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Introduction

Office lighting can be switched on and off by a presence detector. The presence detector allows a room’s brightness to be set to a certain value, e.g., 400 lux. Furthermore, it offers the option to over-ride lighting control to dim the lights or switch them on or off via a button or panel (in this example via a Tenton® SBC/U 10.0).

Fig. 1 Presence detector premium – 6131/31-500

Fig. 2 Tenton – SBC/U

Objectives of the document

This document is intended to help users to correctly parametrize and commission constant light control and explains how to correctly calibrate the brightness sensor (artificial lighting calibration).

Information on correct assembly of the presence detector can be found in the device’s product manual.
Content

1. Presence detector parameter settings

Fig. 1 Common parameters for the presence detector

1. Application
   This is where you select the application for the constant light controller.

2. Control starts at (%)
   This is where you input the brightness percentage at which the lights are switched on when a person enters the room.

3. Setpoint brightness (lux)
   The value that the lighting level must be adjusted to.

4. Light-on time
   The time between the last detected movement and the lights turning off. This countdown begins again if new movement is detected.

5. Extended parameters
   These parameters must be displayed to enable you to calibrate the brightness later on.
Fig. 2 Extended parameters for the presence detector

6. Use object for brightness calibration

This enables the group object for brightness calibration.

7. Exiting manual dimming mode after/Exiting manual off mode after

The time between the last detected movement and the reactivation of control.

1.1 Brightness detection parameters

You must select the daylight and artificial light adjustment for the “Correction of internal brightness” parameter in order to be able to correctly calibrate the brightness sensor and the artificial lighting later on. To prevent the calibrated values from being lost if the application program is downloaded again, the “Overwrite setting during download” parameter under the extended parameters can be deactivated if required.
## 1.11.3 6131/31-500 Presence detector premium > Brightness detection > Common parameter

<table>
<thead>
<tr>
<th>Application</th>
<th>Brightness detection</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sending of brightness, all</td>
<td>00:00:30</td>
<td>[hh:mm:ss]</td>
</tr>
<tr>
<td>Use object for LED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correction of internal brightness</td>
<td>with daylight and artificial light adjustment</td>
<td>[Output]</td>
</tr>
<tr>
<td>Fade in extended parameters</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

### Fig. 3 Brightness detection common parameters

## 1.11.3 6131/31-500 Presence detector premium > Brightness detection > Extended parameters

| Use internal brightness | no | yes |
| Number of external brightness measurement objects | [0] |
| Brightness output sends | Cyclic | Cyclic and during change |
| Alarm object | Is deactivated |

### Fig. 4 Extended brightness detection parameters
2. Linking the group addresses

Note: The switching point (button/panel) used to manually override control must be parametrized as a dimming button.

The presence detector sends the brightness value to be set to the actuator (e.g., DG/S or UD/S) via object “P1: Output 1.”

The object “Automatic/manual off” receives the request to activate/deactivate control or to switch off the lighting. The detector then sends the relevant brightness value to the actuator (0% or switch-on value).

In order to override dimming via the button, the button’s dimming object must be connected to the actuator’s dimming object as well as to the presence detector. Here, the brightness value to be set is sent from the button to the actuator (and not from the presence detector as is the case in a manual switch-on). The connection to the presence detector is used solely to deactivate control in this instance.
A fixed brightness value, e.g., permanent 100% brightness, can also be overridden in the same manner via a value sender on the button.

3. Calibrating the brightness sensor

3.1 Brightness adjustment (daylight)

We recommend that you carry out the measurement in sufficient daylight (> ½ * setpoint). Switch off any artificial light and open any blinds. Measure the brightness using a luxmeter in a defined location, e.g., on a desk pointing toward the ceiling. Wait until the brightness value is as constant as possible and send this value to the detector via the “BR: Brightness adjustment (daylight)” object.

**Caution!** When sending the brightness value you have measured, make sure that the right DPT (9.004 lux) is selected.
3.2 Brightness adjustment (output 1)

Completely darken the room. Switch the lights on to 100% and wait until the brightness value is constant. Send this value to the detector via the “BR: Brightness adjustment (output 1)” object.

3.3 Brightness calibration

A further step is necessary to complete the calibration. The curve of the connected lamps must be automatically measured independently of the controller’s output value. The lamps should be turned on before the calibration starts in order to achieve the best results. Calibration can begin once the measured brightness is constant, i.e., once the lamps have heated up. As in section 3.2, the room should be completely darkened.

Note: In order to ensure that the calibration runs properly, the actuator should be set such that it immediately sets the values it receives (dim time = 0).

The brightness calibration starts when an “On” telegram is sent on the “P1: Brightness calibration” object. The lamps are switched on to 100%. If the brightness value is constant after 60 seconds, the actual calibration process begins. The output values are now successively reduced in steps by 10% each time once the brightness value has become constant. When the measurement has been successfully completed, a “1” is output via the “P1: Brightness calibration” object and the process is completed. If the calibration cannot be completed within 6 minutes due to unfavorable lighting conditions (e.g., large fluctuations in brightness values), the measurement is canceled and a “0” is sent via the object.

Summary

It is straightforward to achieve simple constant light control with just a few settings by using a presence detector.

References to other documents

− FAQ Home and Building Automation
− Engineering Guide Database
− Product manual
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