

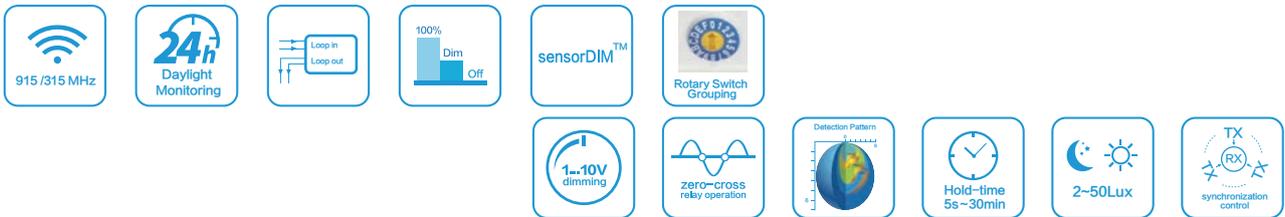
Sensors with RF Wireless Transmission Control

Model: HC428V/RF, HC418V/RF
HC424RF



This is a combination of motion sensor and RF radio wave wireless transmission, which is perfect solution for retrofit projects. The motion detected by 1 sensor (the transmitter unit) can pass onto other pre-defined individuals (the receiver units) though RF transmission. The transmitter can trigger unlimited number of receivers as long as within the transmission range (30 meters indoor and 100 meters in the open area).

With fixed address code technology, it's easy to set up transmission groups. Up to 16 different groups can be created. Optional transmission frequency of 915/315 MHz, thanks to FSK technology. Easy installation and free of wiring!



RF Transceiver HC428V/RF

*can serve as both transmitter and receiver

- Hold-time
- Detection area
- RF antenna
- Antenna module
- Rotary coding switch(TX)
- Daylight sensor
- Stand-by period
- Rotary coding switch(RX)
- Stand-by dimming level
- Brightness on RF signal
- LED indication
- Daylight sensor
- 10% or 100%
- 1-10V

Mechanical structure (mm)

Dimensions: 99, 105.7, 114.5, 4.2, 4.5, 27.5

RF Transmitter HC418V/RF

*transmitter only

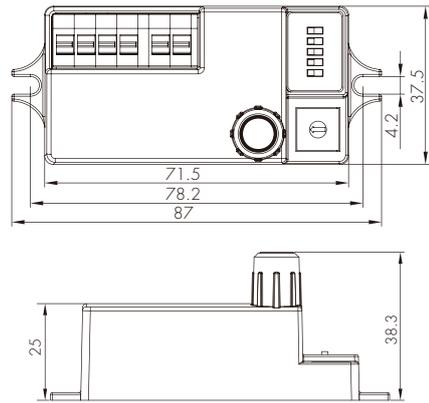
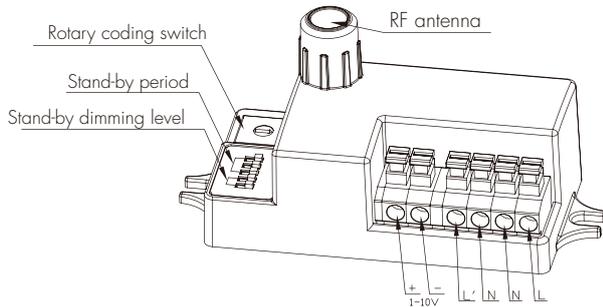
- RF Antenna
- LED indication
- Detection area
- Daylight sensor
- Hold-time
- Daylight threshold
- Stand-by period
- Stand-by dimming level
- Rotary coding switch
- 1-10V

Mechanical structure (mm)

