

THORN

MovU

Motion detection solutions for outdoor lighting



MovU

Motion detection solutions

Reducing energy consumption while preserving the natural ecosystem and enhancing safety and well-being

Why use motion detection?

Energy savings

Motion detection eliminates waste light. In turn it reduces energy consumption and the associated energy costs and CO₂ emissions.

Safety

Providing the right light at the right time can deter criminals and create a safer place to live. It can also encourage the use of streets and pathways by increasing the feeling of security.

Ambience and well-being

Poor lighting can destroy the ambience of a city, creating a dull, lifeless place. At the same time, over lighting can be detrimental to the sleep and health of residents. Motion detection balances these conflicting needs to provide the right light for everyone.

Ecosystem preservation

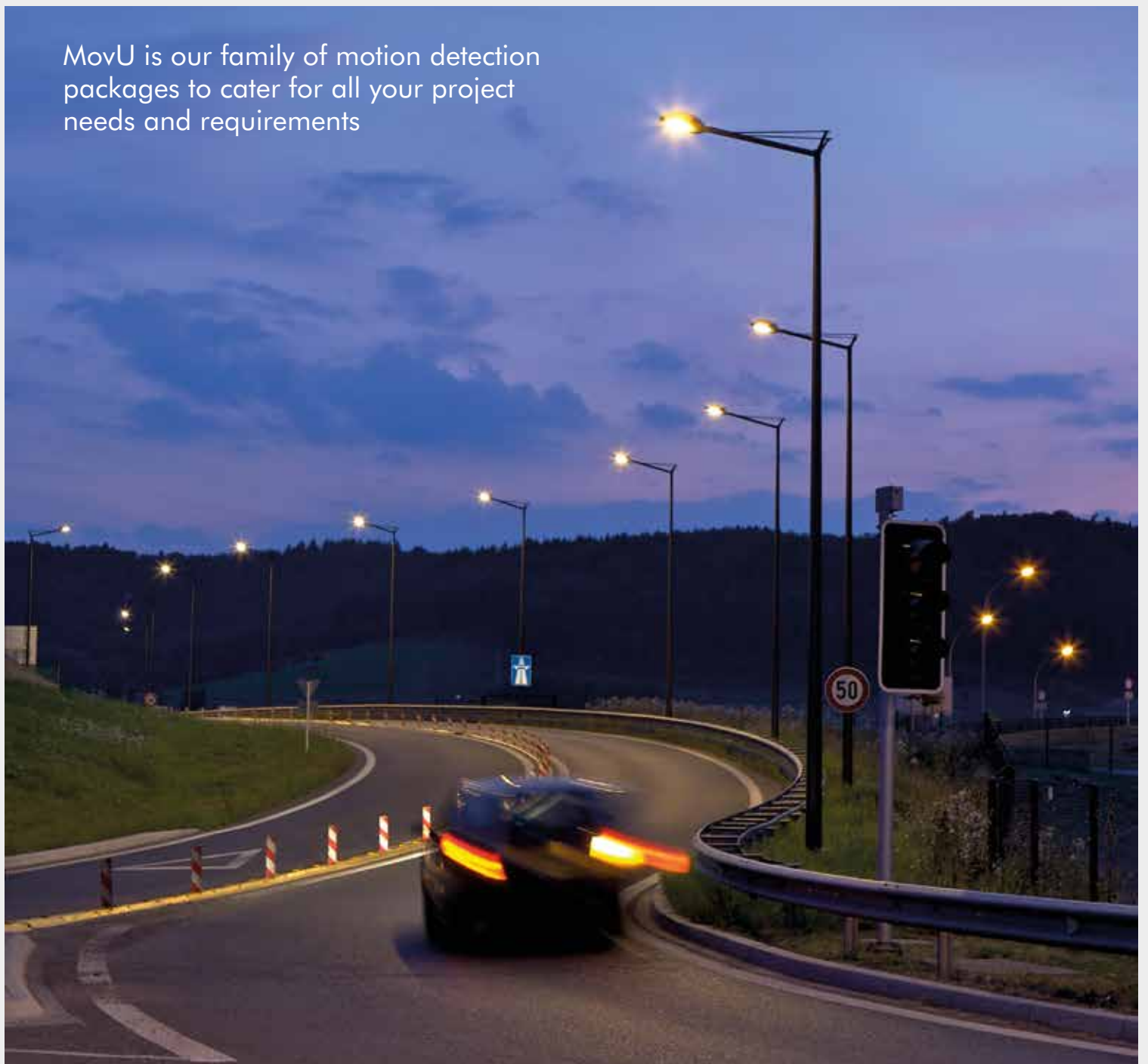
Artificial lighting can affect biodiversity and disturb our ecosystems. Motion detection can limit this impact and preserve natural ecosystems by using the minimum amount of light whenever and wherever possible.



Switching off at night in response to aspirations or demands to lower energy consumption can destroy ambience. More importantly, poor light levels can compromise safety and create a general feeling of insecurity.

By providing light only where and when it is needed, motion detection offers a sustainable solution which meets everyone's needs. Lighting is typically dimmed by 80% (20% output) during quiet times and instantly raised to 100% when people and/or traffic are detected.

MovU is our family of motion detection packages to cater for all your project needs and requirements



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LED luminaires combined with motion detection allow us to adapt light to the individual application. This enables even more energy savings than existing power reduction systems while ensuring maximum safety and security.

Great light uniformity means users only become aware that the light is dimmed when it switches to 100%.

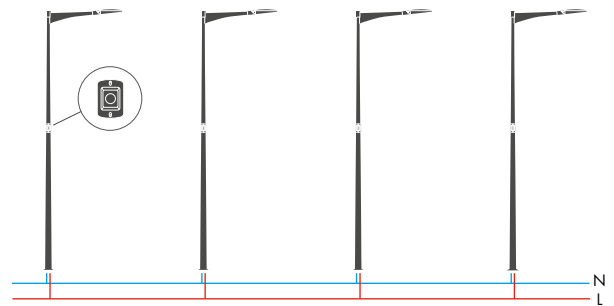


Various wiring principles

Depending on the project and luminaire, various wiring principles are valid either for pedestrian or street lighting:

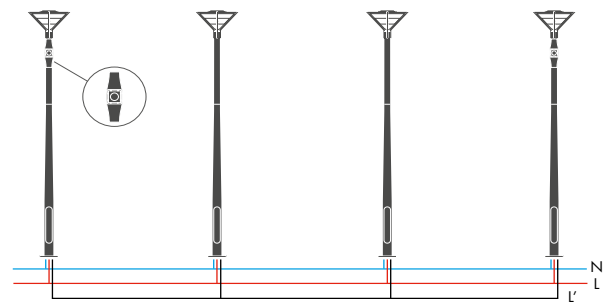
Single detection

One detector per light point can be necessary when people or vehicles can arrive from any direction. This can be the case for car parks or logistic areas for example.



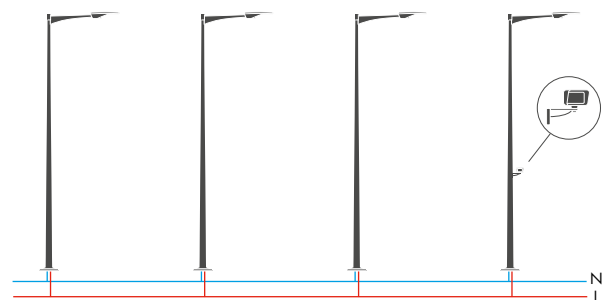
Pilot line

When movement is detected, one of two masters located, for example at the extremities of the project or at every three poles, instantly gives the signal to the others connected on the same phase. There is normally no limitation regarding the number of slaves in a corridor mode. For a more complex project, more masters can be easily added. The pilot line wiring principle is the most simple and economical for a new installation or when the network is changed. It implies a corridor and is suitable for projects where people or vehicles arrive from a defined direction, such as in the case of roads, cycle lanes and parks. Pilot line can be used with any technology (RF, PIR or Radar).



Radio frequency

The master gives the signal to the slaves using a radio frequency node and an antennae located in every luminaire. This is compatible with existing installations and offers advanced onsite programming possibilities, such as a train of light, with a simple laptop connected to the nodes. The installation can also be connected to a Central Management System for further services such as monitoring and energy measurements. Radio frequency can be used with PIR or radar detectors and can be considered when the installation cannot be run in pilot line.

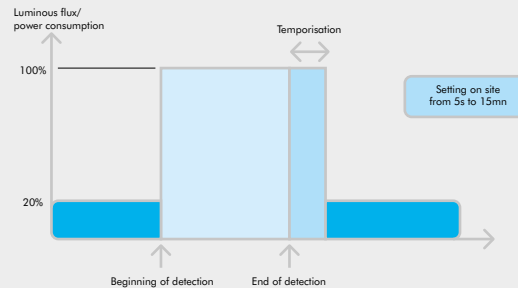


When motion is detected light output is increased to 100%



Corridor mode for safe lighting

Outdoor lighting should never be switched off. A dimmed level such as 20% is recommended for safety and guidance. No one will use a path which is not lit, firstly as the path cannot be seen from a distance and secondly because they will not feel safe.



Various technologies

Based on performance and cost, PIR, high frequency and radar are the most relevant detection technologies for our outdoor lighting applications:

PIR

For pedestrian applications, cycle lanes and car parks, passive infrared (PIR) is the most relevant technology today. The motion sensors built into the luminaire or remote on the pole are equipped with pyro sensors that detect the invisible heat emitted from moving people and animals. The heat detected is electronically converted into a signal that activates the light at 100% output. Note that the sensor does not detect heat radiated from behind obstacles, such as walls or panes of glass. The sensor's effectiveness can also be affected in extreme hot and cold temperatures, when the difference between ambient temperature and emitted heat can be limited. The PIR sensor can be integrated in our latest street luminaires or placed remotely on the column for higher performance and in the case of higher poles.



High frequency

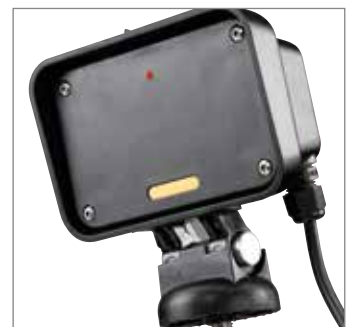
Contrary to motion detectors with PIR technology, high frequency motion detectors emit a 5.8 GHz signal. The change in frequency of waves reflected by a moving object is measured and in this way a movement is detected. We have selected this technology for two ranges of bollards: Adelie for paths and cycle lanes and Orus LED for access roads with a low speed limitation. Hidden inside the bollard behind a polycarbonate door, our high frequency detector is perfectly integrated and will ensure massive energy savings without affecting the landscape.



Radar

Doppler radar emits beams (pulses) of microwave energy from a transmitter. When these beams collide with fast moving objects such as cars, some of the energy bounces back towards the radar. A receiver on the radar then collects the reflected energy and instantly activates 100% light output for the connected luminaires.





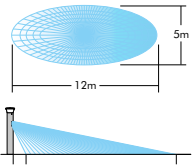
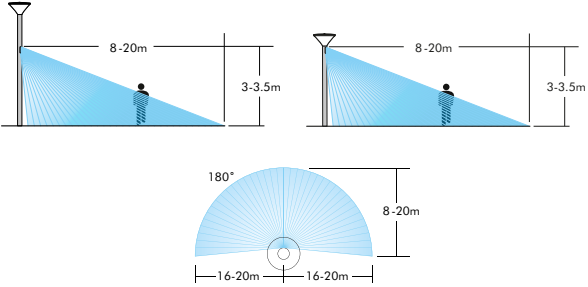
Note that radar only detects vehicles with a speed between 4 and 150km/h at a maximum distance of 150m. Radar can also be combined with PIR sensors when pedestrians need to be detected too. Radar is a proven technology widely used in traffic lighting applications for many years.





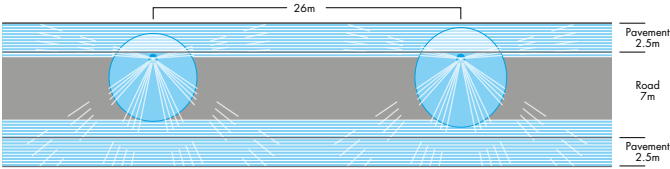
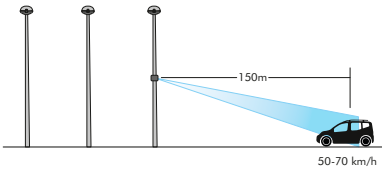


MovU

Motion detection solutions

A complete overview of solutions for pedestrian and road lighting

		Pedestrian detection	
			
		MovU HF	MovU PIR remote
		Lateral	Post-top
Technology		High Frequency motion detector (slow moving objects)	Infrared motion sensor (warm moving objects) with two highly sensitive pyro sensors
Detects		 Pedestrians, cyclists, slow cars up to 30 km/h	 Pedestrians, cyclists, slow cars up to 30 km/h (when warm)
Main applications		Paths, building surrounds, cycle lanes	Car parks, parks, cycle lanes, building premises
Detection zones and settings		 <p>Settings for sensitivity, hold time and brightness sensor can be adjusted via potentiometer on site</p>	 <p>Two settings: 4-8m reach or 8-20m reach, time setting on site The pedestrian is detected when he crosses two zones.</p>
Mounting		Integrated in the pole of the bollard	Lateral mounting (96270238 MOVU PIR MLE MAX8-20M 30KM/H W4M): fixed with 2 screws on the pole at 3-4m high Post top mounted on 60mm spigot 3-4m pole for LED luminaire with a spigot D60mmxH<85mm (96270238 MOVU PIR MPT MAX8-20M 30KM/H W4M), can be positioned in all directions
OLC Single - single detection		Yes	Yes
OLC Group - multiple detection	Pilot line	Yes	Yes
	RF/PL	No	Yes
Project constraints		If more than five bollards are mounted on the same pilot line, a relay in the electrical cupboard is required	Up to 15 luminaires are available on the same pilot line on request. Beyond this number a relay in the luminaire or board would be required.
Products proposed		Adelie Bollard slim, Orus LED	5-8m high columns with fixing holes. Any LED luminaire. Standard codes proposed for Plurio LED, Oxane, Isaro LED, Christian IV LED, Avenue F LED, EP145, Legend LED, Dyana LED. 3.5m decorative column. Any LED luminaire with a spigot D60mmxH<85mm. Standard codes proposed for Plurio LED, Oxane, Isaro LED, Christian IV LED, Avenue F LED, EP145 LED.

Pedestrian detection	Vehicle detection
	
<p>MovU PIR Integrated</p>	<p>MovU Radar</p>
<p>Infrared motion sensor (warm moving objects)</p>	<p>Radar (fast moving objects)</p>
 <p>Pedestrians, cyclists, slow cars up to 30 km/h (when warm)</p> <p>Cycle lanes, paths, minor streets, pedestrian crossings</p>	 <p>Vehicles, cyclists from 4 km/h up to 150 km/h</p> <p>Secondary roads</p>
 <p>26m detection zones for a 6m high installation</p> <p>L113m on each side, road width: 7m, 2,5m behind luminaire, luminaire at 6m high Integrated in the luminaire, below or equal to 6m</p>	<p>L100 - 200m, directional</p>  <p>Fixed with a little bracket on the pole at 3-5m high. Bracket delivered in the box.</p>
<p>Yes</p>	<p>Feasible, questionable relevance (timer needed for temporisation : 96271077)</p>
<p>Yes</p>	<p>Yes</p>
<p>Yes</p>	<p>Yes</p>
<p>Up to 15 luminaires are available on the same pilot line on request. Beyond this number a relay in the luminaire or board would be required.</p>	<p>Up to 15 luminaires are available on the same pilot line on request. Beyond this number a relay in the luminaire or board would be required. Mist and heavy rain can affect the performance of the detector.</p>
<p>R2L2, Urba</p>	<p>96268881 MOVU VEHICLE RADAR MAX150M 120KM/H 230V. Compatible with any LED road lantern (R2L2, Oxane, Dyana LED, Urba)</p>

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