

HYTRONIK®

SENSORS & LIGHTING CONTROL - BENELUX B.V.

OEM PRODUCT GUIDE 2018-2019

HYTRONIK INDUSTRIAL LIMITED



iOS






ANDROID



Since 2007

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Hytronik

Motion Sensors

INTRODUCING: Hytronik Motion Sensors

Hytronik is the market leader for microwave motion sensor technology in the professional lighting industry. We deliver high quality controls to the high end professional lighting manufacturers throughout the world.

Hytronik holds worldwide patents on the design of HF flat antennas for use in motion detection sensors, as well as patents on innovative methods for daylight controls.

Thanks to antenna expertise and sophisticated software programming, Hytronik sensors are tunable to set detection range / full-power hold-time / dimming level after hold-time / stand-by time for dimmed level and photocell tuning for the real application. Standardising on DALI or 1-10V dimming, our output control signals deliver the choices of: on/off control, bi-level dimming or tri-level control, tunable white, circadian rhythm and daylight harvesting.

Thanks to the introduction of our new **Bluetooth®** wireless lighting controls, all of the above functionalities can be achieved for both stand-alone and builtin solutions. What's more, multiple groups and scenes can be created in our intuitive App to make the lights more intelligent.

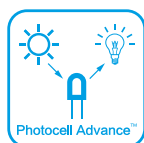
1

Advanced Product Features



Bluetooth® Wireless Technology

Wherever you see this familiar logo, the product is ready and waiting to be used with our free to download APP! Easy commissioning and endless possibilities to reduce system complexity and flexibility over current wired control systems.



Photocell Advance™

Hytronik are now offering an outstanding improvement to our integrated photocell; A true photocell feature which works from BEHIND the luminaire cover to distinguish between natural daylight and artificial light. The custom-made photocell is offered in 3 ways in selected products across our range:

- 1) Daylight harvesting
- 2) Dusk / dawn sensor (automatic on/off)
- 3) Daylight priority control over the occupancy sensor



24-hour Daylight Monitoring

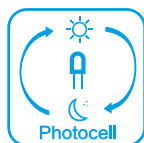
Similar in operation to a dawn/dusk sensor operating from behind the cover, Hytronik's innovative software design provides this function for further energy-savings and smart integration possibilities for luminaire manufacturers. This function is available on featured products when the stand-by period is set to "+∞".



Daylight Harvest (Daylight Regulating)

Right time, right place and the right amount of light! Daylight harvest (also known as daylight regulating) is a must in the future lighting norms.

The daylight sensor measures the available surrounding natural light and calculates how much artificial light is needed to reach the target lux level. The control output is passed to the drivers by DALI or 1-10V signals which then deliver the needed amount of light.



Photocell (Dawn / Dusk Light Sensor)

Using our Photocell Advance™ technology in which daylight measurements can be taken from the behind the diffuser, we can now offer dawn/dusk photocell functionality without the need to compromise the integrity of the luminaire body. Provides simple automatic off/on operation, dependent upon settable daylight condition.



Latest DALI Protocol for Sensor Control

Being a member of the DALI group, Hytronik remain compliant with the latest DALI standards for sensor controls. We offer both DALI sensors for DALI systems as well as independent DALI sensors (containing DALI power supply) suited to small and medium projects for DALI 'Plug N' Play' installation.



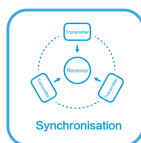
One-key Commissioning

Fast and simple commissioning is possible by using Hytronik programmable remote controller HRC-11. The settings are programmed once and are then saved on the remote controller as a custom scene. With just one press, the programmed scene can be applied to needed sensors.



Ambient Daylight Threshold

Available on models which use the remote controller. This feature enables the daylight sensor to be commissioned to the environment in which it is installed. The DIP switch settings offer a fixed approximation for installation. However, if the user 'feels' that the light should be on, pressing this button on the remote controller will put on the light and store the new daylight setting. Either the remote control handset or the DIP switch settings can overwrite each other. The last setting made from either will be stored.



Synchronisation Control Function

In many cases, several sensors are connected together to control the same fixture. This requirement places extra demand on the reliability and noise handling capability of such sensors. Hytronik offer this feature with specially designed hardware & software to ignore such interferences and ensure stable operation.



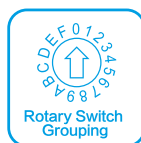
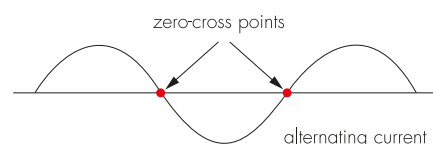
Tri-level Control Function

Tri-level control (corridor function) is achieved by not only building the dimming profile into the driver, but also combining the sensor within the product, therefore reducing space requirements and costs. SensorDIM™ can be considered the whole package for tri-level control.



Zero-cross Relay Operation

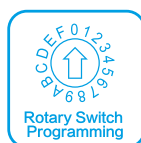
Our intelligent software design means our sensors switch the load right at the zero-cross point to minimise inrush current passing through the relay contact point. This enables the maximum load and lifetime of the relay to be achieved.



Rotary Switch Grouping

Fast and simple commissioning of wireless sensors is possible by using Hytronik products with this feature. Just set the rotary switch numbers to the same position on all members (both transmitter and receiver) in the group and its job done!

On system DALI models, this switch is used to assign the product to the required DALI channel.



Rotary Switch Built-in Programming

Quick installation is made possible by a 'click' to choose one of the 16 built-in programs on the rotary switch. Each parameter of detection range, motion hold-time, daylight threshold, stand-by period, stand-by dimming level is instantly set. Customisation of each individual parameter remains available for flexibility.



Further 20% Saving @ Initial 10,000 Hours

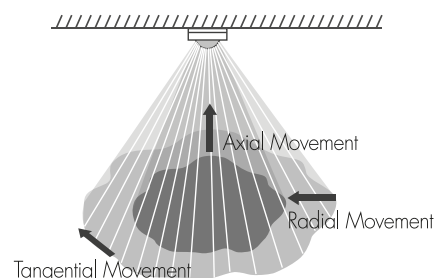
It is common in LED luminaire lumen output specification to rate the performance after 10,000 hours, which means an installation may be over-lit by as much 20% during the first 10,000 hours. In some cases of a retrofit of fluorescent to LED, the occupants may also complain of discomfort from the new lit environment. This 20% @ 10,000 hrs wasted energy and any discomfort can now be controlled by the press of a button using Hytronik controls. 100% output is simply restored via the remote controller.

3-Dimensional PIR/HF Detection Patterns

Hytronik PIR/HF detection patterns used in this brochure and our datasheets describe the 3 active detection areas relative to movement:

- ※ Axial (walking towards a wall mounted sensor)
- ※ Radial (walking directly towards a ceiling mounted sensor)
- ※ Tangential (walking across the edge of the detection beams)

The claims are based upon an average walking speed of 5Km/h



Tri-level Control

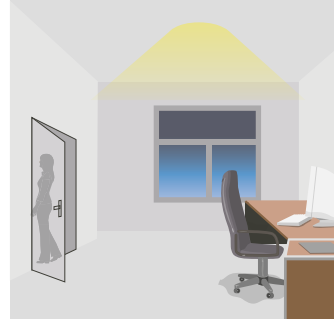
Hytronik SensorDIM™ products combine all the components required in a space saving and cost effective solution with simple commissioning. They offer 3 levels of light control: 100%-->dimmed light-->off, with settable time periods between each phase, as well dimming level and daylight threshold. They can also be configured so that the light always remains in the dimmed mode in absence for areas where there are safety, security or enhanced comfort requirements.



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



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



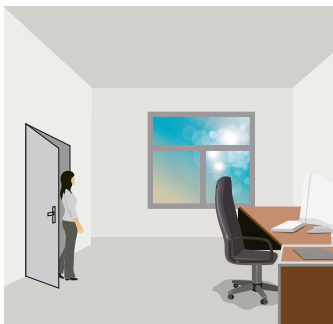
After hold-time, the light dims to stand-by level or turns off completely if surrounding natural light is above the daylight threshold.



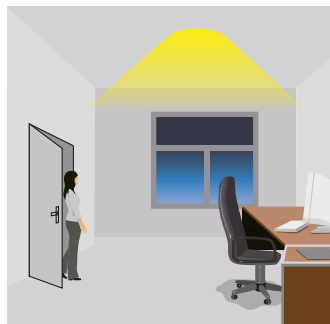
The light switches off automatically after the stand-by period elapsed.

On/Off Control

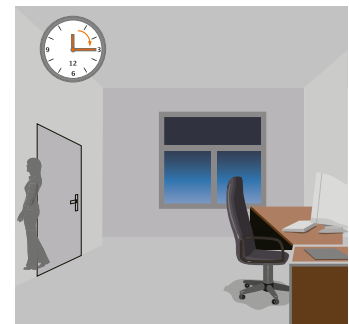
These sensors provide simple switching of the light based upon occupancy. A daylight sensor is also built-in to prevent the light switching on when there is sufficient natural light. The pictures below illustrate typical operation.



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



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

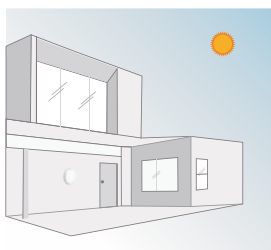


The sensor switches off the light automatically after the hold-time when there is no motion detected.

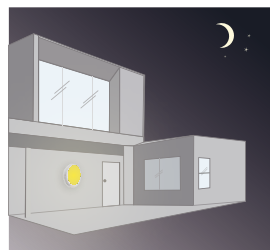
Photocell

Introducing our Photocell Advance™ technology in which daylight measurements can be taken from the behind the diffuser, we can now offer dawn/dusk photocell functionality without the need to compromise the integrity of the luminaire body.

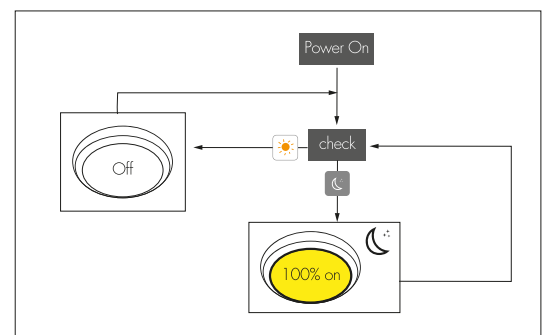
Photocell Advance™ Technology!



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



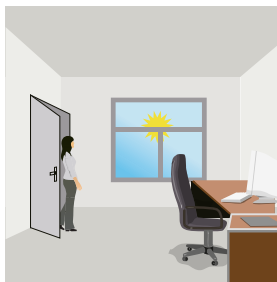
At dusk, the light turn on automatically when natural light goes below daylight threshold.



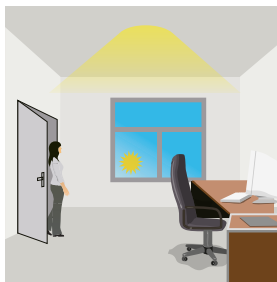
Daylight Harvest

Right time, right place and the right amount of light! Daylight harvest (also known as daylight regulating) is a must in the future lighting norms. The daylight sensor measures the available surrounding natural light and calculates how much artificial light is needed to reach the target lux level. The control output is passed to the drivers by DALI or 1-10V signals which then deliver the needed amount of light.

Now with Photocell Advance™ technology, daylight harvest can be performed behind the cover!



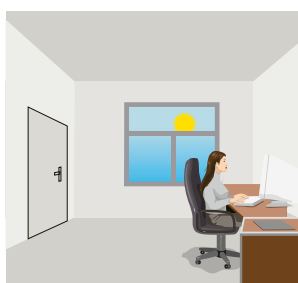
The light will not switch on when natural light is sufficient, even with motion detected.



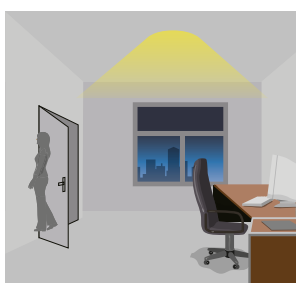
The light switches on automatically with presence when natural light is insufficient.



The light turns on at full or dims to maintain the lux level. The light output regulates according to the level of natural light available.



The light will be switched off when the ambient natural light is sufficient.