Dimensions: 86.5, 93.2, 102, 4.2, 4.5, 5.4, 28

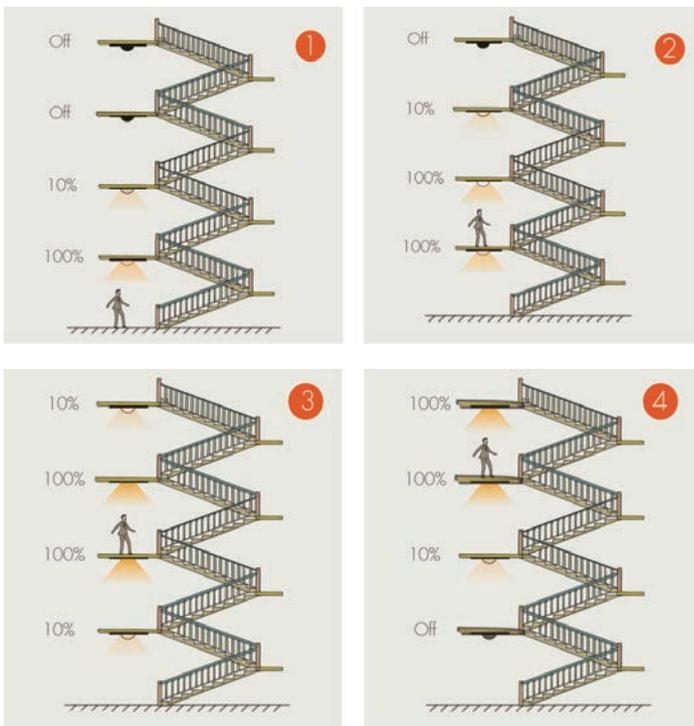
RF Receiver HC424RF

*receiver, dimming control



Typical Applications

1 For staircase (HC428V/RF serves as both transmitter and receiver)



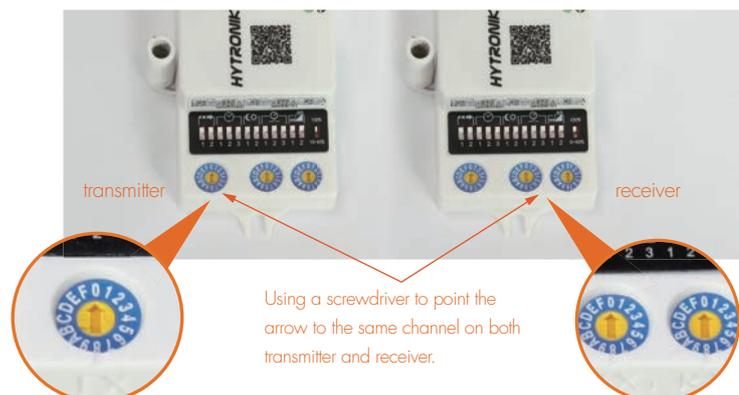
- 1 The 1st floor sensor detects motion, its fixture turns on FULL and sends RF signal to 2nd floor sensor and any others programmed to be in the same group. The 2nd floor fixture turns on full or to dim level programmed, as does each fixture in group. The group should contain enough fixtures to provide safe lighting levels, perception of safety and elimination of undesirable tunnel effects.
- 2 As occupant moves to 2nd floor, this sensor detects motion and turns its fixture on full and sends RF signal to each sensor in group. The first floor sensor's programmed timer starts while no motion is being detected. Through remote programming, each fixture provides only as much light as is needed.
- 3 With occupant on 3rd floor, this sensor detects motion and sends RF signal to a different grouping of sensors to turn on their fixtures on floors above and below. Meanwhile, the 1st floor sensor goes into programmed dim mode after the hold-time times out and stand-by timer starts to count.
- 4 This propagation continues with new groupings as occupant moves to 4th floor and this sensor detects motion. Meanwhile, the 1st floor sensor's stand-by timer times out it will turn off the light. 2nd floor's sensor goes into programmed dim mode.

Note: by selecting the brightness DIP switch, the receiver can either turn the light 100% on or dim the light to stand-by dimming level upon receiving the RF signal from the transmitter.

