# IP65 Dual Sense Sensor

## HIM049V (Ultra High Bay)

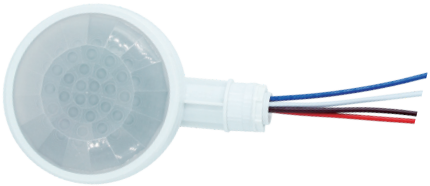
0-10V Dimmable /Batten-fit HF & PIR Sensor

HYTRONIK®

CE IP65 UKCA DUALsense™

### Product Description

HIM049V is a 0-10V ultra high-bay Dual-sense™ (Microwave + PIR) motion sensor with on/off realy control, the capability can up to 21m installation height. HIM049V is specifically designed for mounting onto a batten-style luminaire and professional lighting manufacturers who want to incorporate wireless control into their luminaires. Moreover, since HIM049V is designed with a robust IP65 structure, it is suitable for any typical applications such as factory, car parks, warehouses, and other commercial/industrial areas.



*Presentation color: RAL7047

### Hardware Features

- 4 Modes 4work modes:
  - HF only
  - PIR only
  - HF + PIR
  - HF / PIR
- On/Off control with relay output
- 0-10V dimmable
- High-bay (up to 21m height)
- IP IP65 design
- 5-year warranty

### Technical Data

| Input & Output Characteristics | |
|---|---|
| Operating voltage | 220 ~ 240VAC 50/60Hz |
| Stand-by power | <1W |
| Output (max.) | 400 VA 800W |
| Warming-up | 20s |

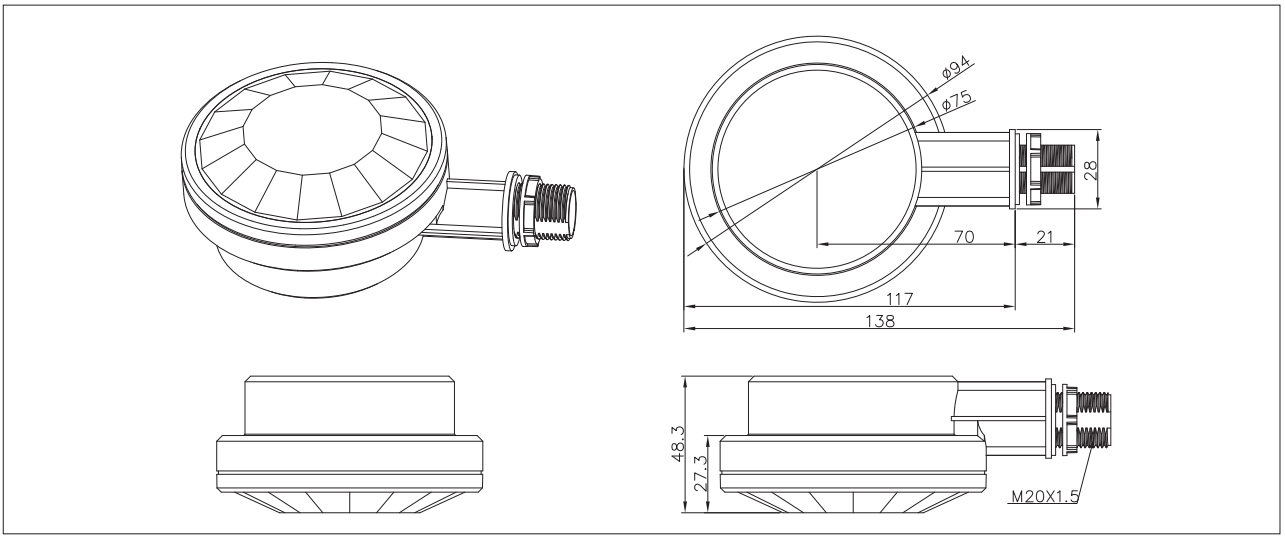
| Environment | |
|---|---|
| Operation temperature | Ta: -20°C ~ +50°C |
| Storage temperature | -40°C ~ +70°C |
| IP rating | IP65 |
| Relative humidity | 10 ~ 90% |

