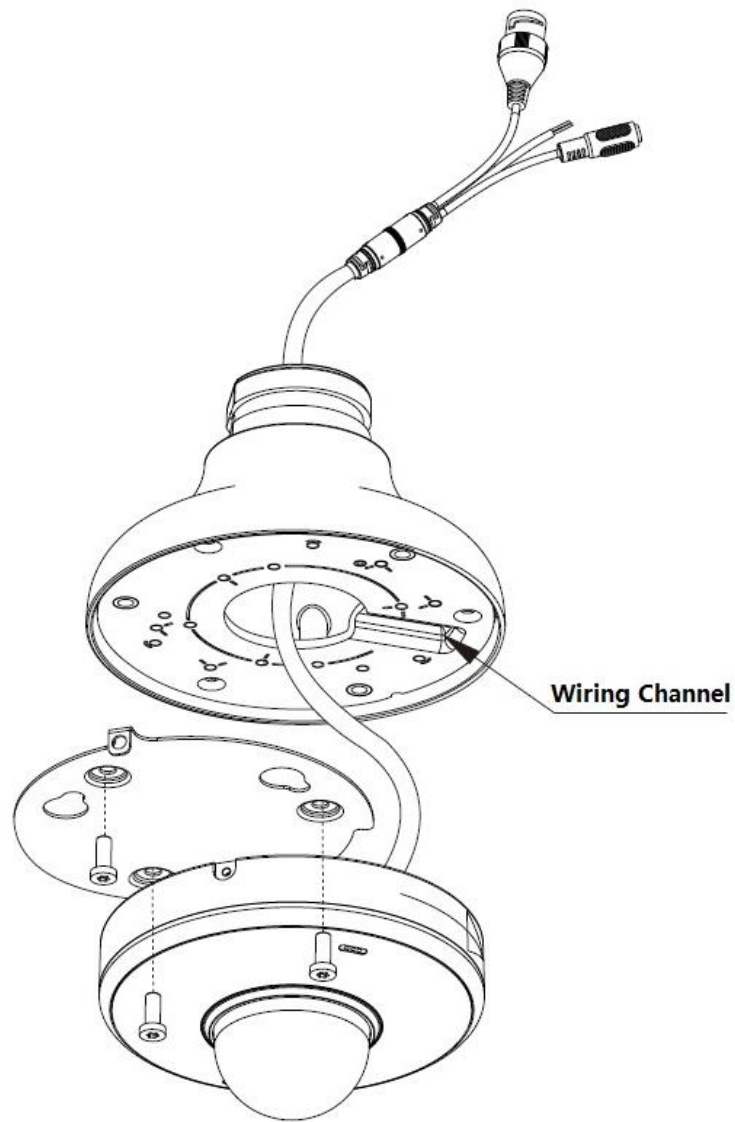


Figure 4-4

**Step 3**

Rotate the speed dome clockwise after the device pedestal is closely clung to the changeover plate, and then hang the speed dome on the changeover plate, which is shown in Figure 4-5.



