

2MEBS04-T2M

Explosion-proof Analog Motorized Bullet Camera

Operation Manual



2MEBS04-T2M Explosion-proof Analog Motorized Bullet Camera

Security Assurance

This product is designed and manufactured to meet the following safety and performance requirements:

- It operates without causing harmful interference.
- Its operation cannot be adversely affected by external interference within a reasonable range.

Important Notices

- Do not disassemble this product under any circumstances. Removing the cover, bolts, or other components may result in water ingress, electric shock, or equipment damage. Always follow the operating instructions in this manual.
- Ensure the unit is used only within the specified atmospheric pressure, temperature, and humidity ranges outlined in Section 1.6.
- Confirm that the power supply meets the specifications listed on the product nameplate.
- Internal and external grounding must be securely connected.
- Ensure that the installation is stable and secure to prevent the camera from accidental damage.
- Do not modify any certified explosion-proof components. Unauthorized modification may compromise explosion-proof performance.

Please read this Instruction Manual in full before installing or operating this product.

Before use, ensure you understand all related safety guidelines, warnings, and operational requirements.

1. Installation Safety Precautions

- Disconnect power before performing any maintenance or repair. **DO NOT OPEN WHEN ENERGIZED.**
- Do not open the housing in environments with oil fumes, heavy dust, high temperatures, or condensation; these conditions may reduce image quality.
- Follow all wiring instructions provided in this manual. Incorrect wiring may cause faults or failures.
- When performing maintenance, protect the flame-proof joints and prevent metal shavings or foreign objects from entering the chamber.
- Do not disassemble or modify the product.

2. Construction Safety

- Follow all onsite construction safety regulations strictly.
- Immediately address any safety hazards discovered during installation. Suspend work if necessary.
- Inspect and repair safety equipment after severe weather conditions.
- Remove ice, fog, rain, and snow before operation.
- Establish warning zones when installing or removing protective housings and ensure designated personnel monitor the area.
- Installation may require working at elevated heights. All personnel must be properly trained and qualified.

3. Power Supply Requirements

- Installation and servicing must comply with local electrical safety standards.
- A conveniently accessible disconnecting device should be available for emergency power cutoff.
- Verify the power supply rating before powering on the device.
- Protect power cables from crushing, bending, or trampling—especially at plugs, sockets, and connection points.

4. Operating Environment Requirements

- Avoid directing the camera at strong light sources (such as lamps or sunlight). Although this is not a malfunction, it may shorten the lifespan of the CCD/CMOS sensor.
- Operate, transport, and store the device only within the allowed temperature and humidity ranges. Keep away from:
 - Excessive heat above +60°C
 - Extreme cold below -40°C
 - High moisture
 - Areas with strong electromagnetic interference or unstable lighting
- Prevent water or conductive liquids from entering the device to avoid electrical damage.
- Ensure proper ventilation and avoid overheating.
- Protect the device from impacts, crushing, or excessive vibration during transport or use.
- Pack the device using original or equivalent protective packaging during transportation.
- Use external lightning protection devices whenever possible.
- Internal and external grounding wires must be reliable, with a cross-sectional area of at least 4 mm².

5. Operation & Maintenance Requirements

- Do not disassemble the product; there are no user-serviceable parts inside.
- Do not touch the CCD/CMOS sensor directly. Use a blower to remove dust from the lens. If cleaning is necessary, gently wipe the lens with a soft cloth lightly moistened with alcohol. Always replace the lens cover when not in use.
- Clean the camera body with a soft, dry cloth. For stubborn dirt, use a mild detergent. Do not use corrosive chemicals or abrasive cleaners as they may damage the surface or reduce performance.
- Installation and repair should be performed only by authorized personnel. Replacement parts must be original or manufacturer-approved.
- Avoid exposing the CCD/CMOS sensor to laser beams, as this may cause permanent damage.

6. Environmental Protection

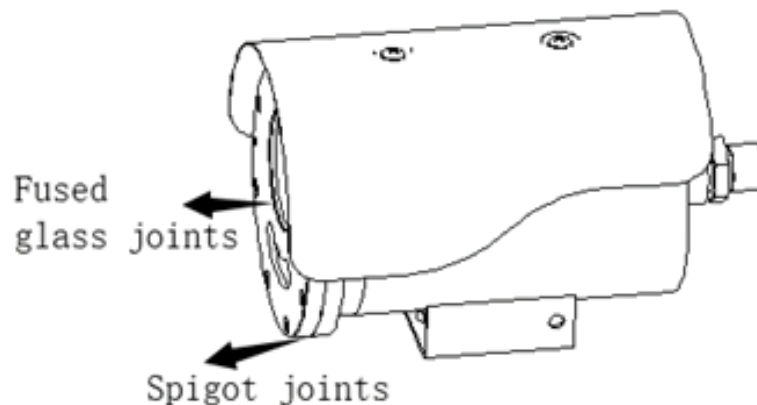
- Components such as PCBs, electronic parts, plastics, and lubricants may cause environmental pollution. During maintenance or disposal:
 - Collect and classify these materials according to local environmental regulations.
 - Deliver waste materials to authorized government recycling or disposal facilities.
 - Do not discard them improperly to avoid environmental harm.

Special Announcements

- Images in this manual are for reference only.
- We reserve the right to update product content and technical specifications without prior notice. Actual product details may vary after updates.
- Contact our customer service department for the latest software and documentation.
- If you encounter any operational issues, contact your distributor or customer service.
- While we strive for accuracy, some discrepancies may exist between actual product data and the information provided. For any questions or disputes, our company reserves the right to final interpretation.
- Users are responsible for any damage or loss resulting from misuse or failure to follow the instructions in this manual.

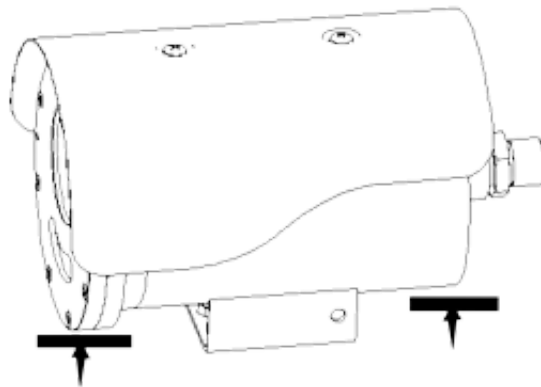
Explosion-Proof Structure Instructions

- The flameproof enclosure of the explosion-proof camera is designed to prevent explosive gases from entering the internal chamber. In the event an internal explosion occurs, the enclosure ensures that no ignition is transmitted to the surrounding explosive atmosphere. This is achieved by reinforcing the enclosure strength, controlling the length and clearance of flameproof joints, and limiting the maximum surface temperature.
- The enclosure complies with static pressure test requirements of EN60079-1:2014 / IEC60079-1:2014. It is capable of withstanding 2.0 MPa for at least 10 seconds without leakage or deformation.
- During normal operation, the external surface temperature will not exceed 80°C.
- The viewing window uses tempered glass, which meets required impact resistance and thermal shock performance standards.
- The device meets IP68 ingress protection requirements (1.2 meters for 45 minutes).
- The flameproof joint surfaces must be protected during installation and maintenance. Damage to any flameproof surface may compromise the explosion-proof integrity of the product.



How to Move This Product:

Before moving the unit, ensure it is fully de-energized. Hold and support the product from the bottom during transport. Do not apply force to the sunshade, wiper, or base. Avoid dragging, striking, or knocking the device to prevent damage. The flameproof enclosure of the explosion-proof camera is designed to



When the product is energized:

Do not open, move, knock, or drag the device under any circumstances while it is powered on.

1. General

Manufactured using advanced production techniques and supported by a robust quality management system, the camera delivers industry-leading performance, reliability, and appearance.

It is designed for use in environments containing flammable or explosive gases, vapors, or combustible dust, providing safe and reliable monitoring of hazardous areas.