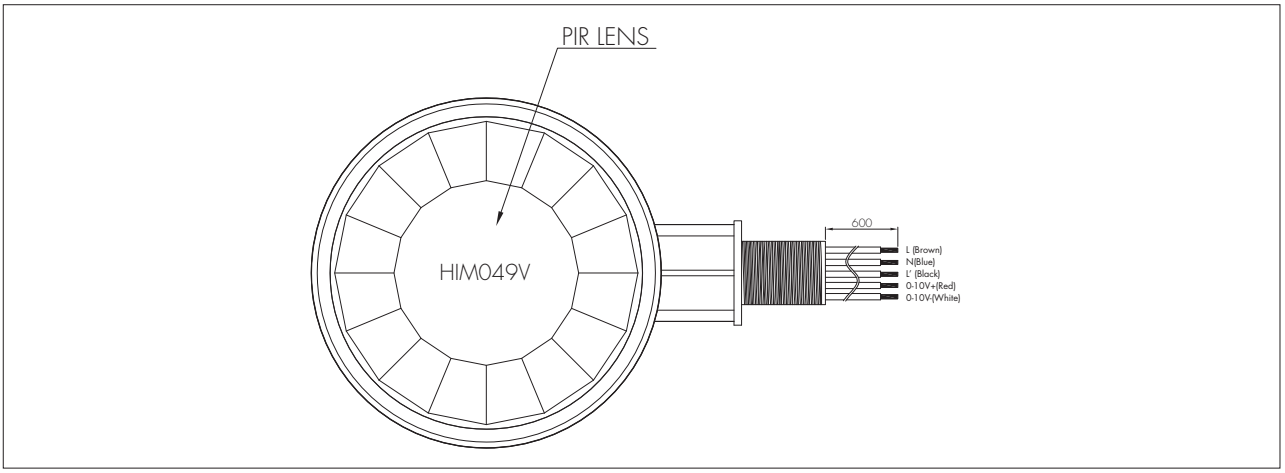
| Safety & EMC | |
|---|---|
| EMC standard (EMC) | EN55015, EN61547<br>EN61000-3-2/-3-3 |
| Safety standard (LVD) | EN60669-1/-2-1 |
| Certification | ENEC, CE , EMC, LVD, RCM |

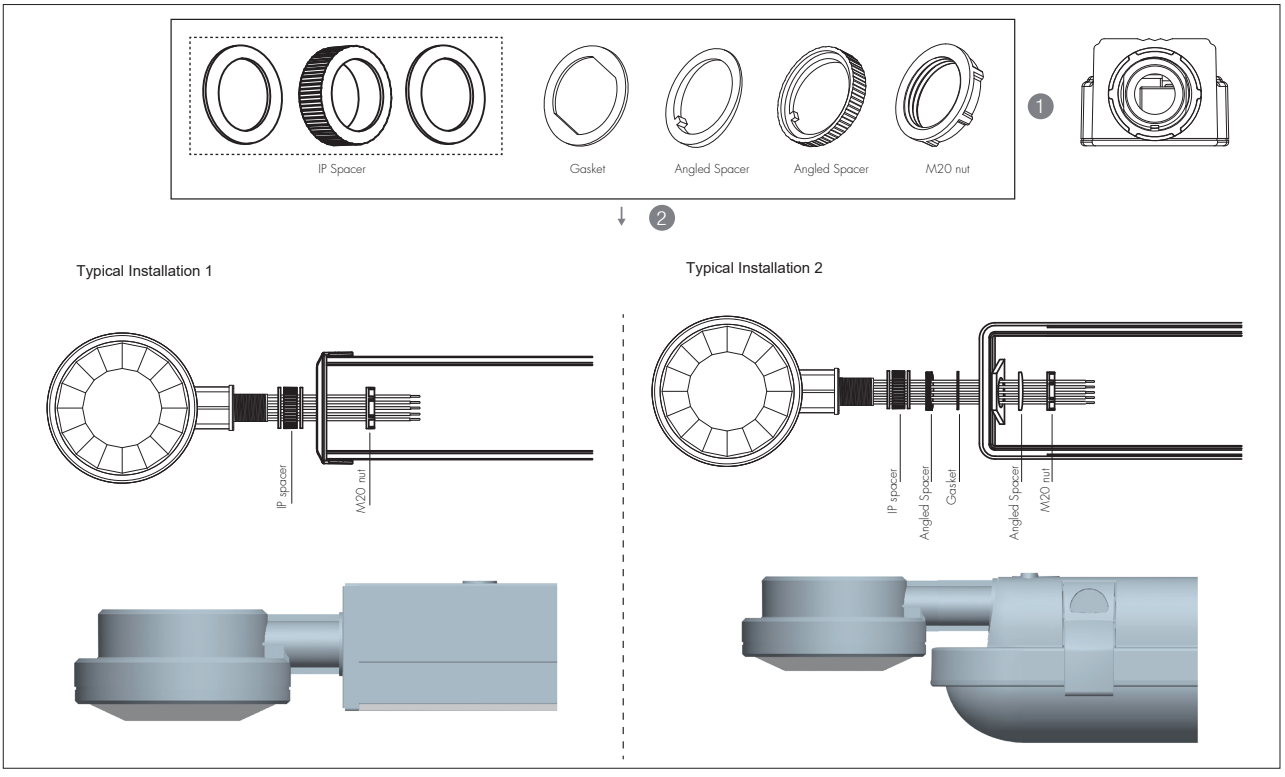
| Sensor Data | |
|---|---|
| Sensor principle | High Frequency (microwave), PIR |
| Sensor mode | 4 modes: PIR, HF, PIR+HF, PIR/HF |
| Detection range (max.) | HF:<br>Height =15m (forklift)/12m (human)<br>Diamater(Ø) = 20m<br><br>PIR:<br>Height =21m<br>Diamater(Ø)= 28m<br>*Relative humidity < 65%, Storage temperature <25 C |
| Detection angle | 360° |

* The detection range is heavily influenced by sensor placement (angle) and different walking paces. It may be reduced under certain conditions.

## Mechanical Structure & Dimensions

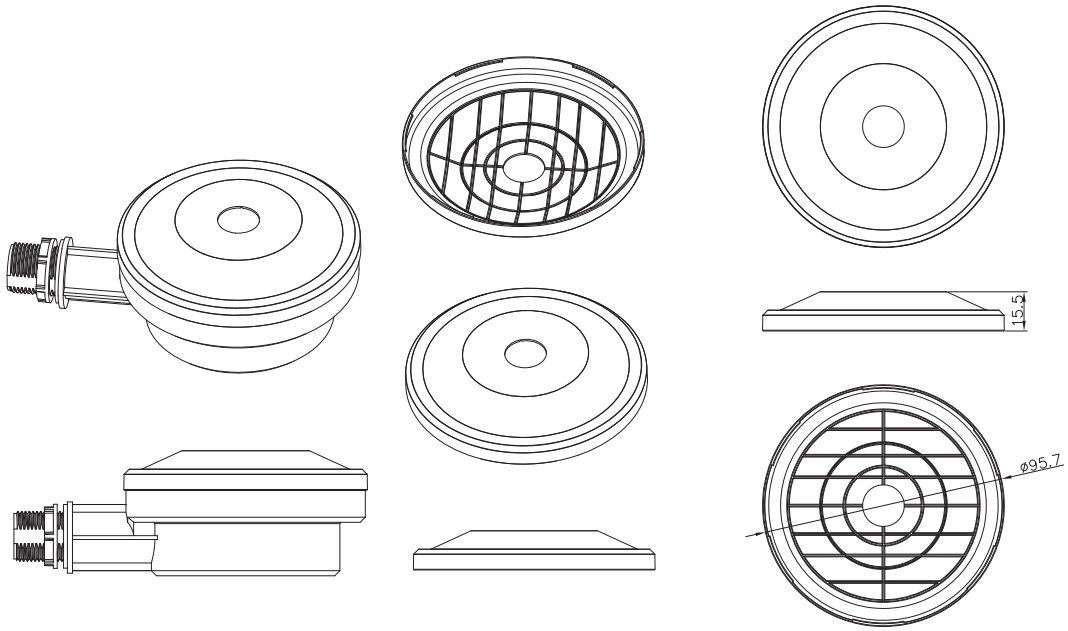


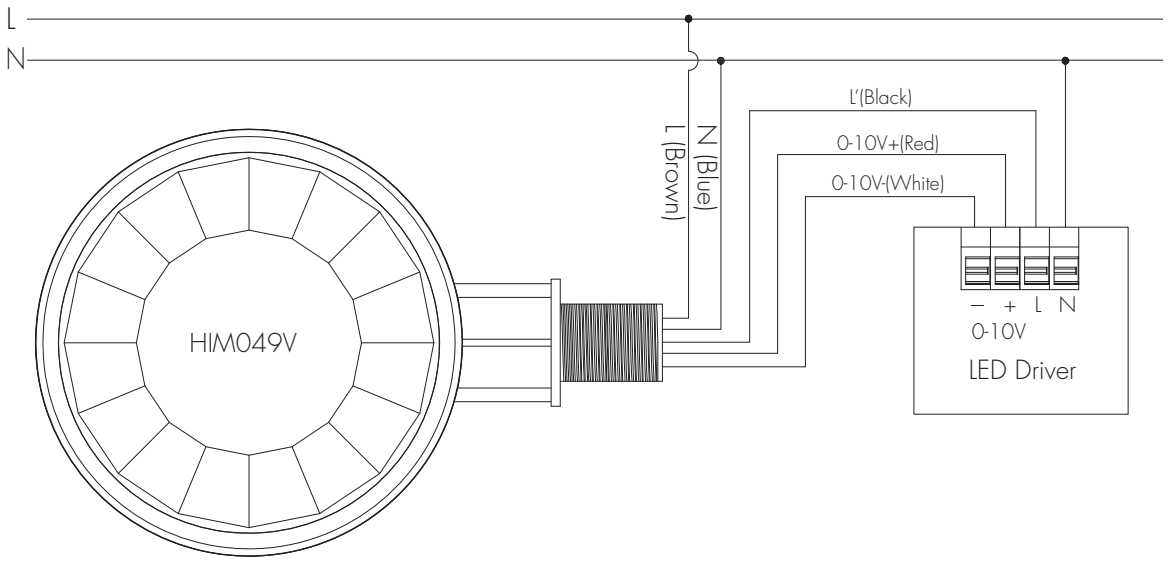



## Shielding Accessory

For the application of limited coverage areas (hallways), the line pattern of the shielding accessory can be freely removed by cutting to achieve a different range of shielding induction, for example, rectangular detection and semi-sphere detection. The portable design also provides an easy installation, which only needs to buckle the shielding accessory onto the lens.

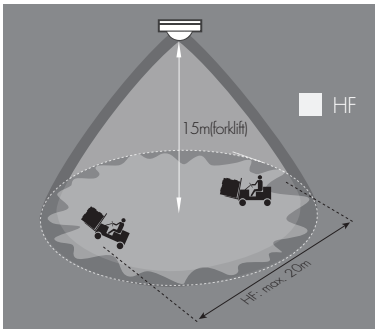


## Wiring Diagram

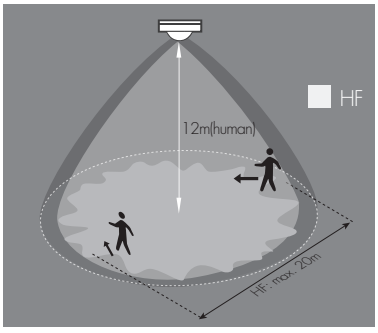



## Detection Pattern

a. High Frequency (microwave)



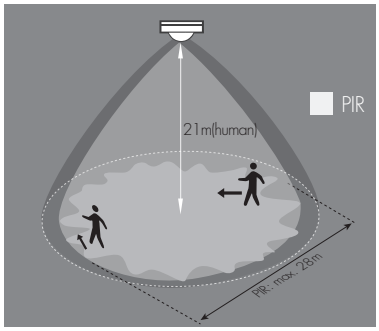

Forklift



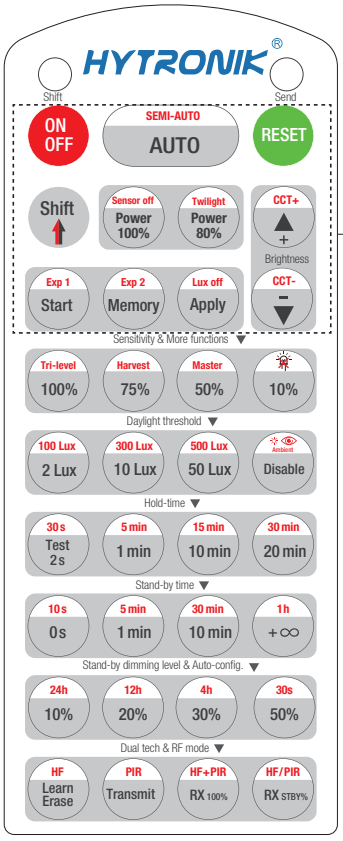

Human

b. PIR

*When relative humidity < 65%, storage temperature <25 ℃




Human

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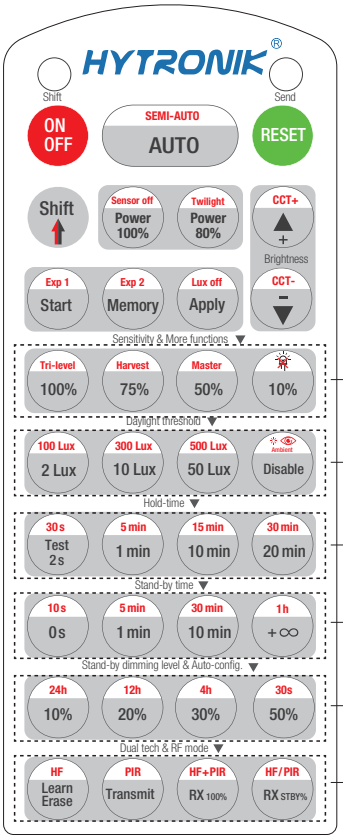
| | |
|---|---|
| ON OFF | Press button "ON/OFF" to select permanent ON or permanent OFF mode.<br>* Press button "AUTO"/ "RESET" to exit this mode. |
| RESET | Press button "RESET", all settings go back to default, exit ON/OF.<br>The default settings are: HF/PIR sensitivity 100%; Hold-time 5min, Hold-time dimming level:100%; Stand-by time: 10min; Stand-by dimming level: 20%; Daylight threshold is disabled; LED indication is disabled; Lux off activated; HF/PIR detection mode; AUTO mode; Tri-level harvest. |
| Shift | Press button "Shift", the LED on the top left corner is on to indicate mode selection. All values / settings in RED are valid for 20 seconds. |
| AUTO | Press button "AUTO" to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF; |
| SEMI-AUTO | This key is not appliable on this product. |
| Power 100% 80% | Press buttons in zone "Power out" to select the light output at 80% (at initial 10,000 hours) or 100%. |
| Sensor off<br>Twilight | 1. Press button "Shift", the red LED on.<br>2. Press button "Sensor off", the function of movement detection is disabled, the function of photocell is also disabled.<br>OR Press button "Twilight", the function of movement detection is disabled, but the function of photocell is still working, and the product becomes a pure dusk/ dawn daylight sensor.<br>To exit from "Sensor off"/"Twilight" mode, press button "AUTO"/"RESET". |
| ▲ ▼ | Press these two buttons to adjust the light output brightness and set a new target lux level. The daylight sensor can measure ambient daylight level and ignore the LED light, so as to calculate how much artificial light is needed to maintain the target lux level. |
| CCT+<br>CCT- | This key is not appliable on this product. |
| Start<br>Memory<br>Apply | 1. Press button "Start" to program.<br>2. Select the buttons in "Detection range", "Daylight threshold", "Hold-time", "Stand-by time", "Stand-by dimming level" to set all parameters.<br>3. Press button "Memory" to save all the settings programmed in the remote control.<br>4. Press button "Apply" to set the settings to each sensor unit(s).<br>*For example, to set detection range 100%, daylight threshold Disable, hold-time 5min, stand-by time +∞, stand-by dimming level 30%, the steps should be:*<br>*Press button "Start", button "100%", "Disable", "Shift", "5min", "Shift", "+∞", "30%", "Memory". By pointing to the sensor unit(s) and pressing "Apply", all settings are passed on the sensor(s).* |
| Lux off | The "Lux off" function is activated as default. When the ambient lux level exceeds the target level continuously for more than 5 minutes, the lights will be turned off.<br>In AUTO /Twilight modes, to disable "Lux off":<br>1. Press "Shift" button first, the red LED on.<br>2. Press "Lux off" button, the "Lux Off" function will be deactivated. The lights will not turn off even when the ambient lux level exceeds the target lux level but will dim down the brightness to the stand-by time level.<br>*For Sensor LED indicator references: 1.Fast flash 1s, "Lux off" function activated.*<br>*2.Remains on 2s, "Lux off" function deactivated.* |
| Exp 1<br>Exp 2 | "Exp" refer to Expansion, these two buttons are reserved functions and pending future development. |

