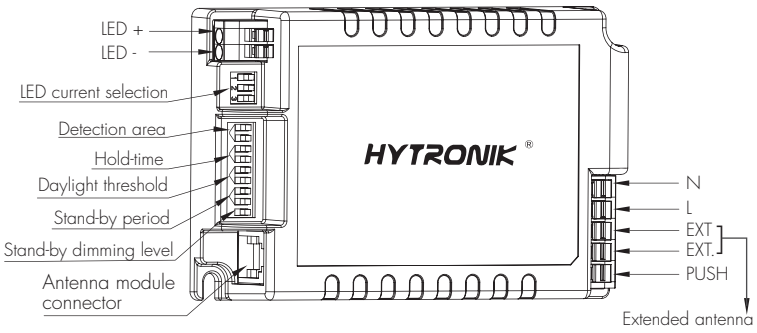
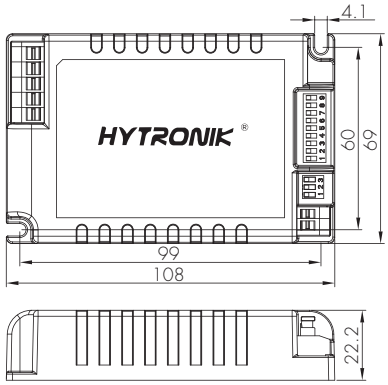
Integrated SensorDIM™ LED Driver Daylight Monitoring Version

Model: HEC7030 with HRC-05



Model: HEC7030



Mechanical structure (mm)

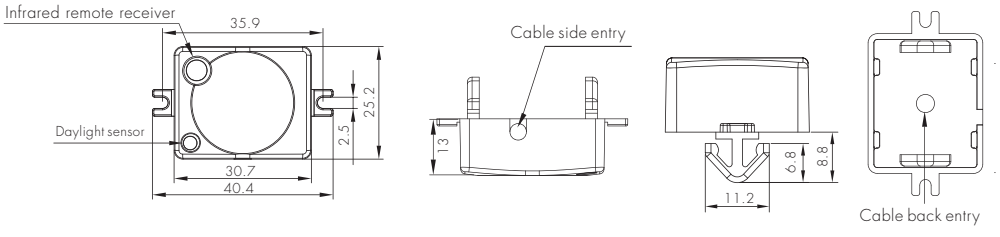
2 in 1 and cost effective! This is a smart integration of microwave motion sensor and multiple current selection LED driver, which gives pre-selected constant current to drive the LEDs to work based upon movement detection. Designed in the software and thanks to our worldwide patented circuit, the built-in daylight sensor is prior to motion sensor so as to achieve utmost energy saving purpose.

With the detached sensor antenna SAM5, it requires very little space on the LED panel. Only the antenna is installed on the surface, while the mainbody can be hidden behind the panel. Completely shadow free.

Detached sensor antenna module:

Model SAM5

Super-compact sensor antenna, with optional cable entry (side entry and back entry)

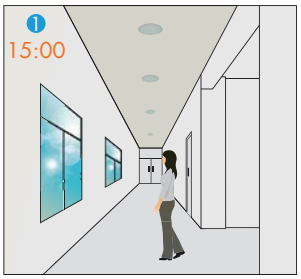


Functions and Options

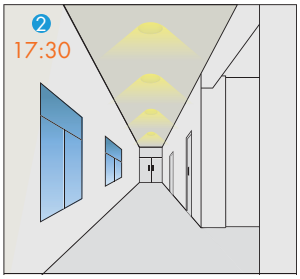
1 Daylight Monitoring Function

Hytronik specially designed this function in software for deep energy-saving purpose:

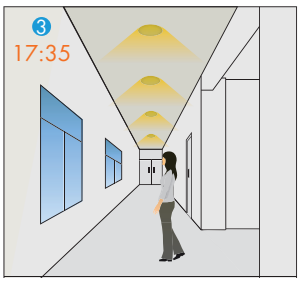
1. With sufficient natural light, the light won't turn on when motion detected.
2. After hold-time, the light turns off completely if surrounding natural light is sufficient.
3. When stand-by period is preset at "+∞", the light will turn off completely when surrounding natural light is sufficient during stand-by period, and turn on at dimming level automatically when natural light is below daylight threshold.