RF Grouping (Maximum 16 channels)

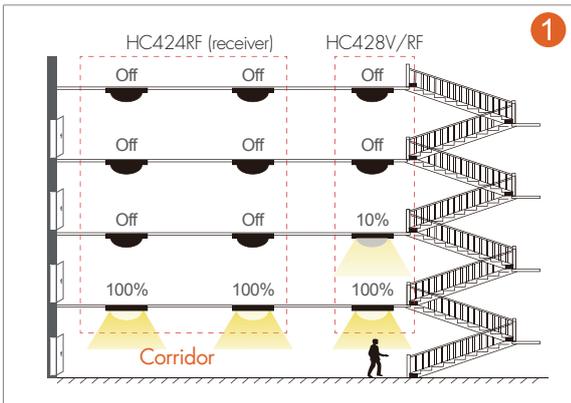
Using a screwdriver to adjust the rotary switch on both the transmitter unit (transmitter) and receiving unit (receiver), and keep them pointing at the same channel, the grouping is automatically completed. 16 channels (maximum 16 groups) available for both the transmitter & receiver unit.

Note: RX1 and RX2 receive two different RF signals from two different transmitters.

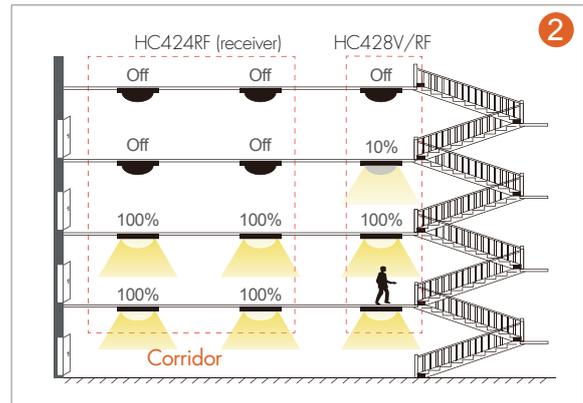


Using a screwdriver to point the arrow to the same channel on both transmitter and receiver.

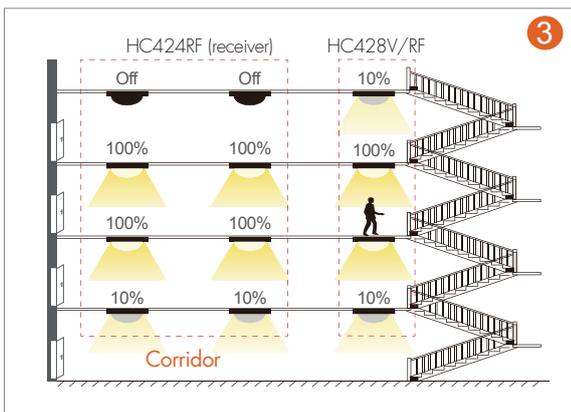
2 For staircase and corridor (HC428V/RF as both transmitter and receiver, HC424RF as receiver)



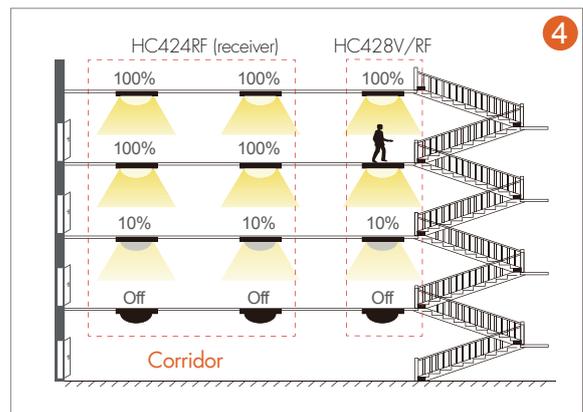
While the 1st sensor detects motion on the 1st floor, it switches the light on 100% and sends signal to all receiver units. All HC424RF on the 1st floor turn on 100% and the HC428V/RF on the 2nd floor goes to stand-by level.



The person walks to the 2nd floor, the 2nd HC428V/RF switches the light on 100%. All HC424RF on the 2nd floor turn the light on 100% and the HC428V/RF on the 3rd floor goes to stand-by level.

