

Macarrie UR-Macarrie-423

Macarrie UR-Macarrie-423 Dusk to Dawn Photoelectric Sensor Instruction Manual

Model: UR-Macarrie-423

1. INTRODUCTION

This manual provides essential instructions for the safe installation, operation, and maintenance of your Macarrie UR-Macarrie-423 Dusk to Dawn Photoelectric Sensor. This device is designed to automatically control outdoor lighting based on ambient light levels, enhancing convenience and energy efficiency.

2. PRODUCT OVERVIEW

The Macarrie Dusk to Dawn Photoelectric Sensor is an automatic light control switch. It is engineered to turn connected lights on at dusk and off at dawn without manual intervention. Key features include:

- **Automatic Operation:** Detects ambient light to switch lights on at night and off during the day.
- **Delay Function:** Incorporates a delay to prevent accidental triggering by transient light sources, such as vehicle headlights.
- **Broad Compatibility:** Works with various bulb types, including LED, fluorescent, and incandescent.
- **Adjustable Design:** The photoelectric tube can be rotated to adjust the angle for optimal light detection and direction.
- **Water Resistant:** Designed for outdoor use with an IP54 rating.

AUTOMATIC ON / OFF

Outdoor Street Lighting Control Switch



Figure 2: Illustration of the sensor's automatic operation, showing lights off during the day and on at night.

3. SAFETY INFORMATION

Please read and understand all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or property damage.

- **WARNING:** Always disconnect power at the circuit breaker or fuse box before installing or servicing the sensor.
- Installation should be performed by a qualified electrician or in accordance with local electrical codes.
- Ensure the power supply voltage matches the sensor's rating (120V).
- Do not install the sensor where the photoelectric cell faces artificial light sources (e.g., streetlights, floodlights) or reflected light, as this can interfere with its proper operation.
- This product is designed for outdoor use and is water-resistant (IP54). However, avoid submerging it in water.

4. INSTALLATION INSTRUCTIONS

Follow these steps for proper installation of the photoelectric sensor:

1. **Disconnect Power:** Before beginning any installation, ensure the power supply to the circuit is completely disconnected at the main breaker or fuse box.
2. **Prepare Wiring:** The sensor features three wires: Black (Line), White (Neutral), and Red (Load). These wires connect directly to the electrical box.
3. **Mount the Sensor:**
 - Insert the threaded screw wire of the sensor into the desired faucet hole or electrical box opening.
 - Secure the sensor using the provided rubber washer and zinc alloy lock nut. Tighten firmly to ensure a secure and weather-resistant seal.
4. **Wire Connections:** Refer to the wiring diagram below.
 - Connect the **Black** wire from the sensor to the incoming **Line (Hot)** wire from the power supply.
 - Connect the **White** wire from the sensor to the incoming **Neutral** wire from the power supply and to the neutral wire of the lamp load.
 - Connect the **Red** wire from the sensor to the **Lamp Load** (the hot wire going to your light fixture).
 - Use appropriate wire connectors (e.g., twisted wire nuts) for all connections.
5. **Positioning:** Ensure the photoelectric cell (the clear dome on the sensor) is positioned to face the open sky and is not obstructed by eaves, trees, or other structures. Crucially, do not install the sensor where its cell faces artificial light or reflected light, as this will prevent proper dusk/dawn detection.
6. **Adjust Angle:** The sensor's head is adjustable. Rotate the photoelectric tube to achieve the desired angle for optimal light detection and to direct the sensor away from potential interfering light sources.

WIRING



Figure 3: Wiring diagram showing connections for Line (Black), Neutral (White), and Lamp Load (Red) wires. An optional switch can be integrated.



Figure 4: Components for installation, including the threaded connection, waterproof ring, and securing nut. The sensor head offers 180-degree adjustability.

5. INITIAL TEST AND OPERATION

After installation, restore power to the circuit. The sensor will begin its operation cycle.

- **Initial Power-Up:** When first installed and power is restored, the switch may take several minutes to turn off, even in daylight. This is normal behavior as the sensor calibrates.
- **Daytime Test:** To test the sensor during the day, completely cover the photoelectric cell with an opaque material (e.g., black electrical tape or a thick cloth) to simulate darkness. The connected light should turn on within a few seconds. Remove the cover, and the light should turn off after a short delay.
- **Normal Operation:** The sensor will automatically turn on your outdoor lights when ambient light levels drop at dusk and turn them off when light levels rise at dawn.

6. MAINTENANCE

The Macarrie photoelectric sensor requires minimal maintenance. Regular inspection can ensure optimal performance.

- **Cleaning:** Periodically clean the photoelectric cell (clear dome) with a soft, damp cloth to remove dirt, dust, or debris that may obstruct light detection. Do not use abrasive cleaners.
- **Inspection:** Annually inspect the wiring connections and the sensor's mounting for any signs of wear, corrosion, or loosening. Ensure the waterproof ring is intact.
- **Obstructions:** Ensure no new obstructions (e.g., growing foliage, new structures) are blocking the sensor's view of the sky.



Figure 5: The sensor is designed to be water-resistant, suitable for outdoor environments.

7. TROUBLESHOOTING

If your photoelectric sensor is not functioning as expected, refer to the following common issues and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Light stays on during the day.	◦ Sensor is covered or obstructed. ◦ Sensor is facing artificial light. ◦ Faulty sensor.	◦ Clear any obstructions from the sensor's dome. ◦ Reposition the sensor so it faces the open sky and is away from artificial light sources. ◦ Perform the daytime test (Section 5). If it fails, the sensor may need replacement.
Light does not turn on at night.	◦ No power to the circuit. ◦ Loose or incorrect wiring. ◦ Faulty bulb or light fixture. ◦ Sensor is facing too much ambient light.	◦ Check circuit breaker/fuse. ◦ Verify all wiring connections are secure and correct (refer to Figure 3). ◦ Test the bulb and fixture with a known working power source. ◦ Reposition the sensor to a darker location or adjust its angle.
Light turns on/off erratically.	◦ Interference from transient light sources (e.g., car headlights). ◦ Sensor dome is dirty. ◦ Fluctuating power supply.	◦ Adjust the sensor's angle to minimize exposure to transient lights. ◦ Clean the sensor dome (Section 6). ◦ Consult an electrician to check power supply stability.

8. SPECIFICATIONS

Model Number	UR-Macarrie-423
Power Supply Voltage	120 V
Ambient Temperature Range	-40 to 75 degrees Celsius
Construction Type	IC type
Test Method	Pressure test
Operation Mode	ON-NONE-ON
Contact Type	Normally Open
Connector Type	Screws
Terminal	Screw
Circuit Type	1-way
Actuator Type	Rotary
Contact Material	Copper
International Protection Rating	IP54 (Water Resistant)



Figure 6: The Macarrie photoelectric sensor is suitable for various outdoor lighting applications, such as porch lights, yard lights, and street lamps.

9. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the retailer's return policy or contact Macarrie customer service through their official channels. Keep your purchase receipt for any warranty claims.