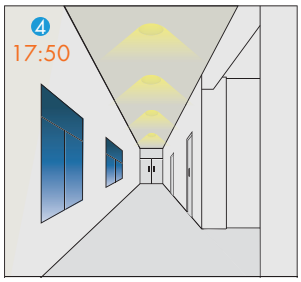
With sufficient natural light, the light does not switch on even there is movement detected.



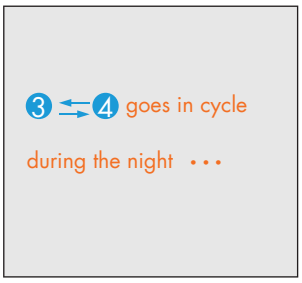
At dusk,as the natural light drops below threshold value, the sensor turns on the light at the dimmed level.



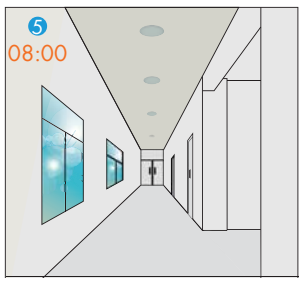
The light switches on at 100% when there is movement detected.



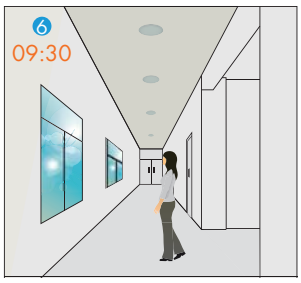
Light dims to stand-by level after the hold-time.



100% on when movement detected, and dims to10% in long absence.



At dawn, light turns off completely when natural light reaches above daylight threshold.



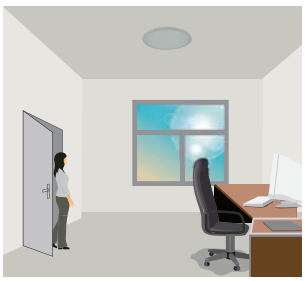
Light does not switch on even when movement detected during the daytime.

Settings on this demonstration:

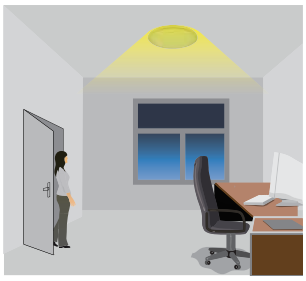
Hold-time	10min
Daylight threshold	50lux
Stand-by period	+∞
Stand-by dimming level	10%

2 Tri-level Dimming Control (Corridor Function)

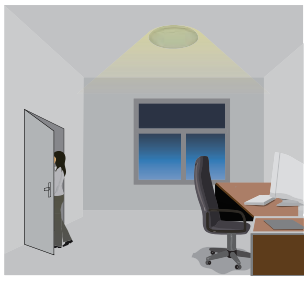
Same as Tridonic excel control gear, Hytronik builds this function inside HEC7030 to achieve tri-level dimming control, for some areas that require a light change notice before switch-off. It offers 3 levels of light: 100%–>dimmed light (10%, 30%, optional)–>off.



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



With insufficient natural light, it switches on the light when person enters the room.



After hold-time, the light dims to stand-by level or turns off completely if surrounding natural light is above the daylight threshold.

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

3 Master/Slave Group Control

By connecting the "EXT" terminals in parallel (maximum 10pcs, see wiring diagram), no matter which sensor detects motion, all HEC7030 in the group will turn on the lights when surrounding natural light is below daylight threshold. The sensor antenna is shared and the detection area could be widely enlarged in this way. Other settings such as hold-time, stand-by period, stand-by dimming level and daylight threshold on each individual unit stay the same.

