

LRM 8116/00

Movement Detector - Wide angle



General

The LRM 8116/00 is a wall mounted, micro-controller controlled based PIR (Passive Infrared) sensor designed for indoor applications. The field of view is 90°.

The integrated swivel bracket allows the installer to aim the sensor's head horizontally and vertically (tilt angle).

The LRM 8116/00 is equipped with a daylight override option. In case sufficient daylight is present, the sensor will hold the output signal (lights will stay off) until the natural light level drops below the user defined reference light level. This feature is disabled (factory setting).

The LRM 8116/00 is used in combination with an electric control unit (HELIO, SCENARIO, WireMaster, LightMaster or TRIOS)

Features

- Wide coverage pattern (15 x 15 m)
- Wide operating voltage range 12-24 VDC
- Easy to install and adjust
- Integral swivel bracket for wall mounting
- Digital time delay (adjustable between 1 and 35 minutes)
- Smart "false on" prevention
- Daylight override option
- Low current consumption, max. 10mA
- LED indicator, light flashes when the sensor detects motion, to verify proper placement and functioning.
- Attractive design

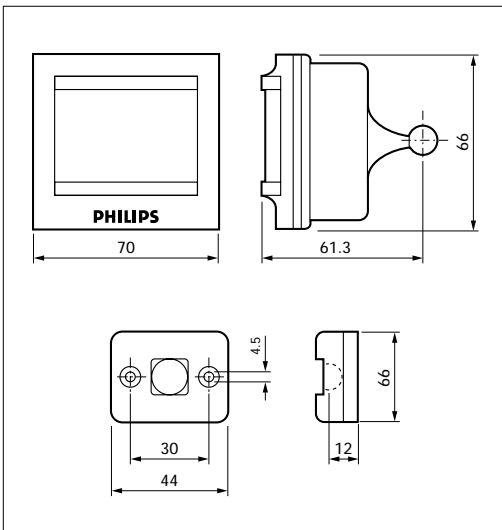
Application

The most suitable applications are in spaces where occupancy is infrequent or unpredictable.

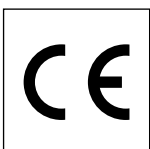
The LRM 8116/00 avoids energy waste from lights being on unnecessarily when spaces are unoccupied. When a lot of daylight is available, the daylight override option offers an extra energy saving.

The LRM 8116/00 is supplied with a *wide-angle* 90° fresnel lens and is ideal for use in offices, conference rooms, classrooms, storage areas and reproduction rooms, where it is not possible to use a ceiling mount occupancy sensor.

Because infrared occupancy sensors must have a direct line-of-sight to the motion, they should not be used where furniture, partitions or other objects are positioned between the sensor and the motion.



Dimensions in mm



Operation

Passive infrared occupancy sensors respond to movement of infrared sources, such as human bodies in motion. A special fresnel lens divides the field of view of the built-in sensor element into several sensor zones. When a heat source (human body) is crossing a zone, the sensor will respond (motion detected). The sensor's output signal can have two values:

1. Occupied (used by the controller unit to turn the lights on)
2. Un-occupied (used by the controller unit to turn the lights off)

Indication LED

The LRM 8116/00 contains a visible LED indicator. This LED is flashing when the sensor is actually detecting motion. The LED indication can be used to check the coverage pattern of the sensor after installation (walk test).

The LED can be disabled by setting DIP switch 4 to OFF.

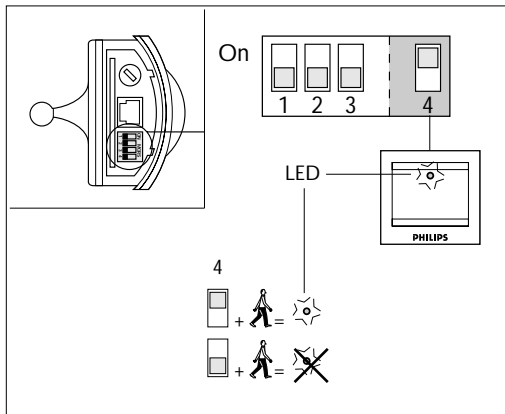


Figure 1 LED indication on/off

Power-up

After power-up, the indication LED is flashing for 15 seconds. During this "stabilisation" period, the output signal is set to "occupied". In case the sensor detects no motion at the end of this period, the output signal will set to "un-occupied" else the value of the output signal remains "occupied".

