

Sensor Switch RES7Z

Sensor Switch RES7Z nLight-Air Fixture Embedded Wireless Occupancy DayLighting Sensor User Manual

Model: RES7Z

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Sensor Switch RES7Z nLight-Air Fixture Embedded Wireless Occupancy DayLighting Sensor. The RES7Z is a low-voltage, digital sensor designed for integration into indoor luminaires, offering advanced wireless lighting control, digital dimming, occupancy detection, and daylight harvesting capabilities.

It is suitable for mounting heights up to 20 feet and provides Passive Infrared (PIR) occupancy detection with a 15-20 ft radial coverage pattern, along with photocell light level detection. Optional Dual Technology adds Microphonics to PIR detection for enhanced accuracy.

2. SAFETY INFORMATION

- Always disconnect power before installing or servicing the device.
- Installation should be performed by a qualified electrician in accordance with all national and local electrical codes.
- Do not exceed the specified voltage and current ratings. The device operates on 5-42 VDC input power.
- Ensure proper grounding to prevent electrical shock.
- This device is designed for indoor use only.

3. PRODUCT OVERVIEW AND FEATURES

The RES7Z sensor integrates multiple functionalities into a compact, low-profile design:

- **Fixture Embedded Design:** Specifically engineered for seamless integration within lighting fixtures.

- **Wireless Control:** Utilizes nLight AIR technology for wireless communication and control.
- **Occupancy Detection:** Passive Infrared (PIR) sensor detects human presence, with optional Microphonics for enhanced detection.
- **Daylight Harvesting:** Integrated photocell measures ambient light levels to optimize artificial lighting.
- **Digital Dimming:** Enables precise control over light output.
- **Wide Voltage Input:** Operates with 5-42 VDC input power.
- **360-Degree Lens:** Provides comprehensive coverage for occupancy detection.
- **Generation 1 Compatible:** Ensures compatibility with existing nLight Generation 1 systems.



Figure 1: Front view of the RES7Z sensor, showing the main 360-degree white lens for occupancy and daylight sensing.

4. SETUP AND INSTALLATION

The RES7Z sensor is designed for in-fixture installation. A programmable output channel is required for its operation. Ensure the power source (sold separately) provides 5-42 VDC.

4.1 Wiring Connections

Refer to the product label for specific wiring details. The sensor typically uses a low-voltage connection. The label indicates connections for LEDCODE2 (BRN, YEL) and LED output 2 (BLK, RED).



Figure 2: Product label detailing electrical specifications (5 to 42 V dc, 0.65 W, Class 2) and wiring connections for LEDCODE2 and LED output 2. It also shows FCC ID and IC information.

4.2 Mounting

The sensor is designed to be embedded within a luminaire. Ensure the sensor's lens has an unobstructed view of the area to be monitored for optimal occupancy detection and daylight harvesting.



Figure 3: Side view of the RES7Z sensor with the outer lens removed, showing the internal PIR sensor and other components. This view highlights the modular design for in-fixture embedding.



Figure 4: Exploded view of the RES7Z sensor, illustrating how the white lens cap detaches from the main sensor body. This demonstrates the two primary components of the device.

4.3 Configuration

The RES7Z sensor requires a programmable output channel for configuration. Refer to the nLight AIR system documentation for detailed instructions on programming occupancy settings, daylight harvesting thresholds, and dimming levels.

5. OPERATION

Once properly installed and configured within the nLight AIR system, the RES7Z sensor operates automatically:

- **Occupancy Detection:** The sensor detects motion within its 15-20 ft radial coverage area. Upon detection, it signals the connected lighting fixture to turn on or adjust to a pre-programmed level. If no motion is detected for a set period, the lights will dim or turn off.
- **Daylight Harvesting:** The integrated photocell continuously monitors ambient light. When sufficient natural light is available, the sensor will automatically dim or turn off artificial lighting to maintain a desired light level, saving energy.
- **Wireless Communication:** The sensor communicates wirelessly with other nLight AIR devices, allowing for flexible and scalable lighting control solutions.

6. MAINTENANCE

The RES7Z sensor is designed for minimal maintenance. Follow these guidelines:

- **Cleaning:** Periodically clean the sensor lens with a soft, dry cloth to ensure optimal performance. Avoid abrasive cleaners or solvents.
- **Inspection:** Regularly inspect the sensor for any physical damage or loose connections.
- **Firmware Updates:** Check the Sensor Switch or Acuity Brands website for any available firmware updates for the nLight AIR system, which may include improvements for the RES7Z sensor.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Lights do not turn on with occupancy.	• No power to sensor. • Sensor lens obstructed. • Incorrect sensitivity settings. • Sensor not properly configured in nLight AIR.	• Verify power supply (5-42 VDC). • Clear any obstructions from the sensor's field of view. • Adjust occupancy sensitivity settings via nLight AIR software. • Check nLight AIR configuration for proper zone assignment and settings.
Lights remain on or turn off too quickly.	• Hold time setting incorrect. • Sensor detecting minor movements (high sensitivity).	• Adjust the hold time setting in the nLight AIR configuration. • Reduce occupancy sensitivity settings via nLight AIR software.
Daylight harvesting not functioning correctly.	• Photocell obstructed. • Daylight harvesting threshold incorrect. • Sensor not calibrated.	• Ensure photocell is not obstructed and receives ambient light. • Adjust daylight harvesting thresholds in nLight AIR configuration. • Perform photocell calibration as per nLight AIR system instructions.
Sensor not communicating with nLight AIR network.	• Out of range. • Interference. • Sensor not paired.	• Ensure sensor is within range of an nLight AIR bridge or other network devices. • Check for potential sources of wireless interference. • Re-pair the sensor with the nLight AIR network as per system instructions.

8. SPECIFICATIONS

Model Number	RES7Z
Input Power	5-42 VDC
Power Consumption	0.65 W
Occupancy Detection	Passive Infrared (PIR), optional Microphonics
Coverage Pattern	15-20 ft radial (PIR)
Daylight Sensing	Photocell
Mounting Type	Fixture Embedded
Color	White
Dimensions (Product)	1.18 x 2.62 x 1.34 inches
Weight	6.4 ounces (0.4 Pounds)
Operating Environment	Indoor luminaires, suitable for use in air handling.
UPC	190887637892

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Sensor Switch or Acuity Brands website. Keep your purchase receipt for warranty claims.

Manufacturer: Sensor Switch (Acuity Brands Lighting Inc.)

Website: www.acuitybrands.com (Sensor Switch is a brand of Acuity Brands)

Phone: 1-800-535-2465 (as listed on product label)