Heschen E3JK-R4M1

Heschen E3JK-R4M1 Photoelectric Switch Instruction Manual

Model: E3JK-R4M1 | Brand: Heschen

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Heschen E3JK-R4M1 Photoelectric Switch. Please read this manual thoroughly before using the product and retain it for future reference.

The Heschen E3JK-R4M1 is a reflective photoelectric switch designed for industrial applications, capable of detecting opaque objects at a distance of up to 4 meters. It operates on an AC 90-250V power supply and features a relay output.

2. Safety Information

WARNING: Risk of Electric Shock

- Ensure power is disconnected before installation, wiring, or maintenance to prevent electric shock.
- Installation and wiring should only be performed by qualified personnel.
- Do not exceed the specified voltage and current ratings.
- Avoid exposing the device to excessive moisture or corrosive environments unless specifically rated for such conditions.
- Do not disassemble or modify the product. Unauthorized modifications may lead to malfunction or safety hazards.

3. Product Overview

3.1 Key Features

- Supply Voltage: 90 to 250V AC.
- Output: 3A, 250V AC.
- Sensing Range: 4 meters.

- Relay Output: AC, illuminated.
- Detection Method: Retro-reflective.
- Detection Target: Opaque objects.

3.2 Components

The Heschen E3JK-R4M1 Photoelectric Switch package typically includes the following components:

- Photoelectric Switch Unit
- Reflective Plate
- Mounting Bracket
- Mounting Screws and Nuts
- Small Screwdriver (for adjustment)

Figure 1: Heschen E3JK-R4M1 Photoelectric Switch and included accessories.

4. Specifications

Parameter	Value
Model Number	E3JK-R4M1-AC
Supply Voltage	AC 90-250V
Output Current	3A
Output Voltage	250V AC
Sensing Distance	4 meters
Detection Method	Retro-reflective
Light Source	Infrared light, 660 nm
Response Time	30 ms
Insulation Resistance	50 MΩ (between charger and housing)
Dielectric Strength	1000V AC, 50/60 Hz, 1 min (between charging cable and housing)
Protection Rating	IP65
Housing Material	Nickel-plated brass (ABS)
Optical Surface Material	Polymethyl methacrylate (PMMA)
Operating Mode	ON-OFF
Contact Type	Normally Open (NO) / Normally Closed (NC)
Terminal Type	Screw
Dimensions (approx.)	9.8 x 8.6 x 5.6 cm
Weight (approx.)	220 grams

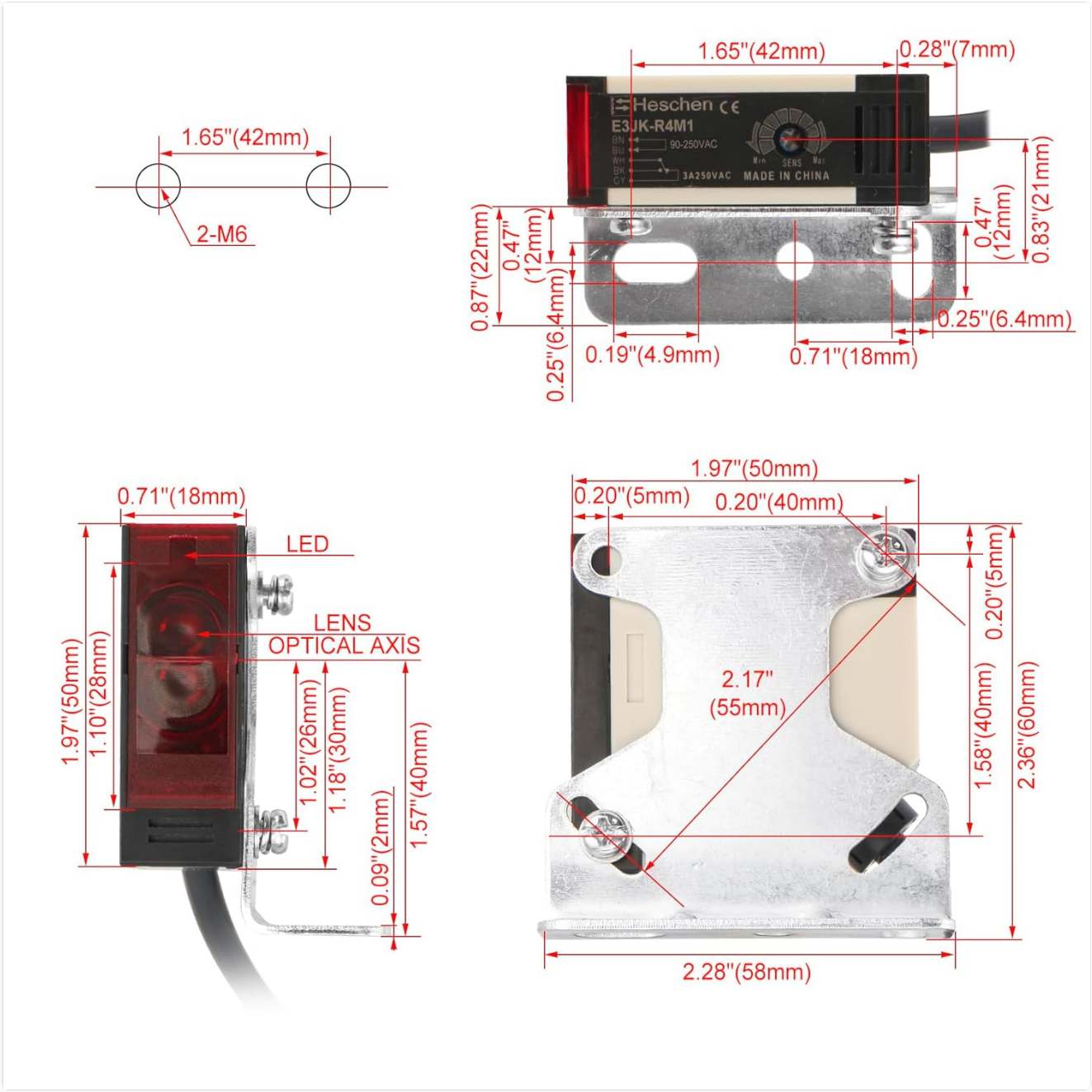

Figure 2: Product dimensions and mounting hole specifications.

PHOTOELECTRIC SWITCH SERIES

Effect of temperature

Temperature range -30~+65°C,
within 15% detection distance at +23Ω.
Temperature range -25~+65°C,
within 10% of detection distance at +23Ω.

ITEM NO	EXPLANATON	MATERIAL
E3JK-R4M1	Alternating current: 90-250VAC Impulse (p-p)10% below	Housings:ABS Test surface:PMMA

Figure 3: Additional specifications including temperature effect on detection distance.

5. Setup

5.1 Mounting

Mount the photoelectric switch and the reflective plate securely on stable surfaces. Ensure they are aligned directly opposite each other. The maximum sensing distance is 4 meters. For optimal performance, avoid direct sunlight or strong artificial light sources that could interfere with the sensor's operation.

Figure 4: Example of sensor mounting with bracket.

Figure 5: Retro-reflective detection method with a 4-meter range.

5.2 Wiring

Connect the sensor according to the provided wiring diagrams. The sensor supports both Normally Open (NO) and Normally Closed (NC) configurations. Ensure all connections are secure and insulated.

- **Brown Wire (L)**: Connect to Live (90-250VAC).
- **Blue Wire (N)**: Connect to Neutral (90-250VAC).
- **Black Wire (NO)**: Normally Open output. Connect to one side of the load.
- **Grey Wire (NC)**: Normally Closed output. Connect to one side of the load.
- **White Wire**: Connect the other side of the load to the White wire.

Figure 6: General wiring diagram and sensitivity adjustment dial.