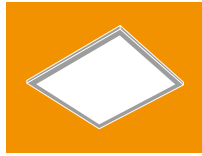


The light dims to stand-by brightness after hold-time and stays on the selected minimum dimming level.



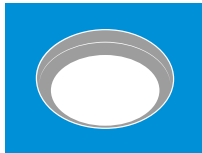
The light switches off automatically after the stand-by period.

Component selection is part of the skill and creativity of the luminaire design engineer, however the illustrations below serve as a guide to the typical applications to which the featured product may be suited, and appear next to relevant products through this brochure.



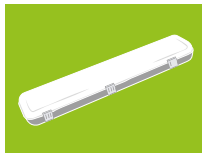
LED Panels or 'Troffers'

Recessed luminaires for false ceilings typically require control gear products with insulated terminals and cord restraint for safe installation in the ceiling void. Antenna integrations are possible, but usually require comprise with complicated assembly. Hytronik offer discrete flush mount sensors which can be neatly and easily situated next to the luminaire. Further information on our suited product ranges can be found on our website or stand-alone brochure.



Utility Luminaires or Bulkheads

These products usually have restricted space and/or demanding thermal requirements. There are usually also many variants to cover in a given product range whilst trying to remain within a competitive budget. Hytronik serves this customer base and many clients already benefit from our integrated control gear, occupancy sensing and daylight sensing solutions.



Linear Fixtures

This style represents a wide range of luminaire styles from vapor proof/tri-rated/IP-65 style to utility low-bay batten fixtures and high end architectural suspended fixtures. In terms of control gear the requirements and demands are similar: low profile and thermally robust.



High Power Flood Lights and High Bay Fixtures

These fixtures usually demand a long range sensor in a small space or a means of external mount in an IP54/65 rated package. This brochure covers sensors meant for internal mounting and IP20 'bolton' style. For sensors which are IP54/IP65 rated and suitable for externally mounting to the fixture, please refer to our website or stand-alone brochure.

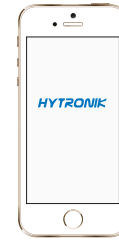


Hytronik products are designed and manufactured to the highest standards so that we may offer a 5-Year product warranty to cover product design and manufacturing defects. The warranty applies to component parts supplied by Hytronik and is applicable to the party to which the sale was made. The warranty is not transferable to a 3rd party and compatibility with external components are the responsibility of the finished goods manufacturer. The full warranty policy is available upon request or from our website.

Hytronik HYtelligence™ Features by Application



Lighting Controls Incorporating Bluetooth® Wireless Technology



Compatible with
iOS 9.0 or later



Compatible with
Android 5.0 or later

Built-in Detached Version

Bluetooth Transceiver Node HBT01 / HBT02

Ideally suited for adding Bluetooth® wireless technology to luminaire designs. These small antennas open many possibilities for wireless integration and are further enhanced by our Photocell Advance™ technology to achieve the latest in daylight controls for maximum energy savings. Not only they are flexible for the physical design of the luminaire, the Hytronik APP also significantly allows flexibility for end users and contractors. Compared to that of wired addressable systems, the system operating, maintenance and wiring complexity is vastly reduced, therefore less specialist knowledge is required for setting up and maintaining the lighting control system.

With Occupancy

HBT01



- ※ Master node with Bluetooth® wireless technology
- ※ Wireless grouping
- ※ Occupancy detection
- ※ Photocell Advance™ daylight controls

With the detached sensor antenna module, the luminaire designer can easily add the sensor inside flat or narrow fixtures where space is very limited. Only the HBT module is needed on the outer surface, while the sensor mainbody can be hidden behind the panel.

Without Occupancy

HBT02



- ※ Receiver node with Bluetooth® wireless technology
- ※ Wireless grouping
- ※ Photocell Advance™ daylight controls



Main Body Options

1 HC038V (1-10V output)



Add Bluetooth® wireless connectivity
to your existing LED Driver

2 HCD038 (DALI output)



Add Bluetooth® wireless connectivity
to your existing LED Driver

3 Hex-Drive™



Direct to Hytronik Hex-Drive™ LED Driver

4 HHC2050L



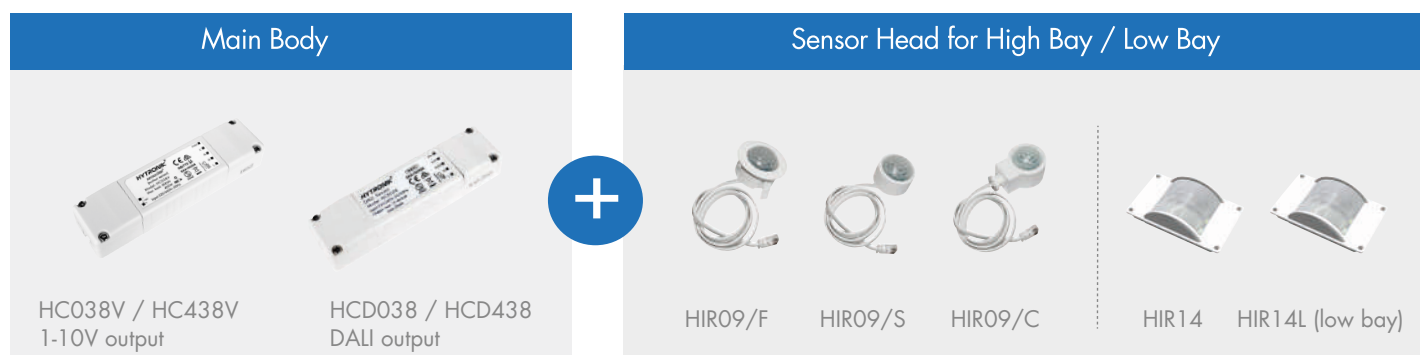
Direct to Hytronik Tunable White LED Driver

Lighting Controls Incorporating Bluetooth® Wireless Technology

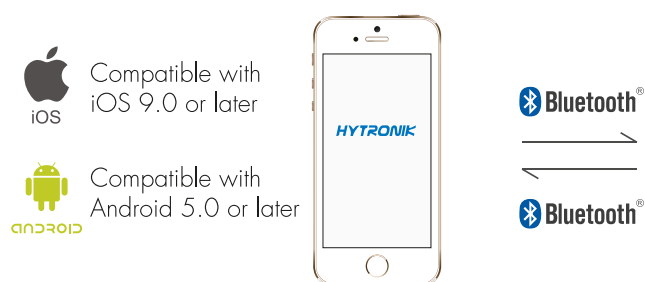
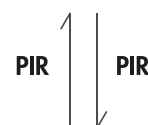
Network-free Built-in Version for High Bay / Low Bay

HIR09 / HIR14 with HC038V / HC438V / HCD038 / HCD438

If APP based commissioning is desired, but setting up a wireless mesh network is beyond the scope of the project, then HA01 is provided to achieve exactly this solution. The HA01 pairs to your smart device via Bluetooth® connection via the Hytronik APP. Conventional Infra Red (IR) communication is then utilised to communicate between the HA01 and the PIR sensors. Both the sensor and HA01 support 2-way communication for 'read-back' of settings which can then be further applied to each of the other sensors using one-key commissioning.



※ HC438V & HCD438 with cUL approval and universal input voltage for US Market



Functions and Features (HIR09)

- ※ PIR Occupancy detection
- ※ Daylight harvest function
- ※ For high bay application
- ※ Multi-mount enclosure: side mount, conduit mount, flush mount
- ※ IP40

Functions and Features (HIR14 / HIR14L)

- ※ PIR occupancy detection
- ※ Daylight harvest function
- ※ For high bay application (HIR14)
- ※ For low bay application (HIR14/L)
- ※ IP65

Lighting Controls Incorporating

Bluetooth® Wireless Technology

Wireless Mesh Network Dimmer Nodes

HBTD8200T/F HBTD8200D/F HBTD8200V/F HBTD8200S/F

Designed for both domestic and commercial applications, Hytronik offer a simple method to bring wireless mesh technology and intelligent controls to standard light fixtures and switches. A powerful APP is used for setup and commissioning, but can also be used to control the lights from your smart device with a user friendly interface. Each device features a 32 scene memory and real time clock support for scheduling. 2 input ports are provided for wall switches or sensors which can be further connected to other devices via the wireless network. Wiring complexity and costs are significantly reduced.

Trailing Edge Version



HBTD8200T/F

- ※ 150VA trailing edge output
- ※ Wireless grouping
- ※ 2-input Switch-Dim with synchronisation - configurable for manual control and scene recall
- ※ Timer and alarm function
- ※ Holiday mode available

1-10V Version



HBTD8200V/F

- ※ 1-10V output
- ※ Wireless grouping
- ※ 2-input Switch-Dim with synchronisation - configurable for manual control and scene recall
- ※ Timer and alarm function
- ※ Holiday mode available

DAI Version



HBTD8200D/F

- ※ 100mA broadcast DAI output for up to 50 LED drivers per node
- ※ Wireless grouping
- ※ 2-input Switch-Dim with synchronisation - configurable for manual control and scene recall
- ※ Timer and alarm function
- ※ Holiday mode available
- ※ Colour tuning
- ※ Bioalarm

On/off Version



HBTD8200S/F


- ※ Wireless grouping
- ※ 2-input Switch-Dim with synchronisation - configurable for manual control and scene recall
- ※ Timer and alarm function
- ※ Holiday mode available

————— Note: /F version features case with fixing mounts. —————


Lighting Controls Incorporating



 **Bluetooth®** Wireless Technology

Built-in Detached Version HC438V/BT HCD038/BT


These power supply units are designed with the  Bluetooth® antenna module within the body, so that a selection of 7 different miniature occupancy sensor heads are available to suit even the most demanding luminaire designs. Only the sensor head is needed to have line of sight, allowing the power supply unit to be placed in a convenient location which will not effect the performance or aesthetics of the luminaire design.

Control Base with Bluetooth Module

Add  Bluetooth® wireless connectivity to your existing LED Driver






HC438V/BT (1-10V output) HCD038/BT (DALI output)



Sensor Head Option A

HIR11

For high bay




HIR11/S HIR11/F HIR11/C

- ※ PIR occupancy detection
- ※ Daylight harvest function
- ※ Larger detection range for high bay application
- ※ IP40

Sensor Head Option B


HIR05



- ※ PIR occupancy detection
- ※ Daylight harvest function
- ※ Photocell Advance™ daylight control

Sensor Head Option C


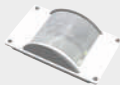
HIR07



- ※ PIR occupancy detection
- ※ Daylight harvest function
- ※ Photocell Advance™ daylight control

Sensor Head Option D

HIR12




HIR12 (for high bay) HIR12L (for low bay)

- ※ PIR occupancy detection
- ※ Daylight harvest function
- ※ IP65

Sensor Head Option E


SAM20



- ※ HF occupancy detection
- ※ Daylight harvest function
- ※ Photocell Advance™ daylight control

Sensor Head Option F


SAM21



- ※ HF occupancy detection
- ※ Daylight harvest function
- ※ IP65

Sensor Head Option G

SAM22




- ※ HF occupancy detection
- ※ Daylight harvest function
- ※ Flush mount

Sensor Head Option H

SAM23

For high bay



- ※ HF occupancy detection
- ※ Daylight harvest function
- ※ Photocell Advance™ daylight control

HA01 can be used as a signal booster can be used with HIR11, HIR12 and SAM23, in order to extend the bluetooth transmission range when needed.



