## Introduction

Light level maintenance (also called constant brightness or daylight harvesting) is a method used to control the light level in a building space, keeping it within a selected Lux range. It is typically used in an area where natural light also illuminates the area, such as near a window.

In the RAPIX Lighting Control System, light level maintenance is implemented separately from Zone on/off control for maximum flexibility. This allows light level maintenance to be used with motion sensor control and/or wall switch control, or for maintaining the level of just part of a larger Zone.
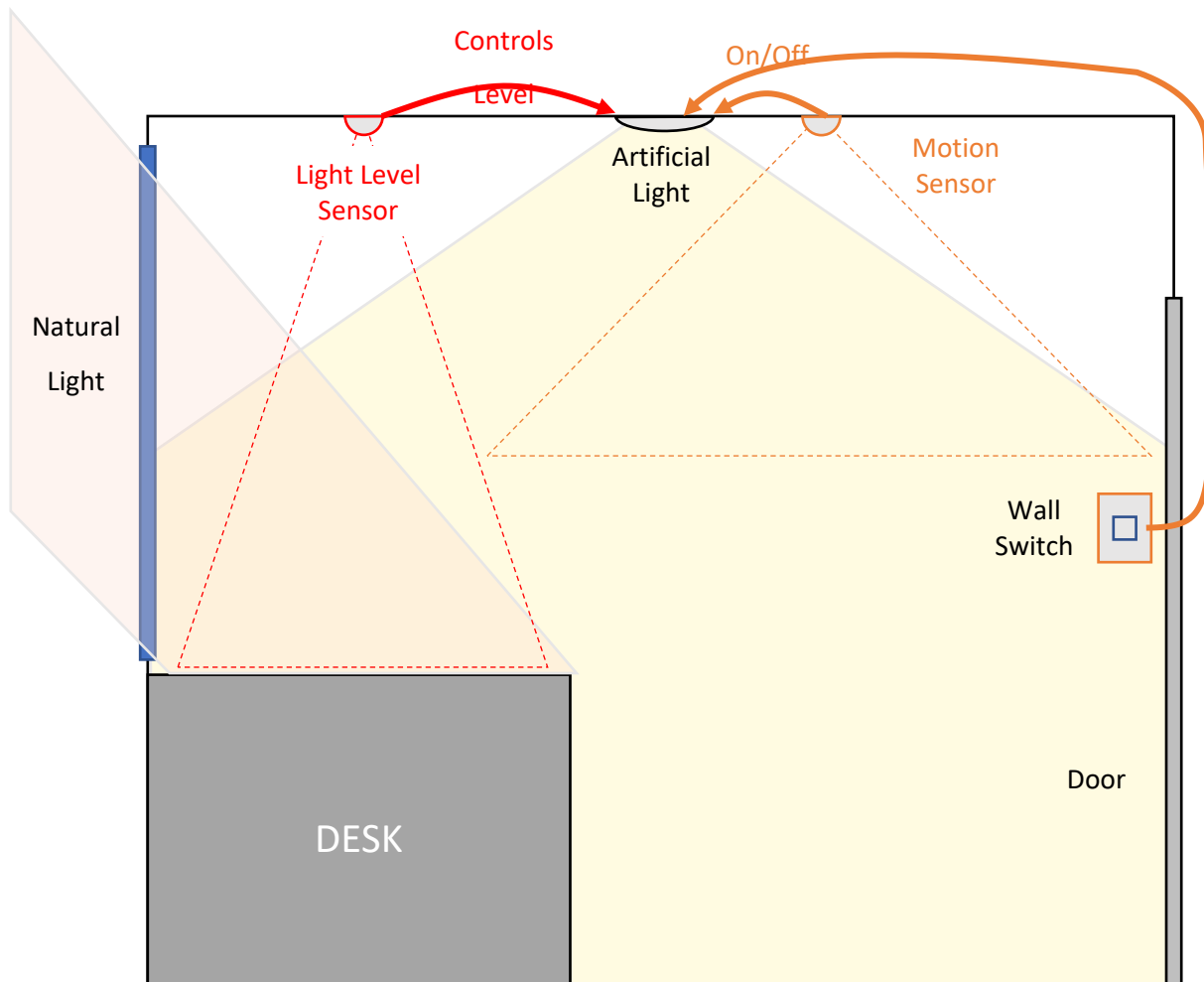
Typical use for light level maintenance

Zone On/Off Control

The on/off control of the light can be done with any of the RAPIX templates. For example, for basic occupancy control, the Motion Sensor template can be used.

Motion Sensor Template

Light Level Maintenance

The Light Level Maintenance template can then be used to control the level in the same Zone.

