RF-Controller PIR E
RF luminaire controller with PIR
Art. no. 96628011

Application

The RF-Controller PIR E is a wireless controller for monitoring and controlling outdoor lighting fixtures. It is designed for pole mounting and works smoothly together with the different variants of the UrbaSens RF luminaire controller and the Gateway. Together they are building up a reliable, self-healing wireless mesh network suitable for outdoor luminaires located in different applications like "Roads and Streets", "Cityscape"; "Carparks" and others. The remotely programmable step-less dim and switch on/off schedules are suitable for luminaires with LED technology as well as for classic light sources connected to a standard DALI driver.

Furthermore, the controller provides the possibility for remote updating the installed firmware with the RF communication network without the need for technicians, being onsite.

An integrated PIR movement detection system covers the important street areas for a reliable detection of pedestrians, bicycles and cars to realize movement-based light controlling of single luminaires or groups. The "Moving –Light" functionality is an add-on with this device.

Design notes

The device has to be installed securely on the pole and the preinstalled 5m cable should be routed to the connection box of the luminaire through a hole in the pole. All needed installation material is coming with the RF Controller PIR E.

The antenna is integrated so there is no additional one necessary. The placement of the device should be decided with awareness of a good RF connectivity and the design and layout of the street.

Start up after power connection without commissioning. The powered Controller automatically starts communication with other reachable UrbaSens Controllers and Gateways. The default settings can be changed using a CMS connected to the Gateway.

The PIR sensor system is optimized for a height of 5m but could be used as well for others. Together with adjustable detection parameters and flexible mounting angles the RF Controller PIR E is adaptable to nearly all conditions.

Functional description

This controller sends data and receives instructions from the Gateway via Radio Frequency. Movement detection, current status, including malfunctions such as failed light sources, is reported over the radio frequency network to the Gateway and to the web where the details can be visualized using a CMS on a laptop, PC or other browser-based device.
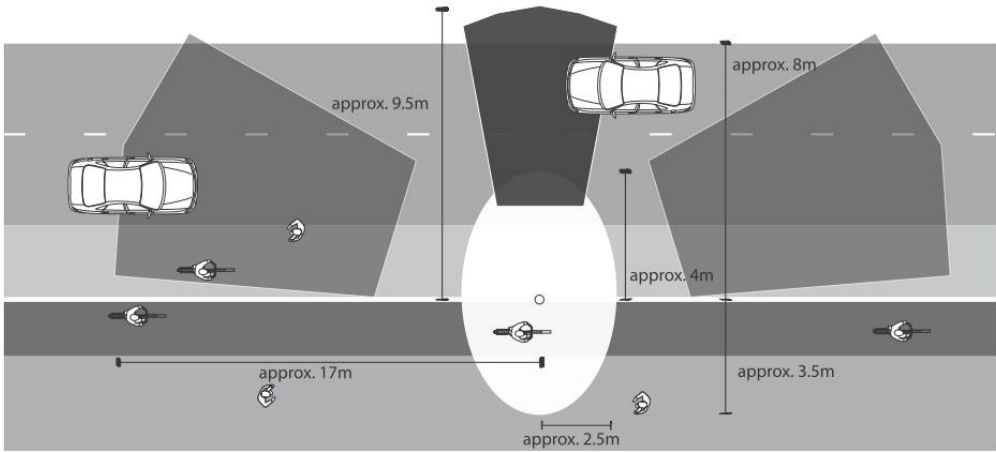
The RF-Controller PIR E has a DALI output through which drivers (and the light sources connected to them) can be switched on or off and continuously dimmed.

The built-in clock ensures that programmed switching points are executed autonomously even if communications are interrupted. In addition to absolute switching times (using the 24-hour clock) it is also possible to set relative switching times (before/after sunrise/sunset).

The included PIR movement detection system covers the important street areas for a reliable detection of pedestrians, bicycles and cars.

Diameter of motion detection

5 Meter Mounting Indicative Sensing Zones - Top View

approx. 9.5m

approx. 8m

approx. 4m

approx. 17m

approx. 3.5m

approx. 2.5m

Sensor by colour		Speed Range		
		Pedestrian	Bicycle	Car
	Center	2-8 km/h	2-35 km/h	20-110 km/h
	Front	2-8 km/h	2-35 km/h	20-110 km/h
	Left / Right	2-8 km/h	2-35 km/h	20-130 km/h

Technical data

Nominal input voltage	230VAC 50/60Hz
Permitted input voltage	207 - 253VAC 50/60Hz
Power consumption	<4W
Protection class	Class II electrical
Ambient temperature	-20°C to +70°C
Humidity	20% to 90% Rh non-condensing
Mounting	Pole mounting, 5m height
Ingress protection	IP65
Dimensions	100 x 125 x 95mm
Processor	ARM Cortex-M3 CPU
Real-time clock deviation	Max. 4 minutes/year
Electrical protection	Overload and short-circuit protection
Power / DALI/1-10V	4 core cable, length 5m
Default light level	100% (if not connected to RF network)
Default switching times	"ON" at sundown, "OFF" at sunrise
Wireless mesh network	2,4GHz IEEE 802.15.4 self-healing wireless mesh network +10 dBm max. transmit power. Up to 1km open field range
Proposed max distance between 2 RF devices	200m
RF controller to gateway ratio	200:1
Network security	128 AES and SSL, multilayer security with end to end encryption
Compliance	RoHS, CE, EN301489-1/3, EN61547, EN55015, EN300328, EN60950, EN50121-5, RF Transceiver compliant with European, US and Canadian (IC) standards
Sensor detection zones	See additional image