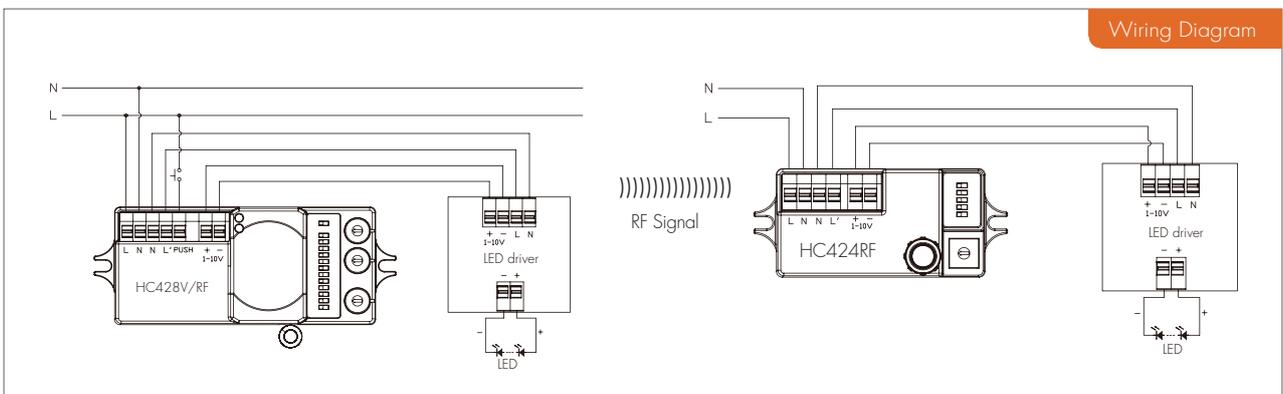


When walks to the 3rd floor, the 3rd HC428V/RF switches the light on 100%. All HC424RF on the 3rd floor turn the light on 100% and the HC428V/RF on the 4th floor goes to stand-by level. Meanwhile, the lights on the 1st floor are dimmed to stand-by level after hold-time.



The person walks to the 4th floor, the 4th HC428V/RF switches the light on 100%. All HC424RF on the 4th floor turn the light on 100% and the next HC428V/RF goes to stand-by level. Meanwhile, all sensors on the 1st floor turn the light off after stand-by period, and all lights on the 2nd floor dim to stand-by level after hold-time.

Wiring Diagram



Note: this 1-10V output on the transmitter unit HC428V /RF is isolated, SELV output.

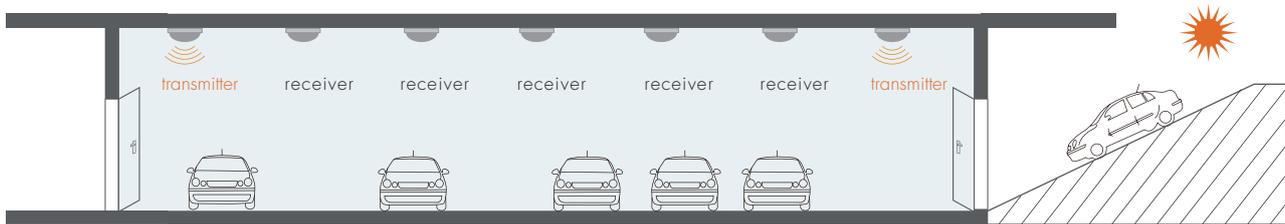
RF Grouping (Maximum 16 channels)

Using a screwdriver to adjust the rotary switch on both the transmitter unit (transmitter) and receiving unit (receiver), and keep them pointing at the same channel, the grouping is automatically completed. 16 channels (maximum 16 groups) available for both the transmitter & receiver unit.

