

# **PIR Sensors – Precautions for Product Installation and Operation**



## Preamble:

Thank you for choosing Hytronik PIR motion sensors. We are committed to providing reliable and high-performance sensor solutions for intelligent lighting control.

To ensure optimal performance, safety, and product longevity, please read the following installation and operation precautions carefully before use. Following these guidelines will help prevent false triggering, ensure accurate detection, and maintain product reliability in various application environments.

## 1. Principle of Operation

PIR motion sensors detect infrared radiation changes caused by human movement across optical “windows” or “zones”. The optic design determines the detection area and can be adjusted by using blinds or stickers to mask part of the lens.

## 2. Installation Considerations

- Line of sight required

Ensure the PIR sensor lens is directly exposed and facing the flow of movement. Do not install behind diffusers or covers.

- Avoid heat sources

Keep away from LED chips, heat sinks, or drivers. When ambient temperature is close to human body temperature (e.g. in summer), response time may slow down.

- Environmental stability

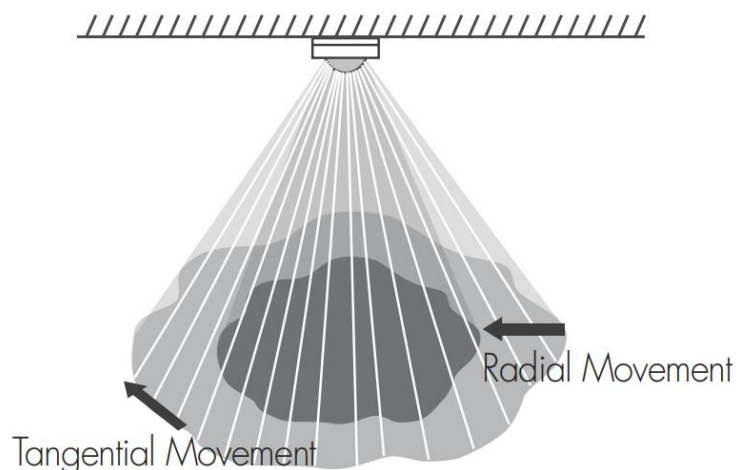
Sudden temperature changes from air conditioners or heaters can cause false triggers.

- Lens cleanline

Keep the sensor lens clean. Dust or contaminants will reduce performance.

## 3. Detection Considerations

- PIR is more sensitive to tangential movement (across its field) than radial movement (toward it).



#### 4. Use of Low-Bay PIR Sensors at Higher Mounting Heights

In some applications, low bay PIR sensors are intended to work at higher ceiling. In this case, Please note the following considerations:

- When installed higher than the recommended height, the overall detection diameter generally remains unchanged. For example, the maximum detection area of model HBHC25 is approximately 10m (diameter) × 3m (height). When installed at 4m-5m, the detection diameter remains around 10m.
- However, at such higher mounting heights, the number of triggering points decreases, resulting in slightly reduced detection sensitivity.
- This situation applies to the following models: HBHC25, HBIR29, HBIR32, HBIR36, HBIR30/CA, HBIR29/SV, HIR27, HIR28, HIR29.

#### 5. Remote Control Commissioning

Some PIR sensors require commissioning via remote control.

- Battery  
Use two AAA batteries. Replace when the LED indicator or sensor becomes unresponsive.
- Operating Distance and Angle  
When commissioning, point the remote control within  $\pm 15^\circ$  vertical angle toward the sensor.  
For high-bay sensors (10–15m installation height), LED flashing from both remote and controlled lights indicates successful transmission.
- Infrared Interference  
Signal transmission may fail in environments with strong infrared light, such as fluorescent lamps, incandescent lamps, or direct sunlight.

#### 6. Inrush Current Protection

When an LED driver powers on, an instant inrush current up to 50 times the steady-state current can occur. Ensure the total inrush current from connected LED drivers is below the sensor's rated limit to prevent damage.

- Parallel Connection and Load Limitation

When multiple PIR sensors are connected in parallel via the L' terminal for group synchronization, the



following points must be observed:

1. The inrush current from each LED driver must not exceed the limit that the sensor can withstand.
2. The total load of all sensors connected in parallel must not exceed the rated load of a single sensor.

Example:

For instance, if a single HIR28 PIR sensor has a rated capacitive load of 400VA, it can be connected with 13 pieces of 30W luminaires in parallel:  $30W \times 13 = 390VA < 400VA$ .

- Lifetime Impact

If the inrush current from the LED driver exceeds the sensor's rated limit, the sensor may still operate, but its lifetime will be shortened. In such cases, the Hytronik standard warranty does not apply, as the product is not used according to the specified conditions.

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