DALI HF Sensor

HCD418
Tri-level Control for Independent DALI

HYTRONIK®

Applications

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

Suitable for building into the fixture:

- Office / Commercial Lighting
- Classroom
- Meeting Room

Use for retrofit and new luminaire designs/installations

Features

- Tri-level dimming control based upon occupancy (also known as corridor function)
- DALI dimming control method (DALI power supply circuit included)
- 5-Year Warranty

Technical Data

Input Characteristics

Model No.	HCD418
Mains voltage	120~277VAC 50/60Hz
Stand-by power	<0.5W
Switched power	Max. 15 devices, 30mA
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, RCM

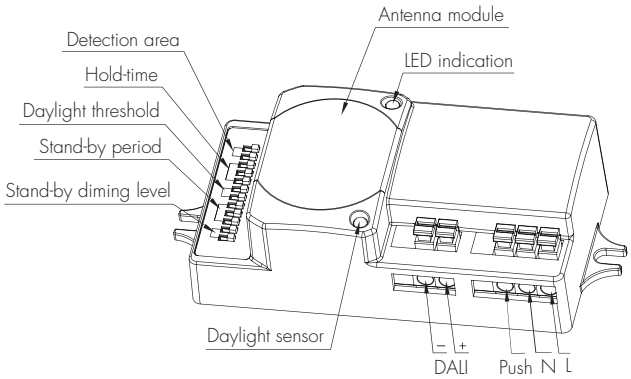
CE emc RED CB IP20

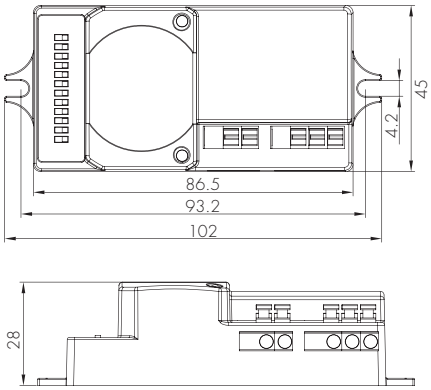
Sensor Data

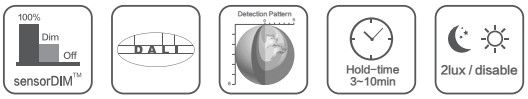
Model No.	HCD418
Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range	Max. (Ø x H) 12m x 6m
Detection angle	30° ~ 150°
Setting adjustments:	
Sensitivity	10% / 50% / 75% / 100%
Hold time	30s ~ 30min (selectable)
Daylight threshold	2 ~ 50 lux, disabled
Stand-by period	0s ~ 1h, +∞ (selectable)
Stand-by dimming level	5% / 10% / 20% / 50%

Environment

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







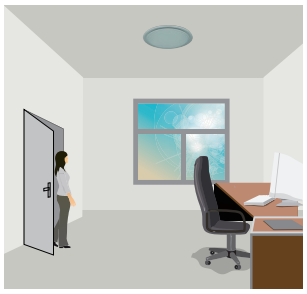
Note:We recommend the mounting distance between sensor to sensor should be more than 2m to prevent sensors from false-triggering.

This sensor is specially designed for small scale, decentralised retrofit project, which contains a DALI power supply circuit and gives DALI output to the DALI driver to carry out on/off and dimming command. No extra DALI power supply is needed.

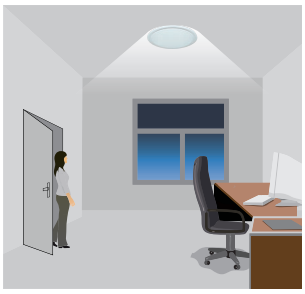
Functions and Features

1 Tri-level Control (Corridor Function)

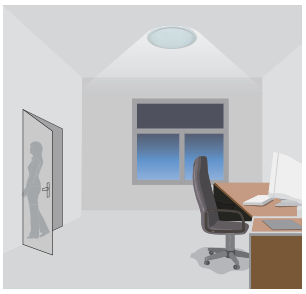
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%-->dimmed light -->off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable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

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

2 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:

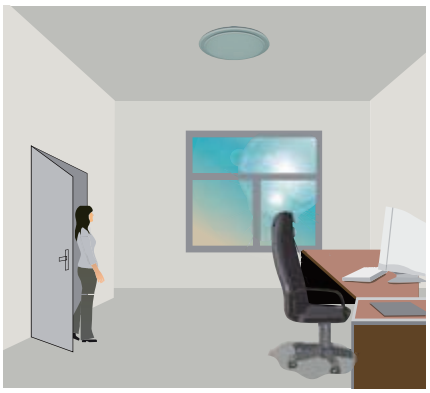
* Short Push (<1s): on/off function;
  On → Off: the light turns off immediately and cannot be triggered ON by motion until the expiration of pre-set hold-time. After this period, the sensor goes back to normal sensor mode.
  Off → On: the light turns on and goes to sensor mode, no matter if ambient Lux level exceeds the daylight threshold or not.
* Long Push (>1s): adjust the hold-time brightness level between10% and 100%.

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

3 Semi-auto Mode (Absence Detection)

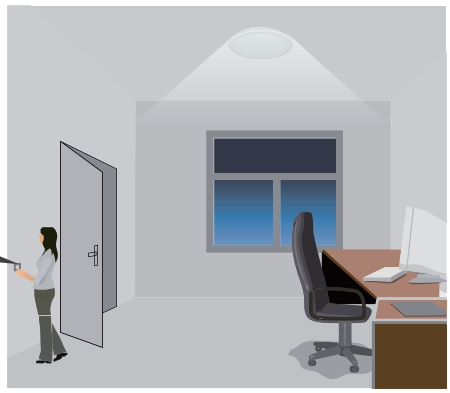
It is easy to forget to switch off the light, in office, corridor, even at home. And in many other cases, people do not want to have a sensor to switch on the light automatically, for example, when people just quickly pass-by, there is no need to have the light on. The solution is to apply this "absence detector": motion sensor is employed, but only activated on the maunal 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 maunal override control, to have the maximum energy saving, and at the same time, to keep efficient and comfortable lighting.



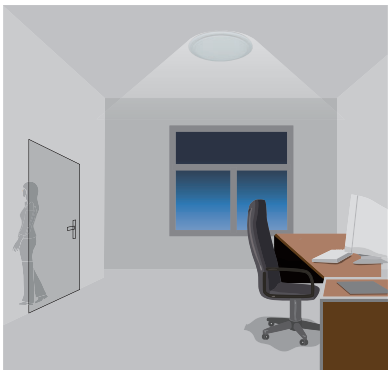
The light does not switch on when there is presence being detected.

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.

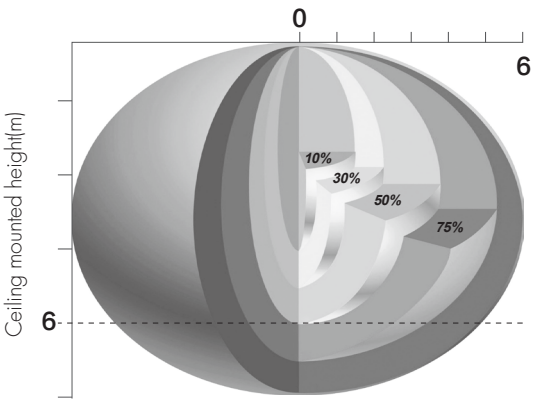


People left, the light dims to stand-by level after the hold-time.

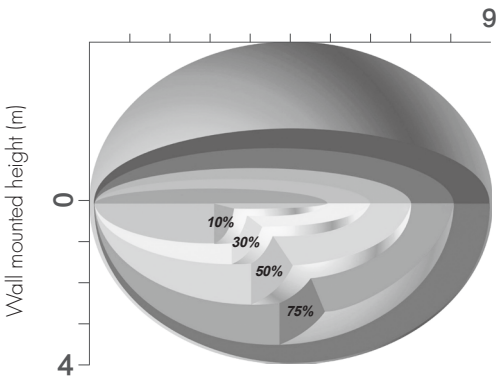
The light switches off automatically after the stand-by period elapses.

Note: end-user can choose either function 2 or function 3 for application. Default function is manual override.

Detection Pattern

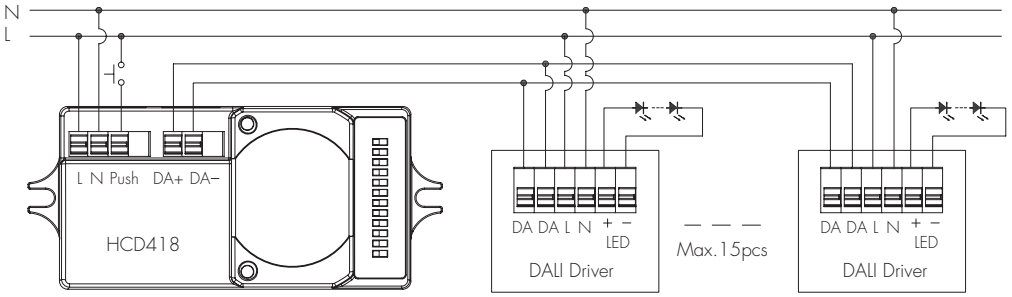


Ceiling mounted detection pattern (m)



Wall mounted detection pattern (m)

Wiring Diagram



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 light on-time after presence detection. This function is disabled when natural light is sufficient.

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

I – Test
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 period is infinite and the light never switches off but stays at dimming level.

	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	●	●	5%
II	●	○	10%
III	○	●	20%
IV	○	○	50%

I – 5%
II – 10%
III – 20%
IV – 50%

Additional Information / Documents

1. 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
2. Regarding Hytronik standard guarantee policy, please refer to
   www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy