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ESYLUX

Operating instructions

LS-FLAT mini KNX
ED10429002

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Table of contents

1 Using the manual

This manual is intended to provide valuable information to you as the user and integrator on how to use and configure the device and to take full advantage of the range of functions.

Please store this manual with your documentation for the premises for future reference so you can find the correct answer if questions arise.

If you have any questions that are still unanswered, please visit our website at www.esylux.com or contact our technical helpline directly on +49 (0) 4102 489 489.

- **This manual describes the ESYLUX – KNX light sensor LS-FLAT mini KNX (item number: ED10429002) plus the corresponding parameter configuration options using the ETS software.**

2 Safety instructions

- **WARNING: Work on electrical systems must be carried out by authorised personnel only, with due regard to the applicable installation regulations.**
- **Switch off the power supply before installing the system**
- **Please observe the installation instructions for the SELV protective measure**
- **Use this product only as intended (as described in the operating instructions). The device must not be changed or modified — doing so will void any warranty claims.**
- **You must check the device for damage immediately after unpacking it. If there is any damage, you should not install the device under any circumstances.**
- **If you suspect that safe operation of the device cannot be guaranteed, you must turn off the device immediately and make sure that it cannot be operated unintentionally.**
- **For the device to be used as intended, ensure that the UC network (or KNX/EIB) to be connected is designed for protection class 3.**

NOTE: This device must not be disposed of as unsorted household waste. Used devices must be disposed of correctly. Contact your local town council for more information.

3 Device description

The ESYLUX – KNX light sensor LS-FLAT mini KNX is a light sensor that measures the current light levels and transmits these values as a telegram to the KNX bus. The light sensor features a number of software parameters that can be figured depending on the application. The light sensor allows for the precise detection of light values and for lighting regulation/lighting control.

Please read through these operating instructions carefully and store them for future reference.

The detector does not have an integrated motion detection feature; it is therefore not a replacement for any motion or presence detectors.

4 Included in delivery

Please check the contents of the delivery immediately after unpacking the device.

1. Packaging
2. Quick start guide
3. Light sensor
4. Red micro terminal
5. Black micro terminal
6. Spring clamp
7. Locking ring
8. Screw
9. Torx tool
10. Address label
11. Magnet

5 Technical data

LS-FLAT mini KNX	
Power supply	KNX – 29 – 31V
Power consumption	6mA
Approx. dimensions	H 48 mm / Ø 33 mm
Protection class	III
IP protection type	IP 55
Contact type	Wago micro plug-in terminal
Permissible ambient temperature	-10°C to +50 °C
Installation type	Recessed ceiling mounting
Light measurement	mixed light
Weight	approx. 22 g
Remote controllable	YES

6 Maintenance

The device is maintenance-free. Repairs must not be made to the device in the event of any damage. In this scenario, please contact us via www.esylux.com or the technical hotline on +49 (0) 4102 489 489.

7 Cleaning

Dirty units may be cleaned with a dry cloth or a cloth that is slightly dampened with soap. Corrosive cleaning agents or solvents must never be used to clean the device as these can attack the plastic and impair the function of the device.

8 Mounting and installation

Physical installation

The light sensor is designed for recessed ceiling mounting. A hole with a diameter of 25 mm is required for this purpose (Fig. 1). The locking ring (Fig. 2) and the spring clamp (Fig. 3) are available to fix the device in place. The spring is screwed onto the top of the light sensor using the screw provided.

When selecting an installation location, make sure that the light sensor has a clear line of sight below and is not obstructed by plants, cabinets or room dividers, which may cause the measured values to be erroneous.

Please fill out the address label and attach this to the marked area on the device to enable allocation in the logical addresses.

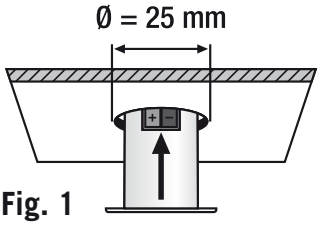


Fig. 1

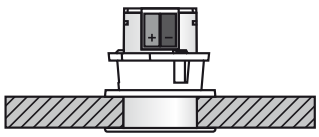


Fig. 2

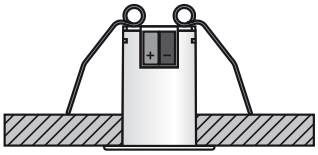


Fig. 3

Electrical connection

The light sensor draws its supply voltage exclusively via the KNX bus. The electrical connection is made via the two supplied terminals on the upper section of the housing. To make the connection, the wires are stripped by 5–6 mm and inserted into the relevant terminal. Use the red terminal for the (+) pole and the black terminal for the (–) pole of the KNX bus.

The terminals are connected to the contact pins in the opening in the housing. + and – are marked on the housing. Under no circumstances must there be a short circuit or a reversal of polarity.

Applying a voltage that does not conform with KNX may lead to malfunctions or irreparably damage the device!

9 System requirement

There must be a KNX bus system present that is supplied with a voltage source corresponding to the KNX standard. ETS software and a connection between the ETS and the KNX bus are also required.

The physical addresses, group addresses and parameters are specified and programmed using the ETS software.

10 Physical address

The physical address is also the device address within the KNX topology. To switch the device into programming mode, please hold the supplied magnet to the side of the housing marked with a magnet symbol. This opens the programming mode and the blue LED now illuminates constantly. As soon as the physical address has been specified via ETS or the magnet has been held up to the housing again, the indicator goes out and the device exits programming mode.

The factory default address is: 15.15.255.

Please make a note of the newly configured physical address on the label and attach the label to the device. This will assist you or others in subsequent system adjustments or troubleshooting.

11 Light measurement

The KNX light sensor can measure ambient light (reflection from the object below or in front of the sensor) with a precision of 1 lux in a range of 0 lux–10,000 lux.

At an installation height of 3 m, the light value is detected within a circular area with a
diameter of approx. 0.5 m.

12 Object description

Object 00 — Input: Lock light channel (length = 1 bit)
The switching/dimming outputs for the light channel are locked with an ON telegram and unlocked with an OFF telegram. Parameters can be set to determine the status of the light channel after locking and unlocking.

Object 01 — Output: Light channel state lock (length = 1 bit)
Feedback on whether the light channel is locked or unlocked.

Object 02 — Input: Light channel 1 manual ON/OFF (length = 1 bit)
Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if the parameter "With light processing disabled when locked" has been selected. Afterwards, the sensor switches to normal operating mode. The function is transmitted to communication objects 9/10.

Object 03 — Input: Light channel 2 manual ON/OFF (length = 1 bit)
WARNING: Essential when in semi-automatic mode!
Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if the parameter "With light processing disabled when locked" has been selected. Afterwards, the detector switches to normal operating mode. The function is transmitted to communication objects 9/10.

Object 04 — Input: Light channel 1 manual dimming (length = 4 bit)
Input for KNX touch sensors for raising or lowering the level of dimming. The light channel is manually overridden when writing to this object. The commands are forwarded to the dimming actuator via object 11. Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if "With light processing disabled when locked" has been selected. Afterwards, the sensor switches to normal operating mode.

Object 05 — Input: Light channel 2 manual dimming (length = 4 bit)
Input for KNX touch sensors for raising or lowering the level of dimming. The light channel is manually overridden when writing to this object. The commands are forwarded to the dimming actuator via object 12. Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if "With light processing disabled when locked" has been selected. Afterwards, the sensor switches to normal operating mode.

Object 06 — Input: Light channel 1 manual dim value (length = 1 byte)
Input to specify dimming values. The light channel is manually overridden when writing to this object. The values are forwarded to the dimming actuator via object 13. Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if "With light processing disabled when locked" has been selected. Afterwards, the detector switches to normal operating mode.

Object 07 — Input: Light channel 2 manual dim value (length = 1 byte)
Input to specify dimming values. The light channel is manually overridden when writing to this object. The values are forwarded to the dimming actuator via object 14. Manual operation is maintained when persons are present until the switch-off delay time has elapsed if "while presence" is set in the parameters. Light measurement is not active if "With light processing disabled when locked" has been selected. Afterwards, the detector switches to normal operating mode.

Object 08 — Input: Light channel trigger (length = 1 bit)
Input for the motion/presence detector (button or similar also possible) to start regulating/controlling the light channels.

Object 09 — Output: Light channel 1 ON/OFF (length = 1 bit)
If artificial lighting is required (target value set via parameter) and persons are present, the output sends an ON telegram to light channel 1. If natural light is sufficient and/or no persons are present, an OFF telegram is sent once the switch-off delay time has elapsed.

Object 10 — Output: Light channel 2 ON/OFF (length = 1 bit)
If artificial lighting is required (target value set via parameter) and persons are present, the output sends an ON telegram to light channel 2. If natural light is sufficient and/or no persons are present, an OFF telegram is sent once the switch-off delay time has elapsed.

Object 11 — Output: Light channel 1 dimming (length = 4 bit)
If a touch sensor is activated for an extended period (object 4), telegrams are sent to the dimming actuator via this object.

