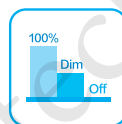# Advanced Version
Condominium Control

Model: HC019V

Antenna module
LED indication
Detection area
Hold-time
Daylight threshold
Stand-by period
Stand-by dimming level
Daylight sensor
+ − Sync L' N N L
1-10V output

45
4.2
86.5
93.2
102
28

1...10V dimming

Loop in
Loop out

Master
Slave
sync master-slave control

zero-cross relay operation

100%
Dim
Off

sensorDIM™

Hold-time 5s~30min

2~50Lux
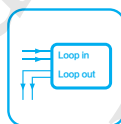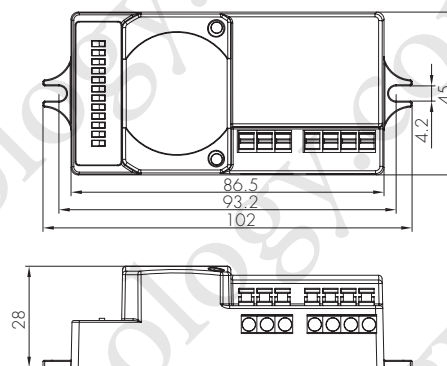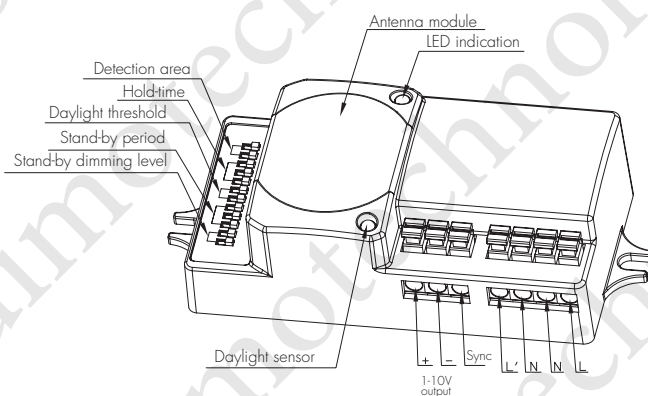
In many cases, several sensors are connected together to control the same fixture, or to trigger on each other, the sudden on/off may cause huge magnetic pulse and mis-trigger the sensor. Hytronik condominium sensor HC019V is specially designed for these applications with 1-10V output which employes a strong software to overcome the megnatic interferences.

Functions and Options

In a lot of buildings, there is a need that the moving object in corridor or undercover garage can trigger a transmitter luminarie with connected receiver luminaries from more than one direction. Every transmitter luminaries (containing the sensor) should be able to trigger the whole installation whether it's an on/off or dimming installation.

See the example below that there are several exits /entrances to the corridor, no matter which sensor at exit /entrance is triggered, the luminaries in the group will light up.

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

Same as Tridonic excel control gear, Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas require a light change notice before switch-off.

It offers 3 levels of light:100%-->dimmed light (10%, 20%, 30%, 50% optional)-->off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; selectable daylight threshold and freedom of detection area.
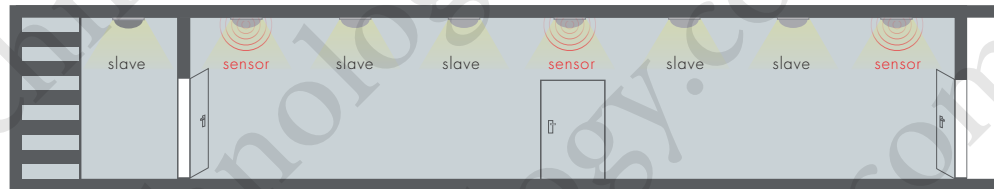
With sufficient natural light, the light does not switch on when presence detected.
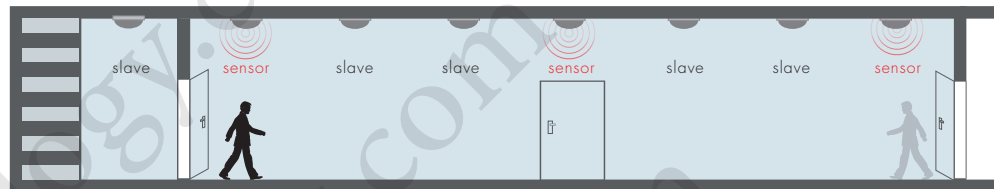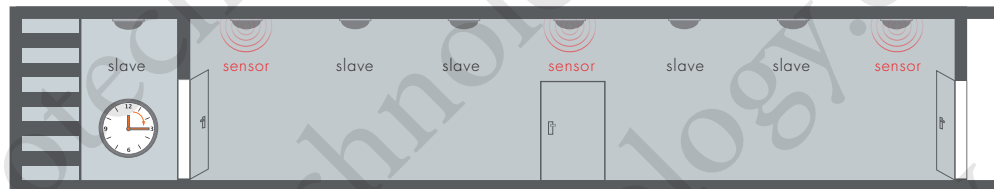
With insufficient natural light, the person comes from any direction, the group of lamps switch on.
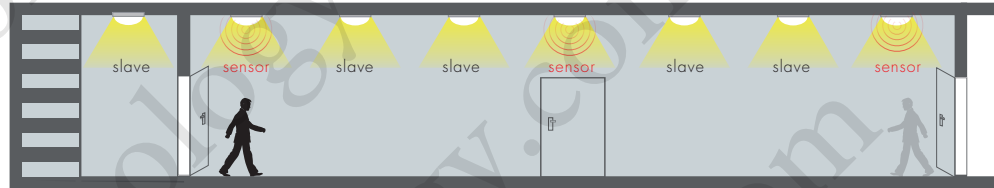
After the hold-time, the whole group of lamps dim to pre-defined dimming level when no motion is detected.

After the stand-by period, the whole group of lamps switch off automatically.

2 Sync master-slave control

By connecting all the "1-10V –" and "SYNC" terminals in parallel (see wiring diagram next page), if there is any master fixture (containing sensor) is triggered by motion, all slave luminaries will light up at the same time.
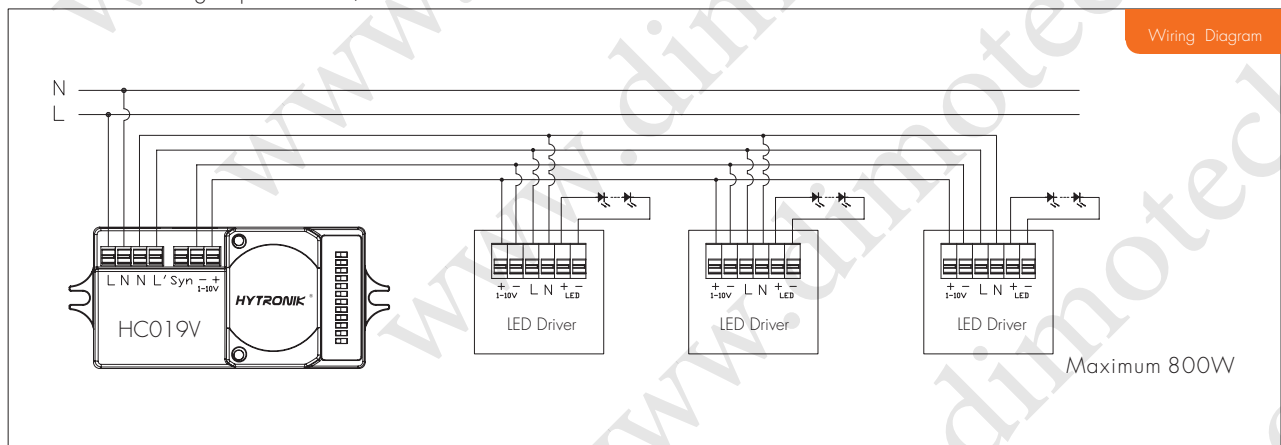
3 Zero-cross relay operation

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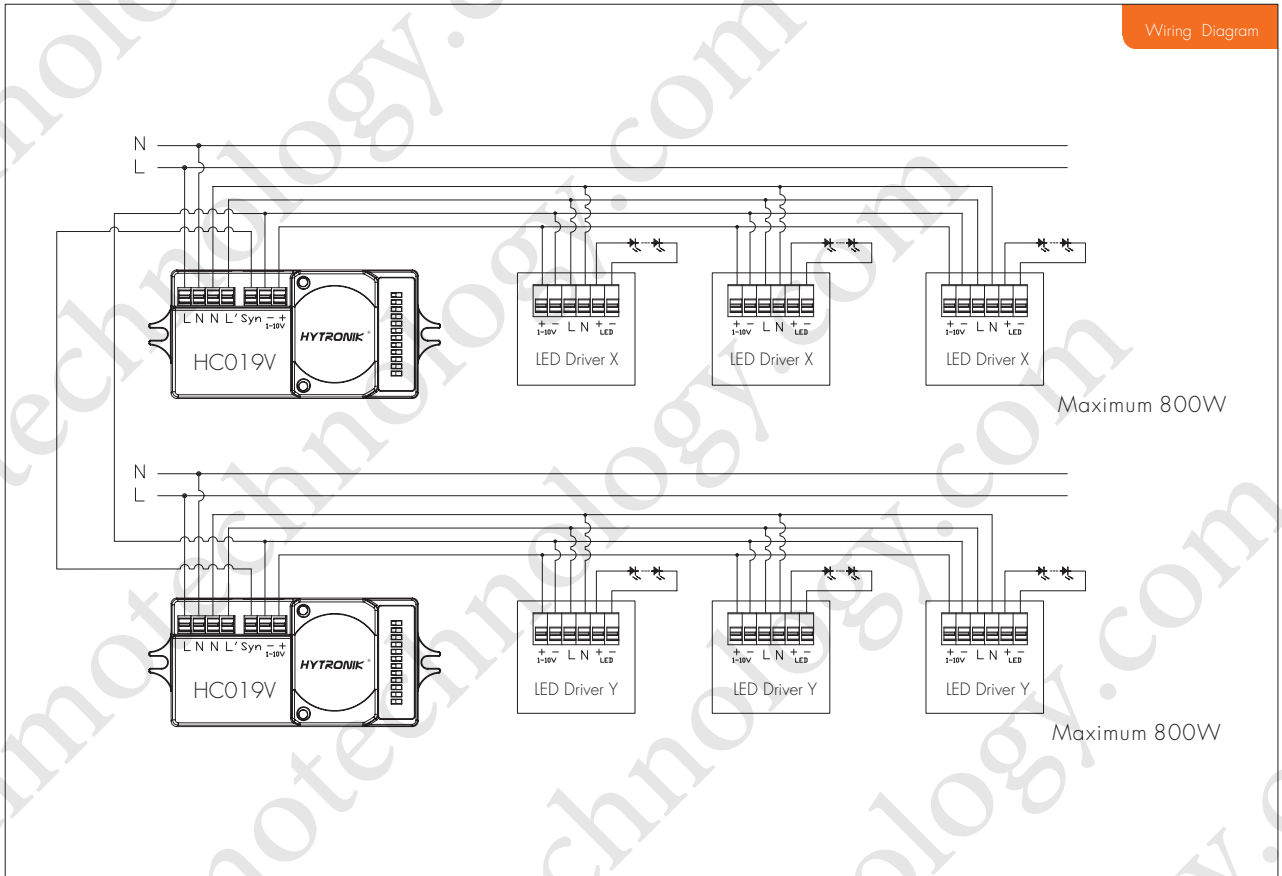
4 Loop-in and loop-out terminal

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 Wiring diagram

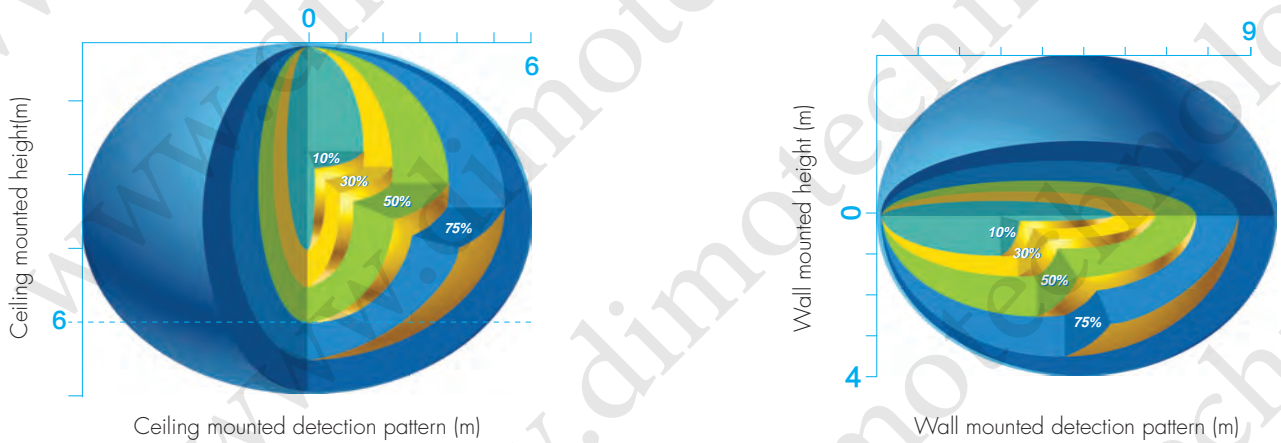1 sensor controls a group of ballast /driver

