B.E.G. LUXOMAT® net

Device Configuration App

DCA 2.1

Application description

93302 93338

Subject to technical changes

All device data can also be found here:

https://beg-luxomat.com/qr.php?prtno=93302

https://beg-luxomat.com/qr.php?prtno=93338

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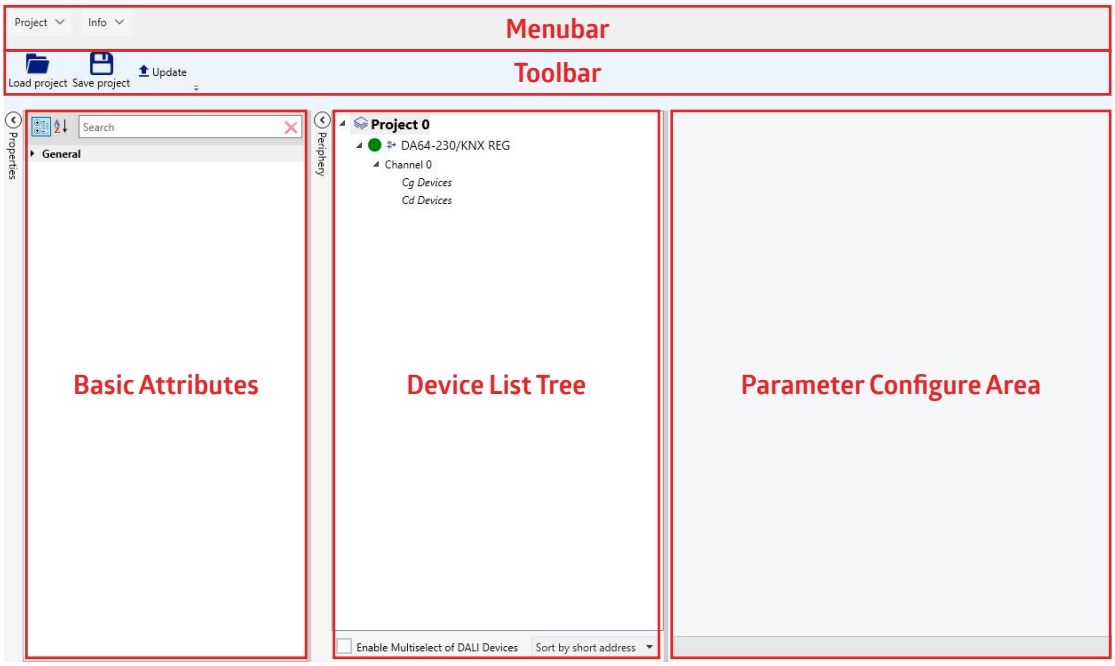
Content

1 Interface



1.1 Menu bar

Project

- Save as PDF
  Save parameters of all equipment in the current project as .pdf.

Info

- Update Database
  This is used to update device type, language and parameters database.
- About
  Display the current version.

1.2 Toolbar

Project Toolbar

- **Load Project:** Load an existed file in format *.proj.
- **Save Project:** Save the currently selected project file in the format *.proj.
- **Update:** Opens menu to update the firmware of the gateway in the file format *.beg. See separate chapter.

Main Device Toolbar

- **Bus scanner:** Find DALI device after successful connection.
- **DALI Commands:** opens DALI command centre. Only for experienced integrators to send individual commands to the DALI line.
- **Load Settings:** Load an existed file in format *.dev, *.bin, *.beglnk.
- **Save Settings:** Save the currently selected main device file in the format *.dev, including all DALI devices and its parameters.
- **Update:** Opens menu to update the firmware of the gateway in the file format *.beg.

DALI Channel Toolbar

- **Add Virtual DALI Device:** Add virtual DALI devices, so that parameters can be configured in advance.

DALI Device Toolbar

- Sync DALI/KNX Binding (Select button ***"Device number"***): Download the binding device number to DALI/KNX GATEWAY.
- Write group (Select button ***"Group"***): Write group info of all devices.
- Write scene (Select button ***"Group"***): Write scene info of all devices.

- **Write changed:** Write changed parameters to all selected devices.
- **Write all:** Write all parameters to all selected devices.
- **Read:** Read all parameters of all selected devices.
- **Load Settings:** Load an existed file in format *.dali.
- **Save Settings:** Save the currently selected DALI device file in the format *.dali.
- **Button Group:** Switch to the interface for quick setting Group and Scene.
- **Button Device Number:** Switch to the interface for quick setting KNX device number.
- **Button Parameters:** Switch to parameter setting interface.
- **Checkbox Highlight Changes:** The background will be set to yellow if a parameter's value is different with its default value. This function can be used to quick check parameters you have changed.
- **Checkbox Parameters not synchronized:** The foreground will be set to saddle brown if the parameter values are changed but not synchronized.

2 Common Operations

→ Gray indicates virtual devices;
→ Yellow indicates a real device that is not sure if it is online;
→ Green indicates existing or connectable devices.

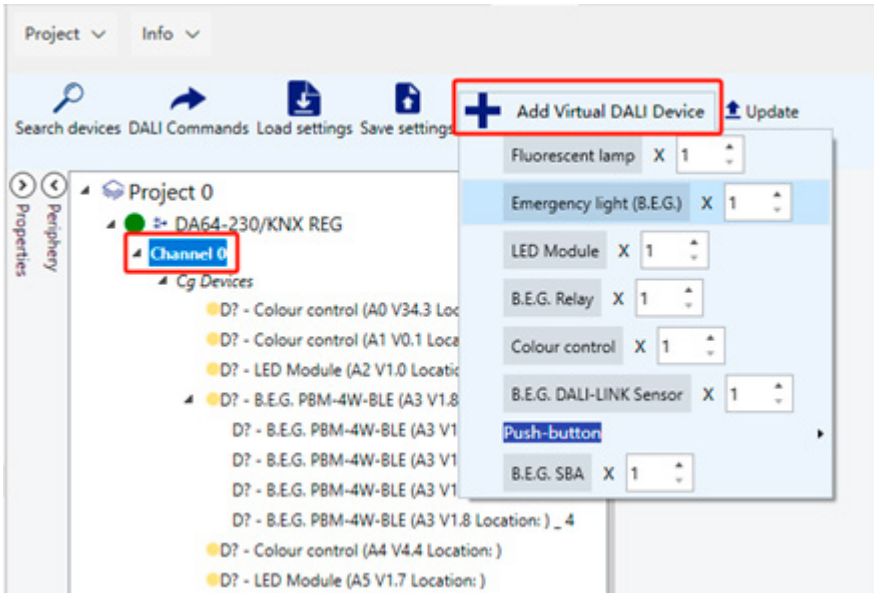
NOTE
The indicate status can be changed after operations search devices and check existing devices.

NOTE
Please make sure you have download physical address of the Gateway in this ETS project!

2.1 Suggestions for build a new project

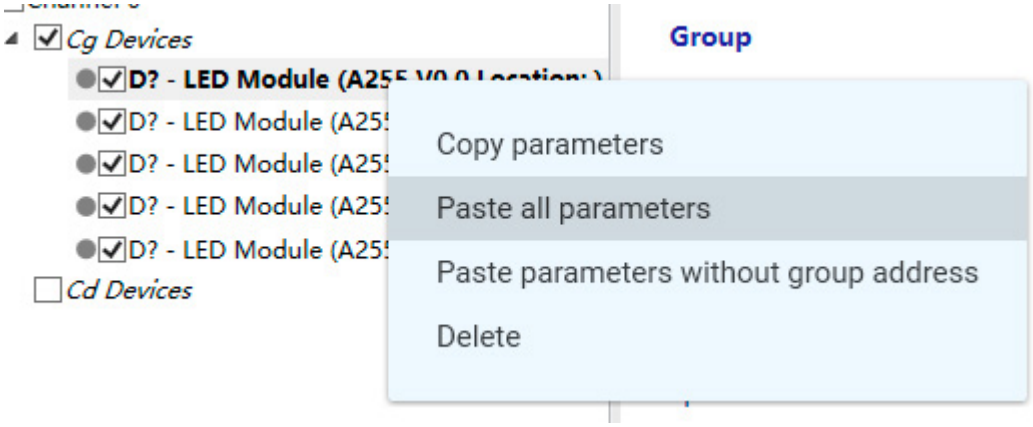
Add Virtual devices offline, and then replace them with actual devices online. Support adds multiple virtual devices at a time.

(1) Click on "Channel", and then click ***"Add Virtual DALI Device"*** button.



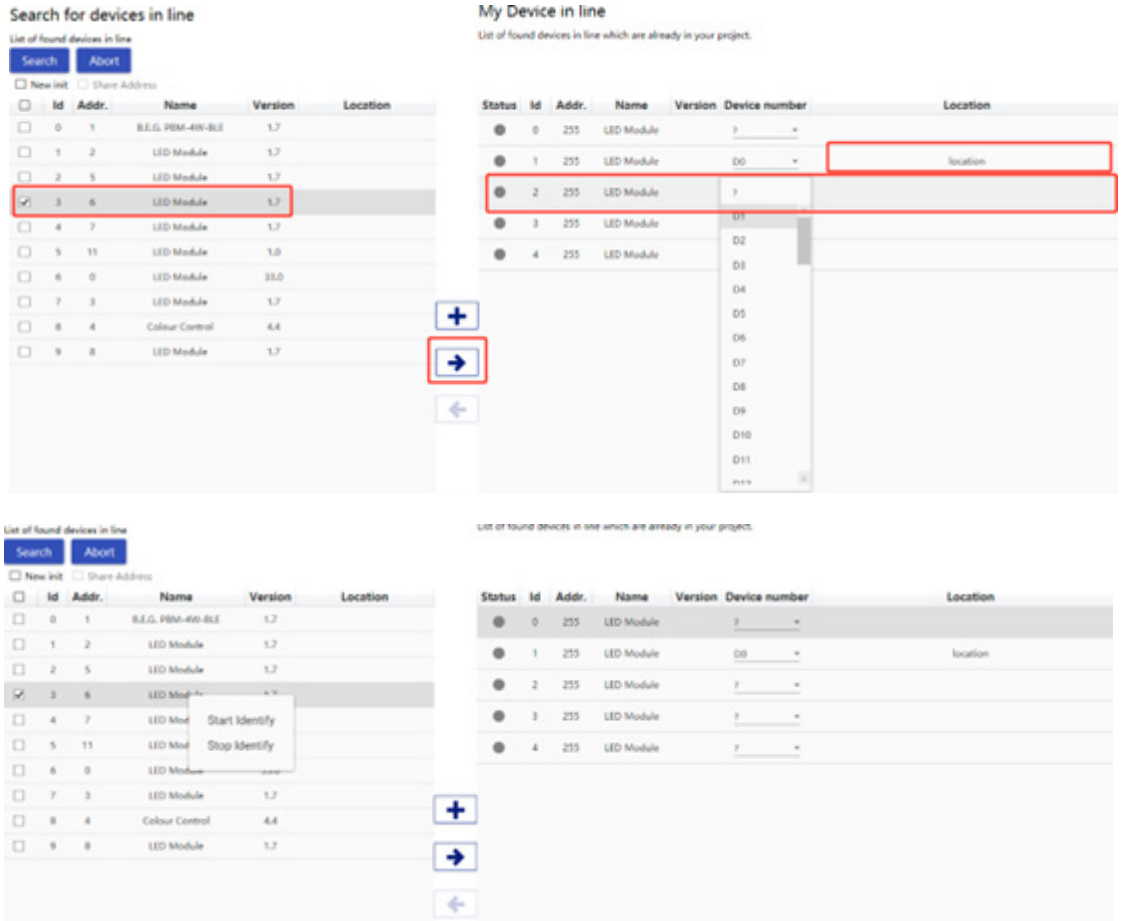
(2) Configure parameters. Right click can copy and paste parameters. Only support copy and paste between devices with the same device type.

NOTE
Tips: Check "Enable Multiselect of DALI Devices", you can paste parameters to multi devices at one time.



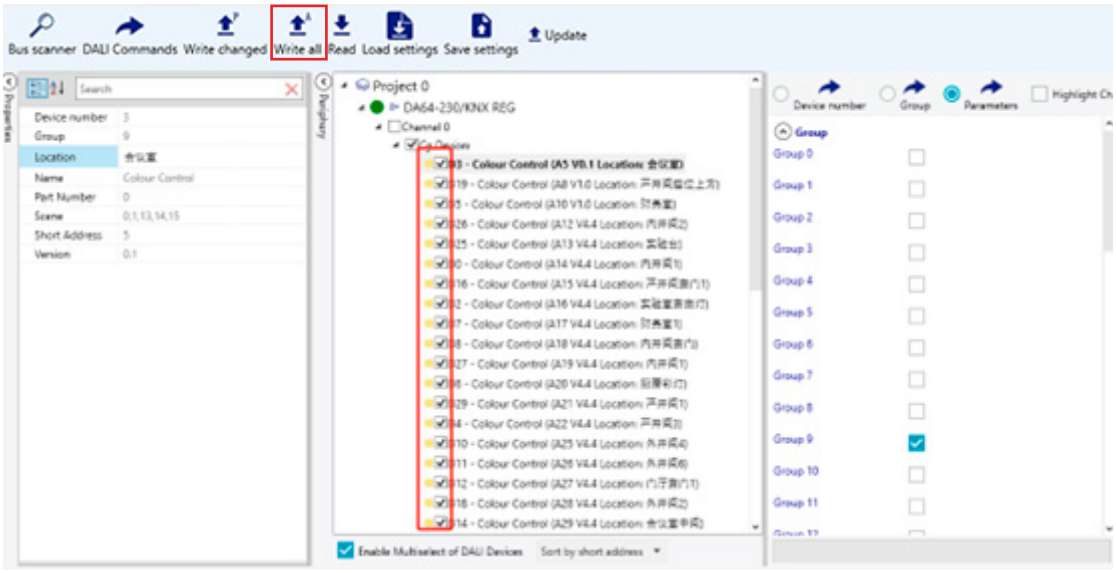
(3) Addressing devices, right click to identify devices, and quickly set device number and location info. Identify applicable to devices in the left column and yellow or green light devices in the right column.

After replace devices, it keeps the parameters as the parameters of the right column of devices, and **needs to write all parameters to make them effective.**



(4) After close the above addressing window, device number and replaced device's parameters will be synchronized automatically.

(5) Click on a device, and multi select devices, write all parameters.



2.2 Search and Replace DALI Devices

➞ Select a DA64-230/KNX REG or channel or DALI device, click ***Search devices***, it will address devices automatically. You could abort the searching procedure and start search by yourself. It will find all DALI devices on the current line and the selected DALI channel.

➞ New init: assign a new short address to DALI devices.

	NOTE
!	Selecting this action will delete all information of all DALI devices.

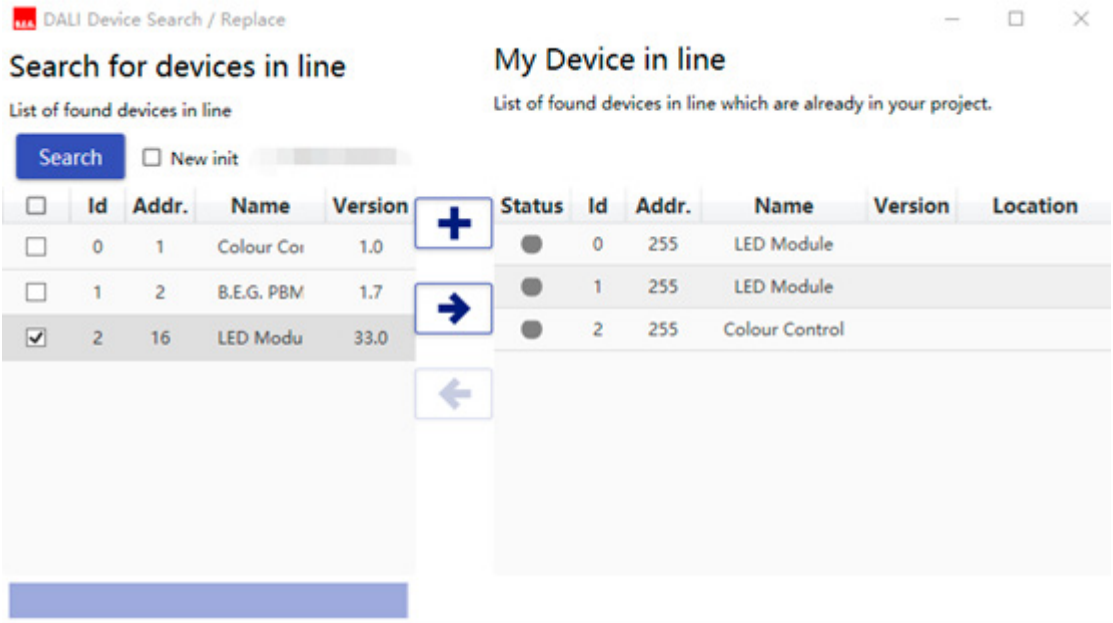
➞ Share Addr (used for DALI USB connection): CG devices and CD devices may have same short address.

➞ Select All devices (the top left selection box): select all DALI devices on the left, and click + to add them to the right with one click.
The right column devices will be displayed on the Device List Tree after close this window.

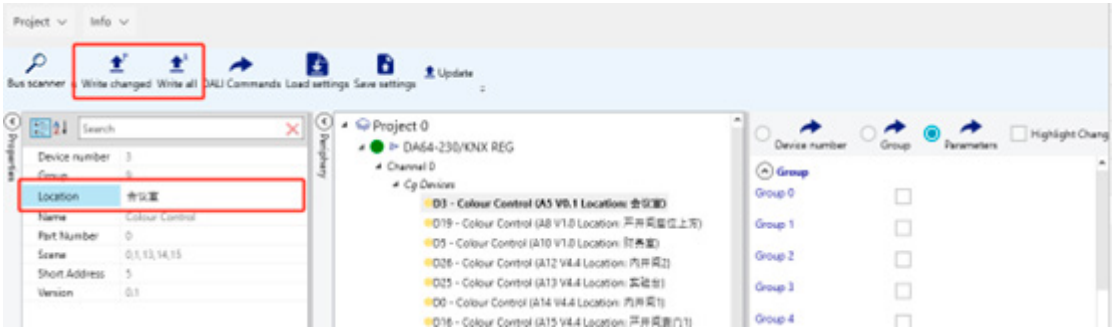
➞ **Replace:** After addressing done, status grey on the right column represents a device is virtual or lost. Bind a device shown on the left to right, replace is done. The parameters keep as the parameters of the right column of device, and you need write all parameters to make it effective after closing this search window.

By clicking “OK” or closing this window, a prompt will pop up. Click "OK" to download the parameters of the replaced device and all device numbers.

	NOTE
!	For 2-channels gateway, if you click on the DALI/KNX Gateway, default address devices of channel 0, **if you want to address devices of channel 1,** you need to click on channel 1 or the DALI devices under channel 1 firstly.



2.3 Configure DALI Devices

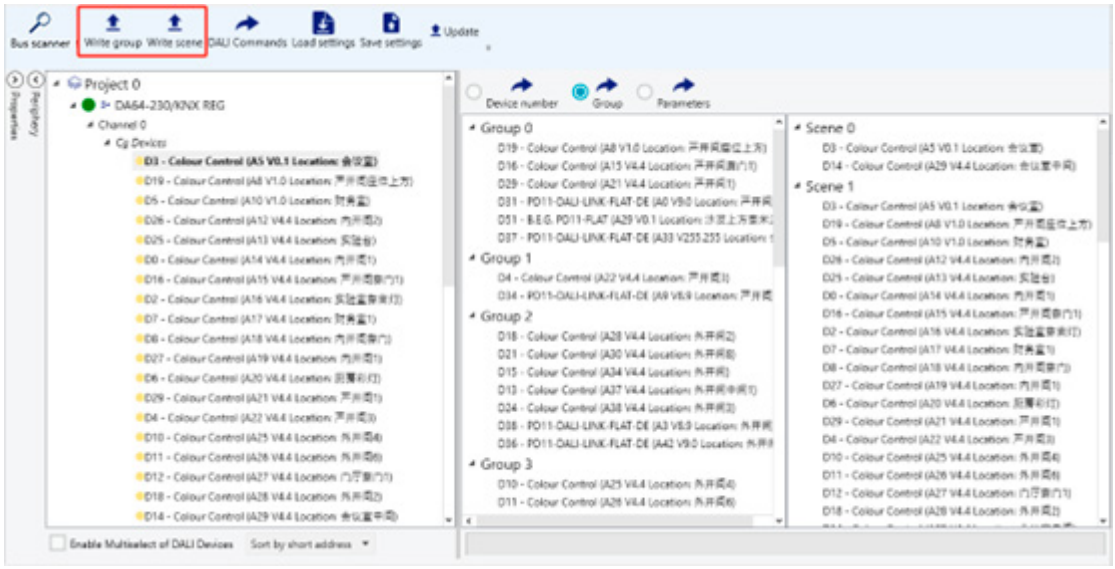


➞ Select a DALI device and click ***parameters***, parameters can be configured in the parameter configuration area. Some basic information, such as version number and name, will be displayed in the basic attribute area. Location and device number information can also be set.

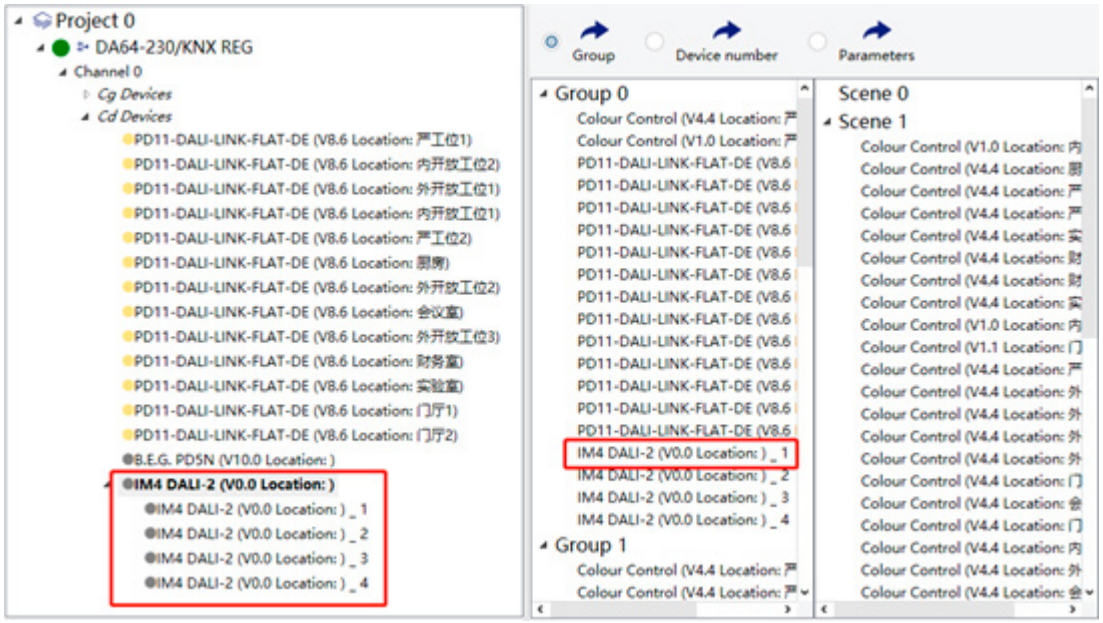
➞ Highlight Changes
If check this checkbox, the background will be set to yellow if a parameter's value is different with its default value. This function can be used to quick check parameters you have changed.

- **Parameters not synchronized**
  If check this checkbox, the foreground will be set to saddle brown if the parameter values are changed but not synchronized.

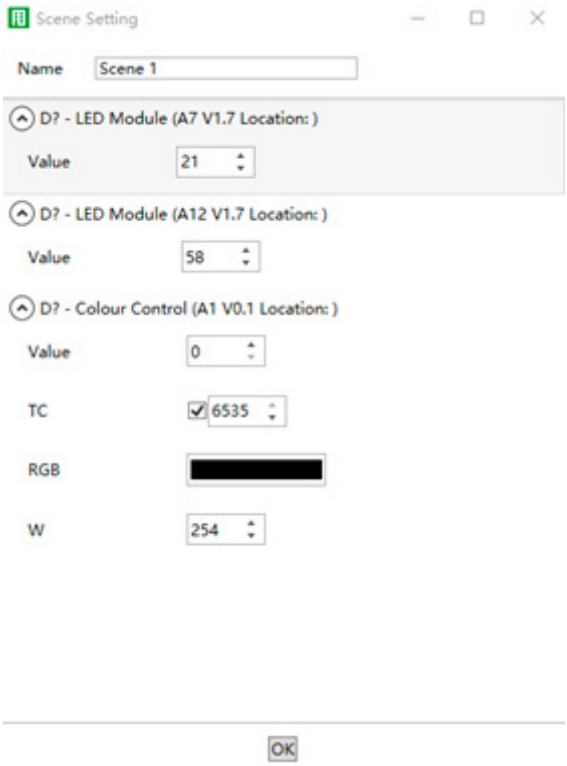
  (1) Drag & Drop Group and Scene
  You need to click on write group and write scene to enable the drag and drop parameters.
  ➞ Click ***Group***, you can quickly drag and drop a device to set its group and scene.



NOTE	
	For DALI devices with multi-channels, such as PB, it will show all channel numbers under the device, you need to drag and drop branches other than the father node to Group panel. Click the father node to change parameters.

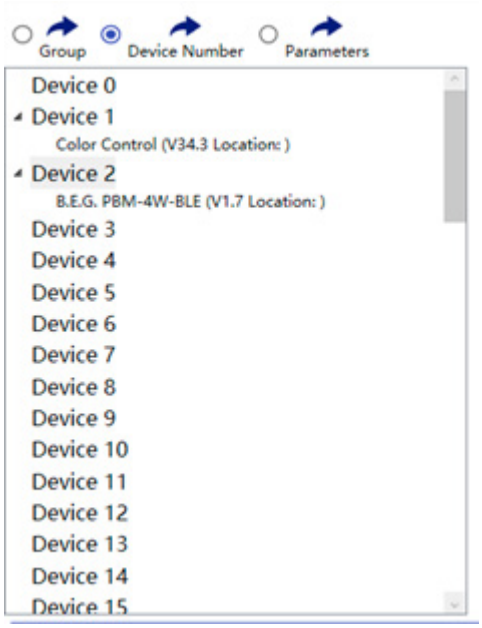


- Select multiple devices, and drag and drop them to one group or scene.
- Double click ***Scene*** to set the scene value and edit the scene name.

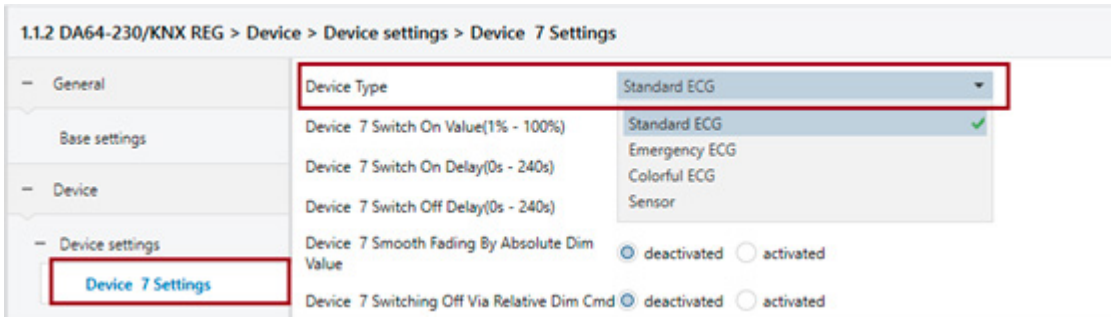


(2) Drag & Drop Device number

➞ Click ***Device number*** to quickly drag the device to set the KNX device number. Click ***Sync DALI/KNX Binding*** to synchronize.



NOTE	
!	In ETS, note that the device number and equipment type must correspond to the settings here one by one!



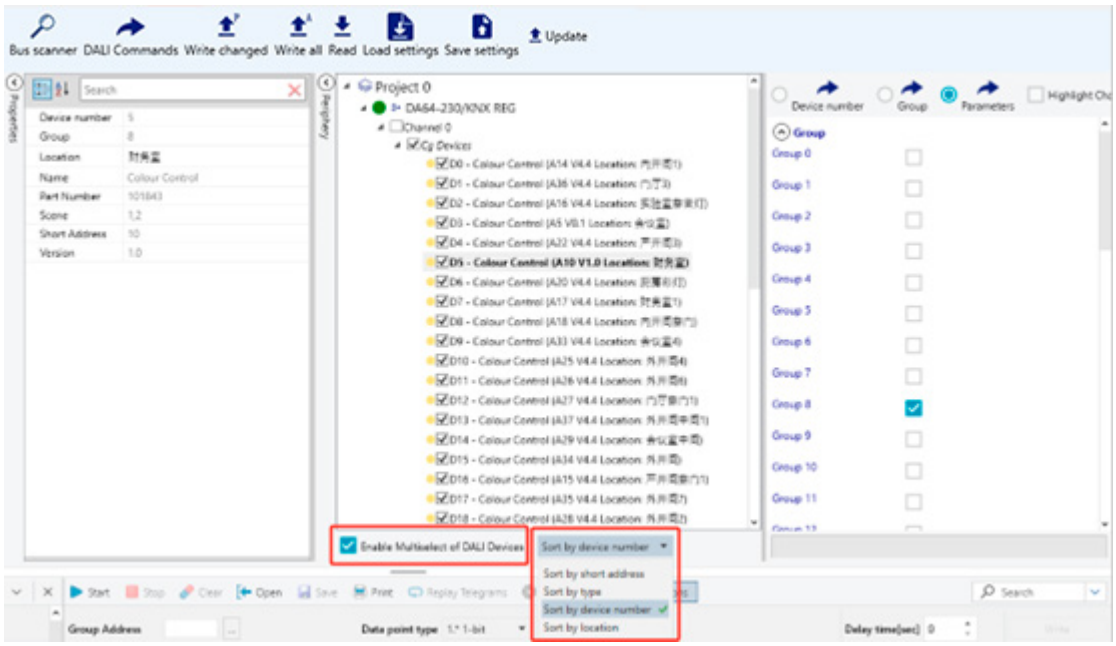
(3) Write to single or multiple DALI device(s)

➜ Click ***Write*** to write the parameters of the currently selected device. Be sure to write when the parameters change, otherwise it will be invalid.

- Write all: Write all parameters of the currently selected device.
- Write partial: Write the changed parameters of the currently selected device. Please ensure that the parameters are consistent with the actual device parameters (read the parameters).

➜ **Write to multiple DALI devices:** Check the ***Enable Multiselect of DALI Devices*** checkbox first, then choose any DALI devices you want to write, click ***Write*** to write all or changed parameters of multiple devices at the same time.

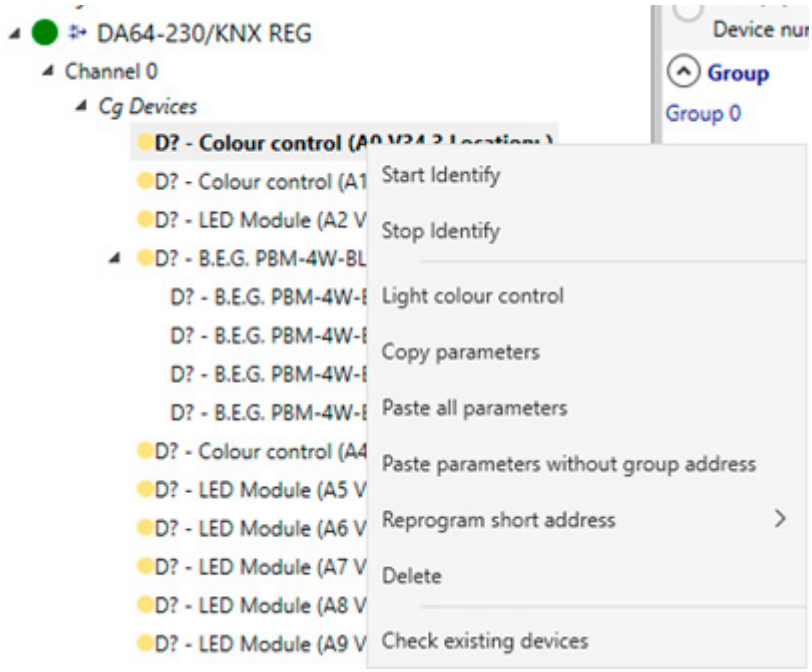
Click on a device means selecting it when enable multiselect. Uncheck the checkbox to deselect the device.



- **Sort devices.**
  Devices can be sorted by several properties

(4) Right click menu

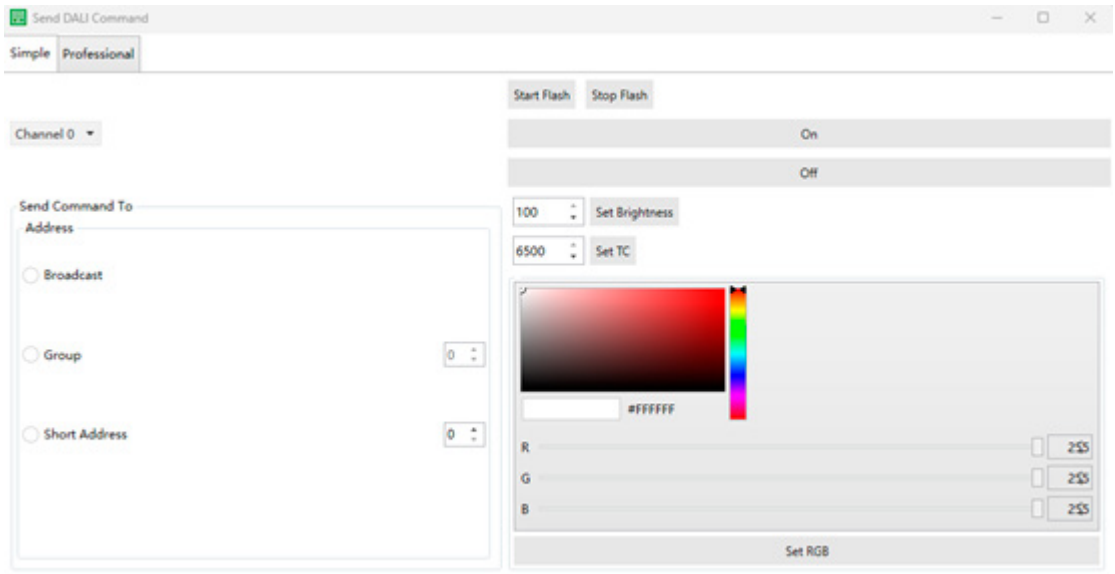
➞ If the current main device is connected, right-click a DALI device, and a menu will pop up, as shown below:



NOTE	
	Items will vary according to the type of the selecting DALI device. **If the current main device is not connected or selecting DALI device is a virtual device, right-click to delete the current device will only delete from the device list tree and the short address of Dali device is still exists.**

- **Start/Stop Identify:** For Locating, the selected lamp / switch will be on / off continuously, and the three LEDs of the B.E.G. Multi Sensor will flash together.
- **Delete:** Deleting the short address of the selected DALI device if it is online (green status), this will not affect the device number.
- **Check existing devices: check if this device is online,**
  It changes to green status if online.
- **Copy and paste parameters.**
- **Manual change short address.**
  The device number will be lost after change short address!!!
- **Delete multiple devices at a time. Delete devices by using keyboard.**

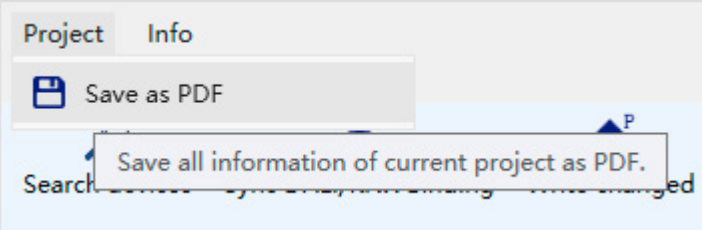
2.4 DALI commands



- **Start / stop Flash:** same as start / stop identify at the right click menu.
- **On / Off:** Switch on / off devices to the specific address.
- **Set Brightness:** Send absolute dimming value to the specific address.
- **Set TC:** Send absolute TC value to the specific address.
- **Set RGB:** Send absolute RGB value to the specific address.

NOTE	
	**Please contact the integrators for professional mode usage.**

2.5 Save PDF



Save all devices parameters as PDF.

2.6 Update Gateway

Click ***"Update"***, it is available to upgrade the firmware of the current selected KNX device via KNX bus. This function supports all B.E.G. DALI KNX Gateways. The upgrade file is ***.beg** format, provided by the manufacturer.
Click ***Load*** and select one upgrade file provided by the manufacturer, and then click ***Update*** to view the current upgrade status by observing the Status column. If the upgrade fails, you will be prompted with **"update failed"**, and you can try to upgrade again.

3 Device Parameters Description

3.1 Value

- **Fade time:** Fading is a linear transition in time from "actualLevel" to "targetLevel". This sets a time to use for the fade process.
- **Fade Rate:** This sets a speed to use for the fade process.
- **Min Level:** If "actualLevel" > 0 and "actualLevel" smaller than "minLevel" as a result of setting a new min level, "targetLevel" shall be re-calculated on the basis of the new "minLevel". "actualLevel" shall be changed to "targetLevel" immediately and the light output shall be adjusted as quickly as possible.
- **Max Level:** Max Level shold larger than min level. If "actualLevel" > "maxLevel" as a result of setting a new max level, "targetLevel" shall be recalculated on the basis of the new "maxLevel"."actualLevel" shall be changed to "targetLevel" immediately and the light output shall be adjusted as quickly as possible.
- **Power on Level:** After an external power cycle, devices shall activate the power on level immediately.
- **SysFail Level:** If the control gear detects system failure and "systemFailureLevel" is not MASK, "targetLevel" shall be calculated on the basis of "systemFailureLevel". The transition from "actualLevel" to "targetLevel" shall take place immediately and the light output shall be adjusted as quickly as possible. If "systemFailureLevel" is MASK, the control gear shall not react to a system failure.

3.2 LED Module

- **Fast Fade time:** The Fast Fade Time is used instead of the Fade Time if the Fade Time is equal to 0.
- **Current Monitor:** Protective device switching off the output if the actual LED load differs by more than Î”P from the load detected during the "reference measurement". Reference measurement, process during which control gear determines the actual LED load with internal procedures and measurements.

3.3 Converter

- **Linear dim curve:** The output voltage shall be a linear function of the level given by any of the arc power control commands.
- **0-10V mode:** If this is a 0-10V product.
- **Internal PullUp:** The electrical specification of the internal pull-up shall be defined by the converter manufacturer. Converters without this feature shall not react.

3.4 Relay

- **Behaviour upon voltage loss:** Store the relay status when power off.
- Operation Mode
  - **Lamp:** The lamp will be normally turn on or off under the corresponding conditions:
    Higher than "Switch On"-->ON, Lower than "Switch Off"-->OFF
  - **Cut-Off:** When one of the groups is turn on, turn on relay. When all of the groups are turn off, turn off relay. When meet the delay off conditions, the lamp will be turn off after the delay off time. The minimum delayed off time is 0s.
  - **HVAC:** Delayed On function: At the first 5 minutes, the relay keep off. Then, it will be turn on if detect "Motion" at the second 5 minutes.Delayed Off function: After the first 5 minutes, relay will be OFF based on the delayed off time if no "Motion" is received. The minimum delayed off time is 1s.
  - **Pulse:** When receive "BEG MOTION" command, turn on relay for 2.5s. Upon receive "BEG MOTION", the 9s delay inactive time begin. In this time, no action will occur if "BEG MOTION" received.After 9s delay inactive time expires, listen to "BEG MOTION" again. And loop-in.
- **Repeater function:** When relay turn on, the DAPC command send just one time if it is deactive. If this parameter is active, send DAPC command 3 times (interval 200ms) when relay on.
- **Delayed on:** This parameter is only available if the operation mode is HVAC.
- **Delayed off time:** This parameter is available if the operation mode is Cut-Off or HVAC.

3.5 Emergency Light

- **EM level:** The emergency level shall not be affected by the MIN LEVEL and MAX LEVEL settings.
- **FT:** Function test, test to check the integrity of the circuit and the correct operation of a lamp, a changeover device and the self-contained battery. The test interval is to be set in days, the delay is to be set in minutes.
- **DT:** Duration test, test to check if the self-contained battery supplies the system within the limits of rated duration of emergency operation. The test interval is to be set in weeks, the delay is to be set in minutes.
- **Test timeout:** It is valid for all function and duration tests, whether attempted in response to a command or as a result of an automatic test schedule. If it is set to 0 this shall result in a test timeout interval of 15 min. It's period shall start when a test becomes pending. If the period expires without the test being finished, it shall be flagged as a failure but the test shall remain pending
- **Prolong time:** It is defined with a resolution of 0,5 min (0 to 255), and shall be used to determine the length of time the control gear shall remain in extended emergency mode. Time the extended emergency mode will last after restoration of the mains supply.
- **Active LED stripes:** Emergency control gear with a physical minimum level below 254 (100 %).

3.6 Color Control

- **TC setting:** User-defined color temperature lamp warmest and coldest value. In addition, the colour temperature can be set with PowerOn Level and System Failure Level. All values in Kelvin (K).

3.7 Push Button

- **Power LED:** If the indication LED on the board is lighting permanently.
- **Application controller:** If this push button active.
- **Control type:** If the device used as push button or switch.
- **Target address:** The current button control the pointed group lights. "Broadcast" means all lights are controlled by this button.
- **Short press**
  - Toggle (Max/Off): Send "Recall Max Level" command for one press, and send "Off" command for another press.
  - Toggle (Max/Soft Off): Send "Recall Max Level" command for one press, and send "Off" command for another press but the lights will switch off depends on its fade time.
  - Off: Send "Off" command.
  - Recall Max Level: Send "Recall Max Level" command.
  - Scene: Send "Go To Scene XX" command
  - Toggle (Scene/Off): Send "Go To Scene XX" command for one press, and send "Off" command for another press.
  - Toggle (Scene/Soft Off): Send "Go To Scene XX" command for one press, and send "Off" command for another press but the lights will switch off depends on its fade time.
  - Value (%): Send "Dapc XX" command
  - Toggle (%-value/Off): Send "Dapc XX" command for one press, and send "Off" command for another press.
  - Toggle (%-value/Soft Off): Send "Dapc XX" command for one press, and send "Off" command for another press but the lights will switch off depends on its fade time.
  - Lock: Send "BEG Lock" command
  - Unlock: Send "BEG Unlock" command
  - Toggle(lock/unlock): Send "BEG Lock" command for one press, and send "BEG Unlock" command for another press.
  - Central-off: Send "BEG Central Off" command
  - Deactived: No action.
  - Scene sequence: Send "Go To Scene XX" sequentially according to the settings "Scene Number 1-4"
  - Last level: Send the last "Dapc XX" command.
  - Toggle (Last level/Off): Send the last "Dapc XX" command for one press, and send "Off" command for another press.
  - Toggle (Last level/ Soft off): Send the last "Dapc XX" command for one press, and send "Off" command for

another press but the lights will switch off depends on its fade time.
  - RGBW colour: Send the specified RGBW value.
  - Kelvin: Send the specified color temperature value.
  - Toggle (Warm/Neutral/Cold): Switch to the program defined colour temperature: warm/neutral/cold.
  - Lux set point: Change the brightness set-value of multi sensors.
  - SB: step up / stop: For SBA, send "Step up" command. If the shutter/blind moves at the moment of the push button is pressed, this movement can be stopped.
  - SB: step down / stop: For SBA, send "Step down" command. If the shutter/blind moves at the moment of the push button is pressed, this movement can be stopped.
  - SB: step up and down / stop: For SBA, send "Step up" command within the "SB: steps into same direction" duration, otherwise send "Step down" command. If the shutter/blind moves at the moment of the push button is pressed, this movement can be stopped.
  - SB: drive up: For SBA, send "Up" command.
  - SB: drive down: For SBA, send "Down" command.
  - SB: drive up and down: For SBA, send "Up" command within the "SB: steps into same direction" duration, otherwise send "Down" command.
- Long press
  - Toggle (%-value up/down): Continue sending "Up" command for one press, and continue sending "Down" command for another press. The speed can be set by "Dimming speed".
  - %-value up: Continue sending "Up" command until the button is released. The speed can be set by "Dimming speed".
  - %-value down: Continue sending "Down" command until the button is released. The speed can be set by "Dimming speed".
  - Toggle (step up/down): Continue sending "Step Up" command for one press, and continue sending "Step Down" command for another press. The speed can be set by "Dimming speed".
  - Step up: Continue sending "Step Up" command until the button is released. The speed can be set by "Dimming speed".
  - Step down: Continue sending "Step Down" command until the button is released. The speed can be set by "Dimming speed".
  - RGB colour wheel: Continuously change the colour until the button is released. The speed can be set by "Shifting Speed of Color Wheel (long press)".
  - Toggle (warmer/cooler): Dimming the colour temperature warmmer or cooler. The speed can be set by "Shifting Speed of Tunable White (long press)".
  - Toggle (Dim-2-warm): Dimming the light and colour temerature at the same time. The speed can be set by "Shifting Speed of Tunable White (long press)".
- **Power-on behaviour:** The behaviour of the push button on bus voltage return.
- **Fade time:** This parameter adds prefix ECG FADE TIME [VALUE] to any "GoToScene" or "DAPC" command, except while manual dimming "Dim fast/medium/slow".
- **Lockable:** If it can be locked by "BEG Lock" command.
- PB LED behaviour
  - Off: LED will never turn on.
  - On: If not pressed it will stay off, if short pressed it will turn on for 0,5s, if long pressed it will flash quickly as long the button is pressed.
  - Heartbeat: The same as "On" PLUS: the LED turns on if the value of the programmed function block is active. The PB also listens to the bus and if the same command type (e.g. "GoToScene") with same target group (e.g. "Group 4") and same value (e.g. "Scene 0") was detected, the PB LED turns on. It turns off if the same command type (e.g. "GoToScene") with same target group (e.g. "Group 4" or attention, could also be "Broadcast") and OTHER value (e.g. "Scene 1") was detected.
- **SB: steps into same direction:** This parameter defines how long a shutter/blind moves in the same direction.
- **Long Press Duration:** This parameter defines how long is considered a long press.