Object 12 — Output: Light channel 2 dimming (length = 4 bit)
If a touch sensor is activated for an extended period (object 5), telegrams are sent to the dimming actuator via this object.

Object 13 — Output: Light channel 1 dim value (length = 1 byte)
If persons are present and artificial lighting is required, the output sends telegrams of values.
If natural light is sufficient (controller to minimum) and/or no persons are present, the value is switched to 0% or to the value for orientation lighting once the switch-off delay time has elapsed.

Object 14 — Output: Light channel 2 dim value (length = 1 byte)
If artificial lighting is required and persons are present, the output sends telegrams of values to object 13 with the offset configured in the parameters.
If natural light is sufficient (controller to minimum) and/or no persons are present, the value is switched to 0% or to the value for orientation lighting once the switch-off delay time has elapsed.

Object 15 — Output: Light channel state regulation (length = 1 bit)
An ON telegram for "Start regulating".
An OFF telegram for "Stop regulating".

Object 15 — Output: Light channel state control (length = 1 bit)
An ON telegram for "Start controlling".
An OFF telegram for "Stop controlling".

Object 16 — Input: Light channel regulating lower light value (length = 2-byte float)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
Only active for the "regulating" light channel function.
With this object, the target value for light regulation while the application is running can be amended.

Object 16 — Input: Light channel set value control (length = 2-byte float)
WARNING: Only visible when provision of controlling parameters via telegrams is active.
Only active for the "controlling" light channel function.
With this object, the lower light value (limit value) for light control while the application is running can be amended.

Object 17 — Input: Light channel regulating of upper light value (length = 2-byte float)
WARNING: Only visible when provision of controlling parameters via telegrams is active.
Only active for the "regulating" light channel function.
With this object, the upper light value (limit value) for light control while the application is running can be amended.

Object 18 — Input: Light channel switch-off time (length = 2-byte float, second)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
With this object, the switch-off delay time for the light channel while the application is running can be amended.

Object 19 — Input: Light channel dim value on switching on (length = 1 byte)
WARNING: Only visible when provision of controling parameters via telegrams is active.
With this object, the dimming value when switching on the light regulation/control of the light channel while the application is running can be amended.

Object 20 — Input: Light channel maximum dim value step (length = 1 byte)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
With this object, the maximum dimming value amendment during light regulation/control while the application is running can be amended.

Object 21 — Input: Light channel minimal dim value step (length = 1 byte)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
With this object, the minimum dimming value amendment during light regulation/control while the application is running can be amended.

Object 22 — Input: Minimal dim value (length = 1 byte)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
With this object, the minimum dimming value during light regulation/control while the application is running can be amended.

Object 23 — Input: Maximal dim value (length = 1 byte)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
With this object, the maximum dimming value during light regulation/control while the application is running can be amended.

Object 24 — Input: Light channel step size (length = 2-byte float, second)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
Only active for the "regulating" light channel function.
With this object, the regulation time during light regulation while the application is running can be amended.

Object 24 — Input: Input control timing (length = 2-byte float, second)
WARNING: Only visible when provision of regulating parameters via telegrams is active.
Only active for the "controlling" light channel function.
With this object, the step time during light control while the application is running can be amended.

Object 25 — Input: Offset between light channel 1 and 2 (length = 1 byte)
With this object, the offset between the light channel 1 dimming value and the light channel 2 dimming value (objects 13 and 14) while the application is running can be amended.

Object 26 — Input: Light channel actuator feedback (length = 1 bit)
This object can be used to evaluate the status object of an actuator.

Object 27 — Input: Select orientation light (length = 1 bit)
Constant lighting regulation/control.
An ON telegram switches from orientation light value 1 to orientation light value 2, an OFF telegram switches from orientation light value 2 to orientation light value 1.

Object 28 — Input: Orientation light ON/OFF (length = 1 bit)
Constant lighting regulation/control.
An OFF telegram switches the orientation light function off, an ON telegram switches the function on.

Object 29 — Input: Orientation light 1 value (length = 1 byte)
With this object, the dimming value of orientation light value 1 while the application is running can be amended.

Object 30 — Input: Orientation light 2 value (length = 1 byte)
With this object, the dimming value of orientation light value 2 while the application is running can be amended.

Object 31 — Input: Light channel snooze function ON/OFF (length = 1 bit)
The snooze function is activated by an ON telegram and disabled by an OFF telegram.

Object 32 — Input: Cascading ON/OFF (length = 1 bit)
Cascading is activated by an ON telegram and disabled by an OFF telegram.

Object 33 — Input: Cascading dim value master (length = 1 byte)
If cascading is active, the sensor (when light regulation/control is in operation) forwards the value of telegrams received via object 33, provided the values are within the sensor dimming value limits.

Object 34/35 — Input: Cascading dim value offset (length = 1 bit)
If cascading is active, the offset is added when the master status (object 35) is set to "ON". If the master status is set to "OFF", the value from object 33 is forwarded without an offset being applied.

Object 36 — Input: Lock internal light value (length = 1 bit)
The internal light value is locked with an ON telegram and unlocked with an OFF telegram. When locked, the internal light value is disregarded.

Object 37 — Input: Factor internal light value (length = 2-byte float)
With this object, the factor by which the internal light value is multiplied can be overridden while the application is running (e.g. 0.5 = 50%).

Object 38 — Input: Offset internal light value (length = 2-byte float, lux)
With this object, the offset to be added to the internal light value can be overridden while the application is running.

Object 39 — Output: Internal light value (length = 2-byte float, lux)
The internal light value is output via this object.

Object 40 — Input: Lock processing of internal light value (length = 1 bit)
Processing of internal light value 1 is locked with an ON telegram and unlocked with an OFF telegram. When locked, this light value is disregarded.

Object 41 — Input: External light value 1 (length = 2 byte)
Input 1 for an external light value transmitter.

Object 42 — Input: Factor external light value 1 factor (length = 2 byte)
With this object, the factor by which external light value 1 is multiplied can be overridden while the application is running (e.g. 0.5 = 50%).

Object 43 — Input: Lock processing external light value 2 (length = 1 bit)
Processing of external light value 2 is locked with an ON telegram and unlocked with an OFF telegram. When locked, this light value is disregarded.

Object 44 — Input: External light value 2 (length = 2 byte)
Input 2 for an external light value transmitter.

Object 45 — Input: Factor external light value 2 (length = 2 byte)
With this object, the factor by which external light value 2 is multiplied can be overridden while the application is running (e.g. 0.5 = 50%).

Object 46 — Input: Lock actual light value (length = 1 bit)
Processing of the "actual light value" (input value) for lighting regulation/control is locked with an ON telegram and unlocked with an OFF telegram. Behaviour in the event of the value being locked is defined by the parameters configured.
The actual value is derived from: (internal light value * factor) + (external light value 1 * factor) + (external light value 2 * factor) + offset

Object 47 — Output: Lower limit for sending light values (length = 2-byte float, lux)
With this object, the lower limit value for sending the internal light value and the actual light value is restricted while the program is running.

Object 48 — Output: Upper limit for sending light values (length = 2-byte float, lux)
With this object, the upper limit value for sending the internal light value and the actual light value is restricted while the program is running.

Object 49 — Output: Internal actual light value (length = 2-byte float, lux)
Output of the internal actual value for lighting regulation/control.

Object 50 — Input: Switch internal/external actual light value (length = 1 bit)
This object is used to switch between internal and external. An ON signal sets the external actual value to active, an OFF signal selects the internal actual value.

Object 51 — Input: External actual light value (length = 2 byte)
Input for an alternative external actual value to be used for regulation/control. The conditions for switching between the internal actual value and the external actual value can be configured in the parameters.

Object 52 — Input: Internal/external actual value status (length = 1 bit)
This object defines which actual value is active. An ON signal sets the external actual value to active, an OFF signal selects the internal actual value.

Object 53 — Output: Actual light value (length = 2-byte float)
Depending on the configuration, the internal actual light value or the external actual light value is sent. The configuration is set by a parameter.

Object 54 — Input: Monitoring lock light value (length = 2 byte)
This object allows light monitoring to be locked. Behaviour when locked is defined by the parameters configured.

Object 55 — Input: Monitoring light value threshold (length = 2 byte)
With this object, the threshold value while the program is running can be amended.

Object 56 — Input: Monitoring light value hysteresis (length = 2 byte)
In this object, the hysteresis of the threshold value for light monitoring while the program is running can be amended.

Object 57 — Input: Monitoring light value logic (length = 1 bit)
Using this object, the light monitoring output can be logically linked. The logic functions are determined using the parameters.