1.1 Specification

Model: 2MEBS04-T2M Series

Ingress Protection: IP68 (1.2 m for 45 minutes)

Ex Marking:

- Gas: Ex II 2 G Ex db IIC T6 Gb
- Dust: Ex II 2 D Ex tb IIIC T80°C Db

Camera Types Supported:

- HD Network
- Analog
- AHD

1.2 Features

- The camera integrates both the imaging module and infrared illumination for enhanced monitoring capability.
- Supports DC12V or PoE power input, with automatic power adaptation compatible with most camera brands.
- Built-in surge protection ensures higher safety and operational reliability.

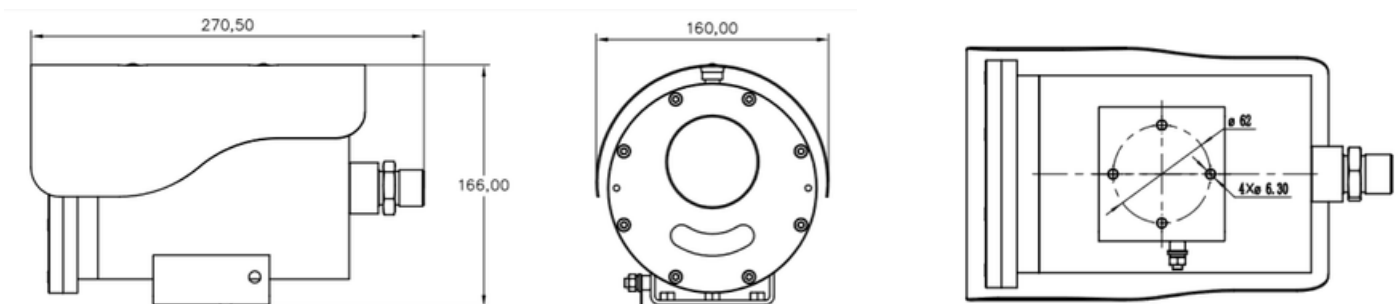
1.3 Scope of Application

This product is suitable for:

- Zone 1 and Zone 2 hazardous areas containing explosive gas mixtures of groups IIA, IIB, IIC, temperature classes T1–T6.
- Zone 21 and Zone 22 hazardous areas where combustible dust may be present.

1.4 Mechanical Parameters

- **Material:** Stainless Steel 304 / 316L
- **Automatic Heating (Optional):** Activates automatically below -15°C ($\pm 5^{\circ}\text{C}$)
- **Installation Method:** Upright mounting
- **Cable Type:** Integrated cable, 2m length
- **Cable Gland:** 1 × M25 × 1.5
- **Overall Dimensions (L × W × H):** 270.50 mm × 166.00 mm × 160.00 mm
- **Net Weight:** 5.6 kg



1.5 Electrical Parameters

Camera Module

- **Image Sensor:** 2.0 MP progressive scan CMOS
- **Maximum Resolution:** 1920 (H) × 1080 (V)
- **Minimum Illumination:** 0.005 Lux @ (F1.6, AGC ON); 0 Lux with IR
- **IR Illumination Distance:** Up to 30 m (98.4 ft)
- **Shutter Time:**
 - PAL: 1/25 s to 1/50,000 s
 - NTSC: 1/30 s to 1/50,000 s
- **Day/Night Mode:** IR-cut filter
- **Signal System:** PAL / NTSC

Lens

- **Lens Type:** 2.7 mm – 13.5 mm motorized zoom
- **Focal Length & FOV:** 102° to 31°
- **Lens Mount:** Ø14

Image

- **Image Parameter Profiles:** STD / HIGH-SAT
- **Image Settings:** Brightness, Sharpness, 3D DNR, Mirror, Smart IR
- **Frame Rate**
 - PAL: 1080p @ 25 fps
 - NTSC: 1080p @ 30 fps
- **Day/Night Mode Options:** Auto / Color / B&W
- **Wide Dynamic Range (WDR):** ≥ 120 dB
- **Image Enhancement:** Yes
- **White Balance:** ATW / MWB
- **AGC:** High / Medium / Low

Interface

- **Video Output Formats:** TVI / AHD / CVI / CVBS
- **Video Output:** 1 × HD analog output

