

e-Multisensor AutoDim 1-10V

Stand-Alone motion sensor and light sensor for automatic light dimming

Product reference: MS.503200-000

e-Multisensor AutoDim 1-10V is a stand-alone multisensor which has an automatic light dimming system that ensures a constant light level on the installation at any time. It is a flush mounting device to install in suspended ceilings, designed for energy saving applications inside buildings, which includes a high sensibility motion sensor for occupancy detection and a light sensor for light level measuring.

The device switches on the lights depending on motion detection. Switching off the lights is performed by a timer that starts counting from the last valid detection.

Instruction Sheet



Product description

e-Multisensor AutoDim 1-10V is an innovative stand-alone multisensor with a motion and lighting sensor to perform a digital control to adjust an installation light level to a constant value, to get the goal of optimized energy installation consumption.

The device has a high accurate motion sensor to detect motion and switch on lights when the zone becomes occupied. When the lights are on, the device measures at any time light level

and reaches the preset intensity light value, guaranteeing an optimal light level and minimizing the energy consumption.

In order to be able to fully optimize energy saving functions, the device automatically switches off lights after a preset time that starts counting from the last valid detection.

The device has a special function to configure the minimum light level for LED luminaries.

Functional description

Motion Sensor

The motion sensor has a detection area defined on the device detection diagram section. The sensor length depends on the installation height and detection sensibility could be modified throughout a potentiometer which allows to adjust it to each kind of environment and avoids performing false detections. In stand-by, the relay output contact will be open and power won't be present on the output terminals L'-N, for that reason the lights will be off. Relay output will switch on when motion will be detected and at the same time lights will switch on to their maximum value. After a preset time from last valid detection, the relay output will switch off automatically. This switch off time could be predefined throughout a potentiometer. Position ON disables the motion sensor and the device can be used only as a light sensor.

When power supply is applied on the device, motion sensor requires a stabilization time while the device is in a non-detection state (refer to *Technical features*).

Light Sensor

Light sensor is measuring constantly the light level inside the defined area of the radiation diagram of the sensor. When the relay output is switched on, lights will switch on to their maximum value and device will start to perform the automatic constant light control until the lights will reach the pre-configured light level. Front pushbutton of the device is used to configure zone's lighting set point. Refer to Device configuration section to adjust the lighting set point.

Auxiliary Input

The device has an auxiliary phase commutation digital input (refer to installation diagram) which could be configured as a Scene mode (in switch mode) or dimmer (in pushbutton mode).

Scene function (switch mode), is used for example in meeting rooms to reduce light level when the user wants to show a projection, or to fix a light level on the hospital corridors during nights. When input sets to scene mode (switch mode), the input activation disables sensors functionality and

modifies the light level to a preset constant level. Light value could be set as required (Refer to Device Configuration). The input deactivation, enables again sensor functionality and lights will go back to preset set point.

Dimmer function (pushbutton mode) allows user to temporarily modify a zone light value manually, increasing or reducing light level as required. When input is configured on dimmer mode (pushbutton mode), by pushing it the light level increases until the pushbutton is released. Light level preset will be constantly maintained at any time in the zone, until lights will switch off because of no motion detected. When lights will switch on again, light level will reach again the preset value configured during the installation phase.

LED indicator

The build in LED indicator is a red light that blinks each time the motion sensor performs a detection. When any motion is detected, LED switches on and comes back to its stand-by state switching it off again when there is no motion detected. LED indicator can be enabled/disabled by using the front pushbutton on the device (refer to Device Configuration section). Default LED indicator state is enabled.

When device is supplied, led indicator remains switched on during the motion sensor stabilization.

LED indicator is also used to configure device parameters (refer to *Device Configuration*).

Front pushbutton

Front pushbutton is used to set the following parameters:

- 1) Relay output activation to verify its functionality
- 2) Enable/disable LED indicator.
- 3) Light level set-point configuration.
- 4) Auxiliary Input mode configuration.
- 5) Light level configuration for Scene function.
- 6) Minimum light level configuration.