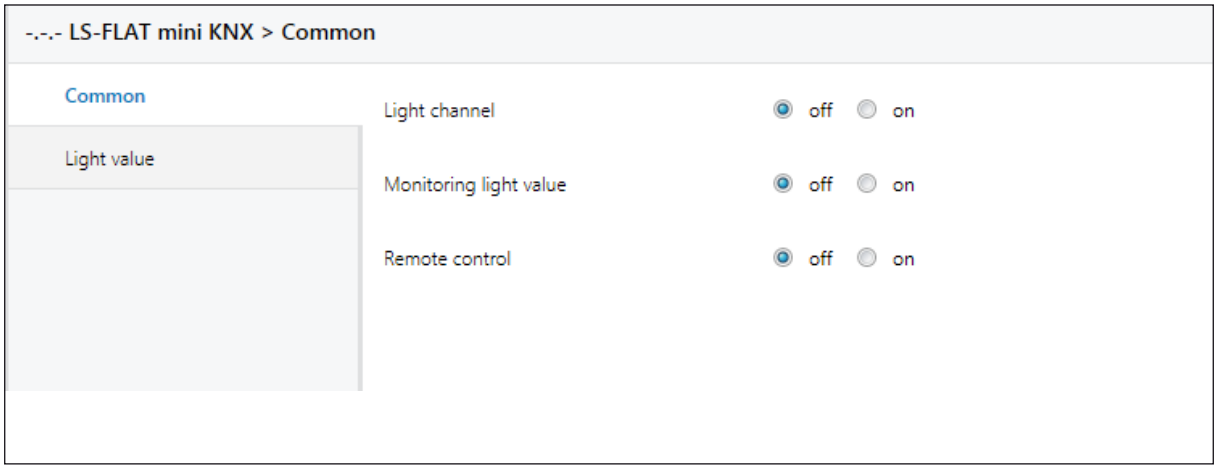
Object 58 — Output: Light value over threshold value yes/no (length = 1 bit)
Output from light monitoring. The behaviour can be configured in the parameters.

13 Description of parameters

In the parameters overview, settings of the relevant objects can be adjusted.

By hovering the mouse cursor over a description of a parameter, a tool tip is displayed that shows the default value of the relevant parameter. This can be useful if a manually amended value has not had the desired effect and you wish to reset the value. By hovering the mouse cursor over the parameter setting, the possible range of values is shown.

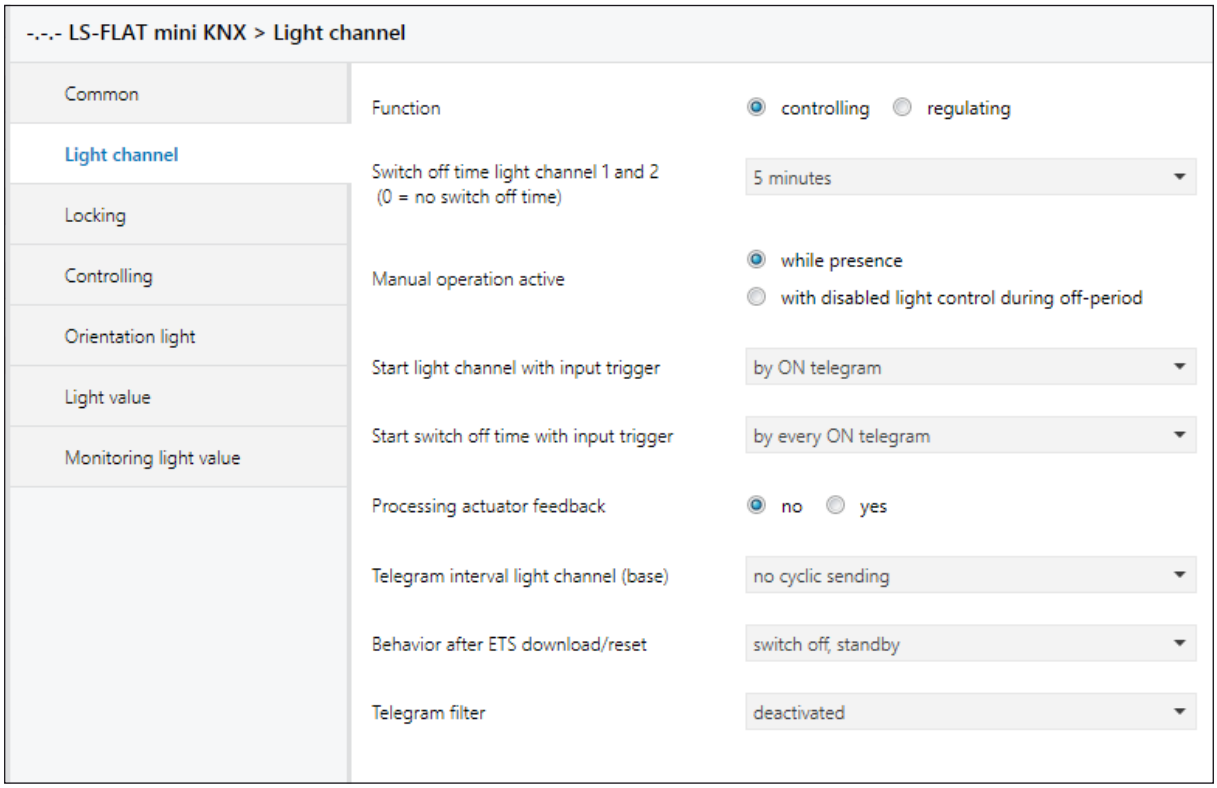
The start page of the parameter interface looks like this:



From this screen, you can switch on or off the light channel, light monitoring (twilight switch) and remote control.

14 Light channel

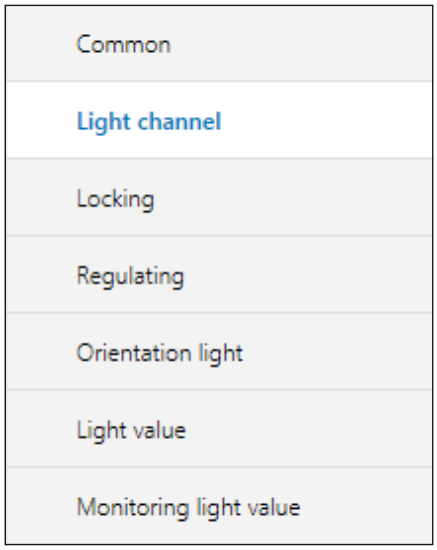
Click on the "Light Channel" menu item. The following screen is now displayed:



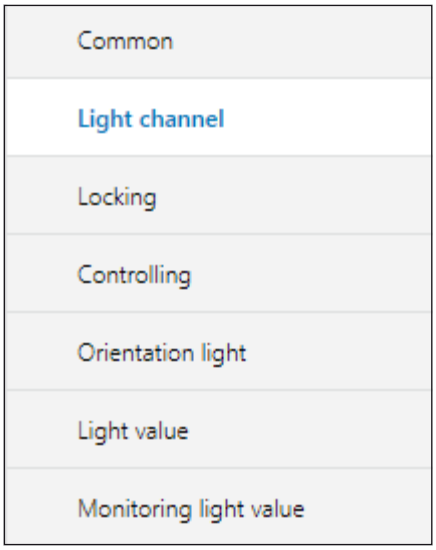
Controlling and regulating

Under "Function", you can choose between the "Controlling" and "Regulating" operating modes. The menu item on the left-hand side varies depending on the option selected.

Regulating:



Controlling:



The difference between controlling and regulating

In regulating mode, the actual light value is brought into line with and configured to the target light value using a PI controller. If the actual light value alters, the light levels are automatically re-regulated.

In controlling mode, the output is calculated linearly based on the actual light value.

Time setting (light)

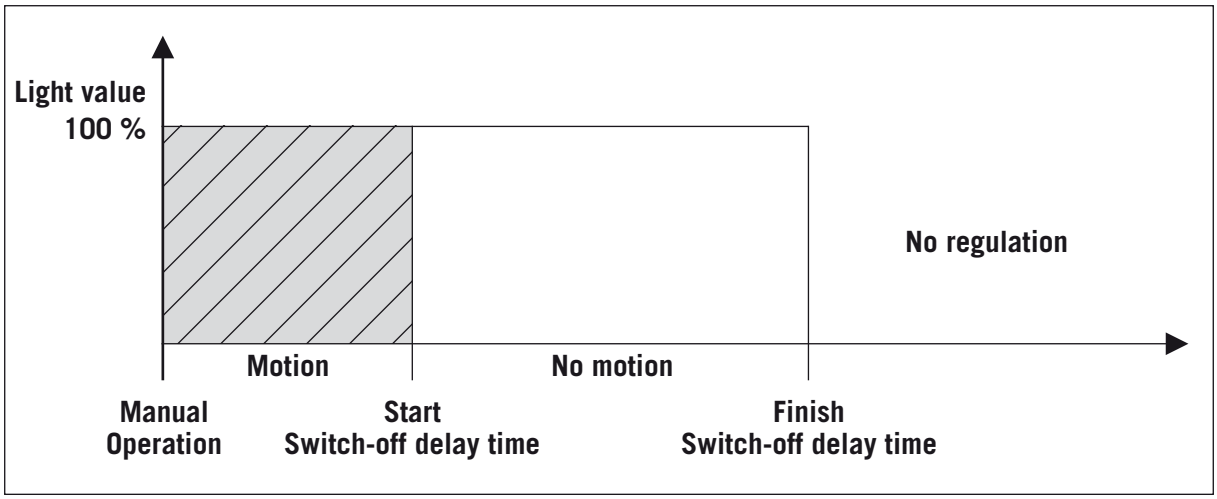
The switch-off delay time of the light channel can be configured here.
The value can be set from 0–30 minutes. 0 indicates no switch-off delay time. The shortest switch-off delay time is 30 seconds.

