On/off Control HF Sensor

HC009S/I
Standard Version with Photocell Advance™

HYTRONIK ®

Applications

Occupancy detector with on/off control suitable for indoor use.

Suitable for building into the fixture:

- Office / Commercial Lighting
- Meeting room
- Classroom

Use for new luminaire designs and installations

Features

Special photocell to measure and differentiate natural light from LED light from behind the fixture cover

Synchronised control with multiple sensor circuits

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.	HC009S/I
Mains voltage	220~240VAC 50/60Hz
Stand-by power	<0.5W
Load ratings:	
Capacitive	400W
Resistive	1200W
Warming-up	20s

Sensor Data

Model No.	HC009S/I
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	$30° \sim 150°$
Setting adjustments:	
Sensitivity	10% / 25% / 50% / 75%/ 100%
Hold-time	5s ~ 30min (selectable)
Daylight threshold	2 ~ 50 lux, disabled

Safety and EMC

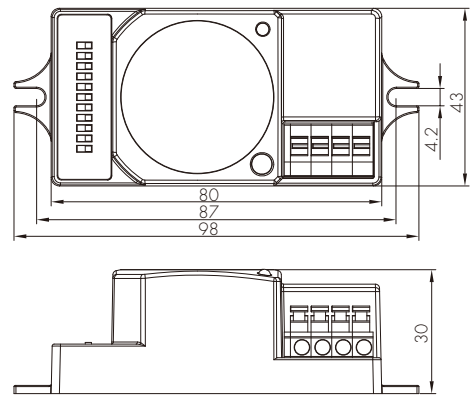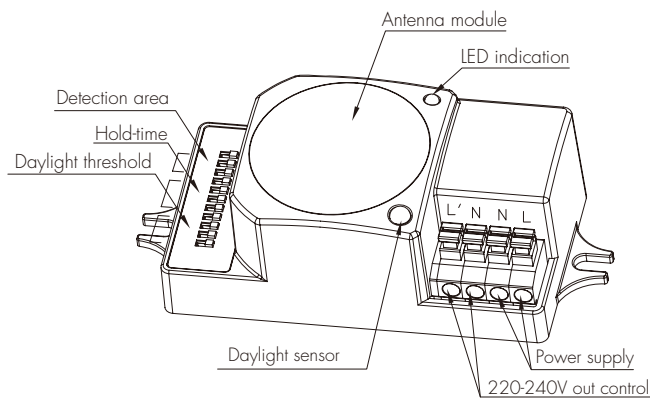|	
EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669-1, AS/NZS 60669
Radio Equipment (RED)	EN300 440, EN301489-1, EN301489-3, EN62479
Certification	Semko, CB, CE , EMC, RED, RCM

Environment

Operation temperature	Ta: -35°C ~ +70°C
Case temperature (Max.)	Tc: +85°C
IP rating	IP20

CE emc RED Ⓢ Intertek ⚠ CB IP20

Antenna module
LED indication
Detection area
Hold-time
Daylight threshold
Daylight sensor
Power supply
220-240V out control
L' N N L

80
87
98
43
4.2
30

Photocell Advance™   Synchronisation control   zero-cross relay operation   sensorDIM™   Loop in Loop out   Detection Pattern   Hold-time 5s~30min   2~50Lux

Functions and Features

1 On/off Control with Photocell Advance™ Function

This sensor is a motion switch, which turns on the light upon detection of motion, and turns off after a pre-selected hold-time when there is no movement.

Furthermore, a Hytronik specially designed photocell is also built in to switch on/off the light based upon ambient natural light lux level. It's well known that LED lights have a totally different spectrum from natural light. Hytronik uses this principle and comes up with this special photocell and sophisticated software algorithm to measure and differentiate natural light from LED light from behind the fixture cover, so that this photocell can ignore internal LED light and only respond to the natural light outside.
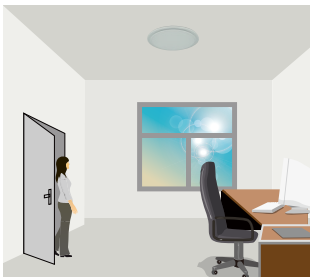
Our technology has no infringement to the existing patents in the market.

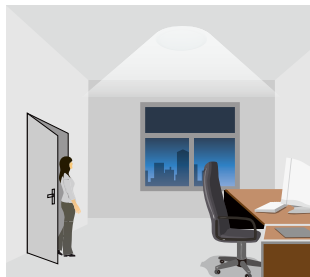*Settings on this demonstration:*

Hold-time: 30min   Daylight threshold: 50lux

Insufficient natural light and motion detection: light ON   Sufficient natural light or no motion after hold-time: light OFF
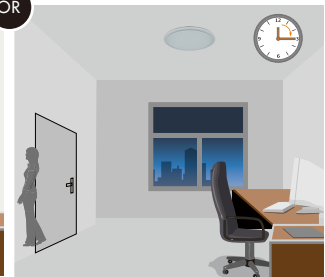

OR

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

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

The sensor switches off the light whenever natural light exceeds pre-set daylight threshold, even with presence.

The sensor switches off the light after the hold-time when there is no motion detected.

2 Synchronisation Control

In many cases, several sensors are connected together to control the same fixture, or to trigger each other, the sudden on/off of the lamp tube or the ballast/driver causes huge magnetic pulse, which may mis-trigger the sensor. This sensor has a very advanced software to ignore that interference.

By connecting L' terminal with L' on another sensor, if any of the master fixture (containing sensor) is triggered, all luminaries (including slaves and other master unit in the group) will also light up.

3 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.
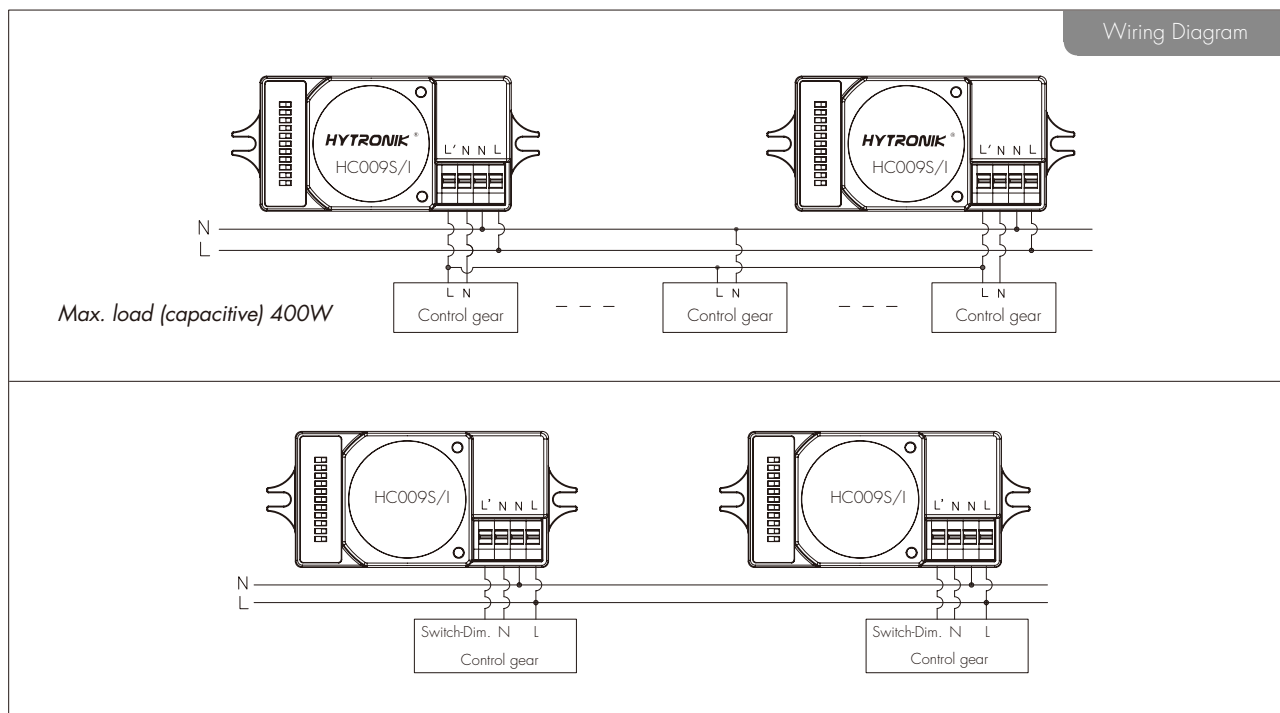
zero-cross point