Time delay

The period between the last detected motion and the sensor's output signal is set to "un-occupied" can be set by means of DIP-switches.

Setting the time delay poses a trade-off between saving energy and avoiding occupancy complaints. Reducing the time will increase energy saving but will also increase the possibility of the lights being switched off while the room is occupied (in case of small motions). For most office applications a time delay setting of 10 minutes is recommended (factory setting).

DIP-switch setting for each time delay is illustrated in figure 2.

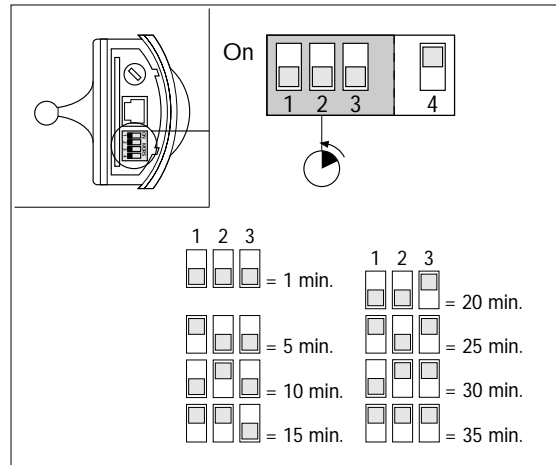


Figure 2 DIP-switch setting

Daylight override

The LRM 8116/00 contains a built-in photocell and a potentiometer to adjust the reference light level. If adequate daylight is present, the sensor will hold the sensor's output signal "un-occupied" (lights stay off) until the natural light level drops below the reference light level.

The daylight override function can provide an extra energy saving as complement to movement detection for areas with a lot of daylight ingress.

The daylight override option is not activated in the factory settings.

Daylight override calibration

Calibration of the reference light level must be made at a time when the artificial lights would normally be off due to adequate natural light. If this feature is not needed, leave the reference light level potentiometer at maximum (fully clockwise).

Step 1: Adjust the reference light level setting to minimum (fully counter clockwise). The sensor's LED starts to flash and the output signal is set to "un-occupied". As a result of this the controller unit will turn the lights off. This can take a while in case the delay timer of the controller is used. In that way it is recommended to set the delay timer of the controller to minimum and to use the delay timer of the sensor.

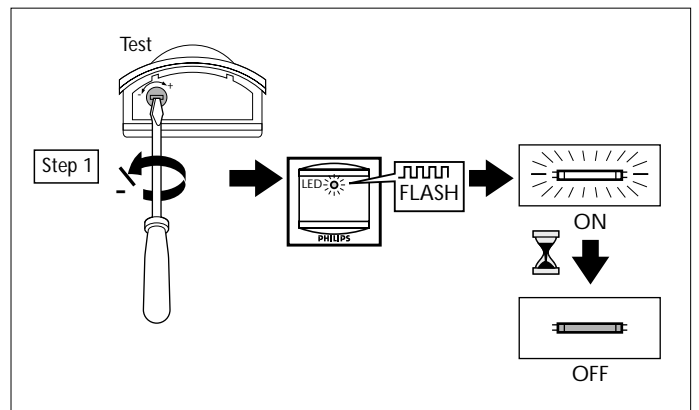


Figure 3 Daylight override calibration step 1

Step 2: Make sure your body does not cast a shadow on the sensor. Turn the reference light level setting slowly clockwise. The LED will switch off. Turn the potentiometer until the LED just switches on again with a low intensity. After a few seconds, the LED switches off and the sensor turns back to the normal operational mode.

