

SensorDIM™ - Integrated HF Sensor and LED Driver

HEC4040

Tri-level Control



Applications

Occupancy sensor and constant current LED driver, 2-in-1.

Suitable for building into the fixture for:

- 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)
- Easy-on-the-eye operation which makes the light turning on/off less uncomfortable
- Analogue Flicker-free Dimming
- Over-temperature Protection
- Short-circuit Protection
- Open-circuit Protection
- Overload Protection
- 5-year warranty

Technical Data

Input Characteristics

Mains voltage	220~240VAC 50/60Hz
Input current	0.205 - 0.185A
Input power	46W (Max.)
Warming-up	20s

Sensor Data

Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range(Max.)	Installation height: 6m Detection range: Ø 12m @ 3m height
Detection angle	30° ~ 150°
Setting adjustments:	
Sensitivity	50% / 100%
Hold time	5s / 90s / 3min / 10min
Daylight threshold	Disable / 10lux (SAM12)
Stand-by period	0s / 10s / 10min / +∞
Stand-by dimming level	10% / 30%

Driver Data

Off load voltage	60V
Output LED current	700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1050mA
Output LED power	33W/6-48V 36W/6-48V 37W/6-46V 39W/6-46V 40W/6-44V 40W/6-42V 40W/6-40V 40W/6-38V
Power factor	0.95
Efficiency	85% (Max.)

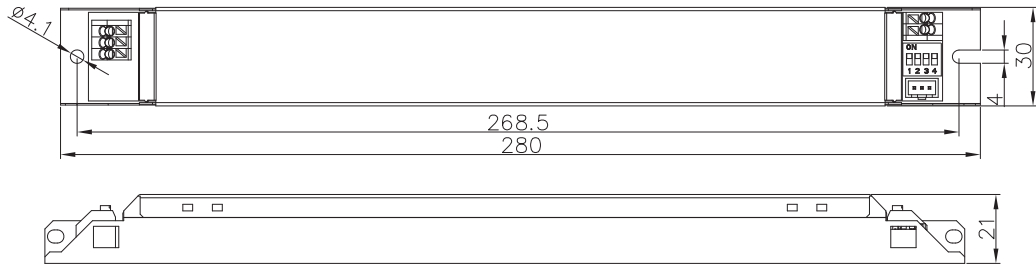
Safety and EMC

EMC standard (EMC)	EN55015, EN61547, EN61000-3-3/-3-2
Safety standard (LVD)	EN61347-1, EN61347-2-13
Radio Equipment(RED)	EN300440, EN301489-1, EN301489-3
Dielectric strength	Input→output: 3000VAC / 5mA / 1min
Abnormal protection	Output short-circuit protection, Open-circuit Protection Overload Protection, Over-temperature Protection
Certification	CB, CE, EMC, RED, RCM

Environment

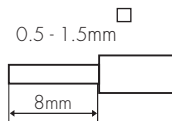
Operation temperature	Ta: -20°C ~ +50°C
Case temperature (Max.)	Tc: +80°C
IP rating	IP20

Mechanical Structure & Dimensions



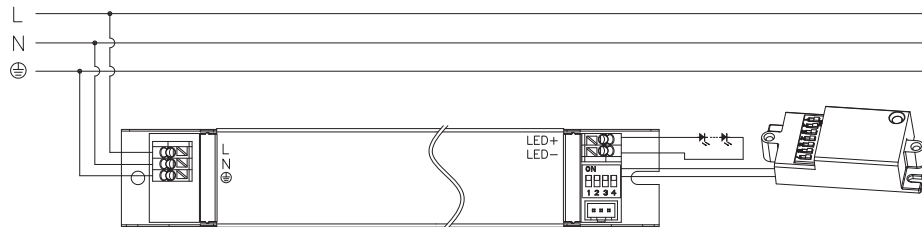
HF detector integrating with LED driver is now the trend. Make your luminaires simple but intelligent now!

Wire Preparation



To make or release the wire from the terminal, use a screwdriver to push down the button.

