

## Tri-level Control HF Sensor

HC018V

Standard Version

# HYTRONIK®

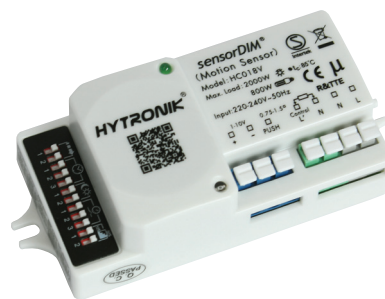
### Applications

Occupancy detector with tri-level control suitable for indoor use.






Suitable for building into the fixture:

■ Office / Commercial Lighting

Use for new luminaire designs and installations



### Features

-  Tri-level dimming control based upon occupancy (also known as corridor function)
-  1-10V dimming control method
-  Zero crossing detection circuit reduces in-rush current and prolongs relay life
-  Loop-in and loop-out terminal for efficient installation
-  5 Year, 50,000hr Warranty

### Technical Data

#### Input Characteristics

Model No.	HC018V
Mains voltage	220~240VAC 50/60Hz
Stand-by power	<0.5W
Load ratings:	
Capacitive	800W
Resistive	2000W
Warming-up	20s

#### Safety and EMC

EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669, AS/NZS60669
Radio Equipment (RED)	EN300440, EN301489, EN62479
Certification	Semko, CB, CE, EMC, RED, SAA

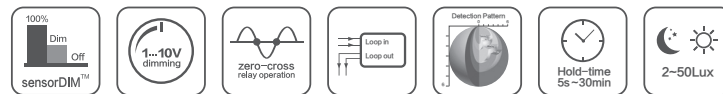
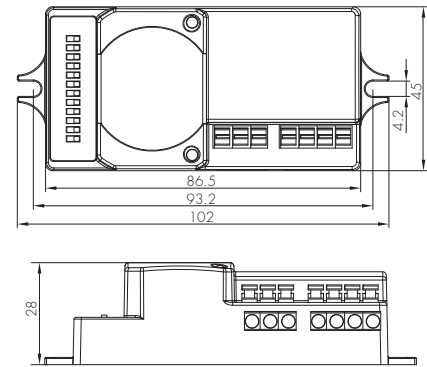
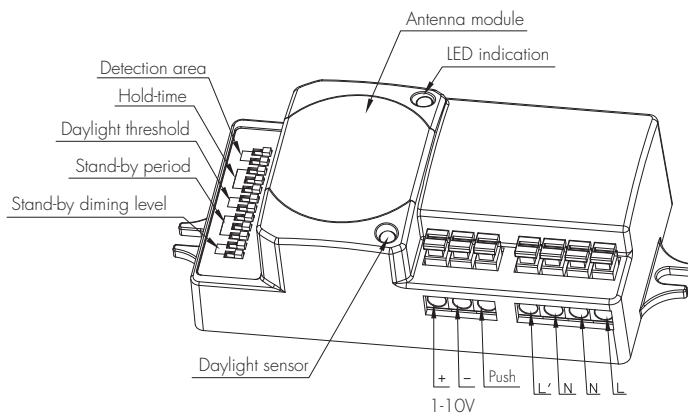
#### Sensor Data

Model No.	HC018V
Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range	Max. (Ø x H) 12m x 6m
Detection angle	30° ~ 150°
Setting adjustments:	
Sensitivity	10% / 50% / 75% / 100%
Hold-time	5s ~ 30min (selectable)
Daylight threshold	2 ~ 50 lux, disabled
Stand-by period	0s ~ 1h, +∞ (selectable)
Stand-by dimming level	10% / 20% / 30% / 50%

#### Environment

Operation temperature	Ta: -35°C ~ +70°C
Case temperature (Max.)	Tc: +80°C
IP rating	IP20

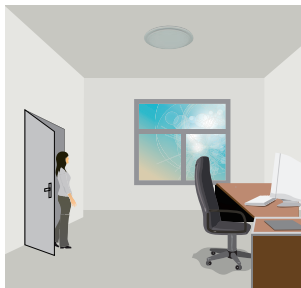
CE  RED  SAA CB IP20



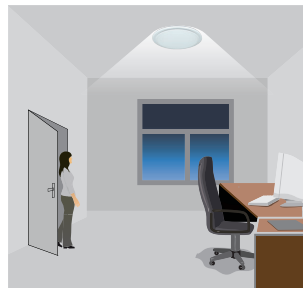
## Functions and Features

### 1 Tri-level Control (Corridor Function)

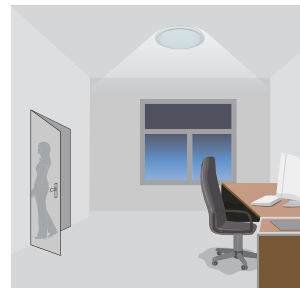
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%→dimmed light→off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable daylight threshold and freedom of detection area.



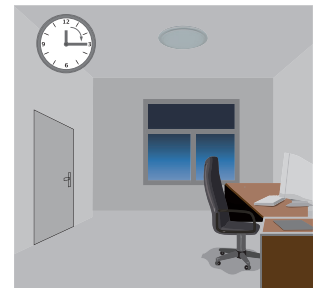
With sufficient natural light, the light does not switch on when presence is detected.



With insufficient natural light, the sensor switches on the light automatically when presence is detected.



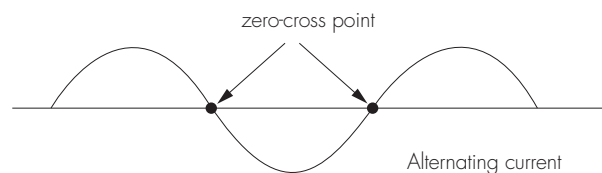
After hold-time, the light dims to stand-by level or switch off if the stand-by period is pre-set to 0s.



Light switches off automatically after the stand-by period elapses.

### 2 Zero-cross Relay Operation

Designed in the software, sensor switches on/off the load right at the zero-cross point, to ensure that the in-rush current is minimised, enabling the maximum lifetime of the relay.



### 3 Loop-in and Loop-out Terminal

Double L N terminal makes it easy for wire loop-in and loop-out, and saves the cost of terminal block and assembly time.

#### 4 Manual Override

This sensor reserves the access of manual override function for end-user to switch on/off, or adjust the brightness by push-switch, which makes the product more user-friendly and offers more options to fit some extra-ordinary demands:

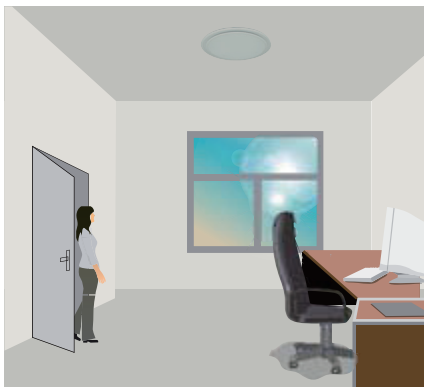
- \* Short Push (< 1 s): on/off function;  
On → Off: the light turns off immediately and cannot be triggered ON by motion until the expiration of pre-set hold-time. After this period, the sensor goes back to normal sensor mode.  
Off → On: the light turns on and goes to sensor mode, no matter if ambient Lux level exceeds the daylight threshold or not.
- \* Long Push (> 1 s): adjust the hold-time brightness level between 10% and 100%.

*Note: if end-user do not want this manual override function, just leave the "push" terminal unconnected to any wire.*

#### 5 Semi-auto Mode (Absence Detection)

It is easy to forget to switch off the light, in office, corridor, even at home. And in many other cases, people do not want to have a sensor to switch on the light automatically, for example, when people just quickly pass-by, there is no need to have the light on. The solution is to apply this "absence detector": motion sensor is employed, but only activated on the manual press of the push switch, the light keeps being ON in the presence, and dims down in the absence, and eventually switches off in the long absence.

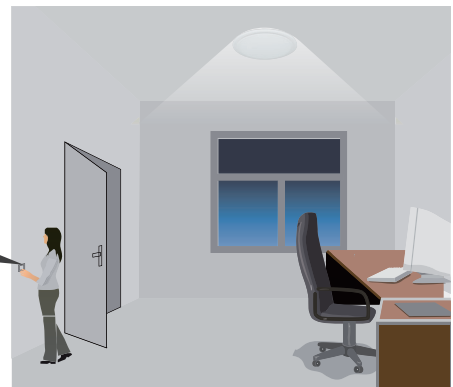
This is a good combination of sensor automation and manual override control, to have the maximum energy saving, and at the same time, to keep efficient and comfortable lighting.



The light does not switch on when there is presence being detected.



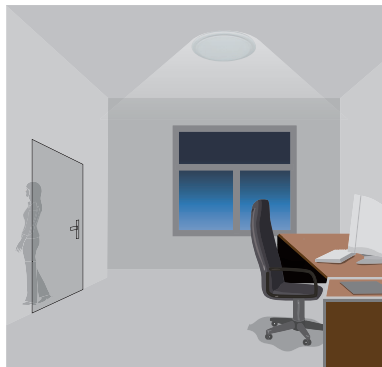
Short push to activate the sensor and switch on the light



The light turns on full, and the sensor stays in sensor mode.



The light keeps being ON during the presence.