Alternating current
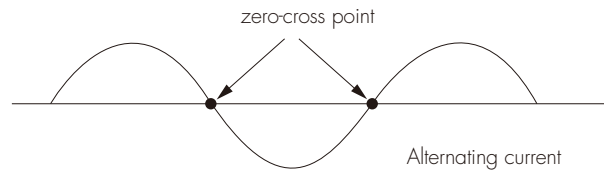
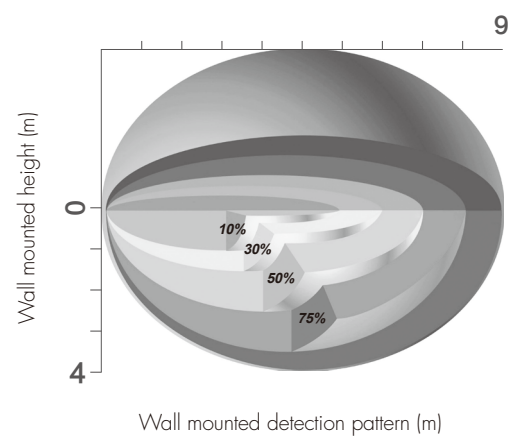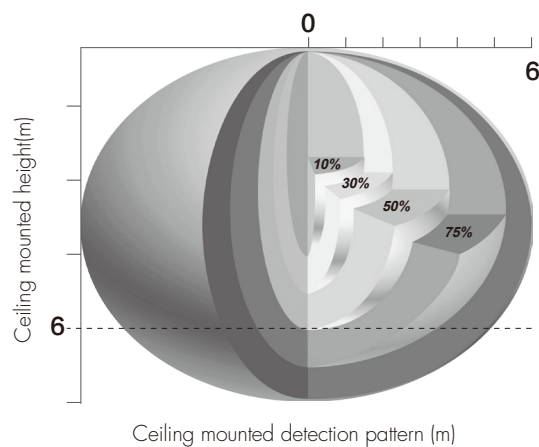### 4 Loop-in and Loop-out Terminal

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

5 SensorDIM™ Function

Working with Switch-dim. control gear (Excel ballast/driver, corridor function), this sensor can also achieve tri-level control.

Wiring Diagram

HYTRONIK®
HC009S/I
L' N N L

HYTRONIK®
HC009S/I
L' N N L

N
L

Max. load (capacitive) 400W

L N
Control gear

L N
Control gear

L N
Control gear

HC009S/I
L' N N L

HC009S/I
L' N N L

N
L

Switch-Dim. N   L
Control gear

Switch-Dim. N   L
Control gear

Detection Pattern

0
6

Ceiling mounted height(m)

10%
30%
50%
75%

6

Ceiling mounted detection pattern (m)

9

Wall mounted height (m)

0

10%
30%
50%
75%

4

Wall mounted detection pattern (m)

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	3	
I	●	●	●	100%
II	○	●	●	75%
III	●	○	●	50%
IV	●	●	○	25%
V	○	○	○	10%

I – 100%
II – 75%
III – 50%
IV – 25%
V – 10%

2 Hold Time

Select the DIP switch configuration for the light on-time after presence detection. This function is disabled when natural light is sufficient.

	1	2	3	4	
I	●	●	●	●	5s
II	○	●	●	●	30s
III	●	○	●	●	1min
IV	●	●	○	●	5min
V	●	●	●	○	15min
VI	○	○	○	○	30min

I – 5s
II – 30s
III – 1min
IV – 5min
V – 15min
VI – 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. In Photocell Advance™ mode this level will determine at which point the light turns off.
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	3	4	
I	●	●	●	●	2Lux
II	○	●	●	●	5Lux
III	●	○	●	●	10Lux
IV	●	●	○	●	30Lux
V	●	●	●	○	50Lux
VI	○	○	○	○	Disable

I – 2Lux
II – 5 Lux
III – 10 Lux
IV – 30 Lux
V – 50 Lux
VI – Disabled