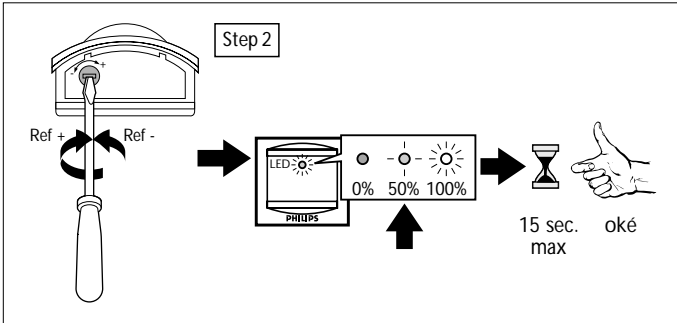


Figure 4 Daylight override calibration step 2

After calibration and during the occupied period, the artificial lights will stay off until the natural light level drops below the reference light level.

Note:

Auto switch off, during the occupied period, due to adequate natural light is not supported by the LRM 8116/00.

Coverage pattern

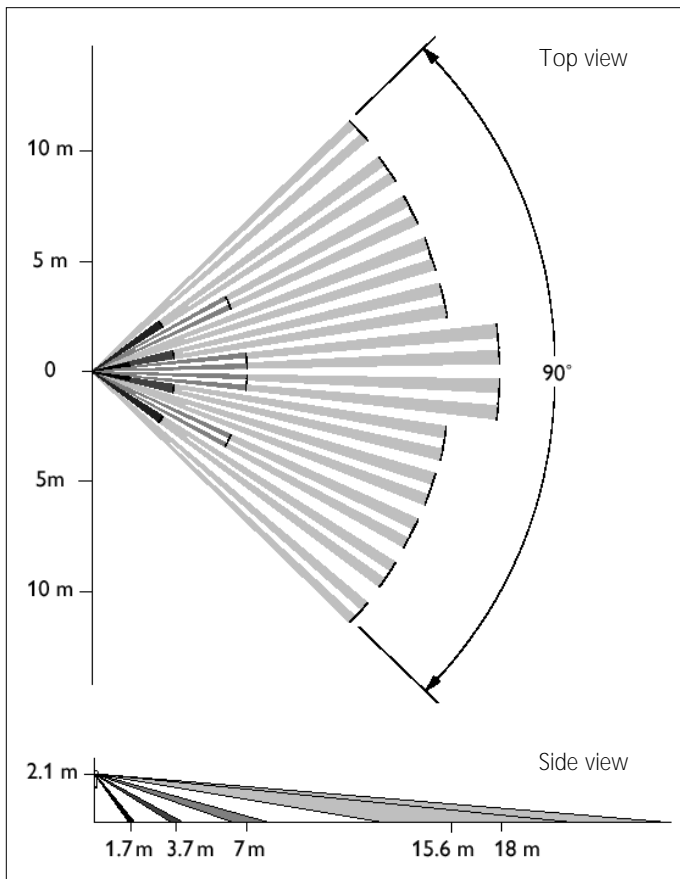


Figure 5 Coverage pattern

The LRM 8116/00 will cover up to 150 m² (maximum floor space that the sensor can monitor). The angle (field of view) within the sensor will detect motion is 90°.

Mounting

The LRM 8116/00 can be installed directly on a wall (surface mounted). For best detection it is recommended to mount the unit between 2 and 2,4 meter. Select the mounting location so that the expected motion will cross the beams of the coverage pattern.

To minimise "false on"

- Prevent direct sunlight from reaching the sensor
- Mount on stable surfaces
- Do not aim at heat sources
- Do not expose to air draughts