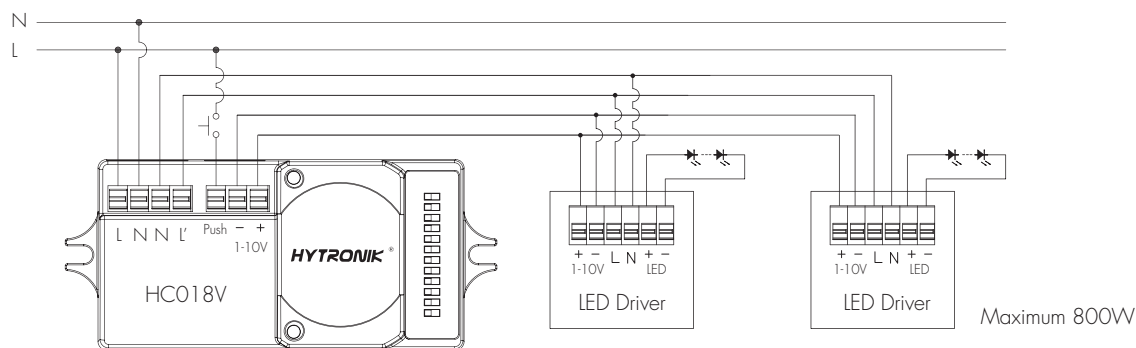


People left, the light dims to stand-by level after the hold-time.



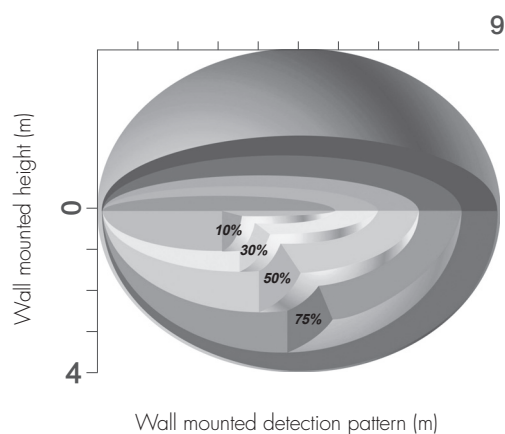
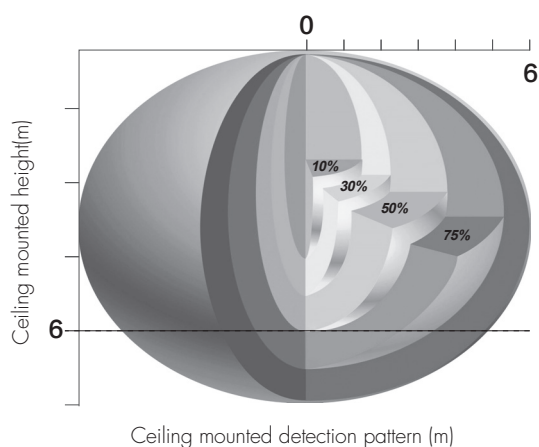
The light switches off automatically after the stand-by period elapses.

*Note: end-user can choose either function 4 or function 5 for application. Default function is manual override.*



Note: this 1-10V output is non-isolated, please make sure the fixture is constructed according to relevant safety standard.

## Detection Pattern



## DIP Switch Settings

### 1 Detection Range

Sensor sensitivity can be adjusted by selecting the combination on the DIP switches to fit precisely for each specific application.

	1	2	
I	●	●	100%
II	●	○	75%
III	○	●	50%
IV	○	○	10%

I – 100%  
 II – 75%  
 III – 50%  
 IV – 10%

### 2 Hold Time

Select the dip switch configuration for the full brightness on-time after presense detection.

Please note that this function is disabled when the natural daylight exceeds the daylight threshold setting for more than 5 minutes.

	1	2	3	
I	●	●	●	5s
II	●	●	○	30s
III	●	○	●	1min
IV	●	○	○	5min
V	○	●	○	10min
VI	○	●	●	20min
VII	○	○	○	30min

I – 5s  
 II – 30s  
 III – 1min  
 IV – 5min  
 V – 10min  
 VI – 20min  
 VII – 30min

### 3 Daylight Threshold

Set the level according to the fixture and environment. The light will not turn on if ambient lux level exceeds the daylight threshold preset.

*Please note that the ambient lux level refers to internal light reaching the sensor.*

Disabling the daylight sensor will put the sensor into occupancy detection only mode.

	1	2	
I	●	●	Disable
II	●	○	50Lux
III	○	●	10Lux
IV	○	○	2Lux



I – Disable  
II – 50Lux  
III – 10Lux  
IV – 2Lux

### 4 Stand-by period (corridor function)

This is the time period you would like to keep at the low light output level before it is completely switched off in the long absence of people.

*Note: "0s" means on/off control;*

*"+ ∞" means the stand-by time is infinite and the fixture never switches off.*

	1	2	3	
I	●	●	●	0s
II	●	●	○	10s
III	●	○	○	1min
IV	●	○	○	5min
V	○	●	○	10min
VI	○	●	○	30min
VII	○	○	●	1H
VIII	○	○	○	+∞



I – 0s  
II – 10s  
III – 1min  
IV – 5min  
V – 10min  
VI – 30min  
VII – 1H  
VIII – +∞

### 5 Stand-by dimming level

The setting is used to select the desired dimmed light level used in periods of absence for enhanced comfort and safety.

	1	2	
I	●	●	10%
II	●	○	20%
III	○	●	30%
IV	○	○	50%



I – 10%  
II – 20%  
III – 30%  
IV – 50%

*Note: end-user can also scan the QR code on the housing for DIP switch settings.*