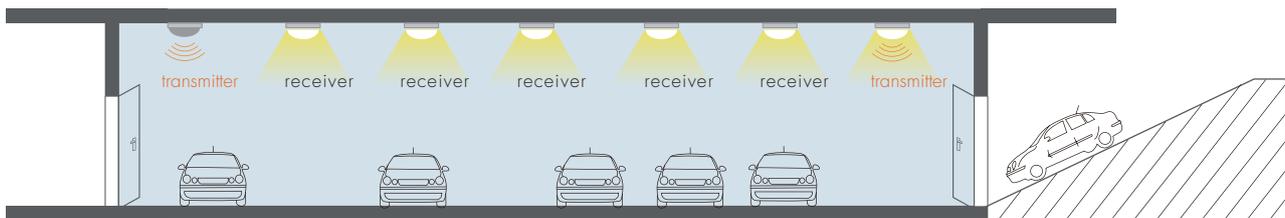


Using a screwdriver to point the arrow to the same channel on both transmitter and receiver.

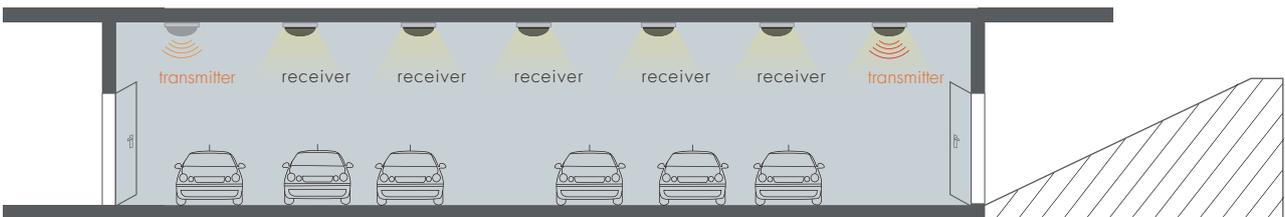
3 For carpark (HC418V/RF as transmitter and HC424RF as receiver)



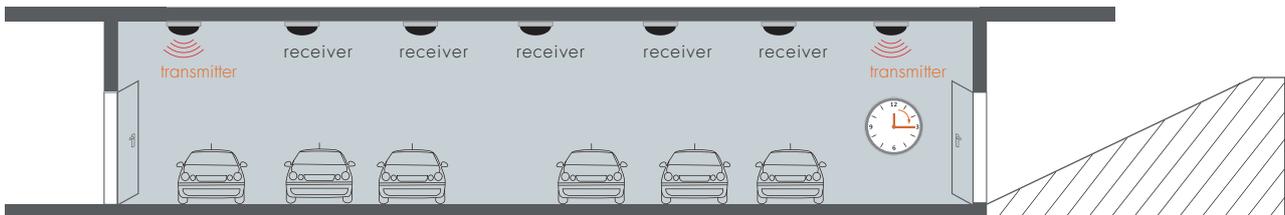
With sufficient natural light, the sensor is not triggered by motion.



With insufficient natural light, the sensor is triggered by motion, the transmitter switches on the light and send RF ON signal to all salves.

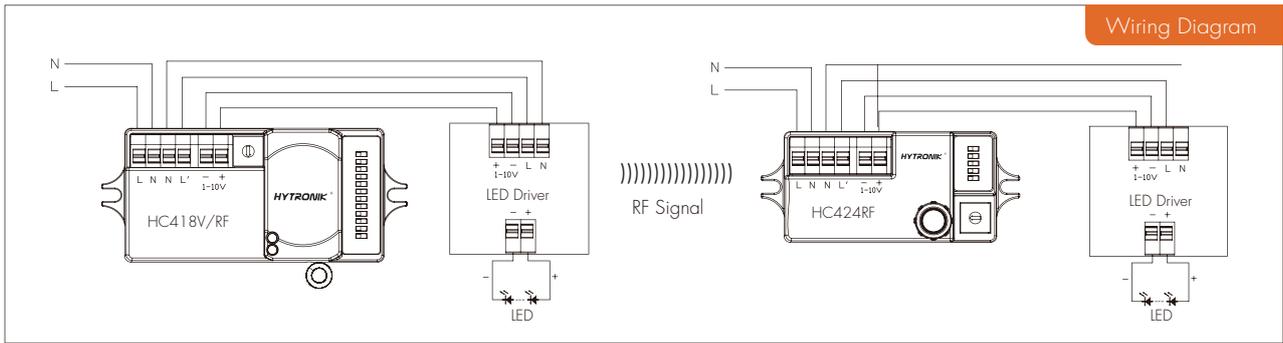


After the hold-time, the whole group of lamps dim to pre-defined dimming level when no movement is detected.