Electrical

- **Power Supply:** DC 12V
- **Power Consumption:** Max 6.5 W
- **Power Consumption (General)**
 - Static: 2.5 W
 - Dynamic: 4.5 W

Certification

- **ATEX Marking:** II 2 G Ex db IIC T6 Gb
II 2 D Ex tb IIIC T80°C Db
- **IECEx Marking:** Ex db IIC T6 Gb / Ex tb IIIC T80°C Db

Environmental

- **Operating Temperature:** –40°C to +60°C (–40°F to +140°F)
- **Operating Humidity:** ≤ 95%
- **Protection Ratings:** IP66 / IP68 (2 m, 2 hours) / IP69

General

- **Dimensions (L × W × H):** 270.50 mm × 166.00 mm × 160.00 mm
- **Net Weight:** 5.6 kg (12.34 lb) **Gross Weight:** 6.5 kg (14.33 lb)
- **Cable Thread Hole:** 1 × M25 × 1.5 (standard); optional G3/4 or M27 × 1.25
- **Casing Material:** Stainless Steel 304 / 316L
- **Mounting Options:** Wall / Pole / Corner / Ceiling mount

1.6 Service Conditions

- **Atmospheric Pressure:** 80–110 kPa
- **Ambient Temperature:** –20°C to +60°C
- **Relative Humidity:** ≤ 95% at +25°C

1.7 Electrical Safety (Under Normal Atmosphere)

- **Insulation Resistance:** The resistance between the power terminals and the enclosure shall be ≥ 50 MΩ.
- **Dielectric Strength:**
 - A 50 Hz, AC 1500 V test shall be applied between power terminals and the enclosure for 1 minute with no breakdown or flashover.
 - A 50 Hz, AC 500 V test shall be applied between wiring terminals and the enclosure with no breakdown or flashover.

1.8 Special Conditions for Safe Use

- Engaged length and thread engagement exceed the minimum requirements specified in IEC/EN 60079-1.
- The width of flameproof joints exceeds the minimum values specified in IEC/EN 60079-1.
- Yield stress of all fasteners in the flameproof enclosure is ≥ 450 MPa.
- Service temperature: –40°C to +60°C.

2 Installation & Debugging

2.1 Pre-Installation Cautions

Accessories included in package:

1. Camera main unit with sunshade – 1 pc
2. Spare parts bag (spring washers, flat washers, and nuts)
3. F-type wrench, 248 × 16 × 10 mm – optional
4. Explosion-proof flexible conduit – optional
5. Wall mounting support – optional

Additional tools required for installation:

1. Cross screwdriver, 6 × 150 mm – 1 pc
2. Adjustable hex wrench, 300 × 36 mm – 1 pc

Cautions during use:

- Users should not dismantle the camera arbitrarily; follow the instructions carefully.
- Ensure the power supply meets specifications in Section 1.5.
- Use the camera only within the operating conditions specified in Section 1.6.
- Pre-installation power debugging should be done cautiously, as this is an explosion-proof product.
- Do not apply extra load to the camera; excessive load may cause malfunction or damage.

2.2 Cable Entry

- Handle cables according to instructions provided with the explosion-proof cable gland and sealing compound.
- The camera has one cable entry. Use ATEX/IECEx-certified cable glands with sealing compound. The cable gland must meet at least Ex db IIC Gb / Ex tb IIIC Db IP68 protection level.
- Follow the cable gland manufacturer's instructions for correct installation.
- Reserve at least 1 meter of cable; the free end must be routed into an explosion-proof control box, junction box, or enclosure suitable for the hazardous location.

2.3 Preparation of Supports Before Installation

- The camera is pre-debugged before shipment; only final installation at the intended location is required.
- We recommend using supports provided by the manufacturer to simplify installation.
- Users are responsible for ensuring the support is strong enough and that fasteners meet load-bearing and corrosion-resistant requirements.
- Install the camera out of reach to prevent tampering, and ensure no objects obstruct its rotation. Improper installation may cause the camera to fall, resulting in equipment damage or personal injury.