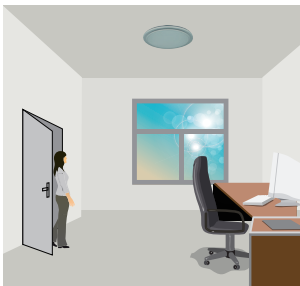
Wiring Diagram



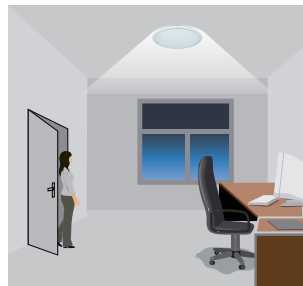
Functions and Features

Tri-level Control (Corridor Function)

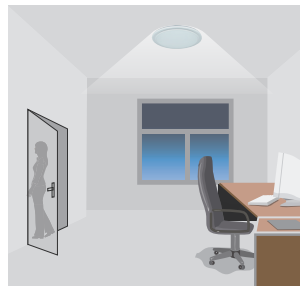
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%-->dimmed light -->off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable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

Loading and In-rush Current

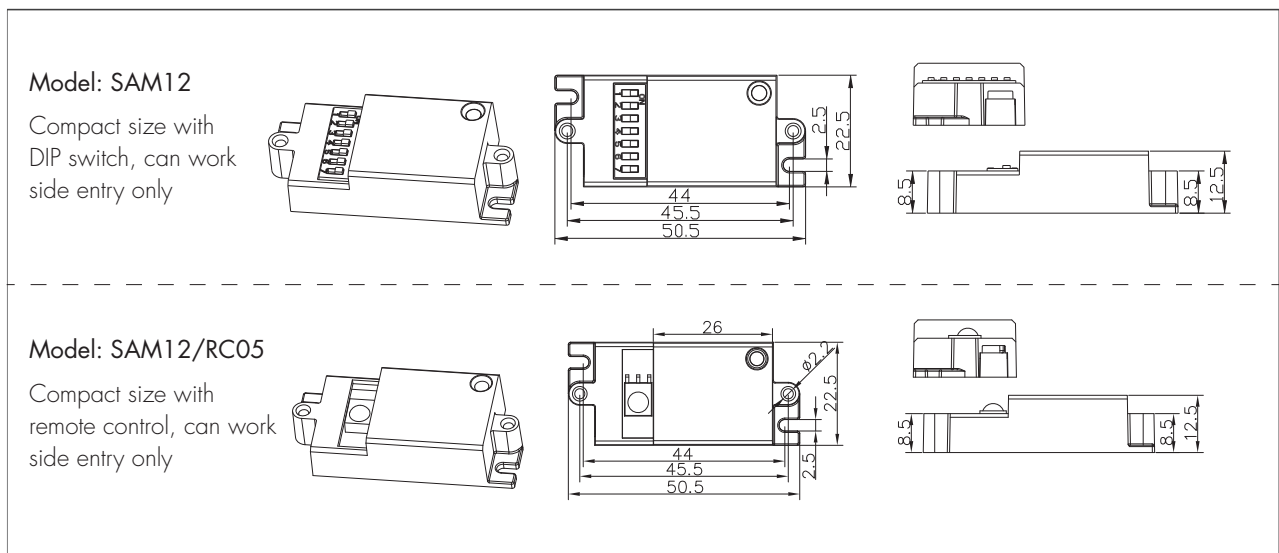
Model	HEC4040
In-rush Current (Imax.)	25A
Pulse Time	15 μ s