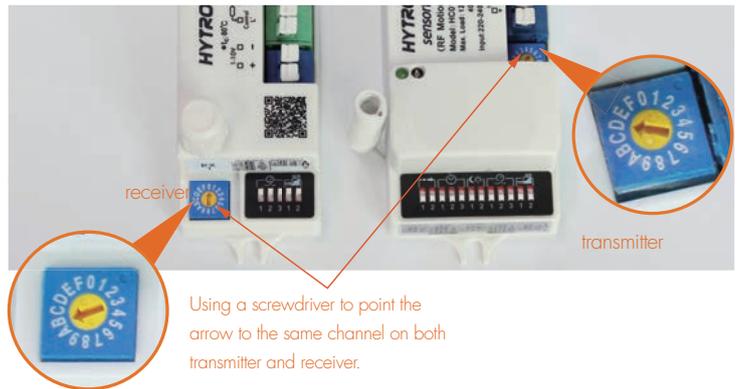
The whole group of lamps switch off automatically after the stand-by period.

Note: even in case the receiver fails to receive the off signal from the transmitter, it will also switch the light off automatically after a 30min time delay.



RF Grouping (Maximum 16 channels)

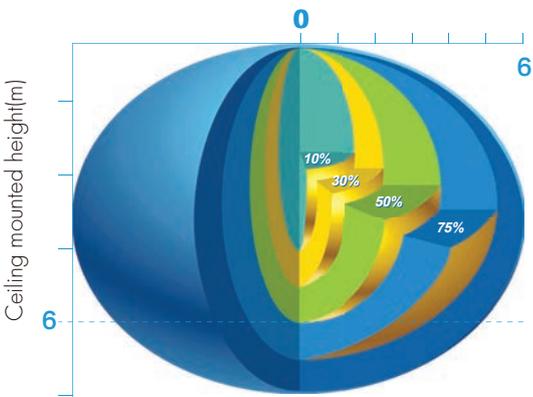
Using a screwdriver to adjust the rotary switch on both the transmitter unit (transmitter) and receiving unit (receiver), and keep them pointing to the same channel, the grouping is automatically completed. 16 channels (maximum 16 groups) available for both the transmitter & receiver unit.



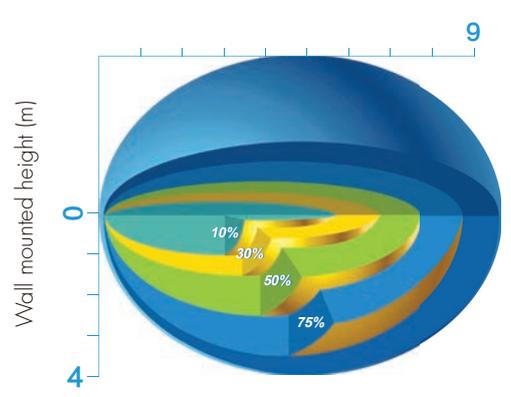
Product Functions and Features

- 1 Zero-cross relay operation
- 2 Wire loop-in and loop-out
- 3 Wall switch manual override (push function) (for HC428V/RF only)
- 4 Daylight monitoring function (for HC428V/RF and HC418V/RF)

Detection Pattern



Ceiling mounted detection pattern (m)



Wall mounted detection pattern (m)

Settings (HC428V/RF)

1 Detection area

Detection area can be reduced 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

Hold-time means the time period you would like to keep the lamp on 100% after the person has left the detection area.