HA01

Free smartphone APP for setup and commissioning



iOS

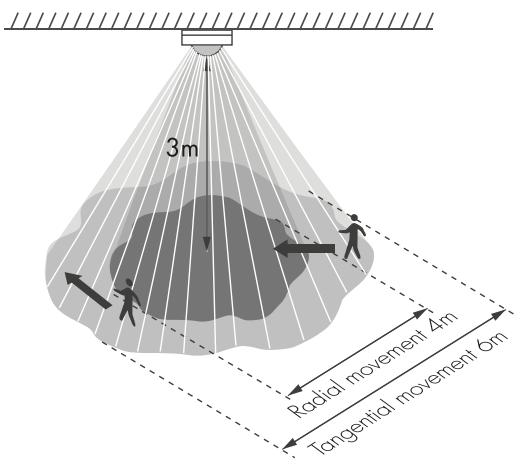
Compatible with iOS 9.0 or later



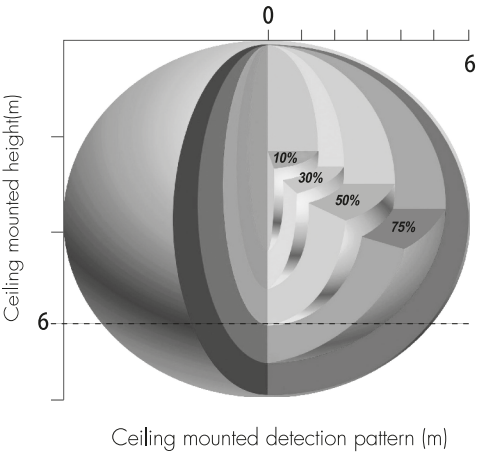
Compatible with Android 5.0 or later

Detection Pattern

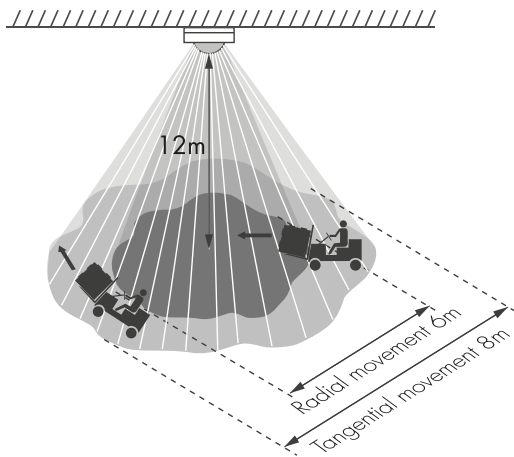
PIR Occupancy Detection Pattern



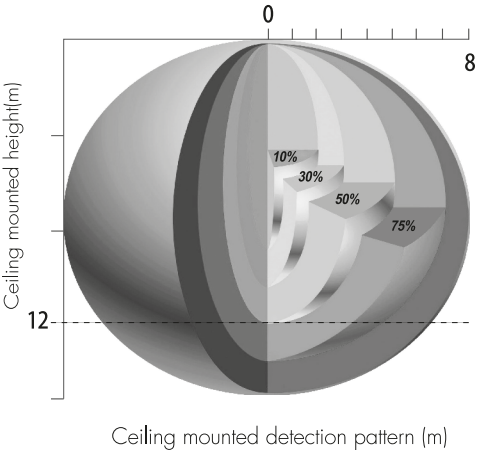
HF Occupancy Detection Pattern



PIR Occupancy Detection Pattern (High Bay)



HF Occupancy Detection Pattern (High Bay)

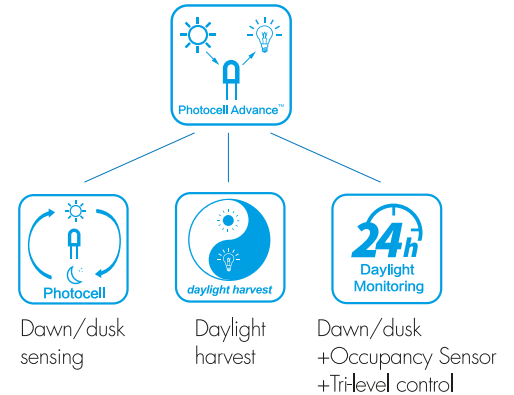


———— * The detection patterns are based upon 5km/h movement speed. ————

Photocell Advance™

Hytronik is proud to introduce our newly developed photocell technology into a custom designed component which brings great possibilities for luminaire designers, adding high-end functionality in space saving and aesthetically pleasing designs. Using our custom designed photocell, we can distinguish artificial LED light sources from natural daylight, even when the product is placed behind the optic or diffuser.

Our custom-made Photocell Advance™ component can be used for daylight control in the following ways:



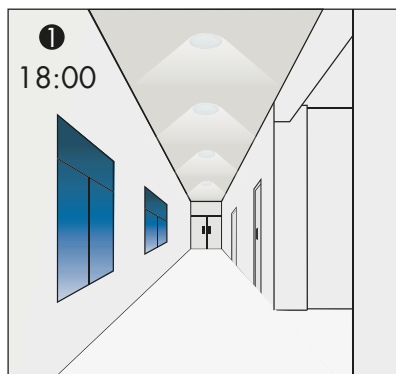
Settings on this demonstration:

Hold-time: 10min

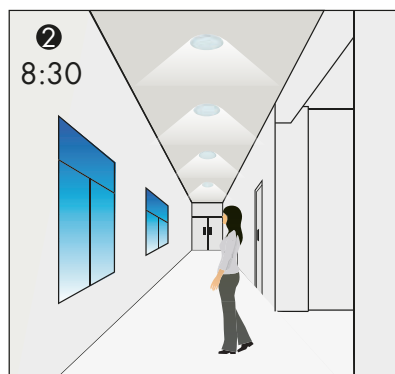
Daylight threshold: 50lux

Stand-by dimming level: 10%

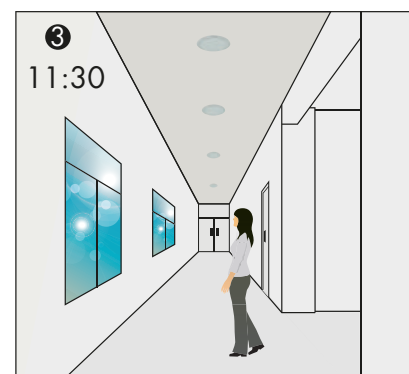
Stand-by period: +∞



The light automatically turns on at dim level when natural light lux level drops below pre-set daylight threshold.



With insufficient natural light, the light switches on at 100% when there is motion detected.



The light turns off completely whenever natural light reaches above pre-set daylight threshold, even with presence.

Products with Photocell Advance™ Function

Without Occupancy Detection



DS05
On/off control



DS06 (1-10V)
Daylight harvest



DS07 (DALI)
Daylight harvest

With Occupancy Detection (Integrated Sensors & LED Drivers)



HEC9025/I



HEC6025/I



HEM09/I

With Occupancy Detection (Sensor Only)



HC005S/I *1 HC005S/L *2



HC009S/I



HC009S-KD/I



HC403VRC-KD/I



HC603VRC-KD/I



HC404VRC-KD/I



HCD418/I



HC419V/I



HC019V/I



HC019V/DH



HCD418/DH



HC419VRC/DH

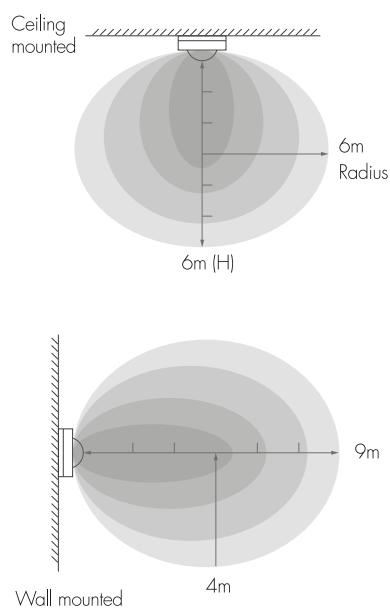
*1 For fixtures which require only on/off control.

*2 Designed for fixtures in which the artificial light is either dimmed or fully on (eg with Tridonic corridor function always 'on' mode).

Note: For more details of sensor antennas with Photocell Advance™ function, please refer to page 41.

Sensors for On/Off Control

Detection Pattern



Products



Without Occupancy Version

DS05

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ Dipswitch or remote control programming
- ※ Daylight threshold learning - commission to environment
- ※ Simple automatic 'on'/'off' control - 400W maximum



Super-compact Version

HC005S/I

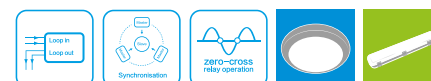
- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ Zero-cross relay operation
- ※ Loop-in and loopout terminal, easy wiring
- ※ Maximum load 400W capacitive, 800W resistive



Standard Version

HC009S/I

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ Synchronisation control
- ※ Zero-cross relay operation
- ※ Loop-in and loop-out terminal, easy wiring
- ※ Operating temperature -35 ~ +70 degree
- ※ Maximum load 400W capacitive 1200W resistive



More antenna options on page 41

Detached Version

HC009S-KD/I

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ With detached sensor antenna, shadow-free
- ※ Zero-cross relay operation
- ※ Loop-in and loop-out terminal, easy wiring
- ※ Maximum load 800W capacitive, 1400W resistive



Attachable Version

HC030S

- ※ External installation, attach to outside of fixture
- ※ Zero-cross relay operation
- ※ Maximum load 800W capacitive



Common Technical Data*

Operating voltage	220-240VAC
Detection range	Maximum (Diameter x Height): 12m x 6m
Detection angle	30°~150°
Mounting height	Maximum 6m
Certification	Semko, CB, EMC, CE, R&TTE, RCM

Sensors for Tri-level Control

Products



Synchronisation Control HC019V/I, HC419V/I

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ 2 or more sensors control the same group of receivers
- ※ Zero-cross relay operation
- ※ Manual override or absence detection function
- ※ Loop-in and loop-out terminals
- ※ Operating voltage 120-277VAC (HC419V/I)
220-240VAC (HC019V/I)

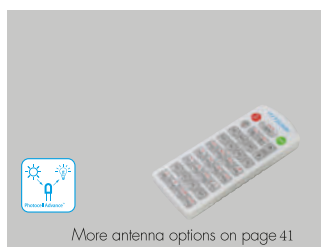
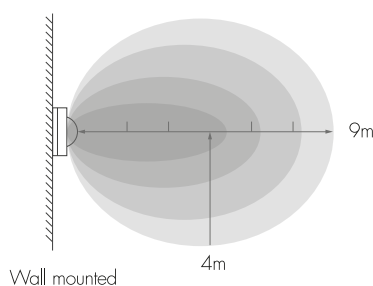
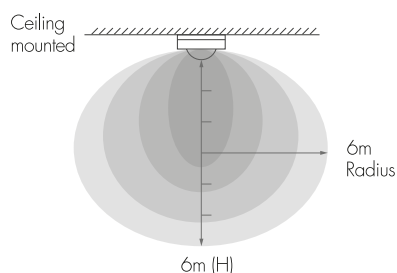


Premium Version HC419VRC

- ※ Transmitter/receiver group control
- ※ 24H Daylight Monitoring function
- ※ Ambient daylight threshold
- ※ Zero-cross relay operation
- ※ Manual override or Semi-auto mode function
- ※ Switched power (capacitive load) 800W@230VAC;
- ※ Operating voltage 120 - 277VAC



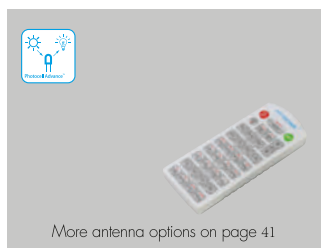
Detection Pattern



HC403VRC-KD/I rectangular body
HC404VRC-KD/I linear compact body.

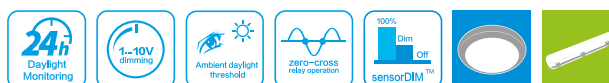
Detached Version HC403VRC-KD/I HC404VRC-KD/I

- ※ 'Hidden' Daylight sensor - Photocell advance™ technology
- ※ Loop-in and loop-out terminal, easy wiring
- ※ Ambient daylight threshold
- ※ 24H Daylight Monitoring function
- ※ Zero-cross relay operation
- ※ Switched power (capacitive load) 800W@230VAC
- ※ Operating voltage 120-277VAC
- ※ One-key commissioning for easy installation



347V Version HC603VRC-KD/I

- ※ 'Hidden' Daylight sensor - Photocell advance™ technology
- ※ Ambient daylight threshold
- ※ 24H Daylight Monitoring function
- ※ Zero-cross relay operation
- ※ Switched power (capacitive load) 800W / 2.4A / 347V
- ※ One-key commissioning for easy installation





Advanced Version

HC018V

- ※ 24H Daylight Monitoring function
- ※ Manual override or Semi-auto mode (absence detection function)
- ※ Switched power 800W (capacitive load)
- ※ Loop-in and loop-out terminal, easy wiring



Intelligent antenna options for these models now include **Bluetooth®** connectivity!

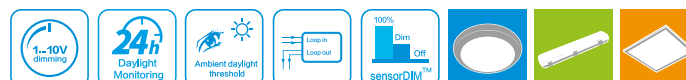


Detached Linear Sensor

HC038V

HC438V/BT

- ※ With PIR or HF sensor head options for both high bay & low bay application
- ※ HC438V/BT (120-277V) with bluetooth module for wireless control via APP
- ※ 1-10V output
- ※ Manual override access
- ※ Loop-in and loop-out terminal
- ※ Maximum load 400W capacitive; 800W resistive
- ※ Setup and commissioning by remote controller or APP



Detached Linear Sensor

HCD038

HCD038/BT

- ※ With PIR or HF sensor head options for both high bay & low bay application
- ※ HCD038/BT with bluetooth module for wireless control via APP
- ※ DALI power supply circuit included
- ※ Manual override access
- ※ Switched power: DALI output, maximum 15 devices / 30mA
- ※ Setup and commissioning by remote controller or APP



Common Technical Data*

Operating voltage	220-240VAC
Detection range	Maximum (Diameter x Height): 12m x 6m.
Mounting height	Maximum 6m
Detection angle	30°~150°
Certification	Semko, CB, EMC, CE, R&TTE, RCM

*Please refer to our website for full technical information of each product.

Sensors for High Bay

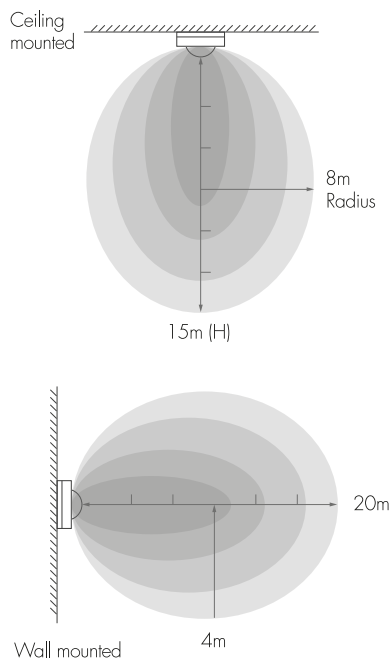
Reinforced version with extended detection range

These sensors are particularly suited for the applications below:

1. High bay luminaires which are usually installed at a height of typically 8-15m, such as warehouses.
2. Vandal-proof / heavy service fixtures with thick glass or polycarbonate covers which reduce the range of an internal sensor.

Please refer to page 41 for more information of Bluetooth sensors for high bay.

Detection Pattern



Products



Premium Version

HC419VRC/R

- ※ Tri-level control (corridor function)
- ※ Synchronisation function
- ※ 24H Daylight Monitoring function
- ※ Ambient daylight threshold
- ※ Zero-cross relay operation
- ※ Manual override or Semi-auto mode (absence detection)



Detached Version

HC403VRC-KD / HC404VRC-KD

- ※ Tri-level control (corridor function)
 - ※ Loop-in and loop-out terminal, easy wiring
 - ※ Ambient daylight threshold
 - ※ Daylight Monitoring function
 - ※ Zero-cross relay operation
- HC403VRC-KD rectangular body,
HC404VRC-KD linear compact body.



Standard Version

HC401SRC/R

- ※ On-off control
- ※ Ambient daylight threshold
- ※ Zero-cross relay operation
- ※ Switched power (capacitive) 800W@230VAC



Attachable Version

HC430S/R

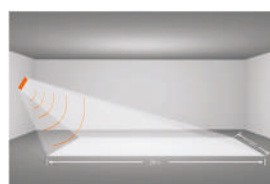
- ※ External installation, attach to outside of fixture
- ※ On-off control



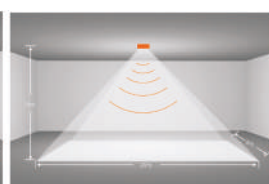
Microwave Aisle Sensor

HCD450VDSRC

- ※ 40mA DALI power supply circuit included (up to 20 Drivers)
- ※ Daylight harvest function
- ※ Dry contact control
- ※ Loop-in and loop-out terminal
- ※ 2 channels switched power: 2X1000W@220-277VAC
- ※ Synchronisation control



25mx6m coverage
@ 8m mounting height



25mx6m coverage
@ 15m mounting height



50m detection length
@ 5m mounting height



Attachable Version to High-bay Luminaires

HMW31/32/34/35/38RF/39RF



Reflector clamp fixing



Conduit fixing Base



Celing mount

- ※ 1-10V or independent DALI control
- ※ Daylight harvest or tri-level light control function
- ※ Daylight detection prior to motion detection
- ※ 360°/maximum detection 12m (D) x 12m (H)
- ※ IP65, multi-mount enclosure
- ※ Remote control or pre-set programmable
- ※ Onekey commissioning for easy installation
- ※ Wireless communication - create connected zones for progressive lighting response.

Note: The HMW3x series are HF motion sensors.

The HIM3x series are dual sense (HF + PIR) sensors.

Please refer to our website for full technical information of each product



High-bay DualSense Models

HIM31/32/34/35/38RF/39RF



Reflector clamp fixing



Conduit fixing Base



Celing mount



DALI Sensors

DALI Functions

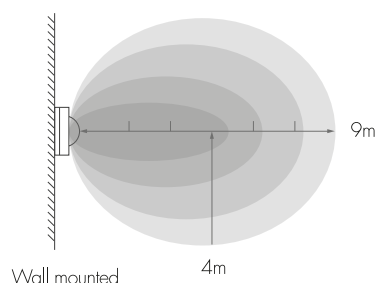
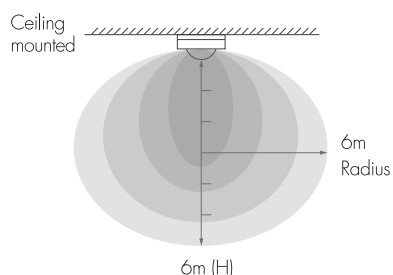
As the use of DALI as a means of lighting control grows in popularity, Hytronik offer two types of DALI Sensor to cover different requirements:

1) For commission-free 'Plug n' play' DALI, we recommend our sensors with built-in DALI power supply. These devices send commands to the default broadcast channel 0 of the connected DALI lamp control gear. No DALI master controller or programming of the DALI drivers is necessary - our smart sensors take care of it all!

2) To add occupancy sensing to a commissioned DALI system, we offer a very simple yet powerful sensor which can be assigned to a DALI group by simply selecting the group you wish to control with the sensor via the rotary switch. These sensors require an external DALI power supply for operation.

Common to both types is the tri-level light control as employed by our other advanced sensors which depending on model, are configurable via switch settings or remote controller.

Detection Pattern



Products



Built-in Version

HCD405RC

- ※ Tri-level control
- ※ For DALI bus power supply
- ※ 16 groups selection via rotary switch
- ※ Input current Approximately 12mA
- ※ Detection Range Max. (D x H) 12 x 6m



Detached Linear Sensor

HCD038 HCD038/BT

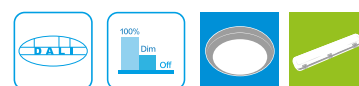
- ※ With PIR or HF sensor head options for both high bay & low bay application
- ※ HCD038/BT with bluetooth module for wireless control via free APP
- ※ DALI power supply circuit included
- ※ Manual override access
- ※ DALI output, maximum 15 devices / 30mA
- ※ Setup and commissioning by remote controller or APP



Independent Version

HCD418/I

- ※ Photocell advance™ technology and tri-level control
- ※ DALI power supply circuit included
- ※ Detection Range Max. (DXH) 12X6m
- ※ Manual override/Semi-auto mode(absence detection)
- ※ Operating voltage 120-277VAC



Daylight Harvest Version

HCD418/DH

- ※ Photocell advance™ technology and daylight harvest
- ※ DALI power supply circuit included
- ※ Synchronisation function
- ※ Detection Range Max. (DXH) 12X6m
- ※ Manual override access & Semi-auto function
- ※ One-key commissioning for easy installation



SensorDIM™

Integrated Sensors & LED Drivers

Hytronik's range of SensorDIM™ products are designed by electronic engineers for luminaire engineers. We understand the challenges faced for balancing space, functionality, thermal management, depth of product range, manufacturability and of course, cost. Our smart integration solutions include:

- * Multi-current LED Driver + sensor + basic photocell
- * Multi-current dimming LED driver + sensor + basic photocell
- * Multi-current dimming LED driver 1+ sensor + smart photocell (Daylight Monitoring - Automatic on/off)
- * Multi-current dimming LED driver + sensor + smart photocell + Emergency
-And more!

For higher power and linear integration options, please see our HEX-drive™ range in the LED drivers section of this brochure.

Products



Daylight Monitoring Version

HEC7030

- ※ Detached sensor antenna, shadow-free
- ※ Tri-level control
- ※ Synchronised group control
- ※ Ambient daylight threshold
- ※ 80% power output @ Initial 10,000 Hours
- ※ Manual override or Semi-auto mode (absence detection)
- ※ Multiple current selections
- ※ Detection Range Max. (D x H) 8 x 5m



Daylight Monitoring Version

HEC7028

- ※ Tri-level control
- ※ Ambient daylight threshold
- ※ 16 combinations for sensor settings
- ※ Multiple current selections
- ※ Daylight monitoring
- ※ Detection Range Max. (D x H) 8 x 5m



Tri-level Control

HEC6028 HEC6018

- ※ Tri-level control
- ※ Power factor > 0.9
- ※ Fixed output 350mA (HEC6018) / 700mA (HEC6028)
- ※ Ideal for most economical design
- ※ Detection Range Max. (D x H) 8 x 5m



Tri-level Control

HEC9025 HEC9025/I

- ※ Photocell advance™ technology (for HEC9025/I only)
- ※ Tri-level control
- ※ Detached sensor antenna, shadow-free
- ※ Multiple current selections
- ※ Detection Range Max. (D x H) 12 x 6m



Tri-level Control

HEC6025/I

- ※ Photocell advance™ technology
- ※ Tri-level control
- ※ Multiple current selections
- ※ Detection Range Max. (D x H) 12 x 6m



Common Technical Data*

Operating voltage	220-240VAC
Detection range	Maximum (Diameter x Height): 8m x 5m.
Mounting height	Maximum 5m
Detection angle	30°~150°
Certification	Semko, CB, EMC, CE, R&TTE,RCM

Emergency Driver + Occupancy Sensor + Mains LED Driver, 3 products in 1!

Products

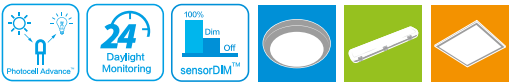
HEM09H HEM09/I

There are a smart integration of microwave motion sensor, high specification LED driver and multiple wattage, self-testing emergency LED driver for cost-optimised lighting solutions. Save space, save cost, save wiring, save assembly!



3-in-1 Version HEM09/I HEM09H

- ※ Photocell advance™ technology (HEM09/I)
- ※ Emergency power @3V, 4W, 6W
- ※ Self-Testing features
- ※ Antenna SAM7/I is optional
- ※ Manual override or Semi-auto mode (absence detection)
- ※ Output voltage 54V (HEM09/I)
- ※ High current version output voltage 33V (HEM09H)
- ※ Onekey commissioning for easy installation
- ※ LiFePO4 battery for HEM09/I
- NiCd or NiMH battery for HEM09H



HEM09/E HEM09H/E

The range also now includes sensorDIM™ 2-in-1 LED driver and non-selftest emergency driver versions for applications which use an external microwave sensor.



3-in-1 Version HEM09/E HEM09H/E

- ※ sensorDIM™ version - for use with external sensor
- ※ Emergency power @3V
- ※ Output voltage 54V (HEM09/E)
- ※ High current version output voltage 33V (HEM09H/E)
- ※ NiCd or NiMH battery



Our clever enclosure design allows a short profile for building into the light fixture, or simply attach the end cap accessory kit for stand-alone installation.

Common Technical Data*

Mains voltage	220~240VAC 50/60Hz
Battery duration	3 hours @ 3W / 4W / 6W
Mains Switch-over voltage range	150VAC~180VAC
Over-heat protection	Over-heat protection with auto-reset
Certification	Semko, CB, CE , EMC

Sensors with RF Wireless Transmission Control

This is a combination of motion sensor and RF radio wave wireless transmission, which is a perfect solution for retrofit projects or in areas where wiring for controls is very limited, such as car parks. The motion detected by the transmitter unit can be passed onto other pre-defined receiver units through RF transmission. The RF signal can transmit up to 30 meters indoor and 100 meters in open areas.

Hytronik offer two styles of RF wireless commissioning methods:

- 1) For smaller projects (up to 16 groups within the same transmission range) we offer a rotary switch group selector which allows commissioning by simply selecting the same number on all the units required to talk to each other.
- 2) For larger projects or where more flexibility is required, we employ a 'teach and learn' system where commissioning is carried out by use of a remote-control handset. In this system the number of groups is not limited.

1 Products



Main body HC038V / HCD038

- ※ 1-10V or DALI Dimming
- ※ Compact linear size
- ※ Loop-in and loop-out terminal, easy wiring
- ※ TriLevel control



RF Sensor SAM11/I

- ※ Photocell advance™ technology
- ※ Both teach and learn + rotary switch
- ※ Serves as both transmitter & receiver
- ※ Daylight Monitoring function
- ※ One-key commissioning for easy installation
- ※ FSK mode



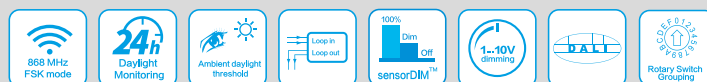
RF Sensor SAM8/RC11

- ※ Teach and learn version
- ※ Serves as both transmitter & receiver
- ※ Daylight Monitoring function
- ※ One-key commissioning for easy installation
- ※ FSK mode



RF Receiver HC034RF

- ※ Serves as receiver
- ※ Both teach and learn + rotary switch
- ※ FSK mode
- ※ For use with SAM8 or SAM11
- ※ One-key commissioning for easy installation



RF Transceiver HC028V/RF

- ※ Serves as both transmitter & receiver
- ※ Rotary switch for easy grouping
- ※ Daylight Monitoring function
- ※ Manual override access
- ※ FSK mode



RF Transmitter HC018V/RF

- ※ Serves as transmitter only
- ※ Rotary switch for easy grouping
- ※ Daylight Monitoring function
- ※ FSK mode



RF Receiver HC023RF

- ※ Serves as receiver
- ※ Rotary switch for easy grouping
- ※ FSK mode
- ※ On-off Control

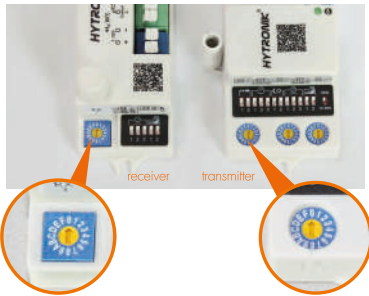


RF Receiver HC024RF

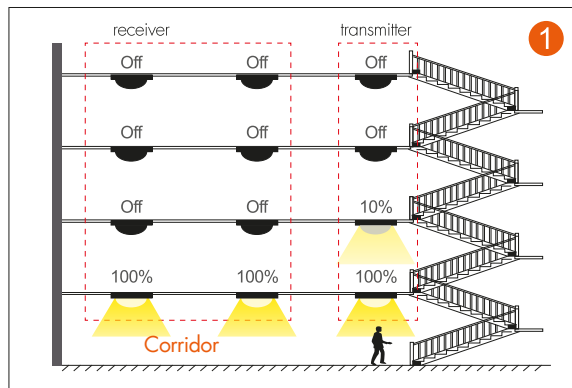
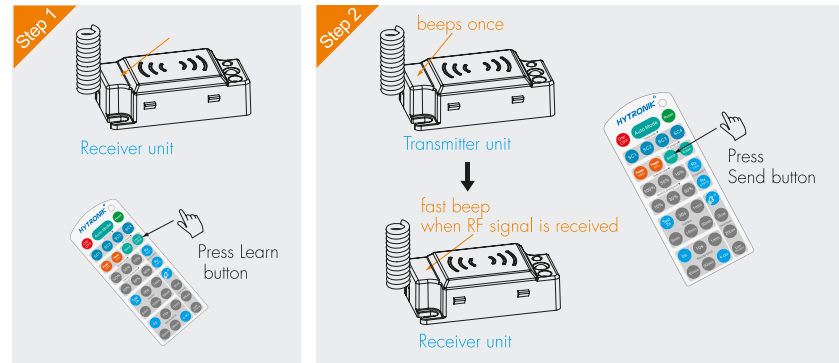
- ※ Serves as receiver
- ※ Rotary switch for easy grouping
- ※ FSK mode
- ※ TriLevel Dimming



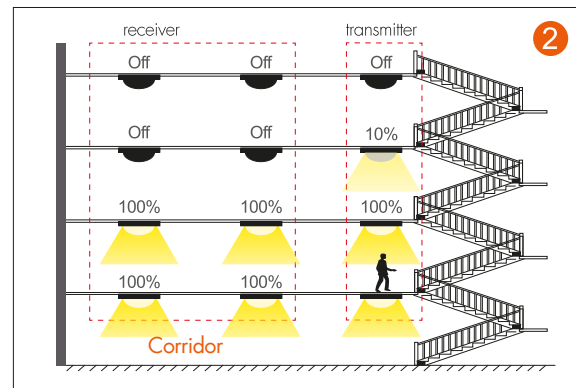
RF grouping (Rotary Switch Commissioning)



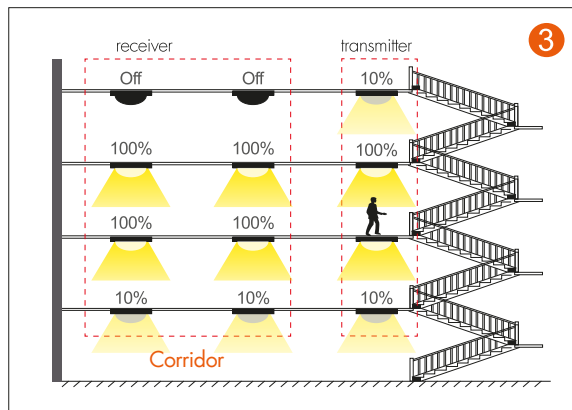
RF grouping (Teach and Learn Commissioning)



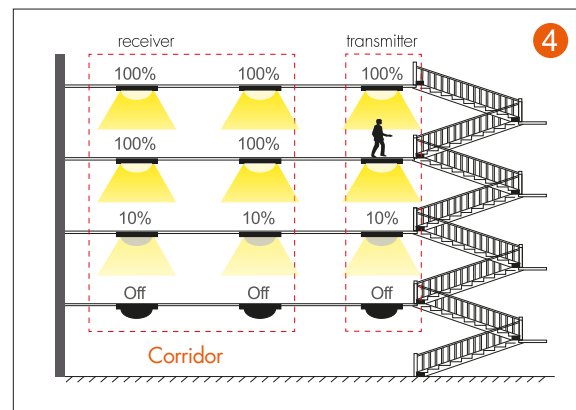
While the 1st sensor detects motion on the 1st floor, it switches the light on 100% and sends signal to all receiver units. All HC024RF on the 1st floor turn on 100% and the HC028V/RF on the 2nd floor goes to standby level.



The person walks to the 2nd floor, the 2nd HC028V/RF switches the light on 100%. All HC024RF on the 2nd floor turn the light on 100% and the HC028V/RF on the 3rd floor goes to stand-by level.



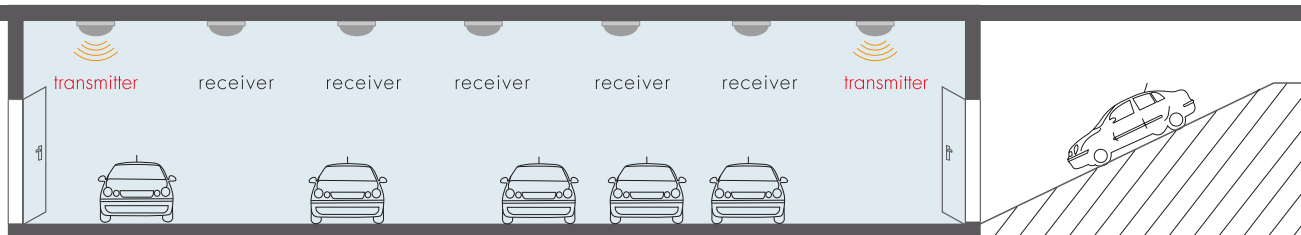
When walks to the 3rd floor, the 3rd HC028V/RF switches the light on 100%. All HC024RF on the 3rd floor turn the light on 100% and the HC028V/RF on the 4th floor goes to stand-by level. Meanwhile, the lights on the 1st floor are dimmed to standby level after hold-time.



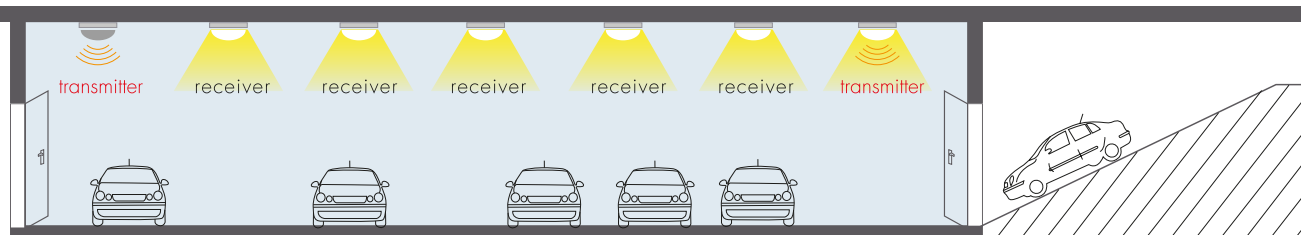
The person walks to the 4th floor, the 4th HC028V/RF switches the light on 100%. All HC024RF on the 4th floor turn the light on 100% and the next HC028V/RF goes to stand-by level. Meanwhile, all sensors on the 1st floor turn the light off after stand-by period, and all lights on the 2nd floor dim to stand-by level after hold-time.

Application: HC028V/RF as both transmitter and receiver, HC023RF / HC024RF as receiver; or SAM8/RC11 / SAM11/I as both transmitter and receiver in the staircase, HC034RF as receiver in the corridor.

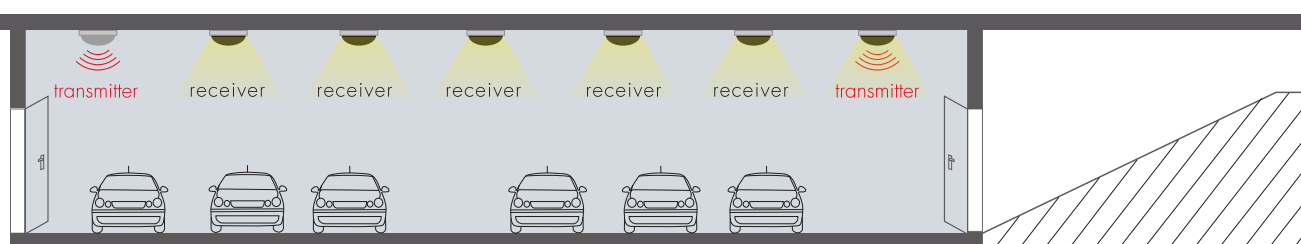
Note: the lights in the corridor go off directly after hold-time when controlled by HC023RF.



With sufficient natural light, the sensor is not triggered by motion.



With insufficient natural light, the sensor is triggered by motion, the transmitter switches on the light and send RF signal to all salves.

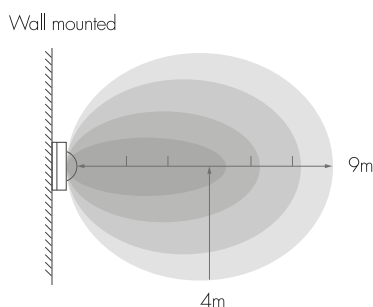
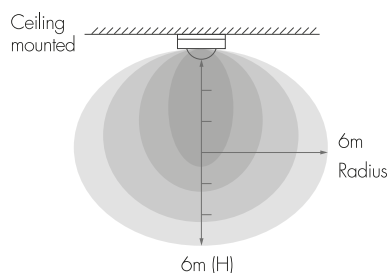


After the holdtime, the whole group of lamps dim to pre-defined dimming level when no movement detected.

Application: HC018V/RF as transmitter and HC023RF / HC024RF as receiver; or SAM8/RC11 / SAM11/I with HC038V / HCD038 as transmitter, HC034RF as receiver.

Note: the lights go off directly after holdtime when controlled by HC023RF.

Detection Pattern



Common Technical Data*

Operating voltage	220-240VAC 50/60Hz
Detection range	Maximum (Diameter x Height): 12m x 6m
Detection angle	30~150°
Mounting height	Maximum 6m
RF communication channels	16 channels for grouping
RF transmission distance	30 meters indoor, 100 meters in the open area
RF frequency	433 / 868 MHz (FSK mode)
Certification	Semko, CB, EMC, CE, R&TTE, RCM


*Please refer to our website for full technical information of each product.

Daylight Harvest

Hytronik offers two solutions for daylight harvesting when building the technology into the luminaire:

1) Using Photocell Advance™ technology, behind-the-cover daylight harvesting is now a reality in a single unit.

NEW for 2019! - Check out our new range of attachable antennas upgraded with Photocell Advance™ technology on Page 41 Look for the  logo!

2) All  Bluetooth® models now feature daylight harvesting - look out for the  logo throughout this brochure.

3) Conventional, yet intelligent and highly integrated PIR/ Photocell/Remote control receiver sensor head unit. The miniature power supply unit can be built into the fixture offering means of control by 1-10V or self-powered (plug n' play) DALI output.

Daylight harvest has many names in the industry and is considered the ultimate compromise of lighting energy efficiency and comfort. Combined with occupancy sensors, the lights are only on when you need them, and when they are on, only as much as they need to be!

Available with or without occupancy sensing, built-in or stand-alone, Hytronik has a solution for most applications.

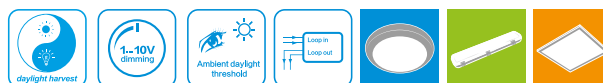
With Occupancy Detection



Built-in Version

HC419VRC/DH

- ※ Photocell advance™ technology
- ※ Ambient daylight threshold
- ※ User manual override via Push dim retractive switch
- ※ One-key commissioning for easy installation



Independent DALI Version

HCD418/DH

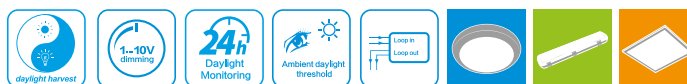
- ※ Photocell advance™ technology and daylight harvest
- ※ DALI power supply circuit included
- ※ Synchronisation function
- ※ Detection Range Max. (D x H) 12 x 6m
- ※ Manual override access & Semi-auto function
- ※ One-key commissioning for easy installation



Detached Version_1-10V

HC038V HC438V/BT

- ※ With PIR or HF sensor head options for both high bay & low bay application
- ※ HC438V/BT (120-277V) with bluetooth module for wireless control via APP
- ※ 1-10V output
- ※ Manual override access
- ※ Loop-in and loop-out terminal
- ※ Maximum load 400W capacitive; 800W resistive
- ※ Set-up and commissioning by remote controller or APP



Detached Version_DALI

HCD038 HCD038/BT

- ※ With PIR or HF sensor head options for both high bay & low bay application
- ※ HCD038/BT with bluetooth module for wireless control via APP
- ※ DALI power supply circuit included
- ※ Manual override access
- ※ Switched power: DALI output, maximum 15 devices / 30mA
- ※ Set-up and commissioning by remote controller or APP





Microwave Aisle Sensor

HCD450VDSRC

- ※ 40mA DALI power supply circuit included (up to 20 Drivers)
- ※ Daylight harvest function
- ※ Dry contact control
- ※ Loop-in and loop-out terminal
- ※ 2 channels switched power: 2X1000W@220-277VAC
- ※ Synchronisation control



Without Occupancy Detection



1-10V Daylight Harvest

DS06

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ Daylight Harvest version works from behind the cover
- ※ 1-10V Version, maximum load 400W @230V
- ※ Can be used for simple automatic 'on'/'off' control - fixed at 20 LUX



DALI Daylight Harvest

DS07

- ※ 'Hidden' Daylight sensor - Photocell Advance™ technology
- ※ Daylight Harvest version works from behind the cover
- ※ DALI Version, maximum load 30mA (1.5 LED drivers)
- ※ Plug n' Play DALI, no DALI controller required



Daylight Sensor

DS02 & DS02/FM

- ※ Works with 1-10V control gear
- ※ Can control up to 50 LED drivers
- ※ Multiple installations



Special Applications

There are times when the standard practices are challenged and we need something a bit different. Below are such products that may tick the box! Please see our web-site for further details of these products.

Products



Dry Contact Version

HC009SDC

- ※ On/off function
- ※ Built-in installation
- ※ Voltage-free sensor



DC Operation

HC501S

- ※ 12V / 24V / 36V / 48V DC Input/Output
- ※ Zero-cross relay operation
- ※ Maximum Load 6A
- ※ Photocell inhibits detection during daytime
- ※ 12m x 6m maximum detection range



For Triac Dimmer

HC402S /T

- ※ On-off control
- ※ Triac dimmer decides the dimming level when motion detected.



For Triac Dimmer

HC009S /T

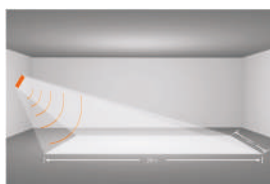
- ※ On-off control
- ※ Triac dimmer decides the dimming level when motion detected.



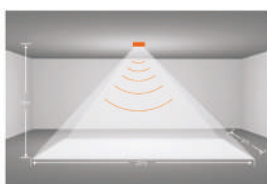
Microwave Aisle Sensor

HCD450VDSRC

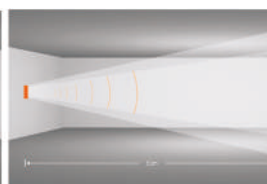
- ※ 40mA DALI power supply circuit included (up to 20 Drivers)
- ※ Daylight harvest function
- ※ Dry contact control
- ※ Loop-in and loop-out terminal
- ※ 2 channels switched power: 2X1000W@220-277VAC
- ※ Synchronisation control



25mx6m coverage
@ 8m mounting height



25mx6m coverage
@ 15m mounting height



50m detection length
@ 5m mounting height

Surface Mounting Enclosures for Motion Sensors

For applications where the sensor simply will not fit in the luminaire, you need a surface mounting option or maybe an IP65 rating. The sensors listed below can be mounted inside the IP box, for stand-alone and independent electrical installation. Each box is supplied with suitable fixing screw, blanking grommet and power cable restraint.



HC009S/I



HC005S/I

HC019V/I



HC018V



HC018V/RF



HC023RF



HC024RF

...



IP65 box



or

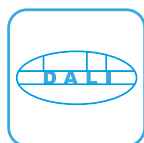


IP20 box

Stand-alone version
microwave motion sensor

Hytronik LED Drivers

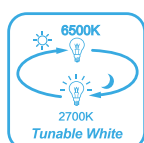
INTRODUCING: Hytronik LED Drivers



Being a member of the DALI group, Hytronik remains compliant with the latest DALI standards for sensor controls. We offer both DALI sensors for DALI systems as well independent DALI sensors (containing DALI power supply) suited to small and medium projects for DALI 'Plug N' Play' installation.



The latest update from DALI has strengthened the way the compliance mark works and imposes more stringent testing in the process.



Dual channel LED drivers which provide white balance control as well as normal brightness control are becoming ever more popular owing to the rise of human centric and circadian rhythm lighting systems.



Stand-by power consumption is an important factor for the total energy saving, calculated as 'parasitic power' in large installations with lighting controls, such as a DALI system. Using Hytronik can improve your LEMI!



Efficiency is the ratio of output wattage versus input wattage. The higher the efficiency is, the less energy is wasted on heat. Furthermore, reducing heat generation is key to increasing the rated life of the control gear.



Low power factor electronic products create distortion to the power network, and reduces the efficiency of the total grid. Hytronik drivers are all designed with active power factor correction to help achieve compliance to EMC standards.



Easy for the end user and installer alike, Switch-Dim is a popular choice for dimming control in the age of LED lighting. Simple wiring, logical operation and smooth dimming response feature in this technology.



A feature of the Switch-Dim technology as many lighting points are often connected to the same switch. As Switch-Dim saves the cost of a centralised dimmer, brightness and colour temperature are required to be synchronised by following our simple procedure from the wall switch.



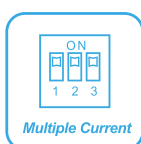
1-10V analogue dimming remains a popular choice of dimming control from centralised dimmers or simple wall switch dimmers, but is gradually being replaced by DALI. However the technology remains valuable, especially when building automated lighting controls directly into the light fixture.



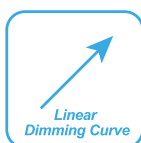
Hybrid dimming is a method used to greatly reduce flicker in LED lighting. Analogue dimming is used when the lamp is at its brightest level and then uses the more traditional method of PWM in a smaller section of the dimming profile to all but eliminate noticeable flicker.



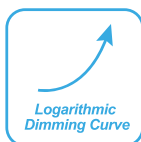
Analogue dimming is the only method in which the lamp is never switched off during dimming (as happens with PWM methods) and represents the flicker-free technology of the latest generation of LED drivers.



Multiple current selections cut down the inventory size and cost of stocking LED drivers. Most Hytronik drivers offer a DIP switch for the customer to select the suitable current for different luminaire requirements.



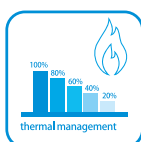
A linear dimming profile means the light is dimmed according to wattage and therefore the light output is dimmed proportionally to the lamp current.



A logarithmic dimming profile means the light is dimmed according to comfort, or in some cases can provide a better match to the response of LED luminaires. The light output is reduced relatively quickly before providing a more gentle response at lower levels.



A feature of constant voltage LED driver designs. Some low voltage lamps which contain self-regulating circuitry start to shut down and in some cases flicker if attempting to operate them at low power levels. This setting allows the minimum dimming level of the LED driver to be set to prevent the lamp entering such a state.



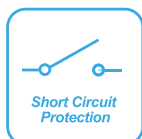
If the LED driver is subject to overloading or overheating, instead of shutting down this smart driver technology reduces the power output in 20% stages until the thermal condition is at a safe level for the driver to work in a stable condition. As the driver cools, the light output goes back to 100%.



A thermal switch is built-in to prevent key components from overheating. The driver enters self-shutdown mode when the internal temperature reaches the threshold and automatically resumes normal operation when the over-heat condition is reduced or removed.



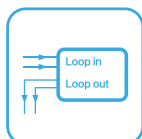
Over-load protection works hand-in-hand with the thermal protection circuitry and the LED driver will shut down to protect itself when an abnormal load causes thermal stress on the LED driver. Automatic restart will occur when the abnormal load is removed and the temperature has stabilised.



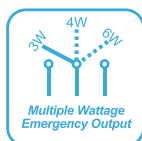
In case of short-circuit, the driver shuts down for protection, and automatically restarts when the shortcircuit is removed.



A built-in permanent memory against power failure: the driver remembers and stays at the same status and lighting level as when the power supply was cutoff.



Whether you are saving component cost and assembly work on drivers designed for built-in fixtures, or looking for easy installation on stand alone drivers, Hytronik drivers are designed with the all terminals you need. With this feature, L and N terminals are provided for power in and L' and N' for power out to the load.

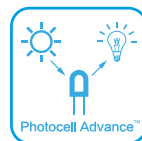


To save inventory cost, Hytronik emergency LED drivers with this feature have 3 optional wattages to fit for different requirements: 3W, 4W & 6W. Simply select the correct battery type from our High Temperature battery range with your requirement of 1, 2 or 3 hours duration.



Self-test feature for emergency lighting. A built-in MCU programed testing schedule takes care of checking the system components and reports the status via the LED indicator. Self-Testing emergency lighting can provide end-users with reduced maintenance costs.

Further features provided by our intelligent direct - to - driver P.I.R and HF antenna range:



The latest in daylight measurement technology from Hytronik gives freedom to luminaire designers by building features such as daylight harvest and dusk/dawn photocell functionality within the fixture and behind the cover.



The daylight sensor measures the available surrounding natural light and calculates how much artificial light is needed to reach the target lux level. The control output is passed to our drivers directly by using our smart antenna attachment which then delivers only the needed amount of light.



TriLevel control (corridor function) is achieved by not only building the dimming profile into the driver, but also combining the sensor with the product, therefore reducing space requirements and costs. SensorDim™ can be considered the whole package for tri-level control.



Similar in operation to a dawn/dusk sensor operating from behind the cover, Hytronik's innovative software design provides this function for further energy-savings and smart integration possibilities for luminaire manufacturers. This function is available on featured products when the standby period is set to "+∞".



Fast and simple commissioning is possible by using Hytronik newly developed remote controller HRC-11. The settings are programmed once and are then saved on the remote controller as a custom scene. With just one press, the programmed scene can be applied to other sensors.



It is common in LED luminaire lumen output specification to rate the performance after 10,000 hours, which means an installation may be over-lit by as much 20% during the first 10,000 hours. This 20% @ 10,000 hrs wasted energy and any discomfort can now be controlled by the press of a button using Hytronik controls. 100% output is simply restored via the remote control.

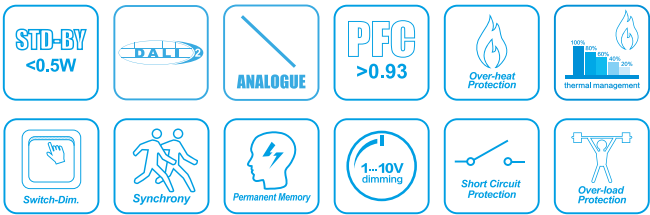
Warranty



Hytronik products are designed and manufactured to the highest standards so that we may offer a 5-Year product warranty to cover product design and manufacturing defects. The warranty applies to component parts supplied by Hytronik and is applicable to the party to which the sale was made. The warranty is not transferable to a 3rd party and compatibility with external components are the responsibility of the finished goods manufacturer.

DALI 2 LED Drivers

DALI/Switch-Dim/1-10V



At the forefront of our DALI driver range, these LED drivers are DALI2 standard ready and have been designed for ultra low stand-by power consumption to reduce ‘parasitic power’ as defined by EuP/ErP. Features analogue flicker-free dimming, intelligent thermal management and much more. Switch-DIM and 1-10V dimming control inputs are also provided for a truly universal dimming LED driver, allowing for significant reduction of inventory. Comprehensive data sheets for each model are available on our website or technical manual.

Products	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)
	HED6010	10W	195mA / 230mA / 350mA / 500mA	150 x 52 x 28
	HED6020	20W	350mA / 500mA / 700mA / 900mA	150 x 53 x 30
	HED6045	45W	500mA / 700mA / 900mA / 1050mA / 1200mA / 1400mA	140 x 79 x 23
	HED6045L	45W	350mA / 500mA / 550mA / 600mA / 650mA / 700mA/ 900mA	140 x 79 x 23
	HED6060	60W	1.05A / 1.2A / 1.4A / 1.6A / 1.75A / 2.0A / 2.1A	220x58x42
	HED6060L	60W	350mA / 500mA / 550mA / 600mA / 650mA / 700mA/ 900mA	220x58x42
	HED4030-A	30W	12 VDC	150 x 53 x 30
	HED6030-A	30W	24 VDC	150 x 53 x 30
	HED2075-A	75W	12 VDC	220x58x42
	HED3075-A	75W	24 VDC	220x58x42

*Please refer to our website for full technical information of each product.

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Bluetooth® LED Driver



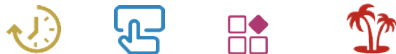
Bluetooth Transceiver Node HBE7028	
Operation frequency	2.4 GHz - 2.483 GHz
Transmission power	7 dBm
Range (Typical indoor)	15~30m
Protocol	Bluetooth® 4 Wireless Mesh

* Please refer to our website for full technical information

Many residential projects requiring external IP65 fixtures require the use of a time clock, external photocell or even both to save energy. These external controls require additional wiring and can be damaged altered. This cost effective LED driver with Bluetooth® wireless technology is suitable for most luminaires of this type and can fully integrate all the features required and much more!

Product Features

- ※ DIP switch offers multiple current selections for different luminaire requirements
- ※ Photocell Advance™ built-in daylight control.
- ※ Daylight harvest function to regulate light output for maintaining required lux level
- ※ Free smartphone (iOS and Andriod) App for setup and commissioning:



- ※ Short circuit protection
- ※ Overload protection
- ※ Permanent settings memory, protected against loss of power

Electrical and Safety	
Mains voltage	220~240VAC 50/60Hz
Power factor	>0.9
Max. input power	33W
Output current (mA)	350/500/550/700/750/900

Hex-Drive™

+

Direct to Hytronik Hex-Drive™ LED Driver

HBT01 - With occupancy

HBT02 - Without occupancy

Tunable White LED Driver

1 HHC2045 - 45W

+

HBHC25 (HCL - Master Sensor)
HBHC26 (HCL - Sensor Extender)

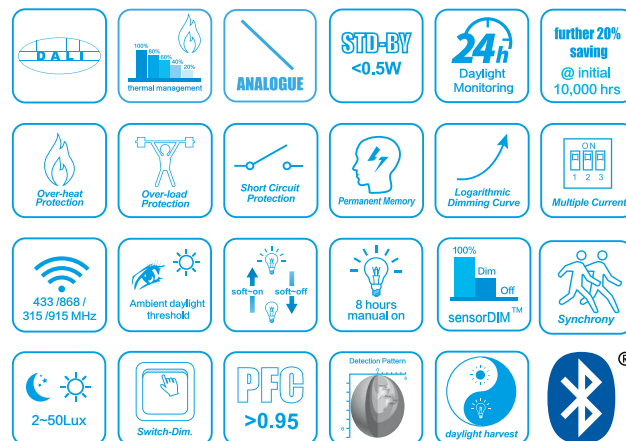
2 HHC2050L - 50W

+

HBHC25 (HCL - Master Sensor)
HBHC26 (HCL - Sensor Extender)

Hex-Drive™

Hex-Drive™ is the flagship product range of Hytronik LED drivers. DALI2 ready, it offers low standby power in compliance with EuP/ErP directive, flicker-free dimming, intelligent thermal management and also has 1-10V and switch-DIM dimming capability. However that is just the start of this unique product range as a wide range of our microwave and PIR antenna occupancy sensor attachments allow incredible integration possibilities, offering wireless RF communication, Daylight Harvesting, Daylight Monitoring & Trilevel dimming.



Available in 2018, Hex-Drive™ will become enabled with  Bluetooth® wireless technology.



HBT01

Products	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)
	HED1025	25W	325mA/350mA/375mA/400mA/ 425mA/450mA/475mA/500mA/ 525mA/550mA/575mA/600mA/ 625mA/650mA/675mA/700mA	269 x 36 x 21 
	HED1045	45W	500mA / 700mA / 900mA / 1050mA / 1200mA / 1400mA	140 x 79 x 23 
	HED1050H	50W	500mA/550mA/600mA/650mA/ 700mA/750mA/800mA/850mA/ 900mA/950mA/1000mA/1050mA/ 1100mA/1150mA/1200mA	390 x 40 x 22 
	HED1050L	50W	225mA/250mA/275mA/300mA/ 325mA/350mA/375mA/400mA/ 425mA/450mA/475mA/500mA/ 525mA/550mA/575mA/600mA	390 x 40 x 22 
	HED1080H	80W	900mA/950mA/1000mA/1050mA/ 1100mA/1150mA/1200mA/1250mA/ 1300mA/1350mA/1400mA/1450mA/ 1500mA/1550mA/1600mA/1650mA	390 x 40 x 22 

※ More antenna options on page 41

Common Technical Data *

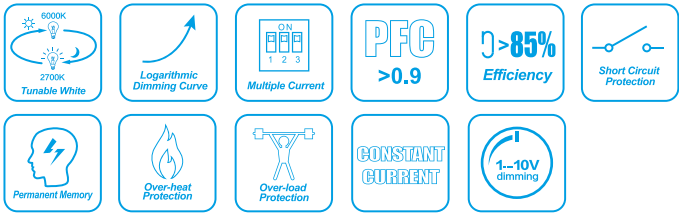
Mains voltage	220~240VAC 50/60Hz
Power factor	≥0.9

*Please refer to our website for full technical information of each product.

Technical Note: We strongly recommend the use of fully isolated DALI Power Supply Units (including those integrated into DALI transmitter units) such as the Hytronik HT02. Comprehensive data sheets for each model are available on our website.

Human Centric Lighting

Tunable White



NEW for 2019!

HHC2050L is our first fully DALI DT8 system compatible tunable white (2x25W) LED driver. However, Hytronik innovation just starts where others stop and this model can realise advanced Human Centric functions via our APP and HBT 01/02 nodes using Bluetooth® wireless mesh technology for systems contained within the luminaire. For those preferring PIR over microwave sensing, HHC2050L can also be connected using either hard wire system or Bluetooth® wireless mesh to our HHC standalone sensors.

HER1050L arrives by popular demand as an extension to our small system Human Centric range for built-in linear fixtures.

Human Centric	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)
	HER1045	45W	350mA/ 500mA/700mA/ 900mA/1050mA/1200mA	140 x 79 x 23
	HER1050L	50W	1.05A / 12 - 48V	424 x 36.5 x 21
	HHC2050L	50W	1.05A / 12 - 48V	424 x 36.5 x 21

*See more antenna options on page 41

HER3045 is controllable via remote control and/or conventional switch-Dim and 1-10V controllers. Ideally suited to small displays, accent lighting and hotel comfort lighting, including halogen dimming simulation with your tunable white LED lamp.

Tunable White	Model	Max. Wattage	Output Current	Size (L x W x H mm)
	HER3045	45W	350mA/ 500mA/700mA/ 900mA/1050mA/1200mA	140 x 79 x 23



Our clever enclosure design allows a short profile for building into the light fixture, or simply attach the end cap accessory kit for stand-alone installation.

Common Technical Data*	
Mains voltage	220~240VAC 50/60Hz
Power factor	≥0.9

*Please refer to our website for full technical information of each product.

Dimmable LED Drivers

1-10V / Switch-Dim



Hytronik offer a versatile and costeffective range of dimming LED drivers which combine both Analogue 1-10V dimming and Switch-Dim protocols. Our range includes multiple current selections so a wide range of LED fixtures may be operated from a small inventory. Constant current (CC) and

constant voltage (CV) types are both available and selected models feature both CC and CV options for even greater flexibility. Suitable for design into LED luminaires and perfect for supplying as upgrades to fixed output products.

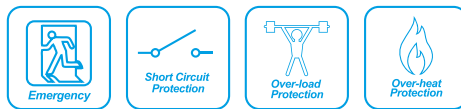
Products	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)
	HE8008-A	8W	350mA/500mA/550mA	52 x 50 x 22
	HE1008-A	8W	350mA/500mA/550mA	80 x 53 x 22
	HE8030-A	30W	250mA/ 300mA/ 350mA/ 400mA/ 450mA/ 500mA/ 550mA/ 600mA/ 650mA/ 700mA/ 750mA/ 800mA/ 850mA	150 x 52 x 28
	HE8050-A	50W	350mA/500mA/550mA/600mA/ 650mA/700mA/800mA/900mA/ 1050mA	123 x 79 x 30
	HE4030-A	30W	12 VDC	150 x 53 x 30
	HE6030-A	30W	24 VDC	150 x 53 x 30
	HE2075-A	75W	12 VDC	220 x 58 x 42
	HE3075-A	75W	24 VDC	220 x 58 x 42






Please refer to our website or catalogue for full technical information of each product.

Emergency Drivers

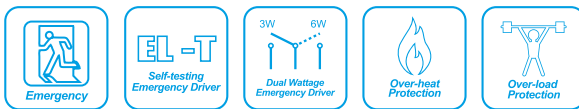
Hytronik offer a range of standard and self-test emergency LED drivers. Designed to operate in the emergency mode on the low-voltage (LED input) circuit, they feature full isolation of the standard LED driver to ensure compatibility. Efficient driver technology allows selection of low cell count and reduced space requirements for the best combination of reliability, cost and usability. New additions to our established range are fully integrated 'combo' LED/Emergency drivers, with option to connect to a full featured cost and space-effective antenna attachment, or an external sensor as per more conventional solutions.






Economy Version



Products	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)	
	HEM02	3W	320mA~40mA	150 x 53 x 30	
	HEM07	3W	300mA~40mA	160 x 40 x 22	 

Self-Test Version

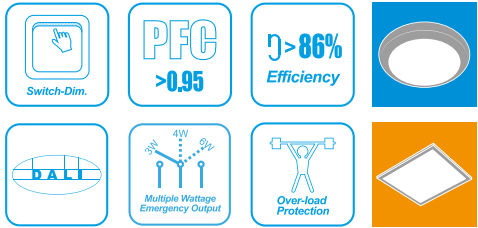


Products	Model	Max. Wattage	Output Current/ Voltage Options	Size (L x W x H mm)	
	HEM06-T	3W/6W	260mA~40mA@3W 350mA~80mA@6W	150 x 53 x 30	
	HEM07-T	3W	230mA~40mA	180 x 40 x 22	 




Please refer to our website or catalogue for full technical information of each product.