Refer to *Device Configuration* section to set up different parameters.

Functional description (continue)

Potentiometer for detection sensibility adjustment

The device has a high accurate electronic circuit which allows high sensitive motion detection. Throughout a potentiometer located on the device side, it is possible to adjust the sensibility level detection.

Installer has to set the sensitivity level depending on the installation.

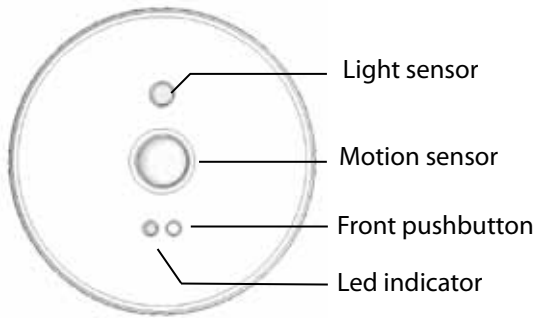
Potentiometer for time adjust to switch off lighting

The device has another potentiometer on its side to adjust time to automatically switch off the lights. The preset time starts to count down until the last valid detection, after that time the lights will automatically switch off.

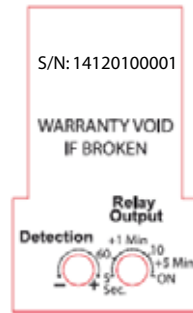
In ON position lights never switch off. This position is useful to disable the motion sensor.

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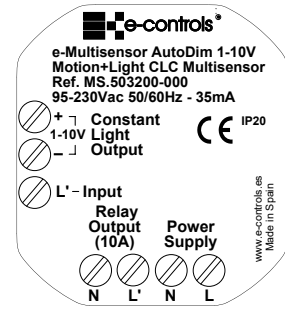
Front view



Side view

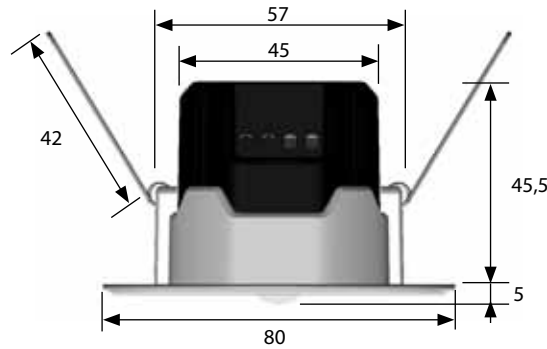


Rear view



(*) Graphs without scale

Dimensions

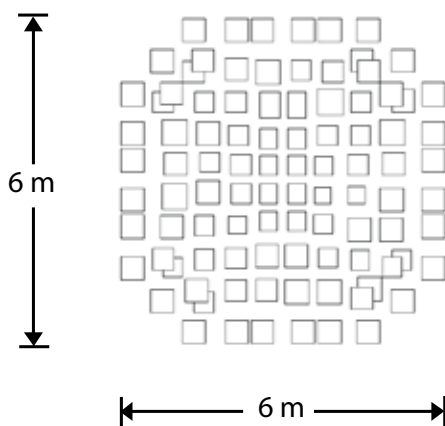


Units mm

Motion sensor

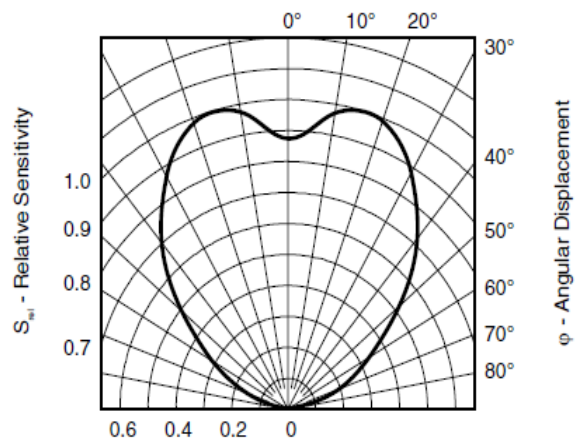
Detection diagram

Plan view (install 2,5 mts high)