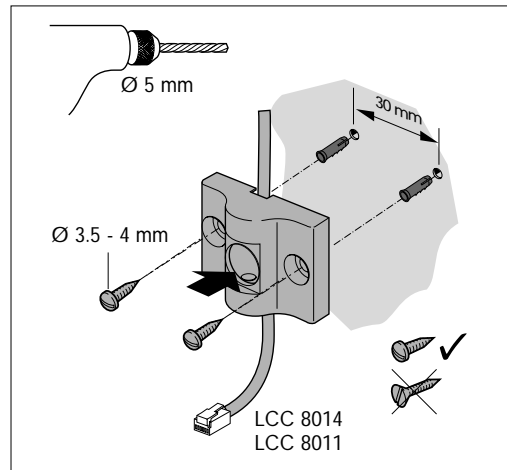


Figure 6 Mounting of swivel bracket

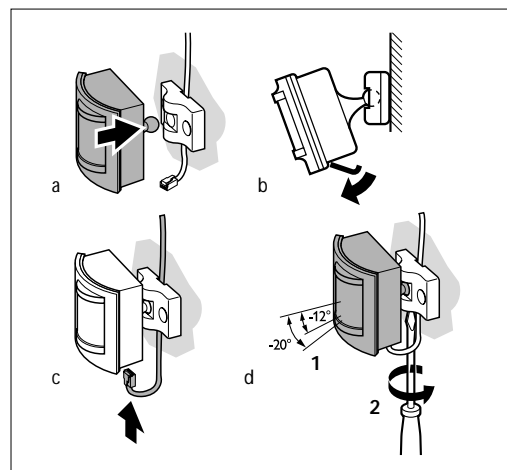


Figure 7 Mounting and connecting the detector

Connection cable

Hello, Scenio and Trios

The sensor can be connected to these control units by means of the standard sensor cables: LCC 8014 (5m) or LCC 8011 (1m). Extensions can be made with a LCC 8020 (5m) or LCC 8013 (20m) sensor cable.

WireMaster and LighMaster

These control units are supplied with a screw connector in stead of a modular jack entry. It is still possible to use the standard sensor cables, however one modular plug must be replaced by a input screw connector. For connections see figure 8.

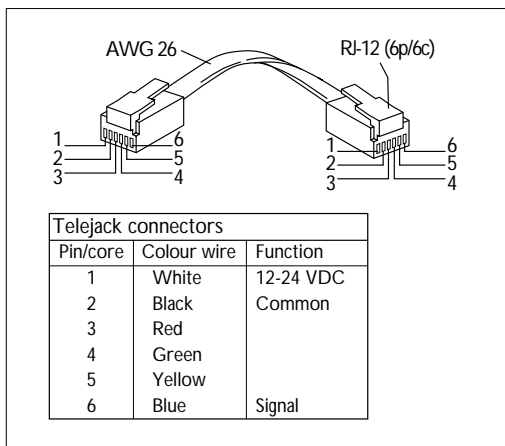


Figure 8 Sensor connection

Specifications

Electrical

Operating voltage 12 to 24 VDC ± 10%
 Supply current LED disabled 8mA (typical)
 LED enabled 10mA (typical)
 Output signal Open-collector output, normally open
 Max. 50mA sinking
 Diagnostics Red "walk test" LED (can be disabled by means of DIP switch)
 Time delay Digital time delay 1,5,10,15,20,25,30 or 35 minutes (selectable by means of DIP switches)
 Connector Modular jack entry for RJ12 modular plugs.

Optical

Detection pattern 90° wide angle lens with 22 beams in 4 detection layers. Maximum coverage is 15 x 15 m (150 m²)
 Daylight override Adjustable between 100 to 1000+ lux. This option is disabled and can be enabled manually.

Mounting

Mounting height 2 to 2.4 m for best coverage.
 Mounting bracket Swivel bracket adjustable:
 Horizontal: -40°+ 40°
 Vertical (tilt): -12°-20°

Environmental

Operating temperature 5°C to 50°C (RH 20% to 85%)
 Storage temperature -25°C to 85°C (RH 10% to 95%)

Housing

Colour White (RAL 9010)
 Material Polycarbonate
 Flame rate V0

Packing data

Type	Box dimensions (mm)	Quantity	Material	Weight (Kg)	
				net	gross
Unit box	81 x 72 x 73	1	card board	65 g	94 g
Outer box	230 x 180 x 160	12	card board	780 g	1128 g

Ordering Data

Type	MOQ	Ordering number	EAN code level 1	EAN code level 3
LRM 8116/00	12	9137 003 17103	87 11559 518 411	87 11559 518 428