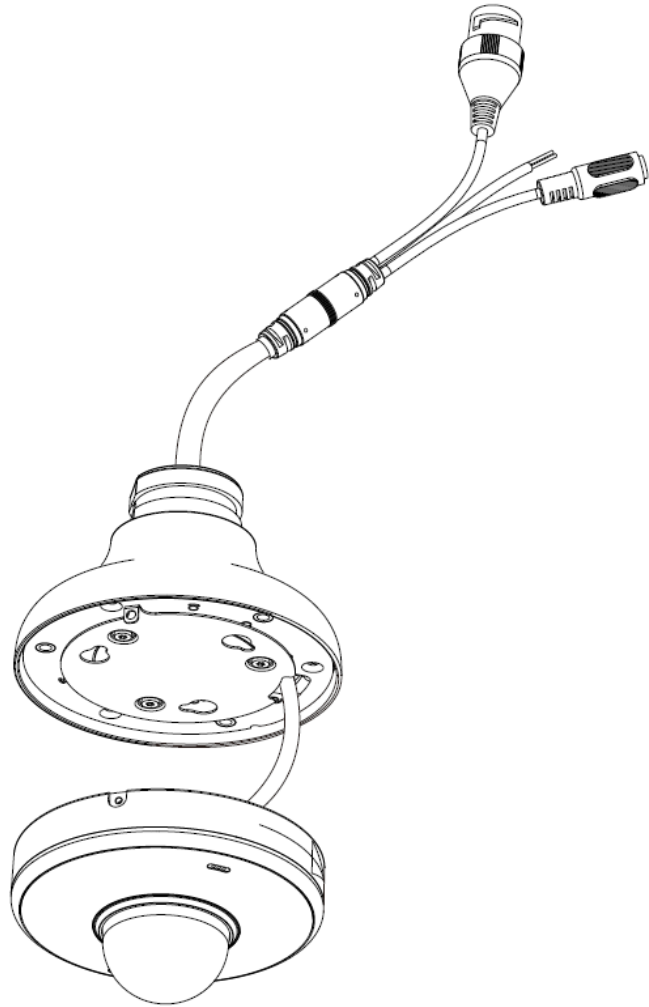


Figure 4-5

**Step 4**

Insert the screw into the holes on the side of changeover plate, and then fix the speed dome together with the changeover plate, which is shown in Figure 4-6.

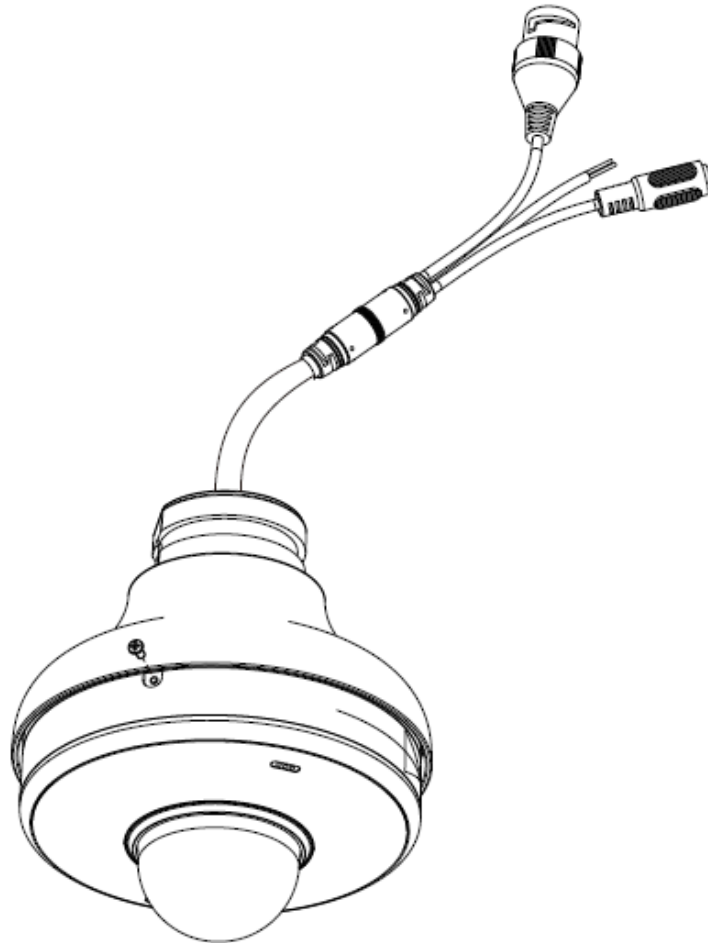


Figure 4-6

**Step 5**

Pull the device cable and ceiling changeover plate flange through the wall-mounted bracket, twist the screws into the wall-mounted bracket, and then fix the changeover plate and speed dome on the wall-mounted bracket, which is shown in Figure 4-7.

**Note**

Make sure the wiring channel is located in the range which needs no monitoring due to the optics reason; otherwise, it will affect image effect and monitoring range.