Integrated Emergency

3-in-1 and 2-in-1 'Combo'



HEM09/I and HEM09/H are full featured versions with Auto test and for use with Hytronik SAM7/I or SAM7/FM occupancy sensors, if required.
HEM09/E and HEM09H/E are basic versions without Auto test and external sensor input.

Products	Model	Max. Wattage (Emergency)	Output Current/ Voltage Options	Size (L x W x H mm)
	HEM09/I	3W/4W/6W	350mA/500mA/550mA/ 700mA/750mA/900mA	140 x 79 x 23
	HEM09/E	3W	350mA/500mA/550mA/ 700mA/750mA/900mA	140 x 79 x 23
	HEM09H	3W/4W/6W	900mA/1050mA/ 1200mA/1400mA	140 x 79 x 23
	HEM09H/E	3W	900mA/1050mA/ 1200mA/1400mA	140 x 79 x 23



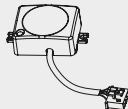
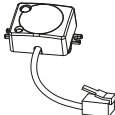
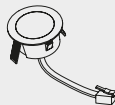
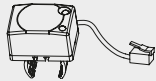
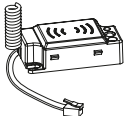
Our clever enclosure design allows a short profile for building into the light fixture, or simply attach the end cap accessory kit for stand-alone installation.

Common Technical Data *

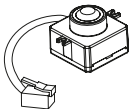
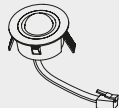

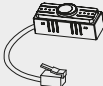
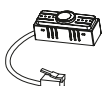
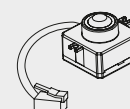


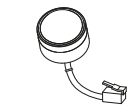
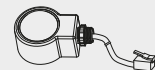
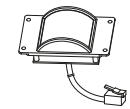
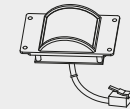
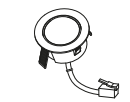
Mains voltage	220~240VAC 50/60Hz
Power factor	≥0.95

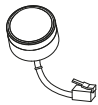
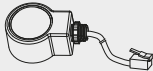
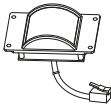
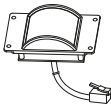
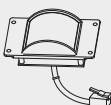
*Please refer to our website for full technical information of each product.

Sensor Head Options

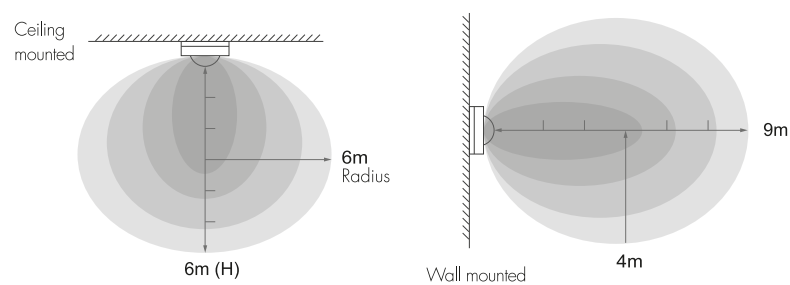
Sensor Head	Model	For use with	Remote control	Features	Size (L x W x H mm)	Installation hole (mm)
	SAM3	HC009S-KD; HC403V-KD; HEC8025; HEC9025	N/A	Antenna Photocell	45.2 x 32.2 x 26.5	/
	SAM4	HC009S-KD; HC403V-KD; HEC8025; HEC9025	N/A	Antenna Photocell	30.7 x 25.2 x 12	/
	SAM5	HC403VRC-KD; HC404VRC-KD; HEC7030; HC603VRC-KD	HRC-05; HRC-11	Antenna Photocell IR receiver	30.7 x 25.2 x 13	/
	SAM5/FM	HC403VRC-KD; HC404VRC-KD; HEC7030; HC603VRC-KD	HRC-05; HRC-11	Antenna Photocell IR receiver Flush Mounting	Φ 48 x 20.3	Φ 41
	SAM5/IP65	HC403VRC-KD; HC404VRC-KD; HEC7030; HC603VRC-KD	HRC-05; HRC-11	IP65 Antenna Photocell IR receiver Flush Mounting	Φ 41 x 19.3	Φ 17
	SAM5/DH	HER1045	HRC-09	Antenna Photocell IR receiver Flush Mounting	Φ 48 x 20.3	Φ 41
	HI05/FM	HER1045	HRC-09	Antenna Photocell IR receiver Flush Mounting	Φ 48 x 20.3	Φ 41
	SAM6	HC403VRC-KD; HC404VRC-KD; HC603VRC-KD	HRC-05; HRC-11	16m x 15m Antenna Photocell IR receiver	45.2 x 32.5 x 26.5	/
	SAM7/I	Hex-drive™ series; 3-in-1 multi-drive; HC038V; HCD038	HRC-05	Photocell Advance™ Tri-level control	52.5 x 31.2 x 16	/
	SAM7/FM	Hex-drive™ series; 3-in-1 multi-drive; HC038V; HCD038	HRC-05	Tri-level control	Φ 48 x 20.3	Φ 41
	SAM8/RC11	Hex-drive™ series; HC038V; HCD038	HRC-11	Tri-level control(RF)	52.5 x 31.2 x 16	/

Sensor Head	Model	For use with	Remote control	Features	Size (L x W x H mm)	Installation hole (mm)
	SAM9	HC403VRC-KD; HEC7030 HC603VRC-KD	N/A	Antenna Photocell	30.7 x 25.2 x 12	/
	SAM10	HER3045	HRC-08	N/A	Φ 48 x 20.3	/
	SAM10/FM	HER3045	HRC-08	N/A	Φ 48 x 20.3	Φ 41
	SAM11/I	Hex-drive™ series HEM11 / HEM11H HC038V; HCD038	HRC-11	Photocell Advance™ Tri-level control (RF)	71.5 x 31.7 x 16	/
	SAM5/I	HEC9025/I HC009S-KD/I, HC603VRC-KD/I HC403VRC-KD/I, HC404VRC-KD/I	HRC-11	Antenna Photocell Advance™ IR receiver	40.4x 25 x 15.5	/
	SAM20	HC438V/ BT HCD038/BT	Android APP iOS APP	Photocell Advance™ Daylight Harvest	40.4x 25 x 15.5	/
	SAM21	HC438V/ BT HCD038/BT	Android APP iOS APP	Daylight Harvest IP65	Φ 41 x 19.3	Φ 17
	SAM22	HC438V/ BT HCD038/BT	Android APP iOS APP	Daylight Harvest	Φ 48 x 20.3	Φ 41
	SAM23	HC438V/ BT HCD038/BT	Android APP iOS APP	Photocell Advance™ Daylight Harvest	45.2 x 32.5 x 26.5	/
	DS02/FM	1-10V LED drivers	/	Daylight harvest	Φ48 x 20.3	Φ 41
	HBT01	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Bluetooth® Photocell Advance™ Daylight harvest	71.5 x 31.7 x 16	/
	HBT02	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Bluetooth® Photocell Advance™ Relay Switch	71.5 x 31.7 x 16	/

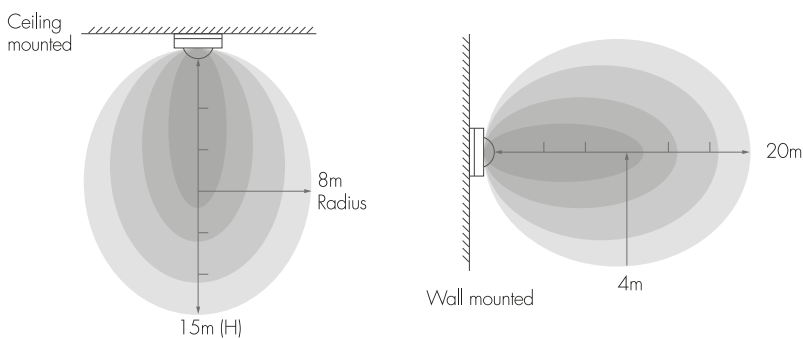
SAM		Model	For use with	Remote control	Features	Size (L x W x H mm)	Installation hole (mm)
		HIRO1	Hex-drive™ series HC038V; HCD038	HRC-11	Daylight harvest (PIR)	39.5 x 30 x 25.8	Φ 20
		HIRO1/FM	Hex-drive™ series HC038V; HCD038	HRC-11	Daylight harvest (PIR)	Φ 48 x 20.3	Φ 41
		HIRO2	Hex-drive™ series HC038V; HCD038	HRC-05	Tri-level control (PIR)	39.5 x 30 x 25.8	Φ 20
 		HIRO3	Hex-drive™ series HC038V; HCD038	HRC-11	PhotoCell Advance™ Daylight harvest (PIR)	44.5 x 17 x 19.3	Φ 15
 		HIRO4	Hex-drive™ series HC038V; HCD038	HRC-11	PhotoCell Advance™ Tri-level control (PIR)	44.5 x 17 x 19.3	Φ 15
		HIRO5	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest (PIR)	39.5 x 30 x 25.8	Φ 20
 		HIRO7	HC038V/BT, HCD038/BT	Android APP iOS APP	PhotoCell Advance™ Daylight harvest	44.5 x 17 x 19.3	Φ 15
		HIRO9/F	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest High bay	Φ 48 x 20.3	Φ 41
		HIRO9/S	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest High bay	36.3 x 32.6	Φ 17.5 Φ 3.5
		HIRO9/C	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest High bay	63 x 40.5 x 33.9	Φ 14
		HIR10	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest High bay	73 x 43.2 x 29	54 x 30
		HIR10/L	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest Low bay	73 x 43.2 x 29	54 x 30
		HIR11/F	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest High bay	Φ 48 x 20.3	Φ 41

SAM		Model	For use with	Remote control	Features	Size (L x W x H mm)	Installation hole (mm)
		HIR11/S	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest High bay	36.3 x 32.6	Φ 17.5 Φ 3.5
		HIR11/C	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest High bay	63 x 40.5 x 33.9	Φ 14
		HIR12	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest High bay	73 x 43.2 x 29	54 x 30
		HIR12/L	HC038V/BT, HCD038/BT	Android APP iOS APP	Daylight harvest Low bay	73 x 43.2 x 29	54 x 30
		HIR14	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest High bay	73 x 43.2 x 29	54 x 30
		HIR14/L	HC038V, HCD038 Hex-drive™ series	Android APP iOS APP	Daylight harvest Low bay	73 x 43.2 x 29	54 x 30

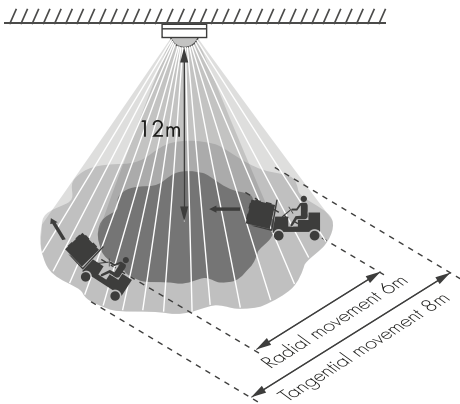
Detection Pattern - Generic Microwave



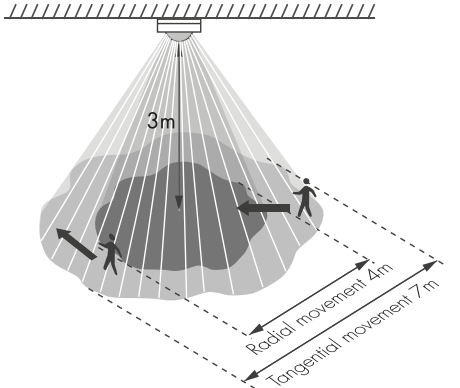
Detection Pattern - Microwave High Bay



Detection Pattern - High Bay PIR



Detection Pattern - Generic PIR



*The detection patterns (HF & PIR) are based upon 5km/h movement speed. Please refer to product data sheet for further



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