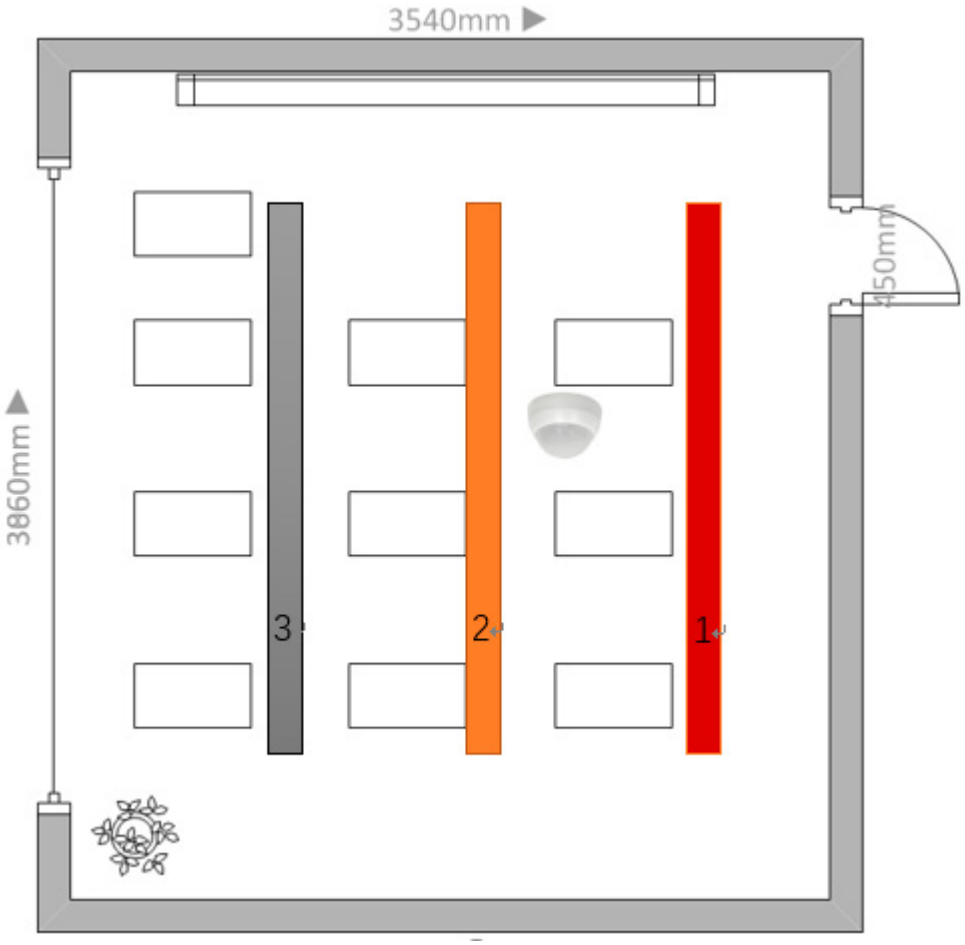
3.8 Multi Sensor

- **Target group:** The sensor control the pointed group lights. "Broadcast" means all lights are controlled by this sensor.

- Channel 1
  - Activated: used as master.
  - Deactivated: used as slave, to expand detection area.
- Master Operation Mode
  - Full automatic: Switch on light when detect a person and ambient light lower than setting value automatically.
  - Semi-automatic: Switch on light when detect a person and ambient light lower than setting value manually.
  - Motion-independent: Switching light only depends on light threshold.
- **Follow-up time:** The follow-up time defines the duration during which the connected load remains switched on even if no more movements have been detected. If a new movement is detected during the follow-up time, it is restarted.
- Regulation
  - Activated: The sensor can dim the light according the current lux.
  - Deactivated: Lights only switch on as the setting value, related to parameter "Switch-on level".
- **Brightness set-value:** Settings can be configured that relate to the automatic switching on and off of the lights. The brightness value set here becomes the switch-on threshold. If the brightness level drops below this threshold and the detector detects movement, the lights are switched on.
- **Brightness set-value2:** Brightness set-value can be switched by scene behaviour.
- **Brightness set-value3:** Brightness set-value can be switched by scene behaviour.
- **Brightness set-value4:** Brightness set-value can be switched by scene behaviour.
- **Orientation light:** This is generally set to be a little brighter so that the person present can open the door or find the light switch.
- Orientation light:
  - Deactivated: If no movement is detected after follow-up time, the lights will be switched off.
  - Permanent: If no movement is detected after follow-up time, the lights will be switched to orientation light value permanently. If a new movement is detected then the follow-up time restarted.
  - Timed: If no movement is detected after follow-up time, the lights will be switched to orientation light value, and then switch off after orientation time expired if there still no movement during orientation time. If a new movement is detected then both the follow-up time and orientation time are restarted.
- **Reflection factor:** The occupancy detector measures the light that is reflected from the floor, work surface or walls. The reflection factor is the ratio between the brightness measured at the ceiling and that measured at the work surface. This gives a reflection factor, which is between 1:2 and 1:3 in normal room conditions. When calculating the reflection factor, the ratio of artificial light to daylight is also considered.
- **Send motion:** If sending "BEG motion" command when detect a motion.
- **Report Time:** This parameter defines the cyclic interval during motion. The time is same as "Report time" in section "Instance Number 0 Motion Sensor".
- **Switch-on value:** The switch on level of lights. "Calculated" means switch on as the sensor calculates value depending on the current lux and switch on threshold.
- **Brightness-dependent switch-on:** The switch on level of lights. "Calculated" means switch on as the sensor calculates value depending on the current lux and switch on threshold.
- **Regulation speed:** Dimming lights by different speed when brightness changing.
- **Power-on behaviour:** Lights action when get power: no action, on or off.
- **Regulation lag time:** This parameter defines the regulate lag time.
- **Fade time:** This parameter defines the fade time of lights.
- **Minimum regulation value:** This parameter defines the minimum regulation value.
- **Maximum regulation value:** This parameter defines the maximum regulation value.
- **Sensitivity motion sensor:** This parameter defines the sensitivity of sensing person.
- **Behaviour when locking:** This parameter defines the behaviour when command "BEG lock" received. Sensor will not work if it is locked.
- **Behaviour when unlocking:** This parameter defines the behaviour when command "BEG unlock" received.
- **Burn-in time (hours):** Before they are dimmed, new fluorescent lamps should be burned in for a certain period, to ensure a long life and flicker-free operation. Burn-in function for fluorescent lamps selectable from 1h till 100h.
- **Switch-off hysteresis (brightness):** Lights will turn off if brightness larger than (brightness set-value + Switch-off hysteresis). This parameter is available if "Regulation" is "Deactivated".

- **Switch-on delay (brightness):** Lights delay on time. This parameter is only available when the operation mode is "Motion-independent".
- **Switch-off delay (brightness):** Lights delay off time.
- **Central-off delay:** Delay time when receiving "BEG Central Off" command.
- **Brightness-dependent switch-off:** Whether turn off the light or not if too bright.
- **LED indication:** If the indication LED on the board is lighting.
- **Channel 2:** This parameter defines the offset brightness between channel 1 and channel 2 is activate or deactivate. The channel 2 group address equal to channel 1 group address + 1.