2.3.1 Support Installation

- Select the appropriate positions for support installation. Ensure the camera is correctly oriented.
- Fasten the support using anchors or plug bolts.
- Install the junction box in a location that allows easy access for installation and maintenance. Connect the cable to the junction box using wire casings or bridges.
- Refer to Figures 2.3.1.1–2.3.1.4 for support specifications and installation details.

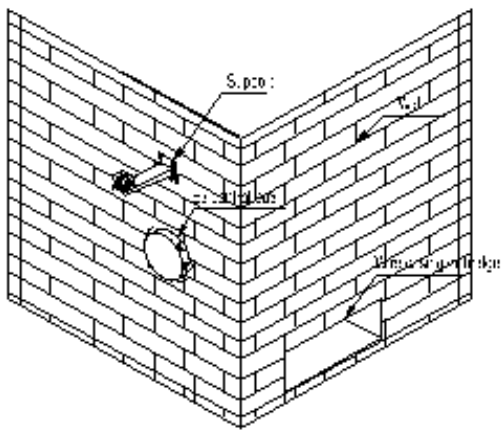


Figure 2.3.1.1 Installation of support

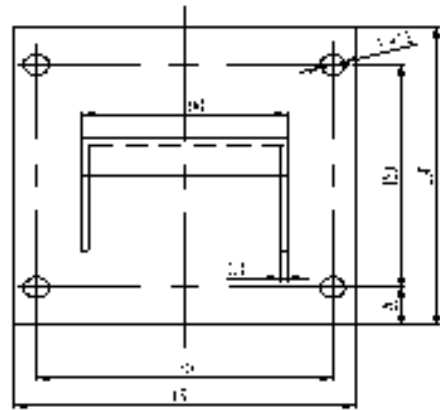


Figure 2.3.1.2 Dimension of support

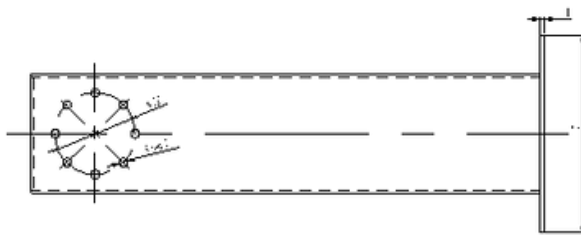


Figure 2.3.1.3 Front view of support

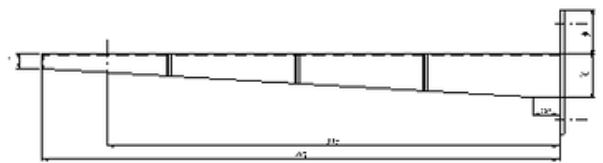


Figure 2.3.1.4 Side view of support

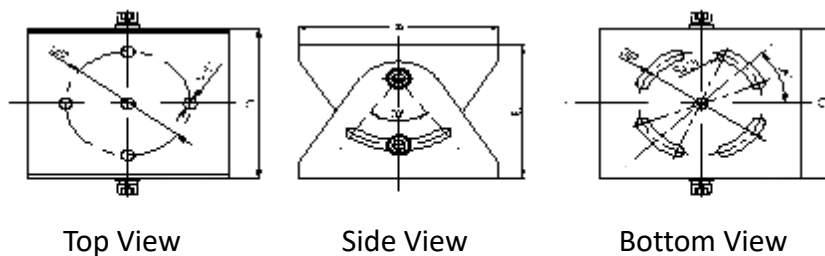


Figure 2.3.1.5 Universal joint

2.4 On-Site Installation and Fixing

- As this is an explosion-proof (Ex) product, it is recommended to perform power adjustments indoors before installing the camera at its final location, if feasible.

2.4.1 Installation Instructions

- Refer to Figure 2.3.1.2 for the layout of installation holes under the camera.
- Pass the reserved camera cable through the support structure.
- Connect the cable from the camera to the junction box, protecting it with explosion-proof flexible conduit or armored cable.
- The cable running from the junction box to the control room should be protected using metal conduit or armored cable, as illustrated in Figure 2.4.1.