Circuit Breaker Information

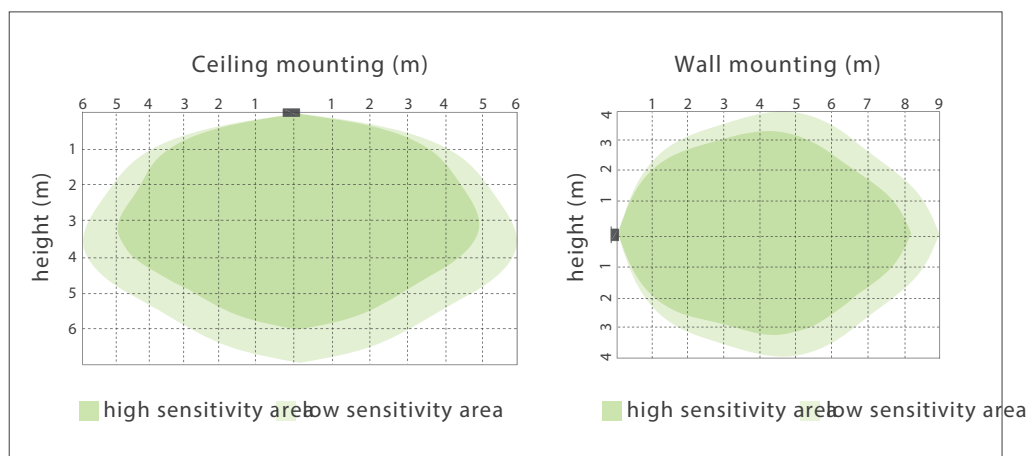
Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HEC4040	48	30	39	60	75

The data above is calculated according to the formula: Maximum Amount = $16 / (P_n / 230)$. In order to provide a more reliable reference in real application, the data have been revised to take 60% of the number calculated, i.e. $16 / (P_n / 230) \times 60\%$. Please kindly take note that the calculation is based on ABB circuit breaker series S200. Actual values may differ due to different types of circuit breaker used and installation environment.

Detached sensor antenna module



Detection Pattern



Settings (Remote Control HRC-05) (For SAM12/RC05 only)

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. The mode will change to AUTO Mode after power failure.

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.

Dim +/-

Long press "Dim +" or "Dim -" to adjust the target lux level during hold-time. "+" means increasing the target, "-" means decreasing the target.

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.

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

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.

Scene mode

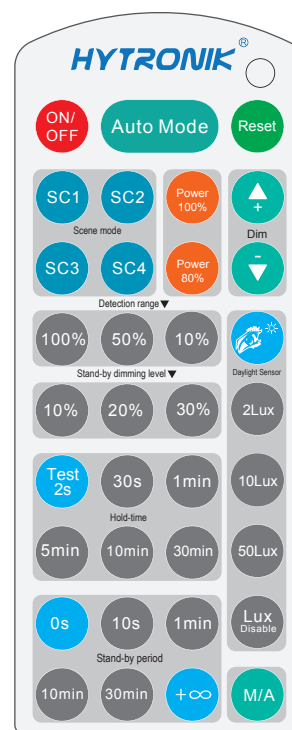
There are 4 scene modes fixed program built in the remote control to choose for different applications:

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

* 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% / 100%.



HRC-05

Note: the light will flash ONCE rapidly after receiving the command from the remote control successfully.

Daylight sensor

Press the buttons of "daylight sensor" to set daylight threshold at 2Lux / 10Lux / 50Lux. The fixture will not turn on if ambient natural light lux level exceeds the threshold preset when motion detected.

Stand-by period (corridor function)

Press the buttons of "stand-by period" to set stand-by period at 0s / 10s / 1min / 10min / 30min / +∞.
 * "0s" means on/off control; "+∞" means bi-level dimming control, and 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%.



Manual Override / Semi-auto mode (absence detection)

Button "M/A" is disabled.

LED Current Selection

1050mA	○●●●
1000mA	●○●●
950mA	●●●○
900mA	○●●○
850mA	●●○●
800mA	○●○●
750mA	●○●○
700mA	○●○●
	1 2 3 4

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	3	
I	●	●	5s
II	●	○	90s
III	○	●	180s
IV	○	○	10min



I – 5s
 II – 90s
 III – 180s
 IV – 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.

	4	
I	●	Disable
II	○	10Lux



I – Disable
 II – 10Lux

Disabling the daylight sensor will put the sensor into occupancy detection only mode.

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.

	5	6	
I	●	●	0s
II	●	○	10s
III	○	●	10min
IV	○	○	+∞



I – 0s
 II – 10s
 III – 10min
 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.

	7	
I	●	10%
II	○	30%



I – 10%
 II – 30%

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 precautions for LED driver installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->LED Drivers - Precautions for Product Installation and Operation
3. Data sheet is subject to change without notice. Please always refer to the most recent release on [www.hytronik.com/products/LED Driver](http://www.hytronik.com/products/LED%20Driver) ->Integrated sensorDIM
4. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy