

## DALI HF Sensor

### HCD405RC

Tri-level Control for System DALI

# HYTRONIK®

## Applications

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





Suitable for building into the fixture:

- Office / Commercial Lighting
- Classroom
- Meeting Room
- Hotel Project

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
-  One-touch daylight learning via remote control
-  5 Year, 50,000hr Warranty

## Technical Data

### Input Characteristics

Model No.	HCD405RC
Operating voltage	9.5~22.5VDC
Input current	Approx. 12mA
Group selection	16 groups via rotary switch
Warming-up	20s

### Safety and EMC

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

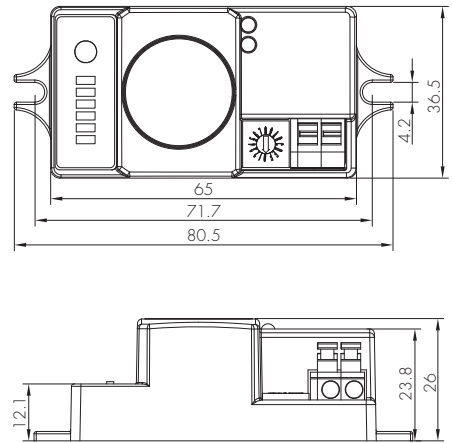
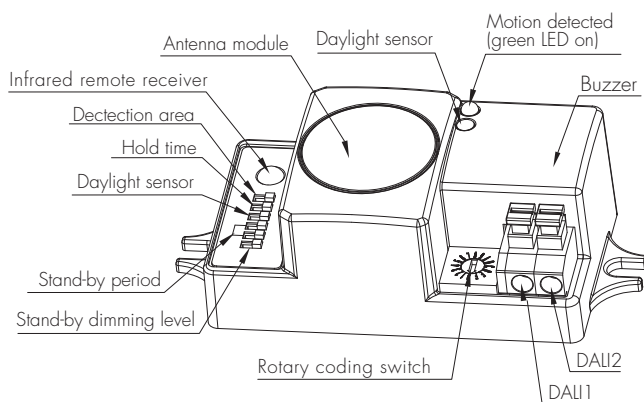
### Sensor Data

Model No.	HCD405RC
Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.1mW
Detection range	Max. (Ø x H) 12m x 6m
Detection angle	30° ~ 150°
Setting adjustments:	
Sensitivity	50% / 100%
Hold time	3min / 10min
Daylight threshold	2lux / disabled
Stand-by period	0s / 10min / 1h / +∞
Stand-by dimming level	10% / 50%

### Environment

Operation temperature	Ta: -20°C ~ +60°C
Case temperature (Max.)	Tc: +80°C
IP rating	IP20

CE  RED  SAA CB IP20



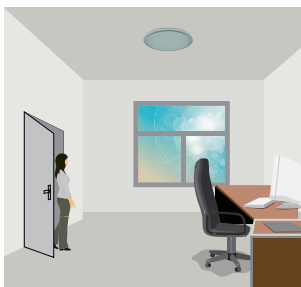
This DALI sensor is designed for built-in lighting fixture, to be incorporating into the DALI system, taking command from the DALI master, accepting and carrying out the grouping work, switching on/off or dimming the assigned group members, and feedback the status to the DALI master.

With the rotary coding switch, it is easy to add in this sensor into the existing DALI system, and do the grouping work without the help of the DALI master and computer interface.

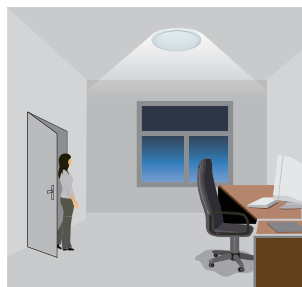
## Functions and Features

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

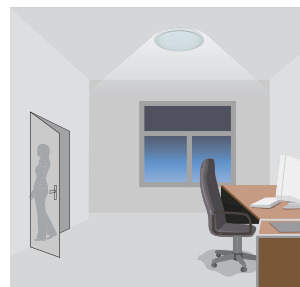
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%-->dimmed light (natural light is insufficient) -->off; and 2 periods of selectable waiting time: motion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