Wiring Diagram

HC019V

HYTRONIK

L N N L' Syn – +
          1-10V

LED Driver

+ –   L N + –
1-10V   LED

LED Driver

+ –   L N + –
1-10V   LED

LED Driver

+ –   L N + –
1-10V   LED

Maximum 800W

Multiple sensors control the same group of ballast / driver

L N N L' Syn − +
                1-10V
HYTRONIK
HC019V

+ − L N +
1-10V   LED
LED Driver X

+ − L N +
1-10V   LED
LED Driver X

+ − L N +
1-10V   LED
LED Driver X

Maximum 800W

L N N L' Syn − +
                1-10V
HYTRONIK
HC019V

+ − L N +
1-10V   LED
LED Driver Y

+ − L N +
1-10V   LED
LED Driver Y

+ − L N +
1-10V   LED
LED Driver Y

Maximum 800W

Note: this 1-10V output is isolated, SELV output. Do not connect the 1-10V terminals on driver X to Driver Y.

Detection Pattern

Ceiling mounted height(m)

0   6

10%
30%
50%
75%

6

Ceiling mounted detection pattern (m)

Wall mounted height (m)

9

0

10%
30%
50%
75%

4

Wall mounted detection pattern (m)

Settings

❶ 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%

❷ 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 – 1min
IV – 5min
V – 10min
VI – 20min
VII – 30min

❸ Daylight sensor

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

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

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

❹ 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 bi-level dimming control, 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– +∞

❺ 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.

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

I – 10%
II – 20%
III – 30%
IV – 50%

Technical Data

Operating voltage	220-240VAC
Switched power	Max.800W (capacitive) Max.2000W (resistive)
Stand-by power	<0.5W
Warm time	20s
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/1h/+ ∞, can be customized
Stand-by dimming level	10%/20%/30%/50%, can be customized
Daylight threshold	2~50Lux, disable, can be customized
Sensor principle	Microwave motion detector
Microwave frequency	5.8GHz+/-75MHz
Microwave power	<0.2mW
Detection range	Max. (ØxH): 12m x 6m
Detection angle	30°~150°
Mounting height	Max.6m
Operating temperature	-35℃ ~ +70℃
IP rating	IP20 IP65 (mounted in Hytronik special box)
Certificate	Semko, CB, EMC, CE, R&TTE, SAA

User Manual of Microwave Motion Sensor
New advanced⁺ version Model No.:HC019V

Technical Specifications

PRODUCT TYPE: Microwave Motion Sensor
OPERATING VOLTAGE: 220/240V~50Hz / 60Hz
HF SYSTEM: 5.8GHz CW radar
TRANSMISSION POWER: <0.2mW
RATED LOAD: 800W(capacitive Load)
DETECTION ANGLE: 30~150°
POWER CONSUMPTION: Approx. 0.8W
DETECTION RANGE: Max. 12 meters in diameter, adjustable.
TIME SETTING: 5s~30 min.
LIGHT CONTROL: 2~50LUX, disable
STAND-BY PERIOD: 0s, 10s-1h, +∞
STAND-BY DIMMING LEVEL : 10% ~ 50%
MOUNTING: Indoors, ceiling & walling mounted
WORKING TEMPERATURE: -35 ~ +70℃
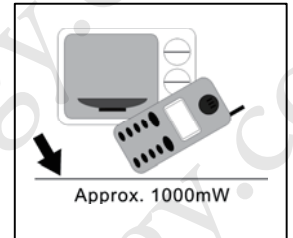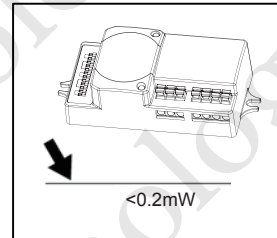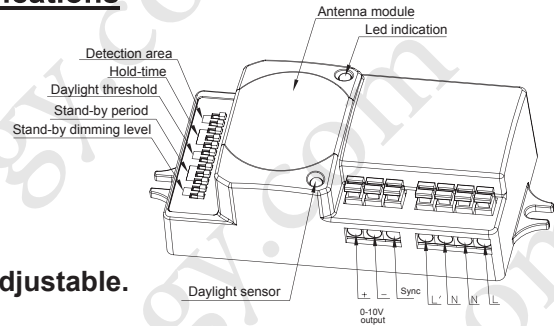
The sensor is an active motion detector; it emits a high-frequency electro-
magnetic wave 5.8GHz and receives its echo. The sensor detects the
change in echo from movement in its detection zone. A microprocessor
then triggers the switch light ON command. Detection is possible through
doors, panels of glasses thin walls.

NOTE:the high-frequency output of this sensor is <0.2mW;approximately just 1‰ of the transmission power of a mobile telephone or
the output of a microwave oven.

IMPORTANT
PLEASE READ THESE INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION AND RETAIN THIS LEAFLET IN A KNOWN AND SAFE PLACE FOR FUTURE REFERENCE.

SECTION 1 INSTALLATION & WIRING
1.0 ENSURE THAT THE ELECTRICITY SUPPLY IS SWITCHED OFF COMPLETELY BEFORE INSTALLING OR SERVICING THIS PRODUCT
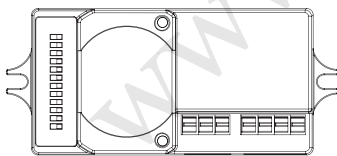
The sensor works with a main voltage of 220-240VAC 50/60 Hz.100-120VAC version is available
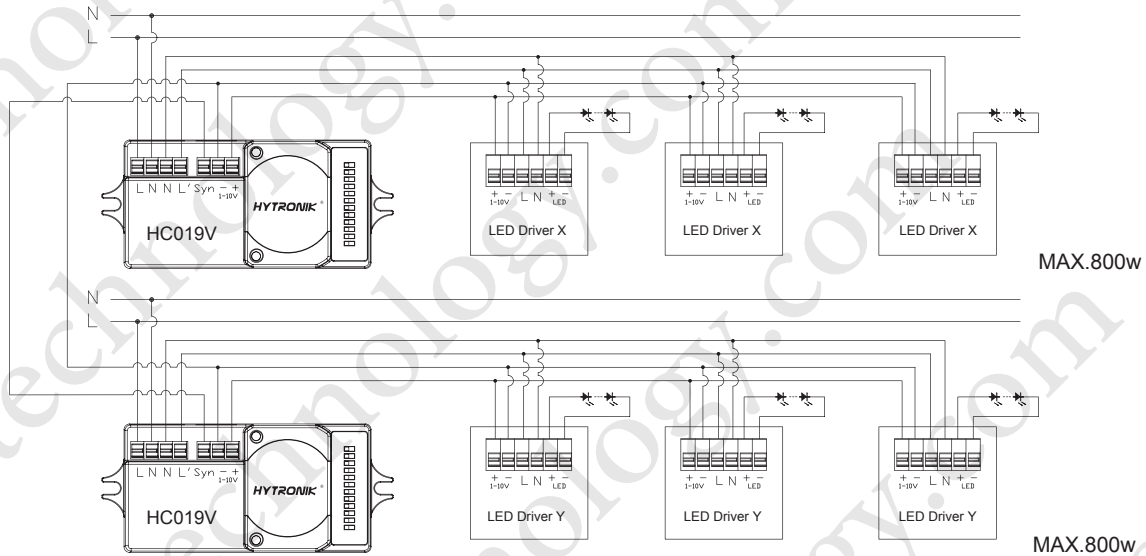on request.
The sensor has a 4-wire electrical interface:

Nx2(neutral / 220-240VAC)   SYNC (synchronization interface)
L (phase / 220-240VAC)   +   (1-10V "+" interface)
L' (switched phase / output)   -   (1-10V "-" interface)

Wiring of 1 sensor controls a group of ballast /driver.

HC019V

LED Driver   LED Driver   LED Driver   MAX.800w
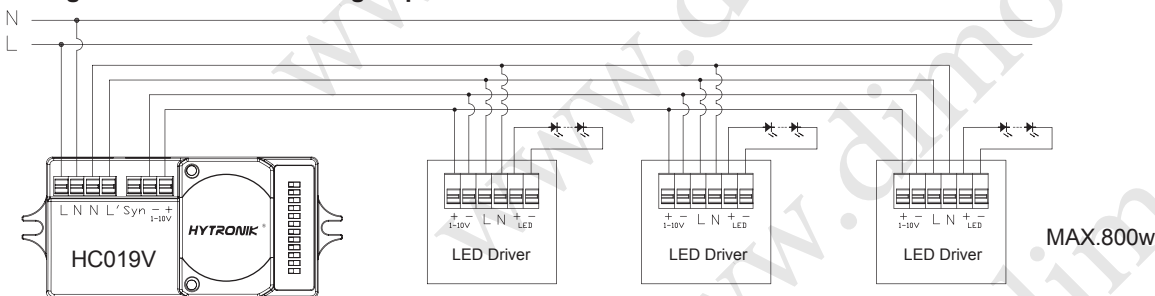
Wiring of multiple sensors control the same group of ballast /driver, any sensor is triggered, the luminaries in the group light up.

N
L

L N N L' Syn − +
1-10v
HYTRONIK®
HC019V

+ − L N + −
1-10v   LED
LED Driver X

+ − L N + −
1-10v   LED
LED Driver X

+ − L N + −
1-10v   LED
LED Driver X

MAX.800w

N
L

L N N L' Syn − +
1-10v
HYTRONIK®
HC019V

+ − L N + −
1-10v   LED
LED Driver Y

+ − L N + −
1-10v   LED
LED Driver Y

+ − L N + −
1-10v   LED
LED Driver Y

MAX.800w

* Do not connect the 1-10v terminals on driver X to Driver Y.

1.1 This sensor is suitable for indoor use, and is also designed for installation Max. 6m in height.

SECTION 2 SETTINGS

Detection Area:
This determines the effective range of the motion detector and is set by DIP switches at the sensor itself, refer to figure.
Note that reducing the sensitivity will also narrow the detection range.
The following settings are available:

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

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

Hold time:
This determines the time the fitting remains at 100% level on motion detection and is set with DIP switches at the sensor itself, refer to figure. The walk test setting is useful when installing the fitting to establish correct operation and range.
The following settings are available:

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

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

Daylight sensor:
This setting holds off the 100% light output should there sufficient daylight and is set using DIP switches at the sensor, refer to figure. The following settings are available:

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

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

*In disable mode the lamp(s) will always be on with motion detected and operate at 100% light output, even in bright daylight.

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.

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

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

Note: "0s" means on/off control; "+∞" means 2 steps of dimming control, fixture never switch off.

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.

I – 10%
II – 20%
III – 30%
IV – 50%

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

SECTION 3 FUNCTIONS

3.1 Zero-cross relay operation

Designed in the software, the sensor switches on/off the load right on the zero-cross point, to ensure the min. current passing through the relay contact point, and enable the max. load and life-time of the relay.

3.2 Loop-in and loop-out

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

∗ Motion sensor overwrites daylight sensor, meanning the daylight sensor starts to check the ambient natural light only when the lamp is switch off (motion hold-time ellapsed).

∗ This 1-10v output is isolated, SELV output.

SECTION 4 TROUBLE SHOOTING

MALFUNCTION CAUSE REMEDY	CAUSE	REMEDY
The load will not work	Incorrect light-control setting selected	Adjust setting
	Load faulty	Replace load
	Mains switch OFF	Switch ON
The load is always on	Continuous movement in the detection zone	Check zone setting
The load is on without any identifiable movement	The sensor is not mounted for reliably detecting movement	Securely mount enclosure
	Movement occurred, but not identified by the sensor (movement behind wall, movement of small object in immediate lamp vicinity etc.)	Check zone setting
The load will not work despite movement	Rapid movements are being suppressed to minimize malfunctioning or the detection radius is too small	Check zone setting

Test Verification of Conformity

Verification Number: 190925152GZU-VOC001

On the basis of the referenced test report(s), sample(s) tested of the below product have been found to comply with the standards harmonized with the directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product. This verification is part of the full test report(s) and should be read in conjunction with it <them>. This verification replaces previous verification dated: 16-08-2018: 140625045GZU-001

Once compliance with all product relevant CE mark directives are verified, including any relevant e.g. risk assessment and production control, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to products identical to the tested sample(s).

Applicant Name & Address:	Hytronik Electronics Co., Ltd. 3rd Floor, block C, Complex building 155#, Bai'gang Road South Bai'gang Village, Xiao Jin Kou Town Huicheng District, Huizhou, Guangdong, China
Product Description:	Lighting control switch (Motion sensor)
Ratings & Principle Characteristics:	See appendix
Models/Type References:	See appendix
Brand Name:	HYTRONIK
Relevant Standards:	EN 60669-2-1: 2004 +A1: 2009+ A12: 2010; EN 60669-1: 2018; EN 62493: 2015
Verification Issuing Office Name & Address:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
Date of Tests:	25 September 2019 to 31 October 2019
Test Report Number(s):	190925152GZU-001

Additional information in Appendix.

Signature

Name: Shelley Ying
Position: Technical Manager
Date: 19 November 2019

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 190925152GZU-VOC001

Manufacturer:	Hytronik Electronics Co., Ltd.
	3rd Floor, block C, Complex building, 155#, Bai'gang road south, Bai'gang village, Xiao Jin Kou town, Huicheng district, Huizhou, Guangdong, China
Ratings & Principle Characteristics:	220-240 VAC; 50/60 Hz; Micro-gap; IP20; Integral type;
	HC005S; DS05; HC005S/I: Max. 800 W for incandescent Lamp and Max. 400 W for fluorescent Lamp;
	HC017V; HC018V; HC019V; HC019V/I; HC019V/DH: Max. 800 W for fluorescent Lamp;
	HC018V /RF; HC023RF; HC024RF: Max. 1200 W for incandescent Lamp and Max. 400 W for fluorescent Lamp
Models/Type References:	HC005S; DS05; HC017V; HC018V; HC019V; HC018V /RF; HC023RF; HC024RF; HC005S/I; HC019V/I; HC019V/DH (total 11 models)

Shelley Y.

Signature

Name: Shelley Ying
Position: Technical Manager
Date: 19 November 2019

HYTRONIK ®

Mechanical structure

58.3

4.2
5
88.2

Below sensors can be mounted inside the IP20 box, for stand alone independent electrical installation.
(the milky lens allows natural light come through)

HC009S	
HC005S	
HC019V	
HC018V	
HC018V/RF	+
HC023RF	
HC024RF	
HCD405RC	
HC019V/DH	

+

IP20 box

=
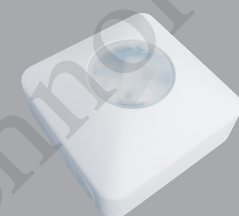
Stand-alone version
microwave motion sensor

• • •

step1

Choose your wiring

Break here

Break here
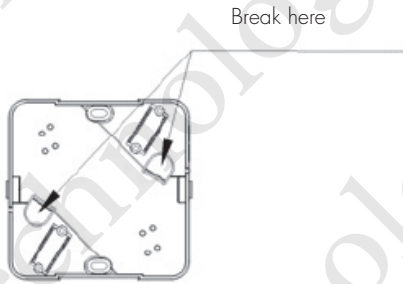
Fig. 1

Fig. 2

Option 1: For cables buried in the walls
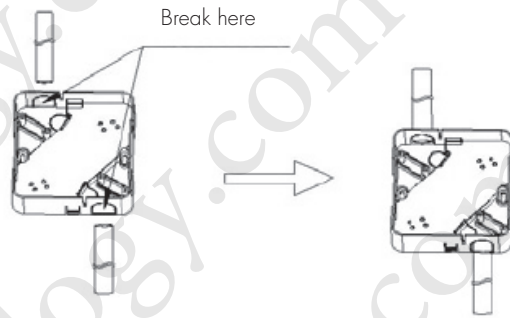
Option 2: For cables go from cable pipe

