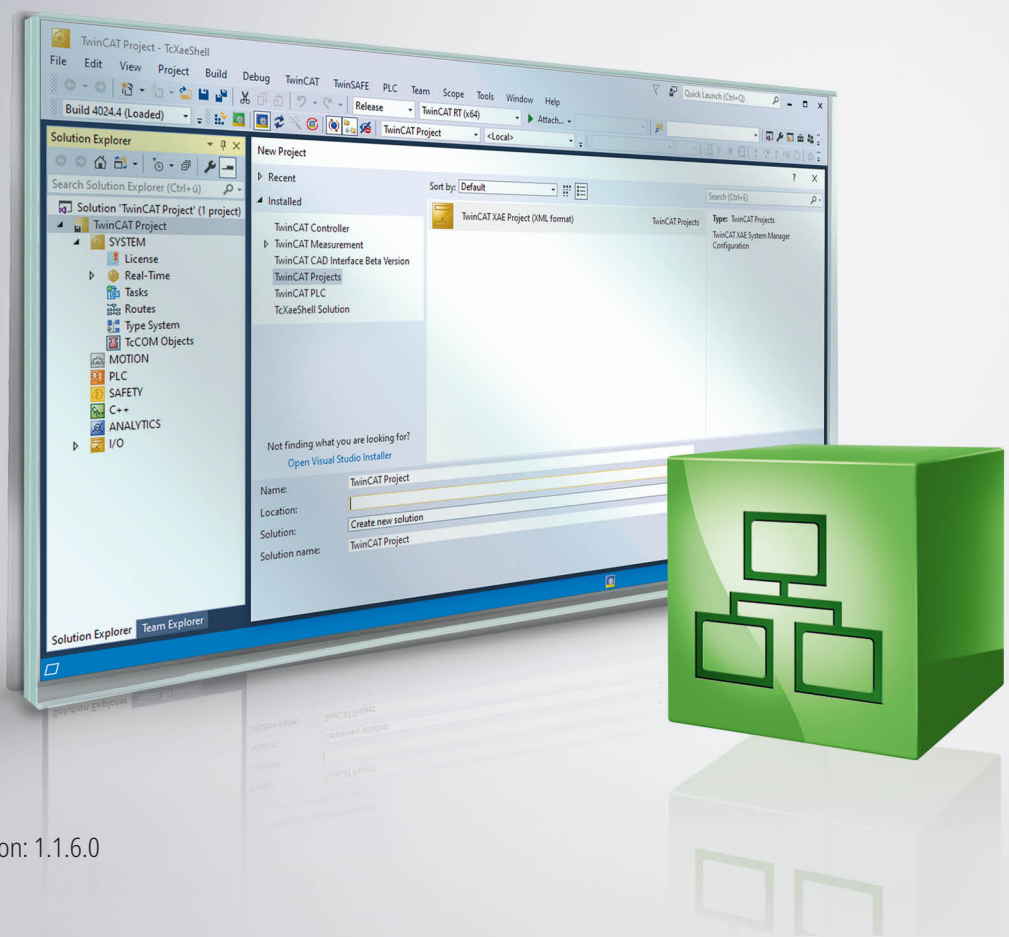
BECKHOFF New Automation Technology

Manual | EN

TF8050

TwinCAT 3 | LS Light Solution



2021-07-07 | Version: 1.1.6.0

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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with applicable national standards.
It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.
It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.
We reserve the right to revise and change the documentation at any time and without prior announcement.
No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

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Patent Pending

The EtherCAT Technology is covered, including but not limited to the following patent applications and patents:
EP1590927, EP1789857, EP1456722, EP2137893, DE102015105702
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1.2 Safety instructions

Safety regulations

Please note the following safety instructions and explanations!
Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

Exclusion of liability

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

Description of symbols

In this documentation the following symbols are used with an accompanying safety instruction or note. The safety instructions must be read carefully and followed without fail!

⚠ DANGER

Serious risk of injury!

Failure to follow the safety instructions associated with this symbol directly endangers the life and health of persons.

⚠ WARNING

Risk of injury!

Failure to follow the safety instructions associated with this symbol endangers the life and health of persons.

⚠ CAUTION

Personal injuries!

Failure to follow the safety instructions associated with this symbol can lead to injuries to persons.

NOTE

Damage to the environment or devices

Failure to follow the instructions associated with this symbol can lead to damage to the environment or equipment.

Tip or pointer

This symbol indicates information that contributes to better understanding.