This function can be used in classrooms, the light value for the class is preset at the wall side. As the intensity of the artificial light decreases due to the daylight, there is the most daylight at the window side and lighting run 3 is switched off first. Depending on how much daylight enters the room, lighting run 2 is switched off. If the brightness threshold is exceeded throughout the room, all the lights are switched off.



- **Offset Channel 2:** A fixed lighting brightness value between two channels. If one channel reach to 100%, the other channel will up to 100% also. If one channel decreases to 0%, the other channel will down to 0% also.
- **Channel 3:** The channel 3 group address equal to channel 1 group address + 2.
- **Offset Channel 3:** Offset between channel 1 and channel 3.
- **Blackboard light:** The blackboard light group address equal to channel 1 group address + 3
- **Joint control group for channels 1-3:** The channel 2 group address equal to channel 1 group address + 4. This parameter is used combined by the push button
- **Guided Light:** The setting target group will be set as main light. The "orien. Light" is work as guiding light, can be used in places such as stairs, long corridor. Light switches on as orientation level at the location where people will go to.
- **Scene behaviour:** Define the working state of the sensor to prevent the sensor destroys the scenes setting by users.

- Lock: Sensor be locked
- Unlock: Sensor be unlocked, match lock usage
- Suspend regulation: Sensor will not work if receive command "Go to scene" until no movement detected and follow up time expired, and lights will be switched off. If a new movement is detected, sensor works as usual.
- Ignore: Sensor works as usual, switching or dimming lights.
- Go to brightness set value 1
- Go to brightness set value 2
- Go to brightness set value 3
- Go to brightness set value 4

3.9 Control Device Instances

- **Report time:** If the report timer is set, it shall generate a "repeat" trigger every Treport even if the "inputValue" has not changed. The report timer shall be restarted every time an event is sent.
- **Dead time:** If the deadtime timer is set, the instance shall not send out an event until the deadtime timer has expired. The deadtime timer shall be restarted every time an event is sent.
- **Hold time:** The hold timer is only implemented for movement based sensors.
- **Hysteresis:** Percentage of illuminance level (input level).
- **Hysteresis min:** To calculate "hysteresisBand", which is the maximum of the percentage of input level and hysteresis min.

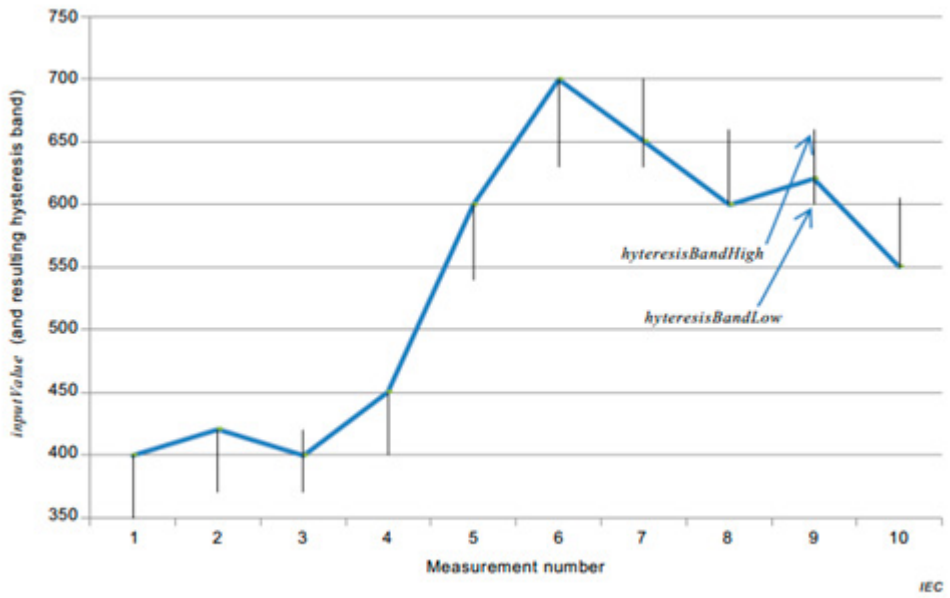
If "inputValue" is greater than "hysteresisBandHigh", then:

➜ "hysteresisBandHigh" is set to "inputValue", and "hysteresisBandLow" is set to max ("inputValue" -- "hysteresisBand",0)

If "inputValue" is less than "hysteresisBandLow", then:

➜ "hysteresisBandLow" is set to "inputValue", and "hysteresisBandHigh" is set to "inputValue" + "hysteresisBand"

This figure shows an example of "inputValue" changes, togetzer with the resultant hysteresis bands (vertical lines) for the case where "hysteresis" is 10% and "hysteresisMin" is 50. At measurements 1, 2, 4, 5, 6, 8 and 10, the illuminance level event is generated due to the new "inputValue" being outside of the previously calculated range of ["hysteresisBandLow", "hysteresisBandHigh"]. Measurements 3, 7 and 9 do not generate the illuminance level event because the "inputValue" is inside the previously calculated range of ["hysteresisBandLow", "hysteresisBandHigh"]. The initial values for "hysteresisBandLow" and "hysteresisBandHigh" are 0 due to power up of the device.



- **Short time:** The time which differentiates a short press from a long press. If a button is released within short time, either a short or a double press event will follow; a long press event otherwise.
- **Double time:** The time which differentiates a single (short) press from a double press. If a button is not pressed once more within Tdouble, a short press event occurs, a double press event otherwise.
- **Repeat time:** The repetition interval of long press repeat events.
- **Time button lock detection:** If a button is pressed or bouncing longer than stuck time it is considered broken.

3.10 SBA (Shutter-Blind-Actuator)

- **Manual Operation:** The actuator's buttons for operating the relay can be enabled and disabled with this parameter.
- **Operation mode:** The channel can be selected either for operating a blind or a roller shutter.
- **Start-up delay:** Some motors cannot deliver full power when being switched on, but only after a few milliseconds. The time it takes for the motor to reach full power can be compensated by setting the motor's start delay
- **Move time upwards:** Sets the duration for an upwards movement in seconds.
- **Move time downwards:** Sets the duration for a downwards movement in seconds.
- **Pause on change of direction:** The time set here relates to the delay between an upward and a downward movement or vice versa of the blind/roller shutter.
- **Duration of slat adjustment:** This parameter is only available if the operating mode is selected as blind. The duration of slat adjustment sets the time period which is required to drive the slats from 0 % to 100 % or vice versa
- **Step time:** This parameter is only available if the operating mode is selected as blind. A step is a short movement of the blind triggered by a short push button press.
- **Listen to Broadcast:** If this parameter is activated, the channel is controlled via communication objects 1, 2, 3, 4. If the parameter is deactivated, these objects are ignored.
- **Slat reaction after up/down movement:** This parameter is only available if the operating mode is selected as blind. It defines the position of the slats after up/down movement.
- **Slat position:** This parameter is only available if the operating mode is selected as blind and "Slat reaction after up/down movement" set to the defined position.
- **Behaviour on voltage return:** The behaviour of the blinds/roller shutters on bus voltage return, for example after voltage loss due to power breakdown, can be defined.
  The option "up" or "down" provokes the blind/roller shutter to be opened or closed, respectively. If the shutter/blind moves at the moment of bus voltage return, this movement can be stopped.
- **Reaction on system error:** The behaviour of the blinds/roller shutters on bus voltage loss, for example due to power breakdown, can be defined.
- **Behaviour on lock:** The behaviour of the blinds/roller shutters after receiving the "BEG Lock" command, can be defined.
- **Behaviour on unlock:** The behaviour of the blinds/roller shutters after receiving the "BEG Unlock" command, can be defined.
- **Central Off Reaction:** The behaviour of the blinds/roller shutters after receiving the "BEG Central Off" command, can be defined.

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