Light sensor

Sensibility diagram



Front pushbutton functionality

Definitions:

- Short push: $t < 2 \text{ Sec.}$
- Long push: $2\text{Sec.} < t < 5\text{Sec.}$
- Extra Long push: $t > 5\text{Sec.}$

1) Relay output activation to verify its functionality

- Supply the device
- Set the auxiliary input in an open state
- Make a short press on the front pushbutton
- Relay output will activate for 5 seconds
- The LED indicator will temporarily switch on for 5 seconds

NOTE: the relay activation will only switch on if it is previously deactivate and if the auxiliary input is not switched on (in switch mode). The relay will switch on for 5 seconds, or even more if the motion sensor detects any motion.

2) LED indicator activation / deactivation

- Supply the device
- Set the auxiliary input in an open state
- Make a long press on the front pushbutton and release it.
- The LED indicator will be enabled or disabled depending on the previous configuration.

3) Auxiliary input configuration

- Scene mode (switch mode):

- Set the switch in a close state
- Press the front pushbutton and apply supply to the device
- The LED indicator will start blinking
- Keep pressing the front pushbutton for 2 to 5 seconds
- Release the pushbutton and the LED indicator will automatically switch off

- Dimmer Mode (pushbutton mode):

- Set the switch in an open state
- Press the front pushbutton and apply supply to the device
- The LED indicator will start blinking
- Keep pressing the front pushbutton for 2 to 5 seconds
- Release the pushbutton and the LED indicator will automatically switch off

NOTE: The auxiliary input is preset in scene mode (in switch mode) by default.

4) Light set point configuration

- Supply the device
- Set the auxiliary input in an open state
- Make an extra long press to enter in the configuration state.
- The LED indicator will start blinking when the device turns to configuration state.
- Keep the pushbutton pressed to modify light level. If the relay is not switched on, it will do it. The light level will start to raise up to the maximum and then will go down to the minimum level. Releasing the pushbutton and pressing it again before 30 seconds, the light level will change its direction, it means that it will increase if before was decreasing and it will decrease if before was increasing.
- Release the pushbutton when reached the desire light

level and move 5 meters away from the sensor to keep a clear space for configuring it.

- Wait for 30 seconds until LED indicator stops blinking.
- The configuration process terminates automatically after that 30 seconds and LED indicator switches on for 3 seconds recording the set point value on the device memory.

NOTES:

- If you wish to interrupt the configuration process without recording the set point, disconnect the device from the supply before finishing the last step. The relay will switch off automatically when the set point configuration finished and in case there is no motion detected.
- Device is configured with a set point value of 500 lux by default with a reflection coefficient of the incident zone of 80%.

5) Light value configuration for scene function

- Supply the device
- Set the auxiliary input switch to Scene function switched on (closed switch). Zone light level will reach the value set by default or the last value configured on the installation.
- Make an extra large press on the front pushbutton to enter in the configuration menu.
- Entering the configuration menu, the LED indicator will start blinking.
- Keep the pushbutton pressed to modify the light level on scene mode. While the pushbutton is pressed, the light level will raise up to the max value and then will go down to the min value. Releasing the pushbutton and pressing it again, the light level will change the direction, it means that it will increase if before was decreasing and it will decrease if before was increasing.
- Release the pushbutton when the desired light level has been reached.
- Wait for 5 seconds until LED indicator stops blinking.
- The configuration process automatically finishes after 5 seconds and the LED indicator switches on for 3 seconds recording the set point value on the device memory.
- By deactivating the scene function with the switch (switch open), the light zone level will come back to automatic preset value.

NOTE: The device is configured with a scene value by default corresponding to the minimum light value.

6) Minimum light level configuration

- Verify that the device has no power and switch off the Auxiliary Input.
- Press the front pushbutton and apply supply voltage.
- Keep the pushbutton pressed during 10 seconds to enter in configuration mode. The LED indicator will start to blink and lights will be switched ON.
- Keep the pushbutton pressed to modify the light level. The cycle will start at 1Volt and will increase up to the maximum value. After that it will decrease the value to 0V.
- Release the pushbutton when the minimum light level has reached the minimum value desired.
- Wait 10 seconds to leave the configuration mode and the LED will finish blinking.

NOTE: The device has a configuration value of 1V from factory.

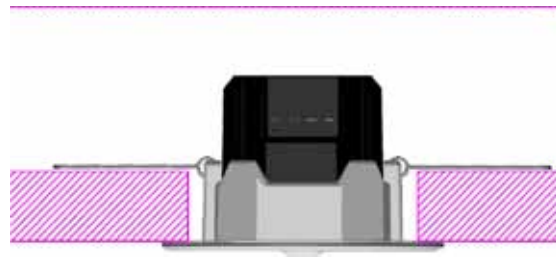
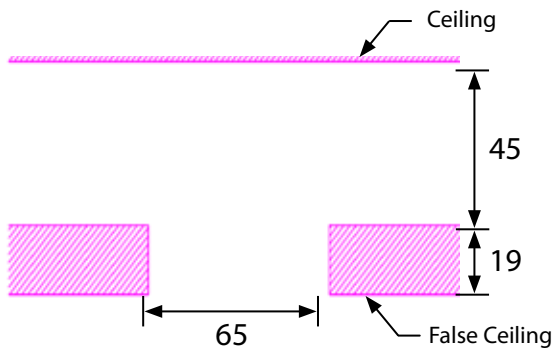
Mounting Instructions

1. Drill a 65mm diameter hole on the ceiling.
2. Connect wires on the correct terminals:
 - Connect the power supply in the L and N terminals.
 - Connect the L' and N relay output to the luminary terminals.
 - Connect the +/- terminals of the 1-10V output to the +/- terminals of the ballast or driver, respecting the polarity.
 - Optionally connect the auxiliary input to a pushbutton or switch depending on the installation requests.
3. Adjust the potentiometer of the relay switch on time placed on the side of the device, to the desired value.
4. Adjust sensibility detection potentiometer on the side of the device, to the desired value.
5. Clip the springs and insert the product into the hole, releasing the springs when placed in (see figure).

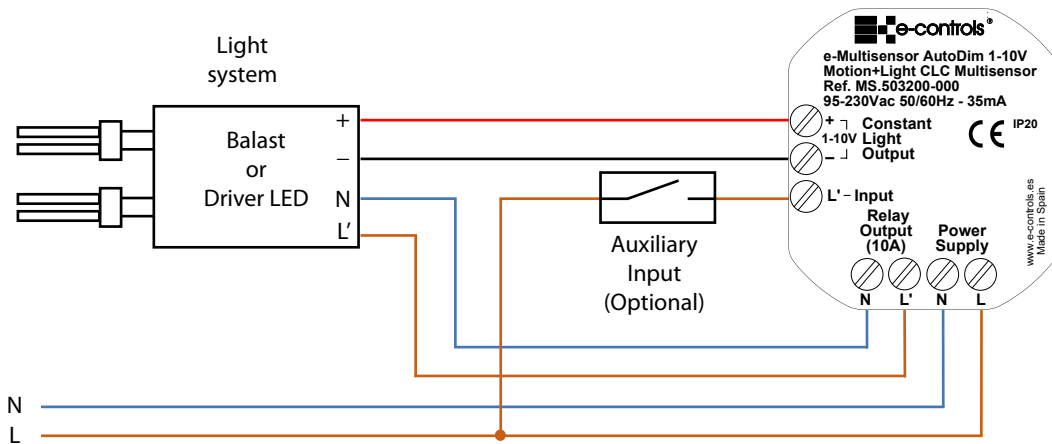
6. Power up the supply voltage. Check the relay output by short pressing the front Pushbutton.
7. Configure light set-point depending on desired level.

Caution

- The device can't be installed over shelves, behind curtains, near heat/cool air handling units and avoid direct sun radiation over the device.
- Disconnect the device from the power supply before mounting or moving the sensor.
- Do not leave cables peeled or turned around the device.
- Do not connect the device with the hands wet.
- Do not open or hole the device.
- Keep the device and cables away from humidity and dust.
- Clean the front cover with a water moisture soft cloth.



Wiring Diagram



Technical features

Supply Power

Operating Voltage 95-250Vac / 50-60 Hz
Operating nominal current 35 mA

Motion Sensor

Technology PIR (Infrared)
Number of pyro elements 4
Number of detection zones 88
Detection angle (X, Y) +/- 50°
Detection range (at 2,5mts from floor) 6 m
Maximum detection distance 10 m
Pattern detection See fig. 1
Max. time for stabilization 60 sec.
Output signal Relay (See Outputs)

Light Sensor

Sensor type Silicon phototransistor with built-in correction filter for visible radiation
Detection range 5 to 1000 lux
Range of spectral bandwidth 400 to 800 nm
Max. sensitivity wavelength 570 nm
Sensitivity pattern See fig. 1

Light Contact Output

Output type Relay
Max voltage output 250Vac
Max. current (resistive load at 250Vac) 10 Amp
Switching ON time Adjustable by potentiometer
Terminals L' - N

Output 1-10V Light dimming

Output type Analogic isolated
Output voltage 0 to 10V (*)
Tolerance +/- 0,1V
Isolating 1,5KV
Max current (Input or Output) 10mA
Dimming Levels 200
(* Minimum lighting setpoint configurable from 0 to 10V.
Dimming mode and Scene adjustable from 1 to 10V.

Auxiliary Input

Input type Phase conmutation
Contact Configurable switch or pushbutton
Terminals L'

Led indicator

Color Red
Indicación By motion detection
Pressing pushbutton

Pushbutton

Short push Activates output relay (5 sec)
Long push Device configuration

Relay switching time

Configuration By potentiometer
Time adjust 5 Sec to 30 min
Adjust resolution From 5 Seg to 60 sec: 5 sec
From 1 min to 10 min: 1 min
From 10 min to 30 min: 5 min
ON position Relay output always ON

Sensibility adjust motion sensor

Configuration By potentiometer

Mechanical Installation

Installation Flush mounting on ceiling
Fixing 2 metal springs
Hole diameter 65 mm
Max ceiling thickness 19 mm
Internal height on ceiling 45 mm

Mechanical features

Dimensions 80x50mm (ØxH)
Weight 80 gr
Color (front) RAL 9016
Enclosure material PP
Terminals Screw type
Wire section 0,5 mm² - 2,5 mm² (14 AWG)

Temperature

Operating 0°C to +50°C (32°F to 104°F)
Storage -20°C to +85°C (-4°F to +185°F)

Humidity (no condensation)

Operating 10% to 90% RH at 50°C
Storage 95% RH at 50°C

Product Family Standards

Automatic electrical controls for household and similar use.
General requirements.. EN 60730-1

CE Conformity

Low Voltage Directive 2006/95/EC
Electromagnetic Compatibility Directive 2004/108/EC
Marking CE

Safety

Standards EN 60730-1
IEC Protection Class Class II
Environmental protection level IP20

EMC

Emissions EN 61000-6-3
Immunity EN 61000-6-1

NOTES:

- 1) The device is not intended for use as part of a security system detector.
- 2) Installator should adjust the sensibility potentiometer to the environment where device will be installed, for an optimal detection of the motion sensor.
- 3) If device loses power supply with lights switch on, when it will recover power, lights will switch on during 1 second and then it will switch off until movement detection stabilization time would finish. After that time lights will switch on if movement will be detected.

Product references

e-Multisensor AutoDim 1-10V, Motion detector and light sensor with relay output and 1-10V output MS.503200-000
e-Multisensor Surface, Flush mounting box AC.000001-000

Related Documents

Wiring Diagram DEC
Configuration Manual DMCEN

The package of this product is considered as industrial packaging; intended for professional use only.
The manufacturer is not responsible of the incorrect installation or use of the products. Specifications are subject to change without notice.