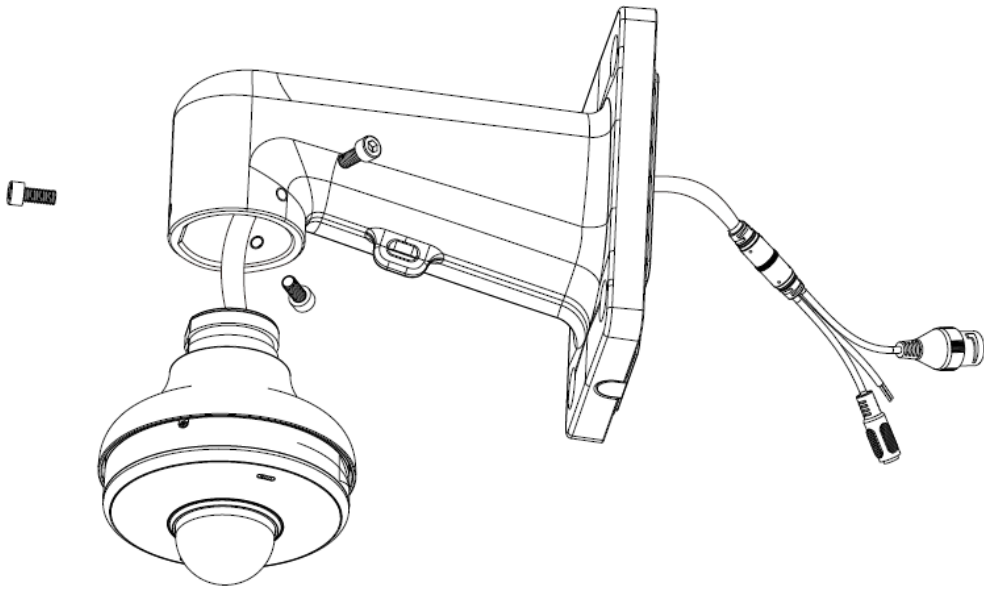


Figure 4-7

**Step 6**

Fix the bracket on the wall after connecting the device cable to the wall cable, fix the bracket on the wall and speed dome installation is completed, which is shown in Figure 4-8.

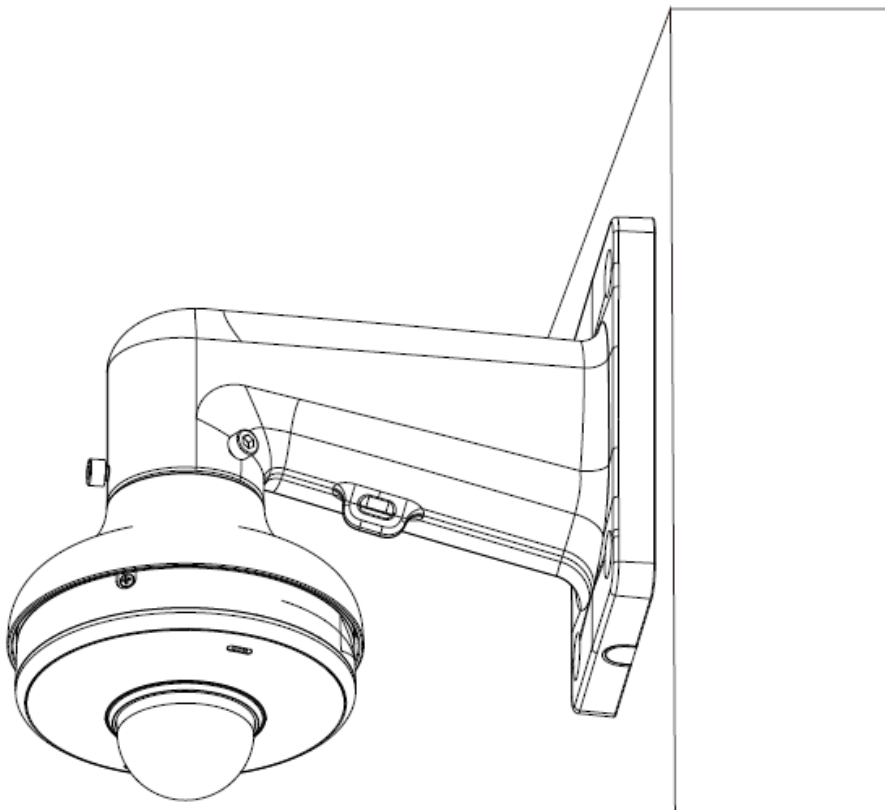


Figure 4-8

## 5 APPENDIX I LIGHTNING PROOF AND SURGE

### PROTECTION (Outdoors)

This series speed dome adopts TVS lightning protection technology. It can effectively prevent damages from various pulse signals below 6000W, such as sudden lightning 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  $25\ \text{mm}^2$ . See Figure 5-1.

