

## Specification Sheet

# LRM8140, ActiLume G2 RF Mov Sensor

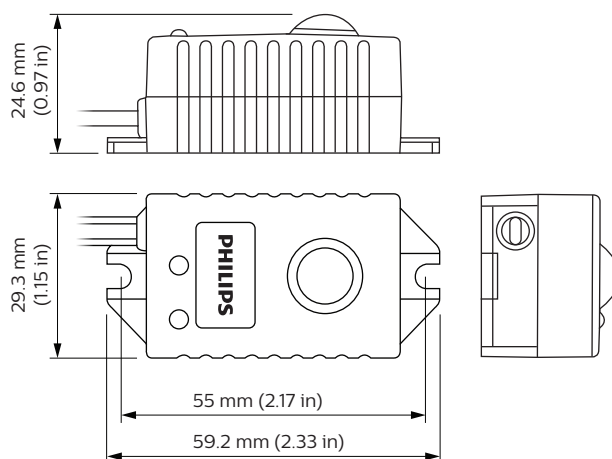
The “LRM8140 ActiLume G2 RF Mov Sensor” is a radio frequency (RF) radar motion detection sensor which is to be connected to an ActiLume Wireless DALI gen2 controller. Motion detection is achieved by means of transmitting a high-frequency (5.8 GHz) electromagnetic wave. The sensor receives the echo based on the Doppler effect (change in frequency caused by a moving object relative to its source). The sensor can detect motion through many dense materials, except for metal and high density reinforced concrete walls and ceilings, so the “LRM8140 ActiLume G2 RF Mov Sensor” can be installed behind translucent fixture lenses and waterproof covers. It is powered by the controller and will repeatedly trigger the controller upon movement detection. Besides the movement sensing function, the “LRM8140 ActiLume G2 RF Mov Sensor” device has an infrared (IR) sensor.

The IR sensor (receiver) can be used for manual control via an IR remote control and/or for commissioning and configuring of the luminaires. With the choice of covered material of the luminaire it has to be assured that the IR reception is possible.

### Features and benefits

- The Philips ActiLume G2 RF Mov Sensor is a luminaire based detector designed for energy savings up to 75%.
- The ActiLume G2 RF Mov Sensor has two detectors (movement and infrared) in a small housing that can be easily integrated in both LED as well as fluorescent luminaires. It is designed as a ceiling sensor and can be mounted behind translucent fixture lenses or covers.
- The sensor is connected to the controller by means of a standardized RJ10 (4p4c) connector. The sensor is powered by the ActiLume Wireless DALI gen2 controller.
- Movement sensitivity is optimized for objects moving in a radial direction at speeds between 0.3 and 3.0 m/s. Higher (limited to 8.3 m/s) or lower movement speeds will reduce the sensitivity. In addition the movement sensitivity can be set, by means of a suitable Philips infrared remote, to 2 other levels (one setting for decreased and one for increased sensitivity).
- The movement sensor is not sensitive for air flows from for example ventilation channels.

### Dimensional drawing



LRM8140 sensor dimensions

### Applications

The ActiLume G2 RF Mov Sensor is best suited for hard surfaced areas such as parking garages, stairwells, cellars and so on. Please note that metal objects in the neighborhood of the sensor will decrease its sensitivity for movement detection. An additional consideration point is to prevent sensors facing each other as this may lead to interference even despite the fact that frequency hopping, within the operating band, is implemented in each sensor.

### Commissioning tool

The ActiLume G2 RF Mov Sensor forms an ActiLume gen2 system when combined with a ActiLume Wireless DALI gen2 controller. Once installed and commissioned the system functions stand alone. For commissioning an extensive infrared remote control is available.

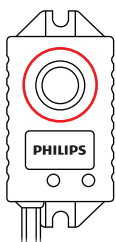
- IRT9090 extended IR programming tool (suited for commissioning and configuration)

### Philips quality

This ensures quality with respect to:

- System supplier
- As manufacturer of lamps, electronic control gear and lighting control equipment, Signify ensures that, from the earliest development stage, optimum performance is maintained.
- International standards
- Philips lighting control equipment complies with all relevant international rules and regulations.

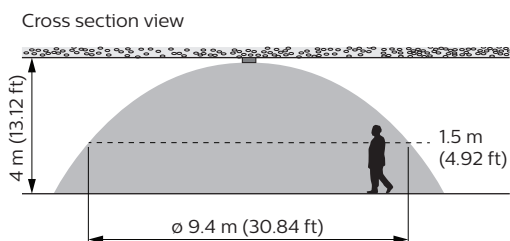
## Additional information and detection patterns



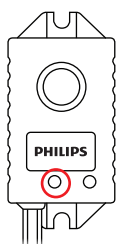
### Movement sensor

The sensor emits a cloud of waves from its front in a 360° circular field.

Sensor ceiling mounting height is limited to 4.0 m which implies that only part of the cloud is actually effective as it is being cut off by floors and/or walls. The following drawing represents the detection area when the sensor is mounted against the ceiling (facing downwards).