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| Sensitivity & More functions | |
|---|---|
| 100% 75%<br>50% 10% | In AUTO modes, press buttons in zone "Detection range" to set detection range at 100%/75%/50%/10%. |
| **Tri-level Harvest** | 1.Press button "Shift", the red LED on.<br>2. Press buttons "Tri-level" or "Daylight harvest" to shift between Tri-level control mode and Daylight harvest mode. |
| **Master** | This key is not appliable on this product. |
| **LED indication** | Press buttons to turn on or off the LED indication function.<br>On: The LED indication blinks slowly for 1 second<br>Off: The LED indication standbay for 2 seconds<br>*Note: It cannot turn off the remote control LED indication, It can only turn on or off the mode status LED indication and the sensing LED indication.* |
| **Daylight threshold** | |
| 2 Lux 100 Lux<br>10 Lux 300 Lux<br>50 Lux 500 Lux<br>Disable | Press buttons in zone "Daylight threshold" to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux / 300Lux/500Lux / Disable.<br>*Note: To set daylight sensor at 100Lux / 300Lux/500Lux , press "Shift" button first.* |
| Ambient | 1. Press button "Shift", the red LED on.<br>2. Press button "Ambient", the surrounding lux level is sampled and set as daylight threshold / target Lux level. |
| **Hold-time mode** | |
| Test 2s 30 s<br>1 min 5 min<br>10 min 15 min<br>20 min 30 min | In AUTO modes, press buttons in zone "hold-time" to set the hold-time at 2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min.<br>*Note: 1. To set hold-time at 30s / 5min / 15min / 30min, press "Shift" button first.*<br>*2. 2s is for testing purpose only, daylight sensor settings are disabled in this mode.*<br>*To exit from Test mode, press button "RESET" or any button in "Hold-time". |
| **Stand-by time mode** | |
| 0s 10 s<br>1 min 5 min<br>10 min 30 min<br>+∞ 1h | Press buttons in zone "stand-by time" to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞.<br>*Note: 1. To set stand-by-time at 10s/ 5min / 30min / 1h, press "Shift" button first.*<br>*2. "0s" means on/off control;*<br>*3. "+∞" means bi-level control, the fixture is 100% on when there is motion detected, and remains at the stand-by dimming level when no presence after motion hold-time. Only when the stand-by time is set in "+∞" and the ambient lux level is below the target lux level, the lux will auto-on.* |
| **Stand-by dimming level & Auto-config.** | |
| 10% 20%<br>30% 50% | Press the button in zone "stand-by dimming level" to set the stand-by dimming level at 10% / 20% / 30% / 50%. |
| **24h**<br>**12h**<br>**4h**<br>**30s** | 1.Press button "Shift" ,the red LED on.<br>2.Select a time period and the sensor will do light level measurement and determine/save the lowest light level (commission line) with 100% light on, so as to set the target lux level automatically.<br>*Note:1.Make sure the light level measurement covers the night time.*<br>*2.The fixture will go into sensor mode after the measurement, all sensor setting remain unchanged.* |
| **Dual tech & RF mode** | |
| Learn<br>Erase | This key is not appliable on this product |
| Transmit | This key is not appliable on this product |
| **HF**<br>**PIR**<br>**HF+PIR**<br>**HF/PIR** | 1.Press button "Shift" ,the red LED on.<br>2. Choose one of the four detecion mode "HF only", "PIR only", "HF& PIR" or" HF/PIR". |

## Dual Sense Introduction

It's commonly known Microwave and Infrared are main detecting technologies in lighting controls. Both have the advantage and disadvantage for industrial applications.

Advantage

* sensitive to minor motion.
* sensitive to radial movement.
* can be reflected by objects hence covering big detection area
* resilient to heat source, smoke and and air conditioner.

Disadvantage

* penetrates walls, picks up motions outside of the office area;
* back wave detection, false trigger by motions at the back.
* can be false triggered by ventilation fans, water pipe, elevators etc. in industrial application.

Advantage

* no penetration, confined detection area.
* sensitive to tangential movement.
* resilient to motion object which has no heat radiation.

Disadvantage

* can be false triggered by air conditioner, smoke and other heat sources.

The remedy is to create Dual Sense by combining both technologies to make use of the advantage and bypass the disadvantage.

4 optional detection modes selectable:

* HF: Microwave only
* PIR: PIR mode only
* HF+PIR: both PIR and microwave mode, to decrease the detection capability and detection area. Only when both detections are activated, the motion is considered valid. This is to prevent the sensor from false trigger by heat source, air conditioner, ventilation fans, water pipe and elevators etc…
* HF/PIR: either PIR or microwave mode, to increase the detection capability and detection area;

## Additional Information / Documents

1. Regarding precautions for PIR sensor installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->PIR Sensors - Precautions for Product Installation and Operation

2. Regarding precautions for microwave sensor installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->Microwave Sensors - Precautions for Product Installation and Operation

3. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download->knowledge ->Hytronik Standard Guarantee Policy