Note: if the surrounding natural light of the sensor which detects movement is sufficient, all lights in the group will not be triggered on.

4 Ambient Daylight Threshold

Switch the power supply to the sensor two times within 2 seconds, the sensor can set the ambient lux level as the new threshold. Both the settings on DIP switch and the ambient lux threshold learned can overwrite each other.
This feature enables the daylight sensor to be commissioned to the environment in which it is installed. The latest action controls. (More details of the operation procedure please refer to user manual).

5 8H Manual on Mode For LED Lamp

Rapidly turn off/on the power supply three times within 3 seconds, the light will be 100% on for 8 hours, and then goes to sensor mode automatically after 8 hours. Useful when sensor function is not needed in special occasion.
Note: this 8H manual on mode can be cancelled by turning off/on the power supply one time within 1second.

6 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 for some extra-ordinary demands:

* Short push (<1s): on/off function;
  On → off: the light turns off immediately and can not be lighten for a certain time (equals to hold-time preset) even movement is detected. After this period, the sensor goes to 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): dim up/down the hold-time brightness between 30% and 100%. Both the settings on DIP switch and manual override can overwrite each other, the latest action controls.

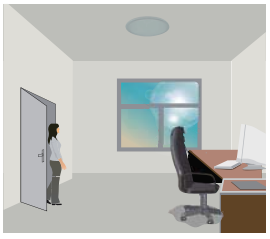
Note: 1. if end-user do not want this manual override function, just leave the "push" terminal alone and don't connect it to any wire.
2. if the detection area is set at "Sensor OFF", HEC7030 becomes a dimmable LED driver which can be dimmed (1% ~ 100%) by push-switch.

7 Absence Detection Function

In many other cases, people do not want to have a sensor to switch on the light automatically, for example, when people is just passing by, there is no need to have the light on.

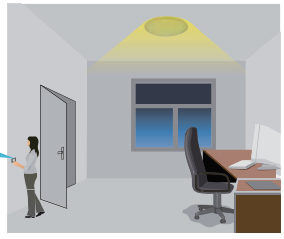
The solution is to apply 'absence detection': by pressing the "M/A" button on the remote control and manual initiation on the push-switch, the motion sensor remains active, turns on and dims the light automatically, and eventually switches it off in absence.

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.



Light does not switch on when presence detected.

Short push to activate the sensor and switch on the light



With the manual short press on the push-switch, the sensor is activated and switches on the light.

8 80% Power Output @ Initial 10,000 Hours

Due to deprecation of LED luminaire output after initial 10,000 hours, this extra 20% @ 10,000 hours can now be saved by pressing the "Power 80%" button on the remote control. Deep energy saving!

Note: it is required to return to 100% power output after the initial 10,000 hours, by pressing the "Power 100%" button on the RC.

9 LED Current Selections

	1	2	3	
I	●	●	●	900mA
II	○	●	●	750mA
III	●	●	○	700mA
IV	○	●	○	550mA
V	●	○	○	500mA
VI	○	○	○	350mA

The current can be easily configured by choosing the correct combination of the DIP switches (see table on the left).

10 LED Maximum Load and Voltage

This multiple current LED driver has a wide range of loading capacity:

Maximum load @ different currents:	3.5~21W (350mA)	5~30W (500mA)	5.5~30W (550mA)
	7~30W (700mA)	7~30W (750mA)	9~23W (900mA)
Maximum voltage @ different currents:	10~60V (350mA)	10~60V (500mA)	10~55V (550mA)
	10~43V (700mA)	10~40V (750mA)	10~25V (900mA)

Settings (Remote Control HRC-05)

ON/OFF Permanent ON/OFF function

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

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

Auto Mode Sensor mode

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

RESET Reset function

Press "RESET" button, all settings go back to the value of DIP switch settings.

+ - Dim +/-

Long press "Dim +" or "Dim –" to adjust the light brightness during hold-time. " + " means dimming up, " – " means dimming down.