The sensitivity of the sensor can be modified, by means of a Philips IRT9090 remote control, to adapt to different circumstances. By default the sensitivity is set at 75% and it can be modified to either 100% or 25%. The shape of the emitted cloud will change proportionally.

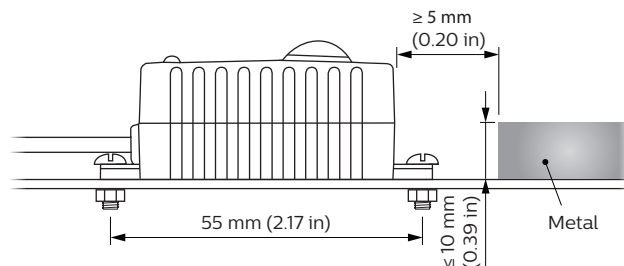


### Infra-Red sensor

The infrared sensor receives information (RC5 code) from infrared transmitters, such as the IRT9090, and passes the information on towards the connected controller and handled there. The IR sensor is capable of receiving signals under an angle of  $\pm 20^\circ$  (circular field).

## LRM8140 mounting

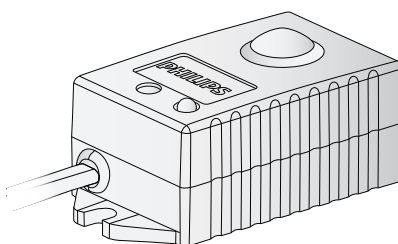
The ActiLume G2 RF Mov Sensor must be mounted against a sturdy non-vibrating surface. Usually a luminaire housing is well suited for this but take the first point, regarding a non-vibrating surface, into account and drill two,  $\varnothing$  3 to 4 mm, holes at a distance of 55 mm. Due to the technology used for movement detection, the sensor may be mounted behind a cover. Preferably use a non-dense material like plastic, polycarbonate or glass and avoid metal like coatings as these will decrease, or in worst case, block the emitted wave. To optimally benefit of the movement sensor capability also ensure that no metal objects are protruding more than 10 mm above the surface that the sensor is mounted against. This specifically applies for LED luminaires whereby the printed circuit board (PCB), on which the actual LEDs are mounted, contains a lot of metal tracks and acts as a metal sheet. When the sensor is used within fluorescent luminaires ensure that a distance of  $\geq 50$  mm between the actual lamp and sensor is observed.



Although the ActiLume G2 RF Mov Sensor is compliant with standards and regulations regarding EMC immunity, for both Wi-Fi and other high frequency signals operating in the 2.4 GHz and 5.0 GHz frequency band, the distance between the sensor and other transmitting devices should be  $\geq 2$  meter.

### LRM8140 ActiLume G2 RF Mov Sensor

A radio frequency (RF) motion detection sensor. It functions in combination with the ActiLume Wireless DALI gen2 controller. It is connected to the controller, by means of an RJ10 (4p4c) connector (for power and communication). It also has an infrared sensor that receives information (commands or settings) from a suitable infrared remote control.



# Specifications

## Sensors

motion	
technology	RF at 5.8 GHz $\pm$ 75 MHz
power	$\leq$ 5 mW
range (at 4 m height)* diameter	$\varnothing$ 9.4 m (measured at 1.5 m from the floor)
infrared	20° (circular field)
Cable length	1.0 m
Connector type	RJ10 (4p4c)
Power consumption	$\leq$ 25 mA at 5 Vdc
Dimensions (length, width, height)	59 x 29 x 24 mm (2.3 x 1.1 x 1.0 in)
Weight	33 g
Mounting height ceiling	< 4.0 m (typically 2.4 m)

## Housing

color	white (RAL9016)
outer material	Sabic lexan 143R
flame rating	UL94 HB
glow wire test	850 °C for $\leq$ 5 s extinction time
insulation for safety	$\geq$ 1500 V
ball pressure test	125 °C
surface texture	spark erosion VDI 3400 Ref. 27

\* sensitivity at 75% (see detection pattern drawing)

## Environmental

operational	
temperature	-20 to 70 °C
relative humidity	10 to 85% non-condensing
storage	
temperature	-25 to +85 °C
relative humidity	10 to 95% non-condensing
pollution degree	2
IP protection	IP20

## Compliances and markings

EU directives EC 1999/5	radio and telecommunication equipment electromagnetic compatibility restriction hazardous materials (RoHS) registration and restriction of chemicals (REACH)
EC 2004/108	
EC 2002/95	
EC 1907/2006	
Harmonized standards EN 300 440 EN 61 000-6-2 EN 61 000-6-3	Short range device EMC immunity EMC emission
Certifications CE marking ENEC marking	



### Packing data

Type	Box dimensions	Qty/Box	Material	Weight (Kg)	
				net	gross
LRM8140	59 x 29 x 25 mm (2.3 x 1.1 x 1.0 in)	12	Cardboard	0.033	0.050

### Ordering Data

Type	MOQ	Ordering number	EAN code level 1	EAN code level 3	EOC
LRM8140/00 ActiLume G2 RF Mov Sensor	12	9137 003 89103	8718696 569191	8718696 569207	569191 00

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