Light Level Maintenance Template

The Light level maintenance template does not switch the Zone on and off, it just controls the level while it is on.

If the measured light level is below the Target Level, then the brightness of the Zone will be increased until the measured light level is at the Target Level, or the Zone is at 100%.

If the measured light level is above the Target Level, then the brightness of the Zone will be decreased until the measured light level is at the Target Level, or the Zone is at 1%.

The hysteresis allows the light level to vary slightly around the target level before the Zone level gets adjusted. This prevents the light level from continually changing and causing annoyance.

Note that when the Zone is first switched on, there will be a delay of 30 seconds before the light level starts being adjusted.

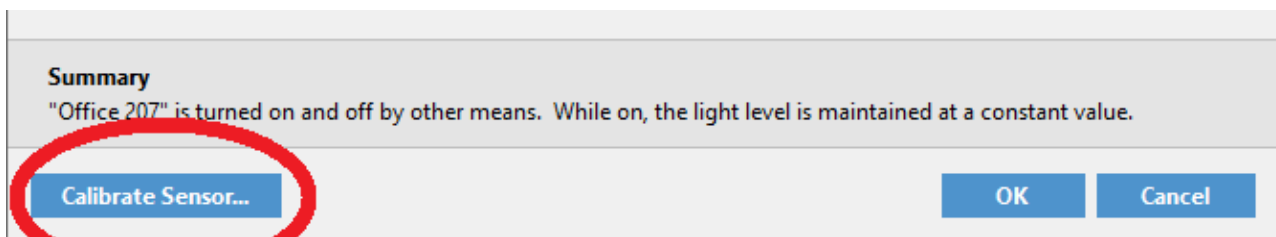When complete, the two template functions can be seen on the device editor:

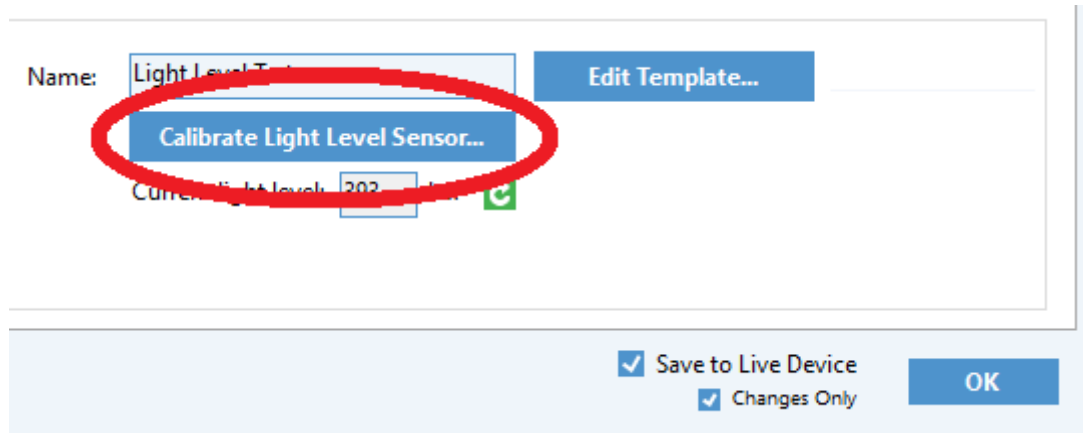*eHub*

Or:
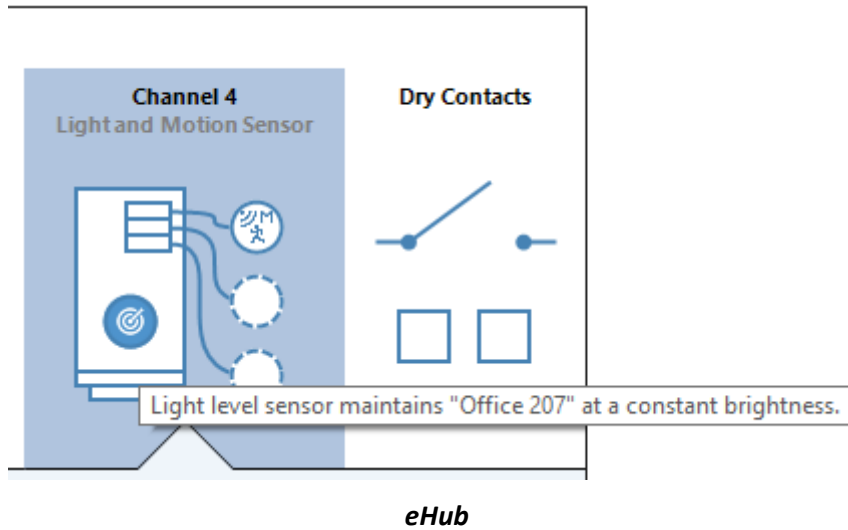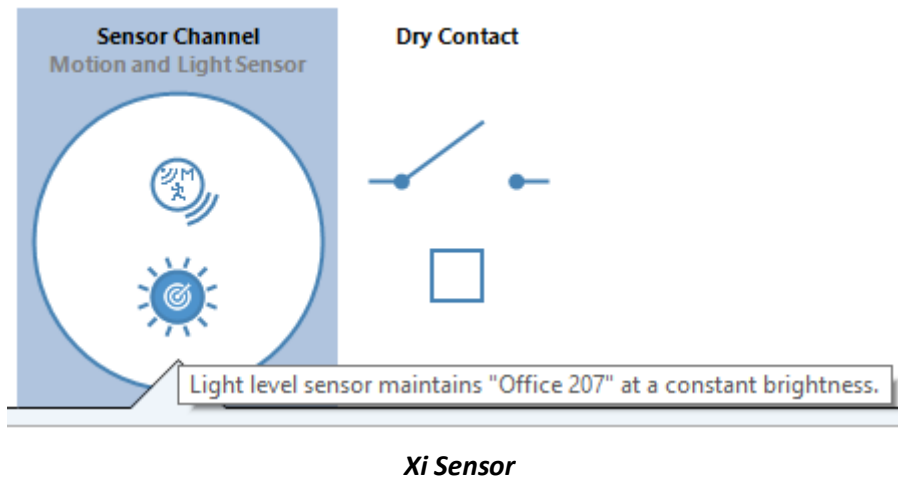
Xi Sensor

Calibration

To calibrate the light level sensor, place a light level meter on the surface (e.g. desk) where the light level is to be maintained. Click the **Calibrate Sensor** button on the Light Level Maintenance template, or device properties editor.
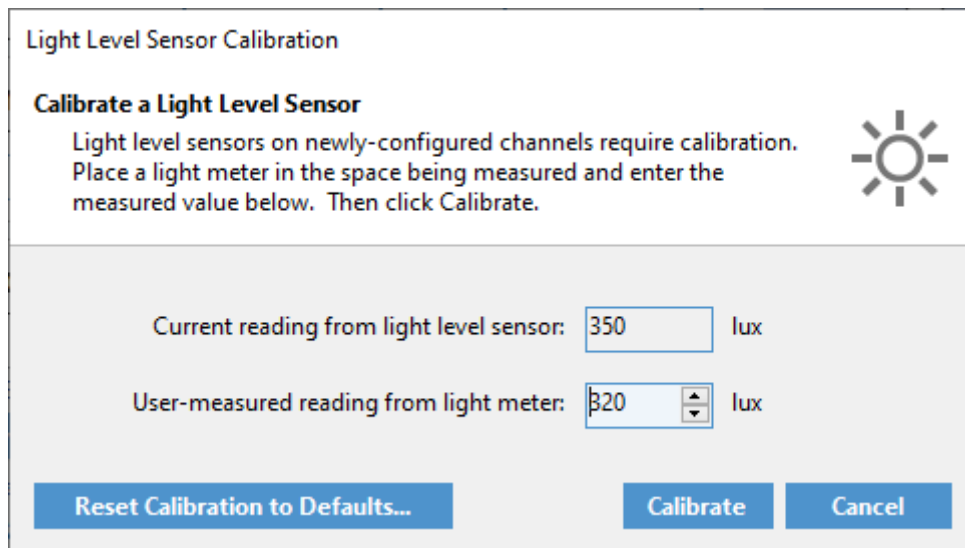

Light Level Maintenance Template Calibrate Sensor Button

Device Editor Calibrate Light Level Sensor Button

The Light Level Sensor Calibration form will be displayed:
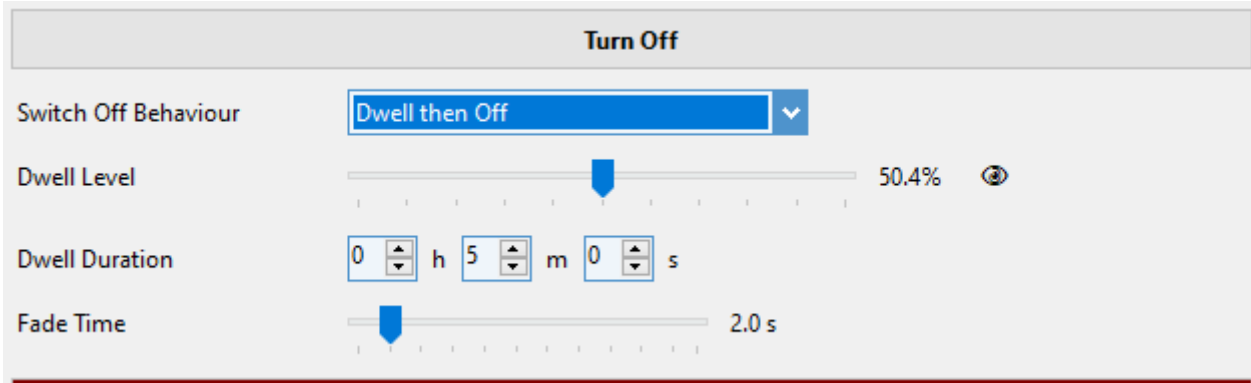

Light Level Sensor Calibration form

Enter the reading from the light level meter and click on **Calibrate**.

Conflict with Dwell Level

Problem

If the template used for controlling the Zone on/off state also controls the light level, then the two functions will compete to set the level with unintended consequences.

An example of this is when the Motion Sensor template has a dwell level selected when turning the Zone off.
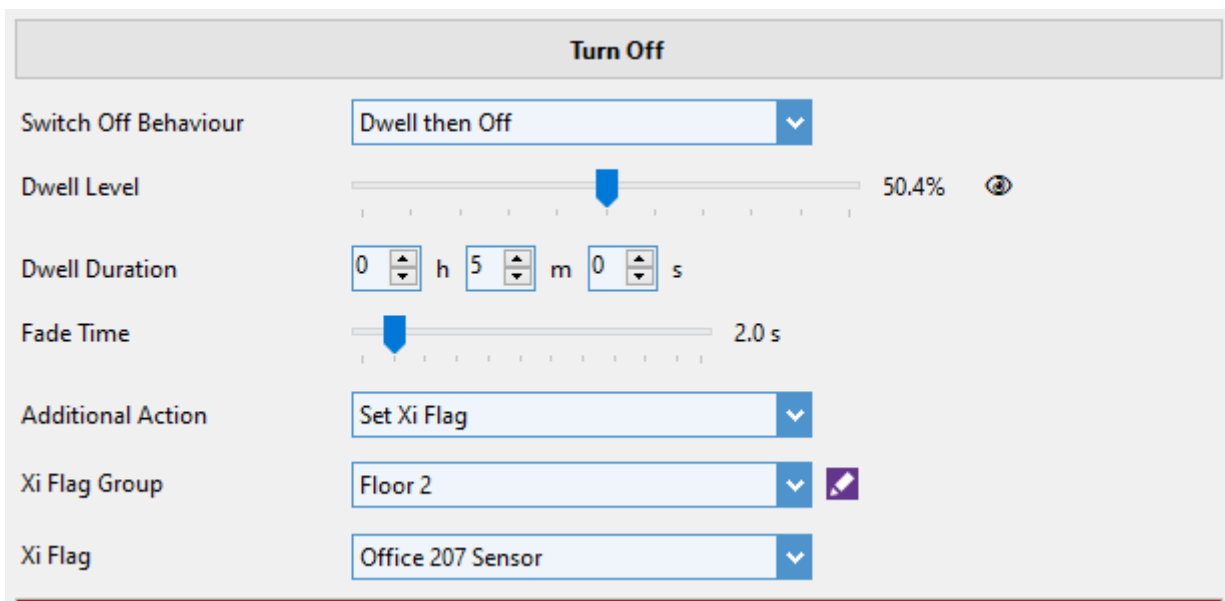

Motion Sensor template with dwell option selected

In this case, when the vacancy time is reached, the motion sensor will set the Zone level to 50%. The Light Level Maintenance template may detect that the light level is too low and increase the level again.

Solution

The solution to this problem is to disable the light level maintenance during the dwell using an Xi Flag. The Motion Sensor Advanced template is required for this. In the Additional Action, set an Xi Flag that will be used to disable the light level sensor.

Setting an Xi Flag during the dwell period

Finally, add a "rule" to disable the light level sensor when the Xi Flag is set:

Adding a rule to disable the light level sensor

General Notes About Light Level Maintenance and Dwell Levels during Switch Off

The conflict inherent in light level maintenance and dwell levels (during Switch Off) can be solved as shown using Xi Flags – which also need to be cleared when the lighting is manually switched on (this process is not shown here).

Alternatively, avoid using Dwell Levels during the switch off process.

Change History

Rev	Date	Updated By	Comment
1	9 Nov 2019	D. S.	First Release

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