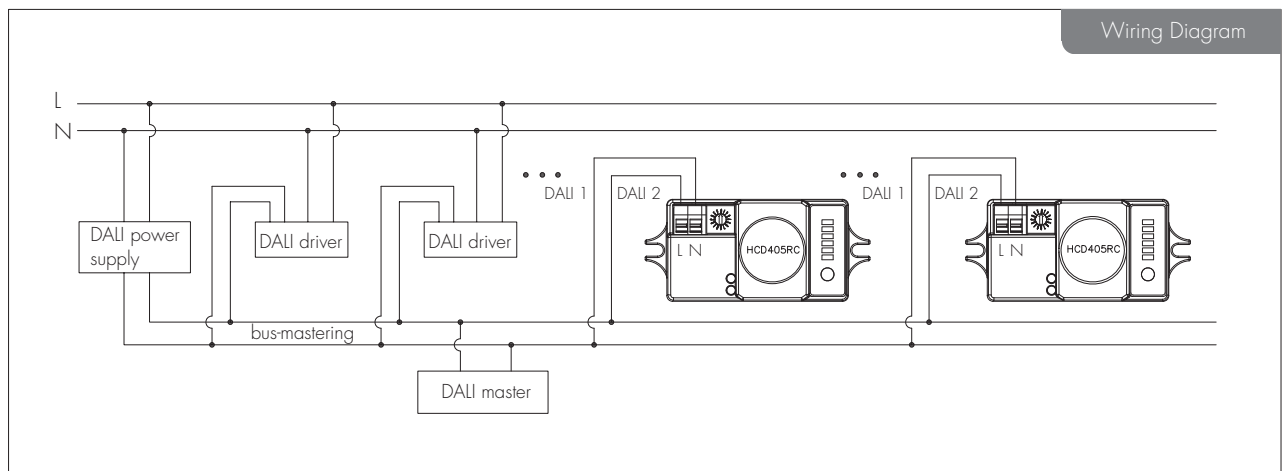
## 2 DALI Group Selection

DALI group configuration can be done either on PC, or on the rotary coding switch:

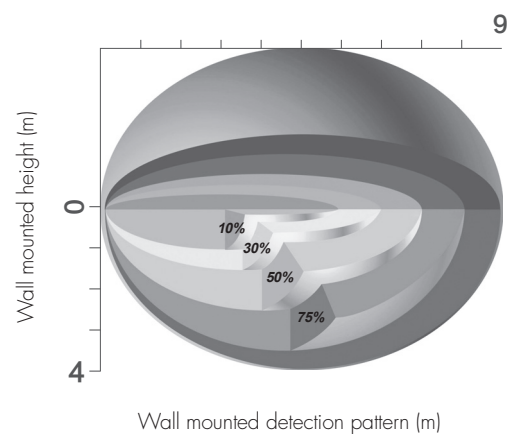
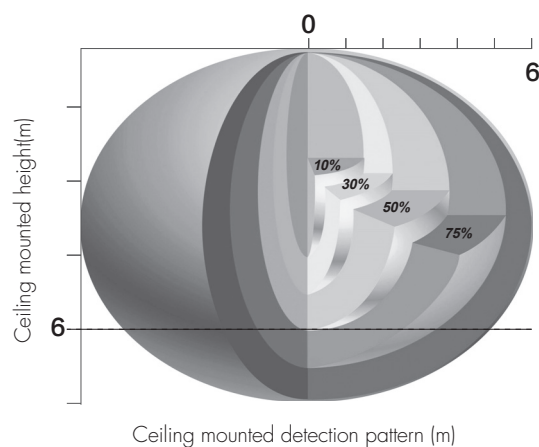
- There are 16 channels available on the rotary switch. "0" is for DALI broadcast, the rest 15 channels are for end-user to define the application unit.
- PC grouping can overwrite rotary switch grouping, and vice versa. The last setting controls.

The rotary switch channels are corresponding to the groups listed below:

Switch channel	DALI group	Switch channel	DALI group
0	broadcast	8	group 7
1	group 0	9	group 8
2	group 1	A	group 9
3	group 2	B	group 10
4	group 3	C	group 11
5	group 4	D	group 12
6	group 5	E	group 13
7	group 6	F	group 14



## Detection Pattern



## Settings (Remote Control HRC-02)



### Permanent ON/OFF function

Press the "ON/OFF" button, the light goes to permanent on or permanent off mode, and the sensor is disabled.

\* Press "Auto Mode", "RESET" or "Scene mode" buttons to quit this mode.

### Auto Mode

### Sensor mode

Press "Auto Mode" button, the sensor starts to function and all settings remain the same as the latest status before the light is switched on/off.



### Reset function

Press "RESET" button, all settings go back to default settings.



### Test mode

This button is for testing purpose only. The sensor goes to test mode (hold-time is 2s) after commissioning, meanwhile the stand-by period and daylight sensor are disabled.

\* This mode can be ended by pressing "reset", or any button of "scene mode" and "hold-time". The sensor settings are changed accordingly.



### Daylight sensor disable

Press this button, the built-in daylight sensor stops working, and all motion detected could turn on the lighting fixture, no matter how bright the natural light is.



### Ambient daylight threshold

Press this button, the latest surrounding lux value overwrites the previous lux value learned, and it is set as the daylight threshold. This feature enables the fixture to function well in any real application circumstances.

### Scene mode

There are 4 scene modes fixed program built in the remote control to choose for different applications:

Scene options	Detection range	Hold-time	Stand-by period	Stand-by dimming level	Daylight sensor
SC1	100%	1 min	10min	10%	2Lux
SC2	100%	5min	10min	10%	2Lux
SC3	100%	10min	30min	10%	10Lux
SC4	100%	10min	+∞	10%	50Lux

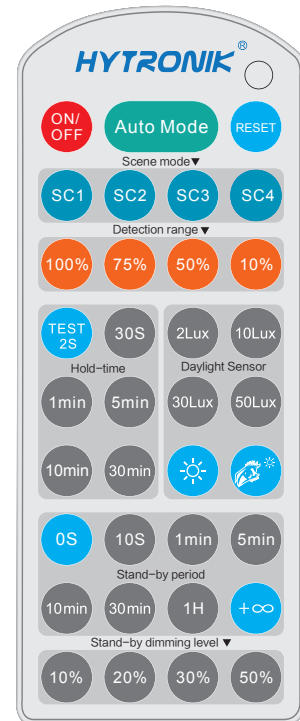
\* End-user can adjust the settings by pressing buttons of detection range/hold-time/stand-by period/stand-by dimming level/daylight sensor. The last setting stays in validity.

### Detection range

Press the buttons of "detection range" to set detection range at 10% / 50% / 75% / 100%.

### Hold-time

Press the buttons of "hold-time" to set hold-time at 30s / 1 min / 5min / 10min / 30min.



HRC-02

Note: the buzzer beeps one time when RC receives signal successfully.

## Daylight sensor

Press the buttons of "daylight sensor" to set daylight threshold at 2Lux / 10Lux / 30Lux / 50Lux.

## Stand-by period (corridor function)

Press the buttons of "stand-by period" to set stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞.

\* "0s" means on/off control; "+∞" means bi-level dimming control, the fixture never switches off.

## Stand-by dimming level

Press the buttons of "stand-by dimming level" to set the stand-by dimming level at 10% / 20% / 30% / 50%.

# 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	
I	●	100%
II	○	50%




I – 100%  
II – 50%

## 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.

	2	
I	●	3min
II	○	10min



I – 3min  
II – 10min


## 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.

	3	
I	●	Disable
II	○	2Lux



I – Disable  
II – 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.

	4	5	
I	●	●	0s
II	●	○	10min
III	○	●	1H
IV	○	○	+∞




I – 0s  
II – 10min  
III – 1H  
IV – +∞

## 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.

	6	
I	●	10%
II	○	50%



I – 10%  
II – 50%