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



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

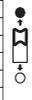
3 Stand-by period (tri-level control)

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 bi-level control, fixture never switches off when daylight sensor is disabled.

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



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

4 Stand-by dimming level

This is the dimmed low light output level you would like to have after the hold-time in the absence of people.

Note: the stand-by period and stand-by dimming level set up on the transmitter is only valid for the transmitter unit; the receiver unit can set its own stand-by period and dimming level.

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



I – 10%
II – 20%
III – 30%
IV – 50%

5 Daylight sensor

The daylight threshold can be set on DIP switches, to fit for particular application.

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

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



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

Technical Data (HC428V/RF)

Operating voltage	120-277Vac
Switched power (capacitive load)	200W@120V, 500W@277V
Stand-by power	<0.5W
Coding	Fixed address coding (rotary coding switch for grouping)
Detection area	10% / 50% / 75% / 100%, can be customized
Hold-time	5s/30s/1min/5min/10min/20min/30min, can be customized
Stand-by period	0s/10s/1min/5min/10min/30min/1hour / +∞
Stand-by dimming level	10% / 20% / 30% / 50%
Daylight threshold	2~50 lux, disable, can be customized
RF. Communicating Channels	16 channels for grouping
HF (microwave) frequency	5.8GHz±/-75MHz
HF (microwave) power	<0.2mW
Detection range	Max. (DxH): 12m x 6m
Detection angle	30°~150°
RF. Transmission distance	30 meters indoor, 100 meters in the open area
Mounting height	Max. 6m
Max. case temperature (Tc)	80°C
RF frequency	915MHz (FSK mode)
Certificate	FCC, cULus listed

Settings (HC418V/RF)

1 Detection area

Detection area can be reduced 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

Hold-time means the time period you would like to keep the lamp on 100% after the person has left the detection area.

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



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

3 Daylight sensor

The daylight threshold can be set on DIP switches, to fit for particular application.

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



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

4 Stand-by period (tri-level control)

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 bi-level control, fixture never switches off when daylight sensor is disabled.

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



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

5 Stand-by dimming level

This is the dimmed low light output level you would like to have after the hold-time in the absence of people.

Note: the stand-by period and stand-by dimming level set up on the transmitter is only valid for the transmitter unit; the receiver unit can set its own stand-by period and dimming level.

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



I – 10%
II – 20%
III – 30%
IV – 50%

Technical Data (HC418V/RF)

Operating voltage	120~277Vac
Switched power	200W@120V, 500W@277V
Stand-by power	<0.5W
Coding	Fixed address coding (rotary coding switch for grouping)
Detection area	10/50/75/100%
Hold-time	5s/30s/1min/5min/10min/20min/30min
Daylight threshold	2~50Lux, Disable
Stand-by period	0s/10s/1min/5min/10min/30min/1h/+∞
Stand-by dimming level	10%/20%/30%/50%
RF. Communicating Channels	16 channels for grouping
HF (microwave) frequency	5.8GHz +/-75MHz
HF (microwave) power	<0.2mW
Detection range	Maximum (∅ x H): 12m x 6m
Detection angle	30°~150°
RF. Transmission distance	30 meters indoor, 100 meters in the open area.
Mounting height	Max. 6m
Max. case temperature (Tc)	80°C
Operating temperature	-35°C ~ +70°C
RF frequency	915 MHz (FSK mode)
Certificate	cULus listed

Stand-by period (tri-level control)

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;

" $+\infty$ " means bi-level control, fixture never switches off.

	1	2	3	
I	●	●	●	0s
II	●	●	○	10s
III	●	○	●	1min
IV	●	○	○	5min
V	○	●	●	10min
VI	○	●	○	30min
VII	○	○	●	1h
VIII	○	○	○	$+\infty$



- I – 0s
- II – 10s
- III – 1 minute
- IV – 5 minutes
- V – 10 minutes
- VI – 30 minutes
- VII – 1 hour
- VIII – $+\infty$

Stand-by dimming level

This is the dimmed low light output level you would like to have after the holdtime in the absence of people.

	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.