# User manual

document version 3.0 | for DALIlux version fw 4.0 and higher
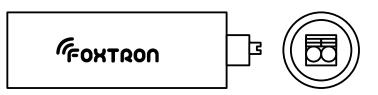
## DALIlux

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|---|---|
| | sensor for measuring illuminance |
| | regulation to constant level |
| | Up to 3 different illuminance levels in one group |
| | DALI2 protocol |
| | range 1-65535lx |
| | Powered from DALI bus |
| | Spectral sensitivity close to the human eye |

DALIlux is s universal illumination sensor and a lighting controller for constant illumination on DALI / DALI2. Switching on and off is possible from any DALI controller using standard DALI messages. It is possible to control to up to 3 different levels in one group. The setting is done using the DALI2 standard. It is possible to use DALIconfig, which is downloadable for free from www.foxtron.eu. DALIconfig also allows setting of extended parameters.

| Technical specification | | |
|---|---|---|
| bus | DALI | |
| number of regulated groups | 1 | |
| power supply (from DALI bus) | 4 | mA |
| maximal wires cross section | 1,5 | mm$^2$ |
| ingress protection degree | IP53 | |
| ambient working temperature | 0 ÷ 50 | °C |
| storage temperature | -10 ÷ 70 | °C |
| weight | 15 | g |

## Terminals connection



| designation | description |
|---|---|
| DA | DALI bus, two wires mutually interchangeable |

## DALI2

DALIlux includes DALI2 protocol and complies with standard IEC 62386 -103 and IEC62386-304.
According to the given standard it can send the illuminance value on the DALI bus with which the superior control systems work.

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## DALI2+

Above DALI2 standard an extension called DALI2+ is implemented in DALIlux which allows direct control and regulation of DALI lighting without the need to install a superior control system.

In DALI2 device is necessary to activate option „Application controller enabled" in order to be DALI2+ functions available.
To enable regulation the "Ambient light control" option in "DALI2+ parameters" setting has to be allowed.
The unit should be physically installed in the Gmain group so it is as little as possible affected by the light of the other groups.
Activation of regulation is started by sending standard DALI command "Go to scene"on one of the scenes which are configured with "Response to scene recall" parameter.
Command "Go to scene" must be addressed to the group of regulated lights or broadcast.

The regulation is automatically deactivated by the standard DALI command. Following DALI commands deactivates regulation:
Direct arc power, Off, Up, Down, Step Up, Step down, Recall max level, Recall min level, Go to scene. In the "Go to scene" command the control is turned off only if the "Response to scene recall" parameter is not set for the scene. Otherwise the regulation is turned on.

## Parameters settings

Main parameters of regulation are enough to regulate one (Gmain) group.

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| Ambient light control | Option to regulate to constant illuminance level. |
| Response to scene recall | Selection of scenes which will allow to turn of regulation. |
| Desired level | Desired illuminance level. |
| Control speed | Regulation speed. For common usage is default regulation speed 3. Lower number is faster regulation, higher number is slower regulation. |
| Switch-on level | First value sent on the start of the regulation. |
| Enable dimming off | If there is enough illuminance, it can turn lights off. If the function is disabled, even if there is enough illuminance lights will stay on minimum level. |
| Enable dimming on (Enable dimming off) | If „Enable dimming off" turns off the lights, then "Enable dimming on" turns them on again if illuminance fall under the desired level. |
| Treshold (Enable dimming off) | Percentage illuminance redundancy to activate function „Enable dimming off" For example 150% means 50% surplus. |
| Delay time (Enable dimming off) | Time of the desired redundancy state (Treshold) before lights are turned off. |
| Luminair group Gmain | DALI group, which will be regulated in the Gmain. |

In addition to the main group (Gmain), DALIlux allows you to control other 2 subgroups (Gside1 and Gside2). They can be controlled for constant illumination even though a lighting sensor is not physically installed in their space. The required light intensity is calculated from the parameters that define the light conditions in a given space. Note, that regulation in these groups can not be turned on and off independently on the Gmain.

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| | |
|---|---|
| Enable group Gside 1/2 | Regulation is enabled for the first or second subgroup. |
| Luminaire group Gside 1/2 | DALI group which will be regulated as a Gside1/Gside2 |
| Daylight ratio Gmain/Gside1/2 | Percentage of daylight increment in Gside1 / 2 vs. Gmain. For example, if daylight increment is in the Gside1 / 2 400lx group, then 80% in the Gmain 500lx group. |
| Illumin. Ratio Gmain/Gside1/2 | How many percent of the lighting are added by the fully lit Gmain lights to the Gside1 / 2 group area. |
| Illumin. Ratio Gside2/Gside1 | How many percent of the lighting are added by the fully lit Gside2 to the Gside1 group area. |
| Illumin. Ratio Gside1/Gside2 | How many percent of the lighting are added by the fully lity Gside1 to the Gside2 group area. |
| Illumin. Ratio Gside1/2/Gmine | How many percent of the lighting are added by the fully lit Gside1/2 to the Gmain group area. |
| Light device min. level | „Min level" value which is set in the DALI ballasts |
| Max illumin. by Gmain | Illumination value with fully lit lights without daylighting |

This values can be filled with DALIconfig wizard "Fugleman".  Which will provide you guide how and where to measure. Some of the parameters measure by itself.

DALI2 contains the „Input resolution" parameter whose value is not define by the standard and is specified by the manufacturer. DALI2+ extension allows to select this value by user.

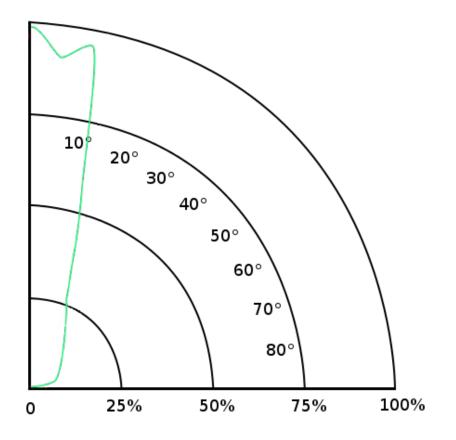| | |
|---|---|
| Input resolution | 10 bits are set by default, but it can be changed in the 10-16 bits range. |

## Installation

DALIlux sensor is installed on the wall using the mount kit which is supplied with the sensor. The location of the installation should be chosen with regard to the following recommendations:

- No light source (controlled and not controlled by sensor) should not directly illuminate the sensor.
- Sensed area should not be directed into the window.
- In the sensed area should not be shiny objects (glass, metal, etc.) which reflect would affect the sensor.
- In the case of multiple sensors installation in one room the sensed areas should not overlap.
- When regulating multiple group the sensor should be located in the Gmain which is the group with most daylighting
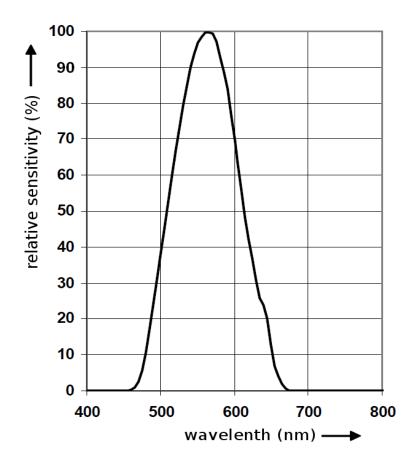
## direction sensor characteristic

### spectral sensitivity

In DALIlux sensor is used special chip which spectral sensitivity is very close to spectral sensitivity of human eye. The influence of IR and UV light is suppressed.

Another advantage is that sensor reliably works for all light sources (day light, classical light bulbs, fluorescent tubes, etc.) without the necessity of special settings.

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