Manual operation

Available options are "Active during presence" and "With light regulation disabled when locked".

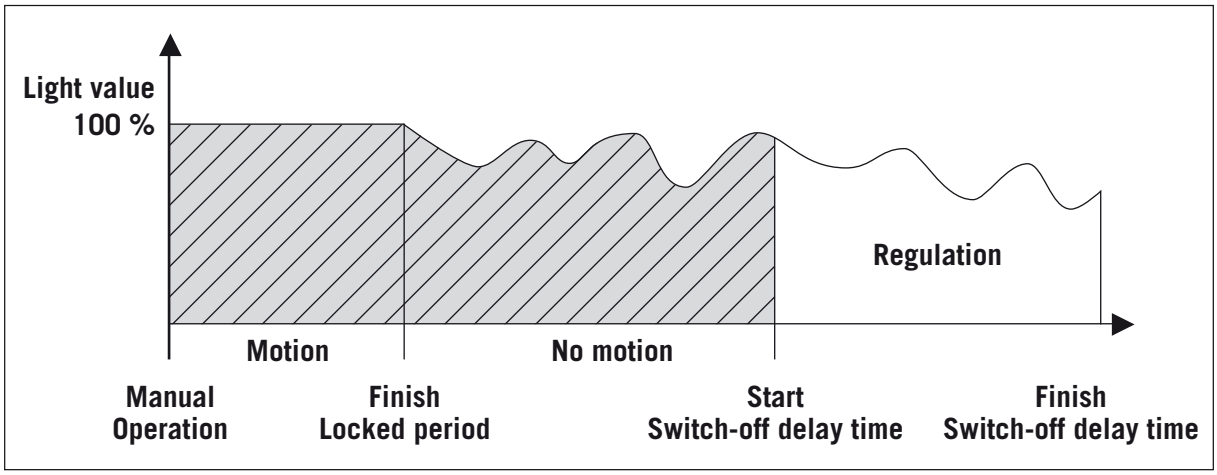
Active during presence

Can be operated manually. Dimming and switching possible.



With light regulation disabled when locked

When locked, light regulation is disabled. Dimming and switching possible.



Locked period after manual operation

The duration of the locked period after manual operation can be set to between 1 and 240 minutes here. 0 minutes indicated that regulation begins immediately.

Start light channel via trigger input

Regulation/control of the light channel can be started in a number of ways:

1. Via an ON telegram
2. Via an OFF telegram
3. Via any telegram
4. Start only via manual operation

Start of switch-off delay time via trigger input

The following options can be used to determine if the switch-off delay time (when the light channel is active) is to be reset (i.e. from the beginning again) and, if so, how:

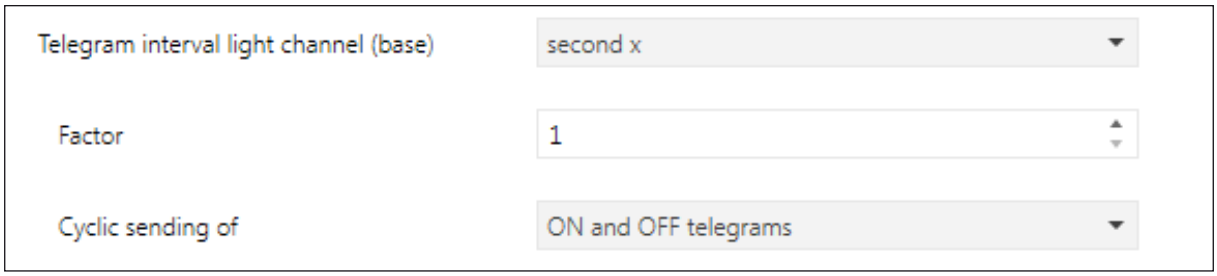
1. Only via first ON telegram
2. Via every ON telegram
3. Only via first OFF telegram
4. Via every OFF telegram
5. Via any telegram

Process actuator feedback

The feedback from the actuator can be evaluated by selecting "yes"; by selecting "no", it is not evaluated.
An ON telegram from the actuator switches on the light channel and begins the switch-off delay time.
An OFF telegram from the actuator switches the light channel back to standby mode.

Interval between telegrams for cycles

The interval at which the light channel transmits its status in cycles can be configured here. If sending in cycles is selected, a further field opens in which the interval between telegrams can be defined.



In this example, the factor is 1 with the unit set as "Second". Therefore the time interval is one second. The largest interval between telegrams is 24 hours.

Cyclic sending of

If telegrams are to be sent in cycles, you must select which types of telegram are to be sent:

1. Only OFF telegrams
2. Only ON telegrams
3. ON and OFF telegrams

Behaviour after ETS download/reset

The following can be defined:

1. No reaction
2. Send an ON telegram
3. Send an OFF telegram

Telegram filter

If you do not wish to send "ON" or "OFF" telegrams, this can be configured as follows:

1. Disabled
2. Send no OFF telegrams
3. Send no ON telegrams

15 Locking

In this section, the behaviour of the light channel when locked and unlocked can be configured.

Channel is locked by

The channel can be locked by either an ON telegram or an OFF telegram.

Behaviour when locked

The light channel can adopt the following behaviour when locked:

1. Switching off
2. Switching on
3. Sending telegrams of values

Value sent when locked

The value can be configured from 0% to 100% here.

Locking via a communication object while presence

It can be configured if the lock is applied immediately or after the switch-off delay time has elapsed.

Manual operation permitted when locked

Manual operation is forwarded to the actuator by the application.

Automatic locking after switch-off delay time

This parameter allows the light channel to be automatically locked as soon as the switch-off delay time has elapsed. The delay is specified in hours and starts after the end of the switch-off delay time. If 0 is specified, this function is disabled.

Automatic unlocking after

After locking, the sensor can be unlocked again after a delay that is specified here. The delay is specified in hours and starts after the detector has been manually or automatically locked. If 0 is specified, this function is disabled.

Behaviour on unlocking

The following behaviour when unlocked can be configured here:

1. No change, standby
2. Switch off, standby
3. Switch on, start switch-off delay time

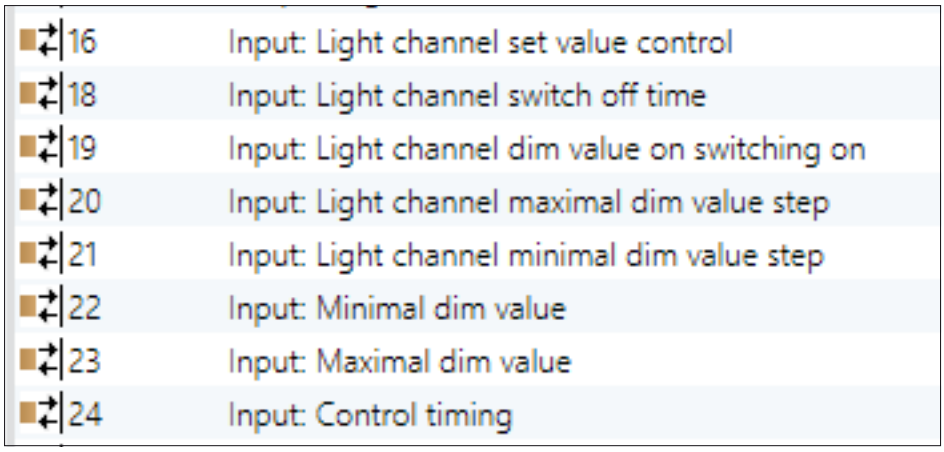
16 Controling

Target value

The target value in lux can be configured here. The target value is the value to which the light sensor regulates the lighting. If the value is set to 0, the function is disabled.

Specify controling parameters via telegrams

If the controling parameters are to be specified by telegrams while the application is running, "ON" must be selected here. The corresponding objects are then displayed.



Dimming value when switched on

The dimming value at which the light regulation/control starts can be specified in this parameter, regardless of the actual value.

WARNING: This is a dimming value in percent, not a light value.

Max. dimming value amendment

The maximum dimming value amendment can be configured here. This value is required alterations to dimming values occur that are either too large or too small.