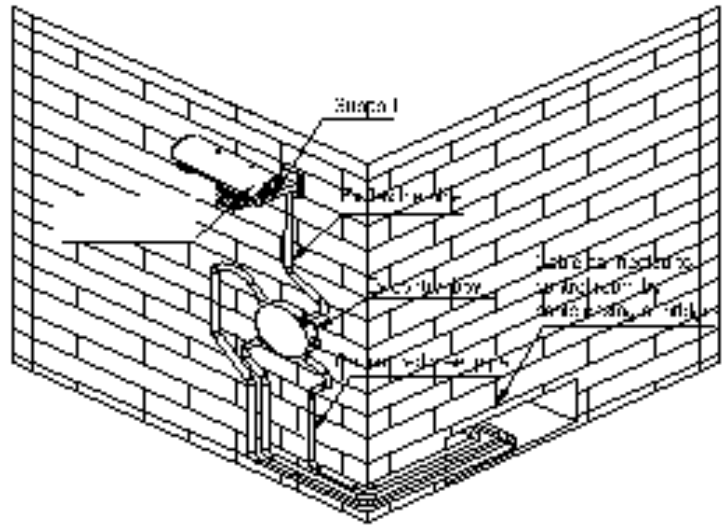


Figure 2.4.1 installation of camera

2.5 Adjusting and Operation

2.5.1 System Connection:

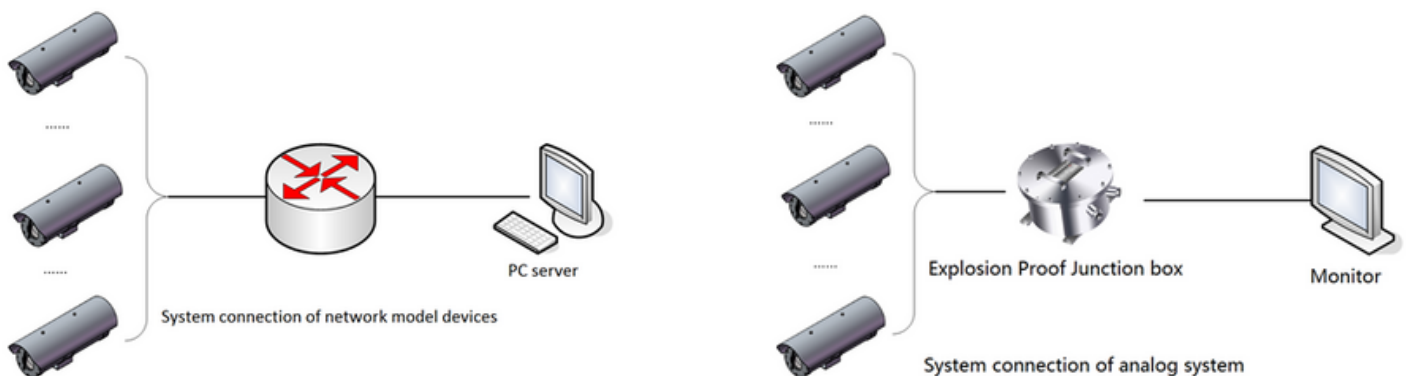


Figure 2.5.1 System connection

- Network Model Camera:**

For network model cameras, the device can transmit digital video signals via wired (Ethernet) or wireless networks. Users can monitor or record video at any time, whether on a local area network (LAN) or a wide area network (WAN) such as the Internet.

- Analog System Camera:**

Analog cameras are controlled using an explosion-proof control keyboard and explosion-proof control box, allowing users to monitor the scene in real time.

2.5.2 Cable Specification

- The camera is supplied with a comprehensive cable as part of the package.
- The cable is routed from the side of the base bottom and has a minimum length of 2 meters.
- Before operation, connect the comprehensive cable to the system bus inside the junction box.
- Refer to Tables 2.5.2 and 2.5.3 for detailed cable specifications.