TEST 2S Test mode

The button "Test 2s" is for testing purpose only. The sensor goes to test mode (hold-time is 2s) automatically after commissoning, 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 setting is changed accordingly.

HRC-05

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

M/A Manual override / absence detection

By pressing this button, the sensor goes to manual override or absence detection function.
Note: The buzzer beeps twice if it's manual override function, and beeps once if shifts to absence detection function.

Power 100% Power 80% Power output

By pressing these two buttons, the output shifts between 80% (at initial 10,000 hours) and 100%, for energy saving purpose.

Lux Disable Lux 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 previous lux value learned, and is set as the daylight threshold. This feature enables the fixture to function well in any real application circumstance.

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%	1min	10min	10%	2Lux
SC2	100%	5min	10min	10%	2Lux
SC3	100%	10min	30min	10%	10Lux
SC4	100%	10min	+∞	10%	50Lux

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

Detection range

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

Hold-time

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

Daylight sensor

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

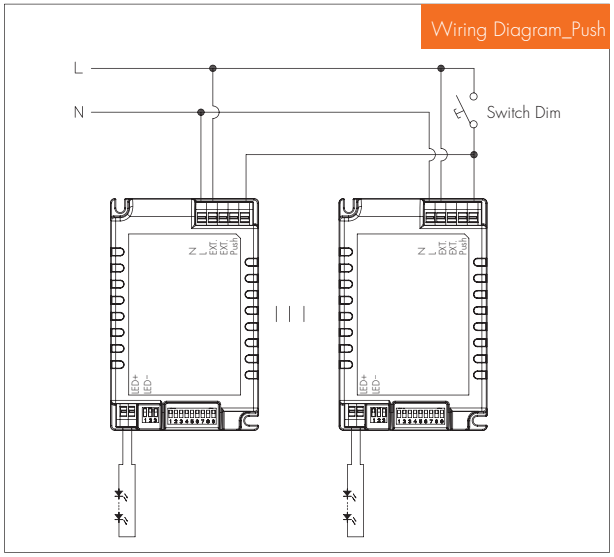
Stand-by period (corridor function)

Press the buttons of "stand-by period" to set stand-by period at 0s / 10s / 1min / 10min / 30min / +∞.
Note: "0s" means on/off control; "+∞" means bi-level dimming control, light never switches off when daylight sensor is disabled.