Min. dimming value amendment

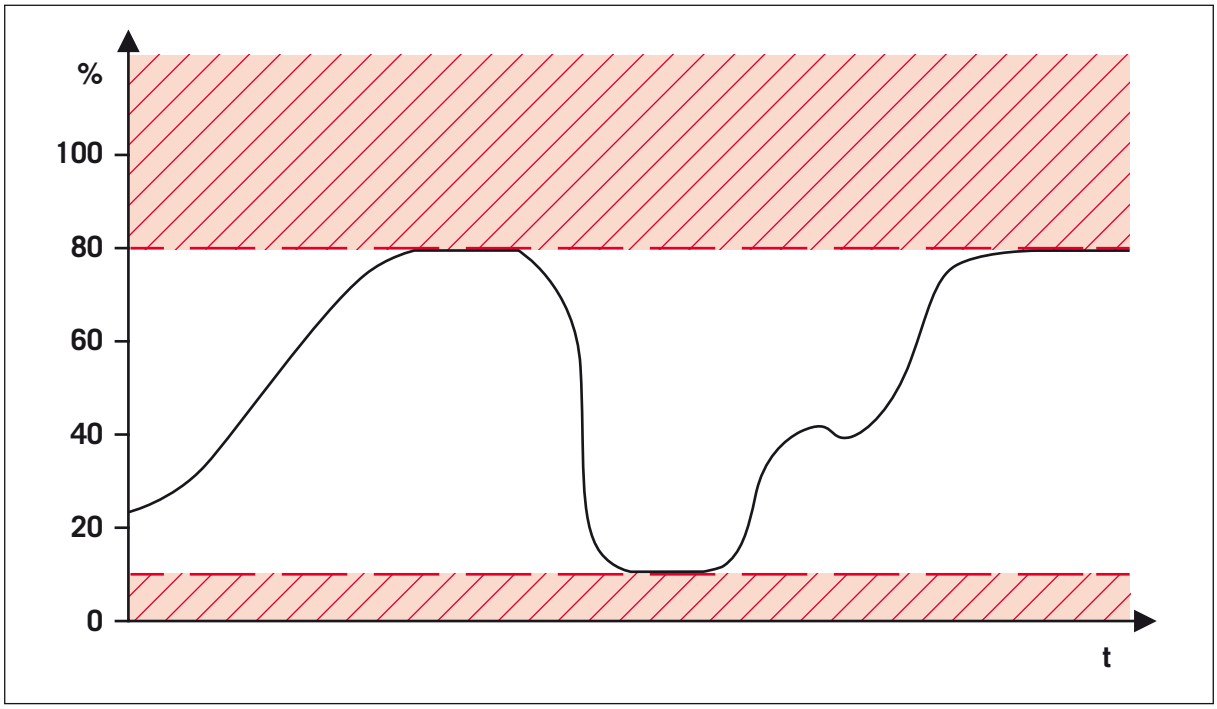
The minimum dimming value amendment can be configured here. This value is required alterations to dimming values occur that are either too large or too small.

Control times

The controling time describes the step time in which the controling is performed. The longer the controling time, the more gentle the controling. The controling time can be configured to be between 0.5 and 10 seconds.
The slower the lighting units react, the longer the controling time is to be configured for so as to prevent oscillating effects.

Dimming value limitation

A range of dimming values can be "cut off" both at the top and at the bottom.



Minimum dimming value

If it should not be possible for the dimming value to be below a certain value, a lower (i.e. minimum) dimming value can be specified here.

Switch-off light value (if min. dimming value reached)

If this value is exceeded, the light channel is switched off fully (0%).
WARNING: The minimum dimming value is therefore no longer active.

Maximum dimming value

If it should not be possible for the dimming value to be above a certain value, an upper (i.e. maximum) dimming value can be specified here.
WARNING: If the maximum value is below the minimum value, regulating is no longer possible.

Switch-on light value (if max. dimming value reached)

If the light value falls below this limit value, the light channel is switched on fully (100%).
WARNING: The maximum dimming value is therefore no longer active.

Light channel 2

A second light output from the light channel can be activated here. The second output is the same as the first output with the exception of the differences configured in the following parameters.

Difference between dimming values of light channels 1 and 2

The difference can be configured from -80% to 80% here. Depending on the configuration, channel 2 assumes the value from channel 1 with a positive or negative alteration as specified.

Snooze function

As a snooze function, there is the possibility of sending a specified dimming value if persons are present, instead of regulating the lighting.

Dimming value for snooze function

The dimming value to be sent when the snooze function is active can be specified here.

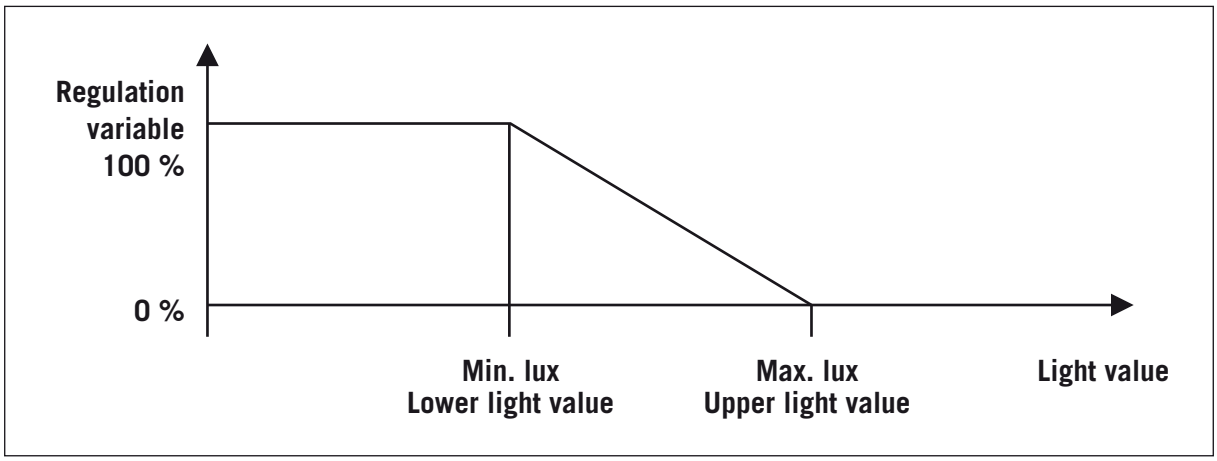
Cascading

The sensor can be used for individual light controling, where each sensor controls its light value independently of other sensors. Alternatively, one sensor can be defined as a master sensor for lighting controling. The other sensors adopt their parameters in line with the master.
This can be helpful in the event of problematic lighting conditions and sensors influencing each other.

Offset for cascading input

With this object, the offset for cascading input while the application is running can be amended.

17 Regulation



Lower light value

Operating mode: Regulation. The lower light value (lux) for light regulation can be specified via this object. Only available if "Switching threshold via telegram" is selected.

Upper light value

Operating mode: Regulation. The upper light value (lux) for light regulation can be specified via this object. Only available if "Switching threshold via telegram" is selected.

Changing of regulation parameters by telegram

When activated, the corresponding objects are displayed so that parameters can be amended for the time the application is running.

Max. dimming value step

The maximum dimming value amendment can be configured here. This value is required alterations to dimming values occur that are either too large or too small.

Min. dimming value step
The minimum dimming value amendment can be configured here. This value is required alterations to dimming values occur that are either too large or too small.

Step time
The interval between two calculations of the control output value can be configured here.

Dim value limit
The output value can be configured using this parameter.

Minimum dim value
This is the minimum dimming value; below this value, there is no longer any output.

Switch-off value (if min. dim value reached)
If the switch-off light value is exceeded, the output is set to 0 (specified in lux).

Maximum dim value
This is the maximum dimming value; above this value, there is no longer any output.

Switch-on value (if max. dim value reached)
If the light value drops below the switch-on light value, the output is set to 0 (specified in lux).

Light channel 2
If light channel 2 is active, a second light channel is available. This follows light channel 1 with a defined offset/difference.

Offset between dim value of light channels 1 and 2

The difference defines the offset between the output from the two light channels.

Snooze function

If snooze function is active, no regulation takes place; instead, a fixed value is output.

Dim value for snooze function

The fixed value at which the snooze function is activated is configured here.

Cascading

The sensor can be used for individual light regulation, where each sensor regulates its light value independently of other sensors. Alternatively, one sensor can be defined as a master sensor for lighting regulation. The other sensors adopt their parameters in line with the master.

This can be helpful in the event of problematic lighting conditions and sensors influencing each other.

Offset for cascading input

With this object, the offset for cascading input while the application is running can be amended.

18 Orientation light

A fixed dimming value is designated as an orientation light to be output once the switch-off delay time has elapsed. For example, this prevents lighting from being switched off fully and causing a room/corridor to be left completely dark. This allows a minimum level of brightness to be guaranteed.

Orientation light value 1

Orientation light 1 can be assigned a dimming value that can be configured to be between 5% and 50% in 5% increments.

Orientation light value 2

Orientation light 2 can be assigned a dimming value that can be configured to be between 5% and 50% in 5% increments.

Orientation light duration

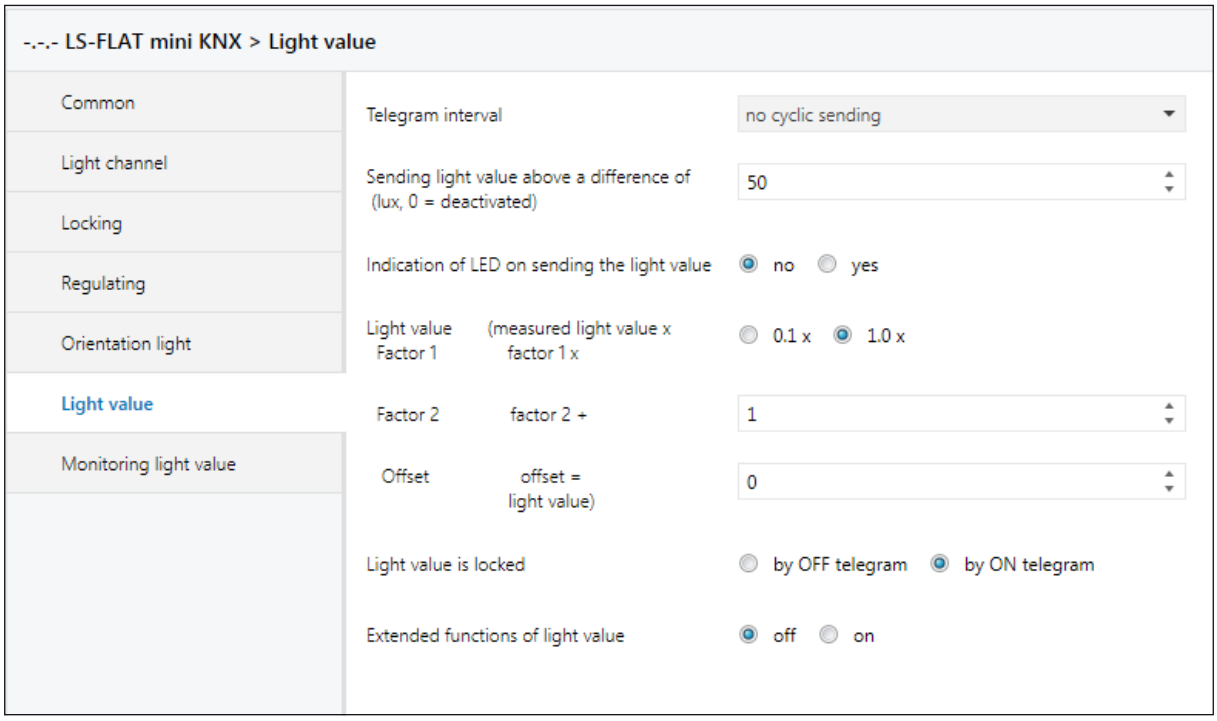
If 0 minutes is specified, there is no restriction on the duration of the orientation light. The duration can be configured to be between 1 and 250 minutes.

Threshold value for switching on orientation light

The following can be determined using this parameter:

1. Independently of light value
   In this configuration, the orientation light is always switched on, regardless of the current light value.
2. Automatic adaptation
   In this configuration, the light value is measured after the switch-off delay time has elapsed; a new switch-off value is determined based the target/actual value.
3. Fixed threshold
   In addition to the threshold value, a hysteresis can be configured here.

19 Light value



Telegram interval

The time interval at which the light value is transmitted in cycles can be configured here. If sending in cycles is selected, a further field opens in which the interval between telegrams can be defined.

In the example above, the interval is determined by multiplying seconds by 1, i.e. there is at least one second between individual telegrams. The smallest value that can be configured is one second and the largest value is 24 hours.

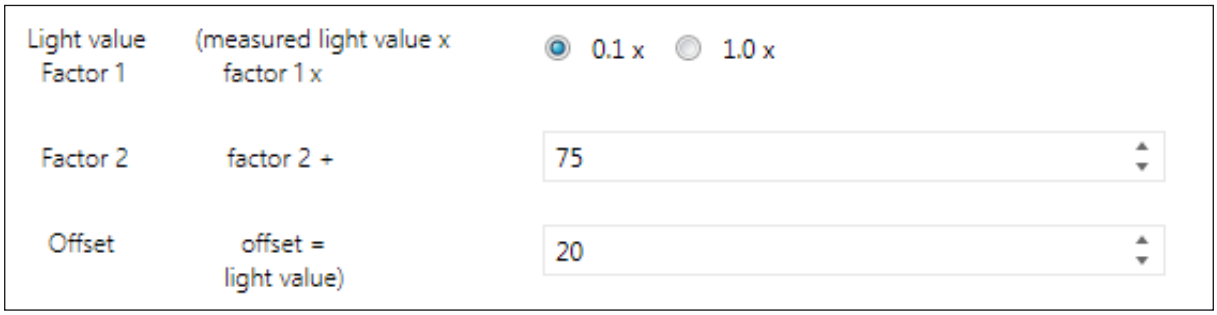
Send light value above a difference of

The current light value can be transmitted either in cycles or as of a specified offset to the last light value sent.

The values that can be configured range from 0 = disabled up to 20,000 lux.

Light value

The measured light value may vary from the real light value. This can be caused by distortions from reflections, measuring inaccuracies and external influencing factors. Using this function, the measured value can be adjusted to the real light value.



The factor is selected first (0.1 or 1.0), followed by the calculation value (-100 to +100). The offset is a fixed light value that is added to the measured light value.

As an example: (450 lux measured light value) * 0.1 * 75 + 20 = 3395 lux

WARNING: If the light sensor is mounted on a ceiling, the sensor for measuring the light value faces downwards and therefore measures the reflection from the surfaces that are directly below the sensor. This value may deviate significantly from a value measured directly on these surfaces, as the light sensor for the lux meter measures both the reflection from the floor and the output from the lights.

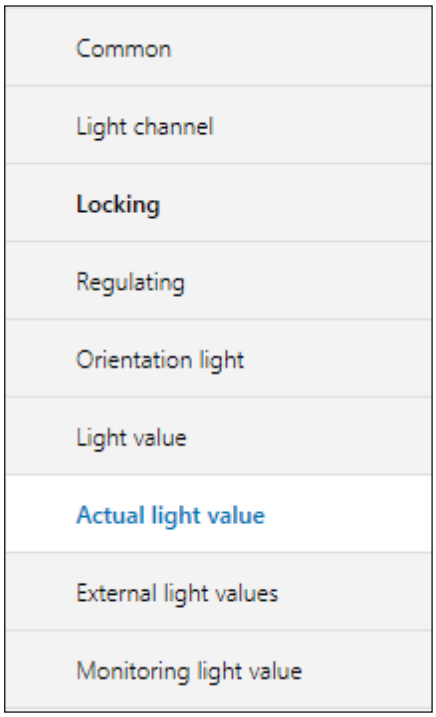
Light value locked

The light value can be locked by a telegram as configured in this parameter.
WARNING: If the value is locked, the measured light value is no longer processed.

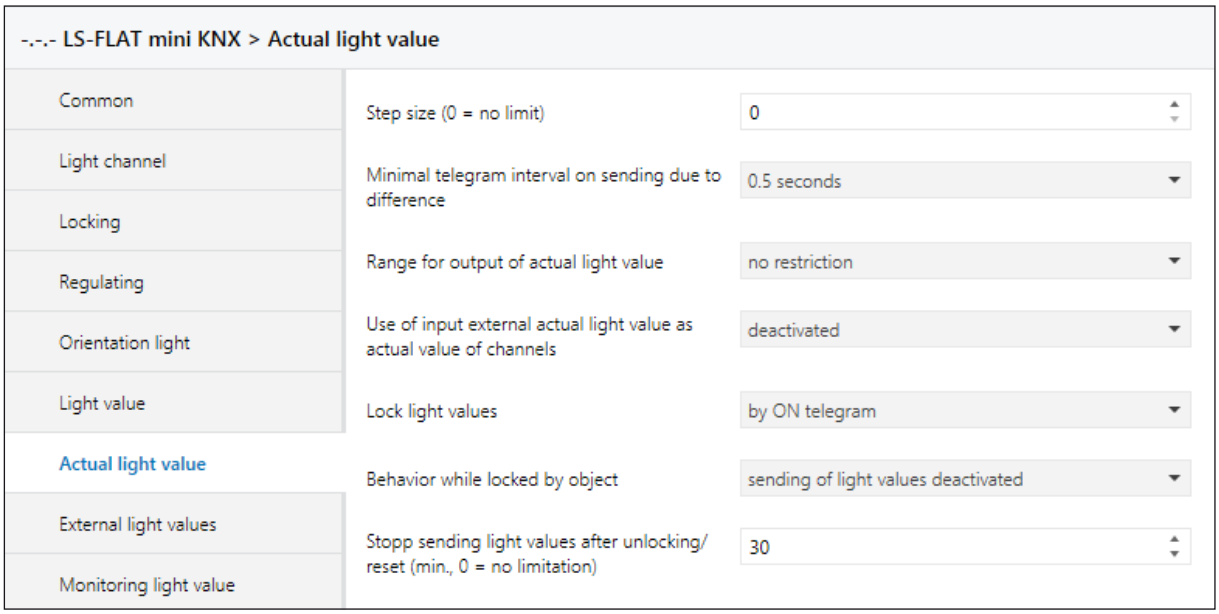
Advanced functions of extended light value

The advanced functions for the light value can be switched either on or off.

If the functions are switched on, additional menu items are displayed in the left-hand menu structure.

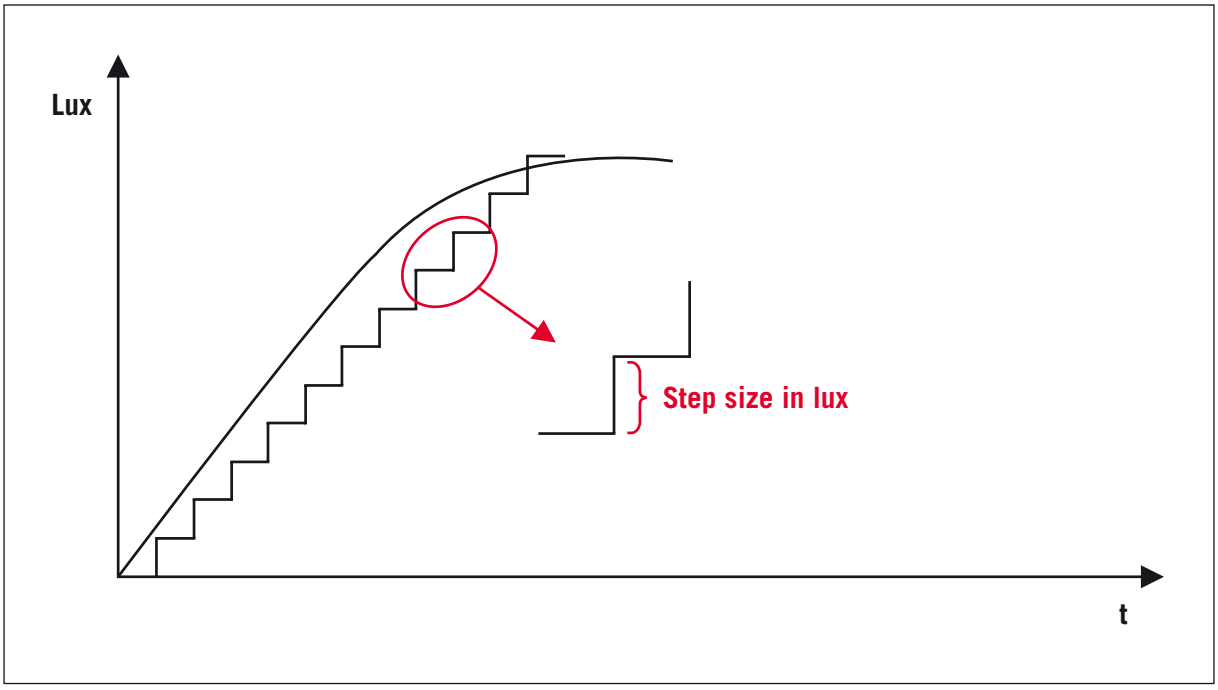


20 Actual light value



Step size

If a fixed step size in lux is defined in this parameter, any amendments to the output are made only in steps of this size.



Minimum interval between telegrams when sending light values

If a measured value is constantly altering, the light sensor is also constantly sending telegrams to the bus. To relieve the load on the bus, a time interval between telegrams can be configured here. The smallest interval is 0.5 seconds, the largest interval is 10 seconds.

WARNING: This parameter does **not** refer to the cyclical output!

Range for sending light values

The range within which light values are transmitted as telegrams can be restricted.

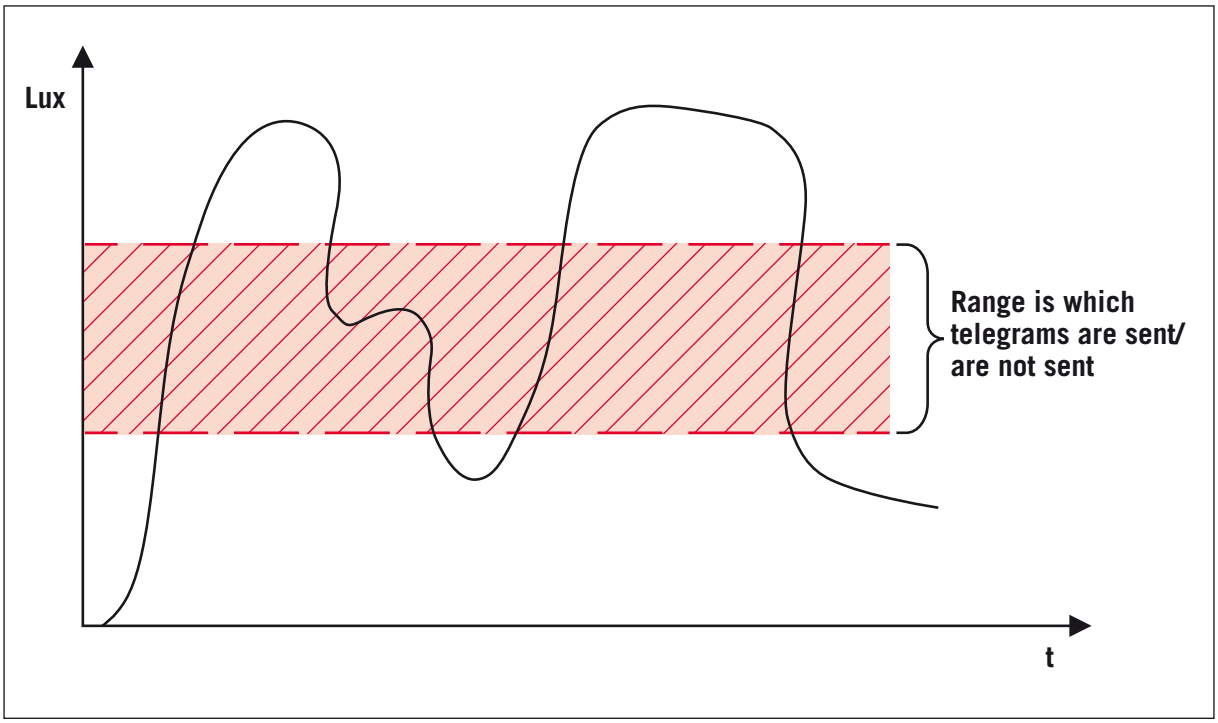
If the lower limit value is specified as e.g. 300 lux and the light value changes from 270 lux to 110 lux, there will not be a telegram written to the bus. There is also the possibility of defining a range in which no telegrams are output in the event of a change. For example, if there is a range of 500–1000 set under "No sending in range of", a telegram is only written to the bus in the event of a change to below 500 lux or to above 1000 lux.

Lower limit value

In this parameter, the lower limit value in lux for sending light values is specified. See above.

Upper limit value

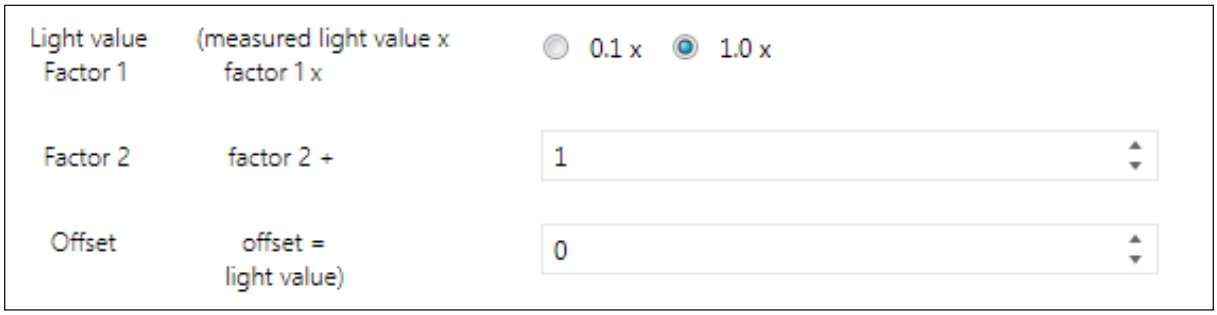
In this parameter, the upper limit value in lux for sending light values is specified. See above.



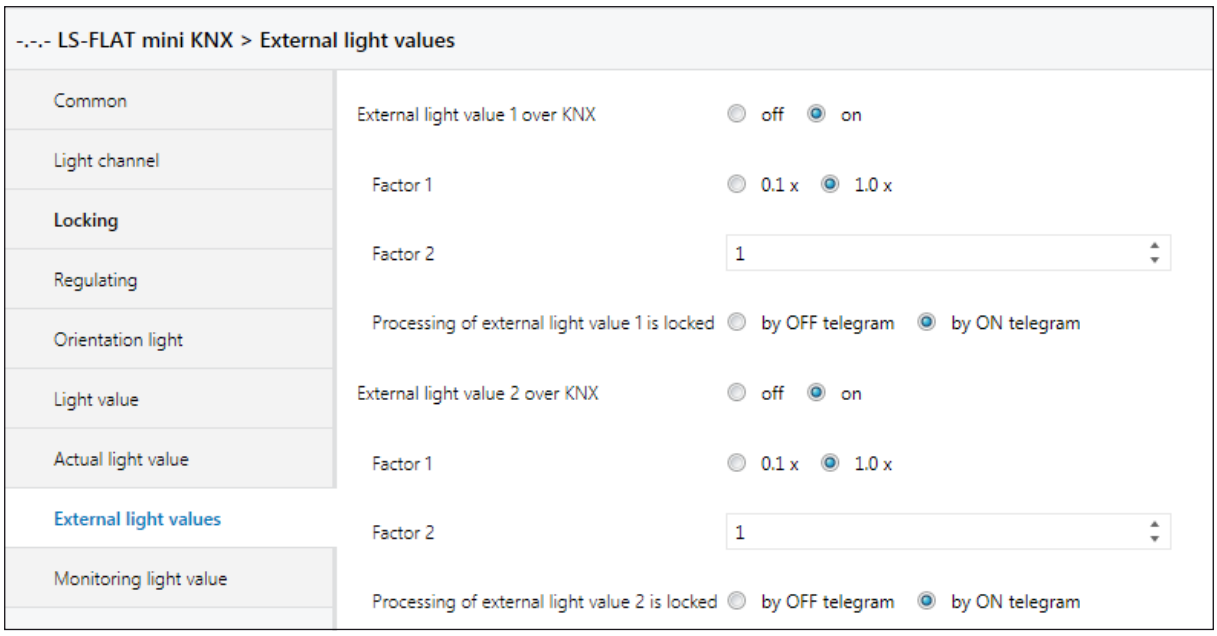
External actual value

The internal actual value is derived from:

= (measured light value * factor 1 * factor 2) + offset + (external light value 1 * factor 1 * factor 2) + (external light value 2 * factor 1 * factor 2)



In Fig. 1 = Internal light value from the "Light value" tab



In Fig. 2 = "External light values" tab

The internal actual value is used to calculate the output value for light regulation/ control.

The external actual value is received only via KNX telegrams and can be used as follows:

1. Disabled
   The external actual value is not used and is hidden

2. Can be activated only by object
   A telegram can be used to switch between the external actual value and the internal actual value. An ON telegram activates the external actual value, an OFF telegram activates the internal actual value.

3. When internal actual value in range of…
   The internal actual value is active when the internal actual value is within the configured range. At other times, the external actual value is active.

4. When internal actual value out of range of …
   The internal actual value is active when the internal actual value is outside the configured range. Within the configured range, the external actual value is active.

5. When external actual value in range of…
   The internal actual value is active when the external actual value is within the configured range. At other times, the external actual value is active.

6. When external actual value out of range of …
   The internal actual value is active when the external actual value is outside the configured range. Within the configured range, the external actual value is active.

Object 50 (Input: Switch between internal/external actual values) is therefore always active. It is always possible to switch between sources using this object.

Lower limit value

The lower limit value in lux for automatic switching (internal/external actual value — see above) can be configured here.

Upper limit value

The upper limit value in lux for automatic switching (internal/external actual value — see above) can be configured here.

External actual value after device restart

The external actual value in lux after a device restart can be specified in this parameter.

Lock light values

Output of the actual light value can be locked in the following ways.

1. Disabled
2. Via an ON telegram
3. Via an OFF telegram

Behaviour while locked by object

The following can be configured here:

1. Sending of light value deactivated
   Object 49 (Output of actual light value) not sent

2. Keep actual light value on lock
   The measured value at the time of locking is sent and repeated in cycles where applicable.

3. Keep fixed light value on lock
   The light value configured in the parameter is sent while locked and repeated in cycles where applicable.

Stop sending light values after unlocking/reset

After a restart, sending in cycles after a configured time is disabled.
By unlocking via object 46, sending is re-enabled until the time has elapsed.
0 = function disabled

21 External light values

External light value 1 via KNX

An external light value 1 can also be processed internally at the same time. For example, this allows another light sensor or a presence detector to be included in the light measurement. This function permits measurements to be taken from multiple points.

The light value can be included in the measurement by setting the selection to "On".

The calculation result (factor 1 * factor 2) can be used to specify how heavily weighted the external light value is when the light measurement is calculated.

If the selection is set to "Off", the external light measurement is not included when calculating the measurement.

Processing of external light value 1 locked

Internal processing of external light value 1 can be blocked by:

1. OFF telegram
2. ON telegram

External light value 2 via KNX

An external light value 2 can also be processed internally at the same time. For example, this allows another light sensor or a presence detector to be included in the light measurement. This therefore permits measurements to be taken from multiple points.

The light value can be included in the measurement by setting the selection to "On".

The calculation result (factor 1 * factor 2) can be used to specify how heavily weighted the external light value is when the light measurement is calculated.

If the selection is set to "Off", the external light measurement is not included when calculating the measurement.

Processing of external light value 2 locked

Internal processing of external light value 2 can be blocked by:

1. OFF telegram
2. ON telegram

22 Monitoring light value (twilight switch)

The function of switching when the light level exceeds or falls below a defined brightness value is known as light value monitoring or the twilight switch.

Threshold

The threshold for light value monitoring can be configured here. The threshold is the point at which the twilight switch writes a telegram indicating the light value exceeds or has fallen below the specified figure.

Hysteresis

The hysteresis (fixed value that is additionally applied to the lux value) can be configured here.

Time to switch output monitoring light value

The values that can be configured range from 0 = disabled up to 240 minutes.

Inverted sending

The telegram can also be sent in an inverted manner. Switching processes can be performed anti-cyclically.

E.g. light on when the target value is exceeded, light off when the value falls below the target value.

Telegram internal light channel (base)

If the measurement result/status remains the same, the sensor can send the same telegram repeatedly. The time interval can be configured here. Unless "No cyclical sending" is selected (if there is no change, the telegram is only sent once), a further field opens in which the interval between telegrams can be defined.

In this example, the multiplier is 1 with the unit set as "Second". Therefore the time interval is one second. The largest interval between telegrams is 24 hours.

Cyclical sending of

The type of telegrams that are to be sent in cycles can be configured here:

1. Only OFF telegrams
2. Only ON telegrams
3. ON and OFF telegrams

Function between logic input and output of monitoring light value

Connections can be created here. The following logical options are available for selection:

1. Disabled
2. AND
3. OR
4. XOR
5. NAND
6. NOR
7. XNOR

E.g. the light channel output can be connected with the output of light value monitoring using "AND". This allows the function of the light source to be monitored.

Locking of output

Output of the actual light value can be locked here in the following ways:

1. Disabled
2. Via an ON telegram
3. Via an OFF telegram

Behaviour at switching on lock communication object

The following logical options are available for selection:

1. No reaction
2. Switching off
3. Switching on

Automatic unlocking after

The values that can be configured range from 0 = disabled up to 240 minutes.

23 Disposal

NOTE: This device must not be disposed of as unsorted household waste. Owners are required by law to correctly dispose of used devices.

Contact your local town council for more information.

24 ESYLUX manufacturer's guarantee

ESYLUX products are tested in accordance with applicable regulations and manufactured with the utmost care. The guarantor, ESYLUX Deutschland GmbH, Postfach 1840, 22908 Ahrensburg, Germany (for Germany) or the relevant ESYLUX distributor in your country (visit www.esylux.com for a complete overview) provides a guarantee against manufacturing/material defects in ESYLUX devices for a period of three years from the date of manufacture. This guarantee is independent of your legal rights with respect to the seller of the device. The guarantee does not apply to natural wear and tear, changes/interference caused by environmental factors or damage in transit, nor to damage caused as a result of failure to follow the user or maintenance instructions and/or as a result of improper installation. Any illuminants or batteries supplied with the device are not covered by the guarantee. The guarantee can only be honoured if the device is sent back with the invoice/receipt, unchanged, packed and with sufficient postage to the guarantor, along with a brief description of the fault, as soon as a defect has been identified. If the guarantee claim proves justified, the guarantor will, within a reasonable period, either repair the device or replace it. The guarantee does not cover further claims; in particular, the guarantor will not be liable for damages resulting from the device's defectiveness. If the claim is unfounded (e.g. because the guarantee has expired or the fault is not covered by the guarantee), then the guarantor may attempt to repair the device for you for a fee, keeping costs to a minimum.