Part name	Color	Function
Alarm audio 485(optional)	purple	Audio output
	black	Audio grounding
	white-purple	Audio input
	blue-white	Alarm input 1
	blue	Alarm input 2
	black-white	Alarm input grounding
	orange	Alarm output 1(COM1)
	orange-white	Alarm output 2(OUT1)
	yellow	485 output A
	white	485 output B
Fast Ethernet (POE)	orange-white	Network cable 1
	orange	Network cable 2
	green-white	Network cable 3
	blue	Network cable 4
	blue-white	Network cable 5
	green	Network cable 6
	brown-white	Network cable 7
	brown	Network cable 8
Power (DC12V)	thick brown	V+
	thick yellow-green	grounding
	thick blue	V-

2.5.4 Service Status and Inspection During Operation

- After powering on, the camera will automatically perform a self-check to ensure all systems are functioning correctly.
- Inspect the camera visually to confirm proper operation, correct positioning, and that there are no obstructions or visible damage.
- Regular inspections are recommended to maintain optimal performance and safety.

2.5.5 Camera and Software Settings

- For detailed configuration of the camera, Internet Explorer (IE) browser, and client software, refer to the camera manufacturer's instruction manual.
- Follow the manufacturer's guidelines for adjusting image parameters, network settings, and other operational features.
- Ensure all settings comply with explosion-proof and environmental requirements specified in this manual.

3. Trouble-shooting

Phenomenon	Analysis	Solution
No image	No power supply	Check the power supply
	Poor connection of video signal cable	Check the video signal cable
Cannot switch to night viewing model	Strong light in optical angle/ in manual night viewing switch model	Remove the strong light Set to auto night viewing switch model
Unclear image	Camera is in manual focus model/ dust or stain on window	Set to auto model/ clear the window
Unstable image	Poor connection of video signal cable	Check the video signal cable
	Bad connection of signal cable	Check signal cable connection
	Signal attenuation caused by long distance	Use repeater to lengthen the communication distance
	Signal reflection	Short-circuit the 120-jumper wire of the farthest camera communication PCB, add 120Ω to eliminate the reflection

4. Transportation, Storage, and Maintenance

4.1 Transportation

- The packaged camera can be transported using any standard mode of transport.
- Avoid exposing the product to direct rain or snow during transit.

4.2 Storage

- The camera may be stored for up to one year under the following conditions:
 - Free from corrosive substances.
 - No significant vibrations.
 - Temperature range: 0°C to +40°C.
 - Relative humidity: ≤ 90%.

4.3 Maintenance

- Every 6 months after commissioning:
 - a. Inspect all fasteners to ensure they are secure.
 - b. Check the cables to ensure the protective sheath is intact and that cables do not interfere with moving parts during rotation.
- Every 5 years after commissioning:
 - If the camera is installed in harsh conditions, the rubber sealing ring should be replaced.
 - Contact your local distributor to perform this replacement.

5. Declaration

- We have made every effort to make this instruction manual comprehensive; however, it may not cover all potential issues that could arise during installation or maintenance. For guidance on issues not included in this manual, please contact us directly.
- The operator or user is responsible for any damage or loss caused by misuse or failure to follow the instructions provided in this manual.

Part name	《Measures for the Administration of Pollution Control of Electronic Information Products》 Substances or restriction element identification table					
	Lead (Pb)	Mercury (Hg)	cadmium (Cd)	chromium VI (Cr VI)	Polybromide (PPB)	Polybrominated diphenyl ethers (PBDE)
Metal part	×	○	○	○	○	○
Plastic part	○	○	○	○	○	○
PCB	×	○	○	○	○	○
Glass (if applicable)	○	○	○	○	○	○
power (if applicable)	×	○	○	○	○	○
Accessory (if applicable)	×	○	○	○	○	○

Annex: Table of poisonous and harmful substances or elements

Remark

1. Symbol ○ – Indicates that the content of poisonous or harmful substances or elements in the component (homogeneous material) is below the limit specified in the standard.
2. Symbol × – Indicates that the content of poisonous or harmful substances or elements in the component (specific homogeneous material) exceeds the limit specified in SJ/T11363-2006.
 - The release or alteration of these substances during the product's service life is not expected, and they will not pose a risk to the user's health or property.
 - Disposal or treatment of such components must not be performed by the user. Please deliver them to an authorized department, follow local laws or regulations, or return them to the product distributor.