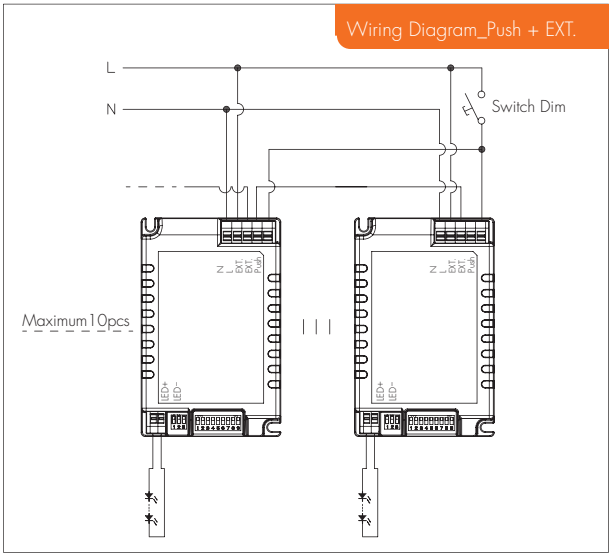
Stand-by dimming level

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

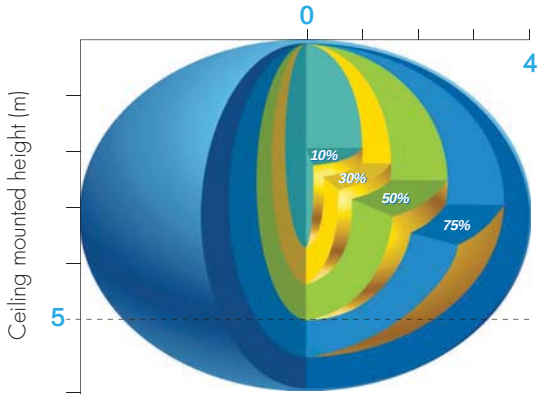
Wiring Diagram_Push



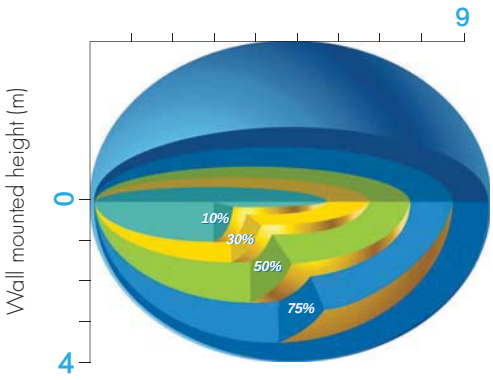
Wiring Diagram_Push + EXT.



Detection Pattern



Ceiling mounted detection pattern (m)



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.

Note: by choosing "Sensor OFF", it becomes a dimmable driver without sensor mode.

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

I – 100%
II – 75%
III – 50%
IV – Sensor OFF

❷ Hold-time

Hold-time means the time period to keep the lamp on 100%, after all motion has ceased (detection area vacated).

Note: the maximum brightness during hold-time can be overridden by long push on the push-switch.

	3	4	
I	●	●	5s
II	●	○	30s
III	○	●	3min
IV	○	○	10min

I – 5s
II – 30s
III – 3min
IV – 10min

❸ Daylight sensor

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

	5	6	
I	●	●	Disable
II	●	○	50Lux
III	○	●	10Lux
IV	○	○	5 Lux

I – Disable
II – 50Lux
III – 10Lux
IV – 5Lux

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 when daylight sensor is disabled.

	7	8	
I	●	●	0s
II	●	○	10s
III	○	●	30min
IV	○	○	+∞

I – 0s
II – 10s
III – 30min
IV – +∞

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.

	9	
I	●	10%
II	○	30%

I – 10%
II – 30%

Technical Data

Operating voltage	220-240VAC 50/60Hz
Input current	0.17-0.16 A
Input power	35W (Max.)
Warm time	20s
Detection area	Sensor OFF/50% /75% /100% (100% /50% /10% on RC)
Hold-time	5s /30s /3min /10min (TEST 2s/30s /1min /5min /10min /30min on RC)
Daylight threshold	5Lux/10Lux/50Lux/disable (2Lux /10Lux / 50Lux /Lux disable on RC)
Stand-by period	0s/10s/30min/+∞ (0s /10s / 1min / 10min/ 30min /+∞ on RC)
Stand-by dimming level	10%/30% (10%/ 20%/ 30% on RC)
Microwave frequency	5.8GHz+/-75MHz
Microwave power	<0.2mW
Detection range	Max. (ØxH): 8m x 5m
Detection angle	30°~150°
Mounting height	Max.5m
Output LED current	350mA/500mA/550mA/700mA/750mA/900mA
Output LED voltage	10~60V (350mA) 10~60V (500mA) 10~55V (550mA) 10~43V (700mA) 10~40V (750mA) 10~25V (900mA)
Output LED power	3.5~21W (350mA) 5~30W (500mA) 5.5~30W (550mA) 7~30W (700mA) 7~30W (750mA) 9~23W (900mA)
Empty load voltage	70V
Power factor	≥0.9
Efficiency	85% (Max.)
Operating temperature	-20°C ~ +50°C TC:75°C
Abnormal protection	Output short-circuit protection with auto-reset
EMC standard	Part 15B
Safety standard	UL 8750
Certification	Semko, CB, EMC, CE, R&TTE, SAA
Dielectric strength	Input→output:3750Vac /5mA/1min
IP rating	IP20