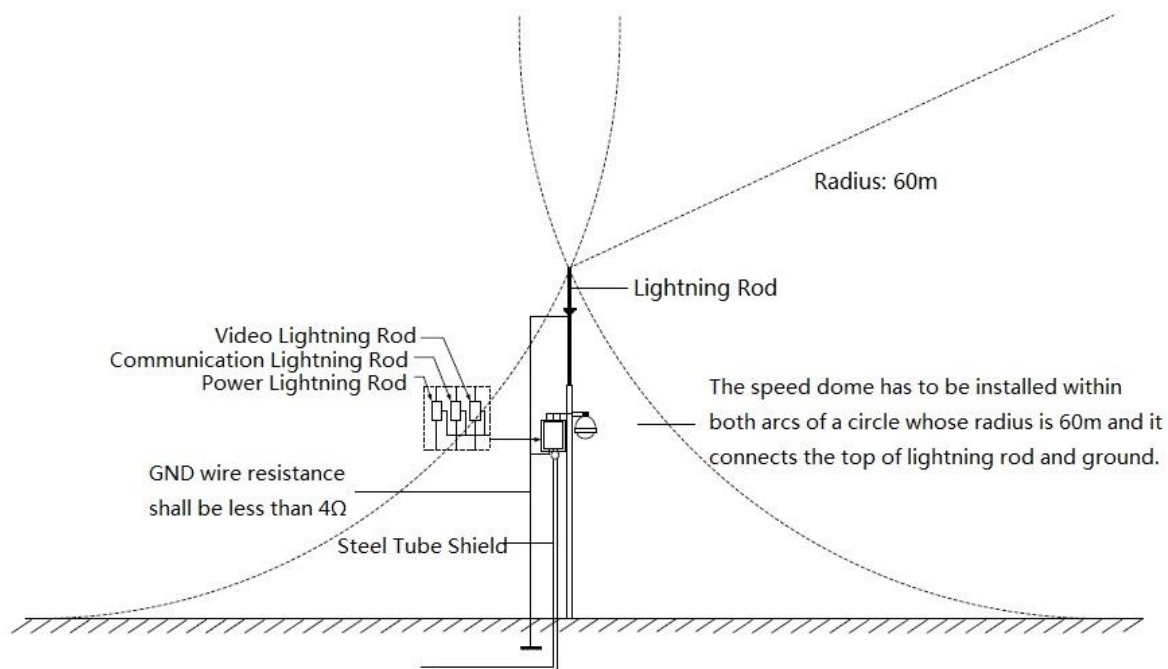


Figure 5-1

### 5.1 Lightning Protection (Indoors)

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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<sup>2</sup> and indoor equipotential GND terminal. Please refer to Figure 5-2 for lightningproof installation mode.

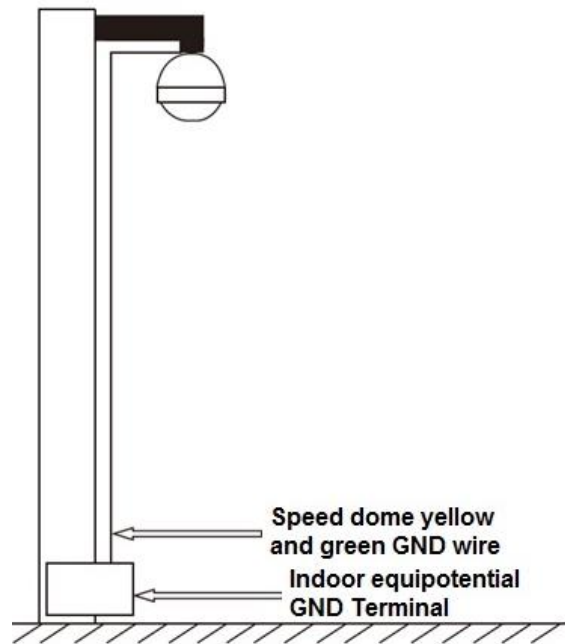


Figure 5-2

## 6 APPENDIX II THE RELATIONSHIP BETWEEN DC 12V CABLE DIAMETER AND TRANSMISSION DISTANCE

It is the recommended max transmission distance when the cable diameter is fixed and the DC 12V power consumption is below 10%.

For the DC power supply devices, the max permission voltage power consumption is 10%. The

cable listed in the table below is copper wire (the resistivity of copper is  $\rho = 0.0175\Omega * \text{mm}^2/\text{m}$ )

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

mm				
Feet (m)	0.8000	1.000	1.250	2.000
w				(11.63)

## 7 APPENDIX IV WIRE GAUGE REFERENCE SHEET

Metric bare wire diameter (mm)	AWG	SWG	Bare wire cross section (mm <sup>2</sup> )
0.050	43	47	0.00196
0.060	42	46	0.00283
0.070	41	45	0.00385
0.080	40	44	0.00503
0.090	39	43	0.00636
0.100	38	42	0.00785
0.110	37	41	0.00950
0.130	36	39	0.01327
0.140	35	/	0.01539
0.160	34	37	0.02011
0.180	33	/	0.02545
0.200	32	35	0.03142
0.230	31	/	0.04115
0.250	30	33	0.04909
0.290	29	31	0.06605
0.330	28	30	0.08553
0.350	27	29	0.09621
0.400	26	28	0.1257
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 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.