step2

Install the sensor on the box base

cord grips

fixed screw
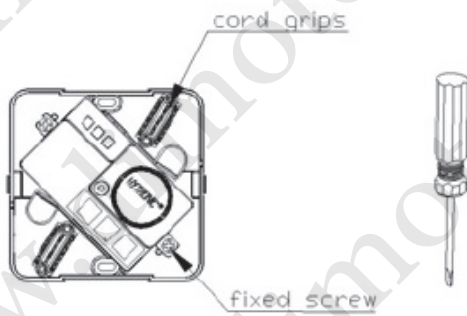
step3

Fixing the base to the ceiling or flat surface with screws

Ø4.0 screw

Ø4.0 screw
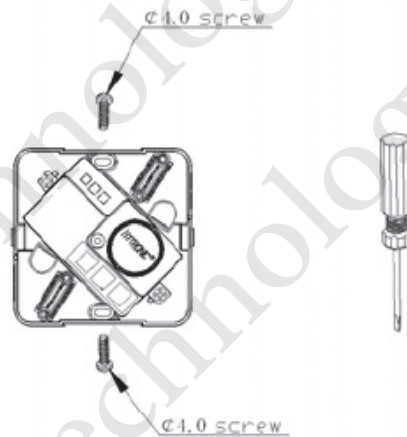
step4

Mount the cover to the base
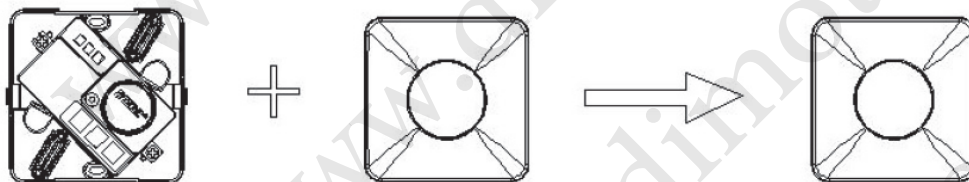
HYTRONIK ®

Mechanical structure
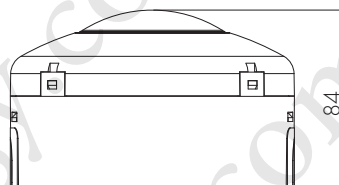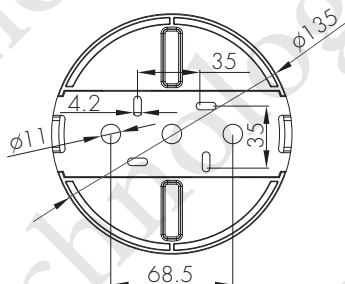
Putting the sensors inside the IP65 box, they are then safe and ready for independent installation.
They are 2 colors of the box: transparent PC for daylight, and white PC when the daylight sensor is not intended to use.

HC009S		
HC005S		
HC019V/I	IP65 box	Stand-alone version microwave motion sensor
HC018V		
HC018V/RF	+	=
HC023RF		
HC024RF		
HCD405RC		
HC019V/DH		

• • •

Installation Instructions

Put motion sensor into the IP housing and click the cover on

cord grips

fixed screw
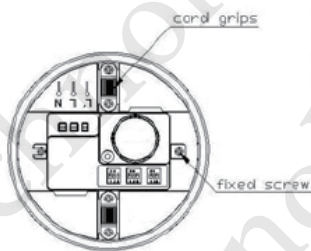
Fig 1.1
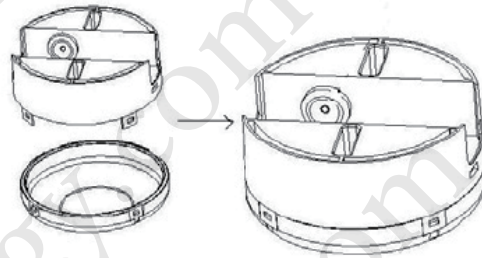
Fig 1.2

Mounting bracket (three options):

1 pcs φ4.0 screw
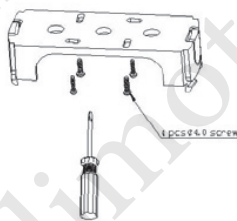
Fig 2.1

Fig 2.2

breake here

plastic pipe

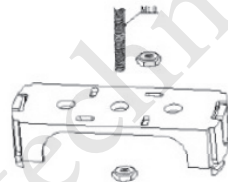plastic pipe

Fig 2.3

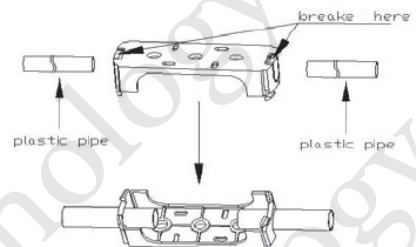Option 1: Mount bracket to flat surface with screws

Option 2: Mount bracket to ceiling pole with nut

Option 3: Put pipe through the bracket hole

Mount the bracket to the cover

Fig 3.1

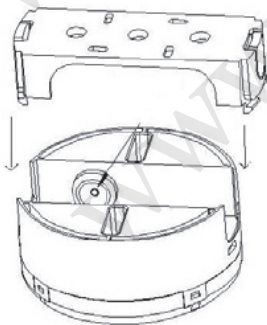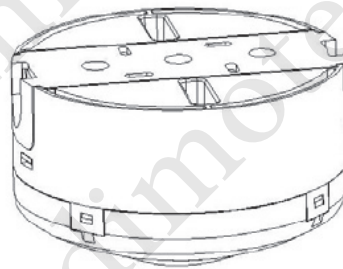**Fig 3.2**