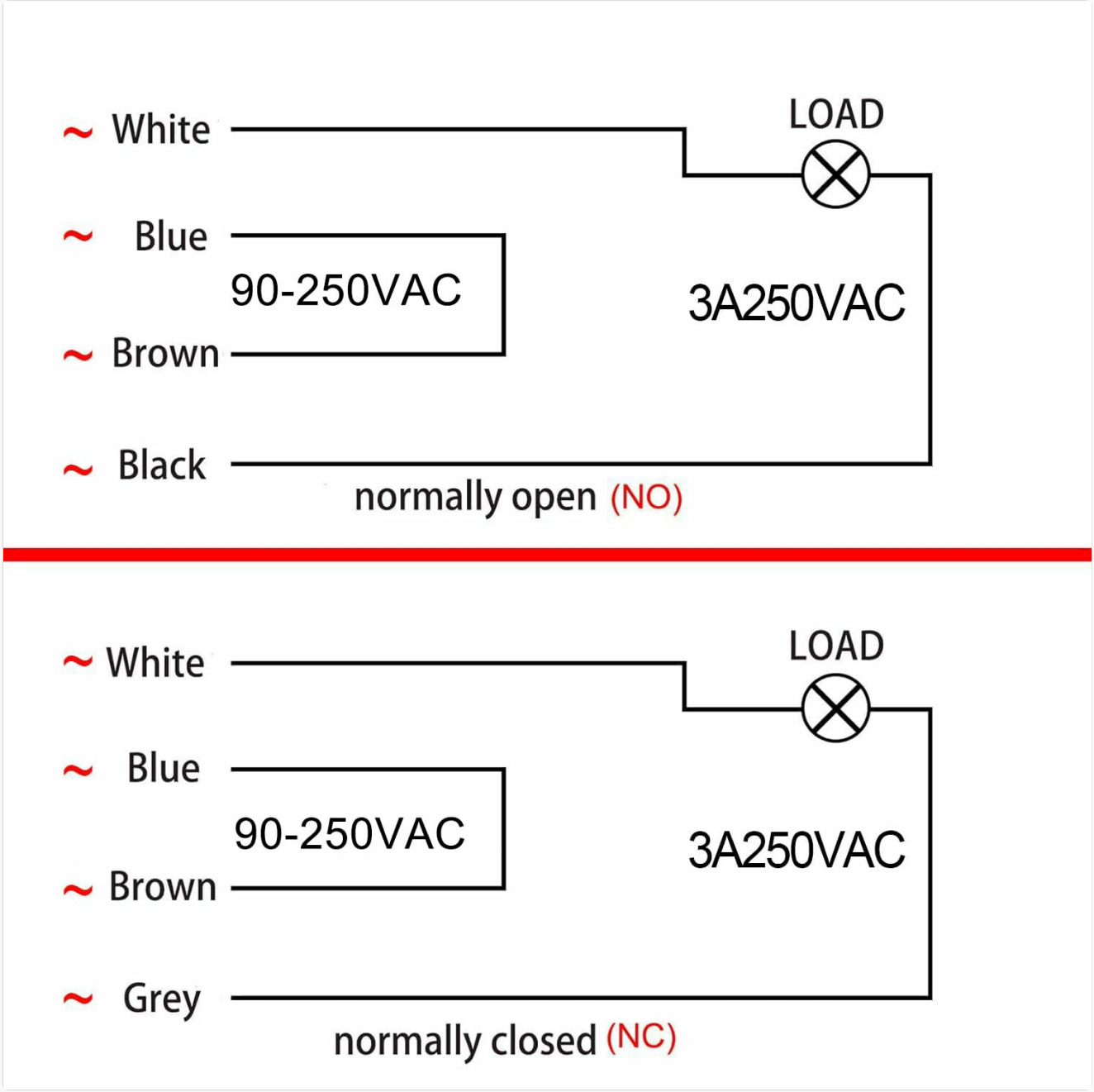

Figure 7: Detailed NO and NC wiring configurations.

5.3 Sensitivity Adjustment

The sensor features an adjustment dial to fine-tune the sensing distance. Use the provided screwdriver to adjust the sensitivity.

- Rotate counter-clockwise to decrease the sensing distance.
- Rotate clockwise to increase the sensing distance.

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Video 1: Demonstration of the Heschen E3JK-R4M1 Photoelectric Switch in operation, including sensitivity adjustment and detection of an object. The video shows the sensor connected to a power supply and output indicators, demonstrating how the output changes when an object is detected and how to adjust the sensing range.

6. Operating Instructions

Once properly installed and wired, the Heschen E3JK-R4M1 Photoelectric Switch operates by emitting an infrared light beam towards a reflective plate. When an opaque object interrupts this beam, the sensor detects the change and triggers its relay output.

- Ensure the sensor and reflector are clean and free from obstructions.
- Verify the power supply is within the specified range (AC 90-250V).
- Adjust the sensitivity as needed for your specific application and detection distance.
- The output will activate (or deactivate, depending on NO/NC configuration) when an object breaks the light beam between the sensor and the reflective plate.

7. Maintenance

Regular maintenance ensures optimal performance and longevity of your photoelectric switch.

- **Cleaning**: Periodically clean the sensor lens and the reflective plate with a soft, dry cloth. Dust, dirt, or moisture can impair detection capabilities.
- **Inspection**: Regularly inspect wiring for any signs of damage, fraying, or loose connections.
- **Alignment**: Verify that the sensor and reflective plate remain properly aligned. Misalignment can lead to intermittent or failed detection.
- **Environmental Conditions**: Ensure the operating environment remains within the specified temperature and humidity ranges.

8. Troubleshooting

Problem	Possible Cause	Solution
Sensor not detecting objects.	◦ Incorrect wiring. ◦ Misalignment of sensor/reflector. ◦ Lens/reflector dirty. ◦ Sensing distance too short (sensitivity too low). ◦ Power supply issue.	◦ Check wiring against diagrams. ◦ Re-align sensor and reflector. ◦ Clean lens and reflector. ◦ Increase sensitivity using the adjustment dial. ◦ Verify power supply voltage.
Intermittent detection.	◦ Partial obstruction. ◦ Vibrations affecting alignment. ◦ External light interference. ◦ Sensitivity too high (detecting background).	◦ Clear path between sensor and reflector. ◦ Securely mount sensor and reflector to minimize vibration. ◦ Shield sensor from strong external light. ◦ Slightly decrease sensitivity.
Output always ON/OFF (not changing).	◦ Incorrect NO/NC wiring. ◦ Sensor faulty.	◦ Verify NO/NC connections. ◦ Contact support if other troubleshooting steps fail.

9. Warranty and Support

Heschen products are manufactured to high-quality standards. For warranty information, please refer to the terms

and conditions provided at the point of purchase or contact your local distributor.

For technical support, troubleshooting assistance, or inquiries regarding replacement parts, please contact Heschen customer service or visit the official Heschen website. When contacting support, please have your product model number (E3JK-R4M1) and purchase details available.