2 Version releases TF8050 LS

Overview of the version releases of the TF8050 LS function:

Version	Date	Change
1.0.1.0		First release
1.0.1.1		• Bug fix: Images in the visualization are now displayed correctly. • Two new languages added: Dutch, French.
1.1.4.14		New • Push button coupler/push button (Lunatone MC+ Dali-2). • Energy measurement: Up to 15 measurements with live display of power/current and automatic data storage in csv files for further use and evaluation. • Slave mode (linking mode/swarm technology) possible for groups. • Sensors extended: Tridonic, Esylux. • Sensor "External input": Conventional sensors or your own logics can be integrated via the PLC in order to trigger the presence. • Central off: Exceptions can be formed for groups. Corridor lighting can thus remain switched on. • Simplified and faster Excel configuration: Lights, push button couplers and sensors each have just one file. • HCL dimming position: Depending on the color temperature, the luminous intensity may be influenced.
1.1.6.0		New • Differentiation between operator and configuration page • Scenes (30 items) • External alarms possible (50 items) • Circuits: Percent, analog, DMX values • Circuits: 50 instead of 30 possible • Osram Dali-2 devices compatible • External sensors can be integrated, e.g. KNX, Modbus, EnOcean, Conventional sensors, twilight switches etc. • New language: Spanish • Manual operation for groups added • Many data points made available for further utilization (e.g. building management) (see programming)

3 Technical data

Hardware

The TF8050 Light Solution (LS) generally offers no limits with regard to the number of Dali-2 lines or the number of Bus Couplers used in various subdistributions. The performance can be heavily utilized depending on the size of a system. Therefore, attention should be paid to the following recommendations when selecting the controllers:

- Panel PC
  - Dali lines: 1 – 12: CP6606
  - Dali lines: 1 – 18: CP6706
  - Dali lines: 1 – 35: CP6706 4-core
- DIN-rail controller
  - Dali lines: 1 – 12: CX9020
  - Dali lines: 1 – 18: CX5120
  - Dali lines: 1 – 35: CX5140

Software

- TwinCat 3
- Target, web visualization (HMTL 5)
- Unlimited number of Dali lines
  - Maximum 63 sensors/push button couplers per line
  - Max. 63 lamps per line
- 200 groups
- 10 areas
- 30 scenes
- 50 circuits
- 50 schedules
- 100 switches/push buttons

NOTE

Losses in performance

We highly recommend that you plan for a maximum of 50 lamps per line. In practice there may be losses in performance if there are too many devices on the bus.

Adaptation of old tables

The Light Solution is a product that continuously adapts itself to the latest technical requirements. For example, a new version may contain functions of the latest sensors that didn't exist before. These new items may lead to old tables (see Excel configuration [▶ 35]) no longer being readable 1-to-1, so that they have to be adapted to suit the update.

4 Functional description

The LS light controller offers a complete package for the control and programming of the lighting system. The range of functions extends from the addressing of the individual devices to the formation of virtual cross-line groups in the Dali-2 system and from the integration of circuits to the display and maintenance of all devices. The configuration and addressing can take place completely and flexibly via the visualization. The fast parameterization and allocation of all devices can be done with the help of simple Excel spreadsheets. All parameters can always be changed during operation.

Sensors, push buttons or schedules can be integrated for controlling the lighting. The lamps, circuits, sensors, push buttons and schedules can be assigned to individual or several groups or scenes as required.

Each of these groups can operate with a daylight-dependent control or with an adjustable light value control. In addition, the operation mode (circuit, semi/fully automatic, etc.) can be selected for each group. If sensors are used, the light is switched off on expiry of the 1st overrun time (OT1). With a 2nd overrun time (OT2) –if desired– the lighting can initially be ramped down to a basic value until it is switched off on expiry of this time. Individual scenes can be created and saved across all groups.

Each group can be assigned an area, which can be activated via a push button or schedule. The light can only be switched on via a sensor if the area is activated. Pass-through or night watchman circuits, for example, are thus easy to insert at any time with the help of the flexible group logics.

In manual operation mode, all Dali lines are addressed simultaneously by broadcast. This mode is important, especially prior to the initial commissioning, so that the electricians can check and test their DALI wiring. If the individual lamps do not react here, this means that there is a defect in the control gear, the lamp or the cabling.

Furthermore there is a maintenance mode for each individual lamp as well as each group in order to specifically override and test them. Defective control gears and sensors can be replaced or added during operation.

All settings, parameters, etc. are generally password-protected. Users can be managed via the system's own user management.

NOTE

Performance problems

The system performance can be greatly reduced if an unnecessarily large number of devices and groups are marked as "enabled". Mark only devices that are used and available!

The illustrations in the following chapters may differ slightly from the latest version.

In the first column of each table you can open a dialog for changing the parameters. Changes are possible only when logged in.

The light intensity with DALI is scaled logarithmically from 0 to 254. The following table is provided for orientation:

Dali	Light intensity
150	5%
180	15%
200	25%
220	40%
240	70%
250	95%
254	100%

4.1 Web visualization

The web visualization is called via the following path; this is an example link, so you should adapt the IP to the corresponding device settings beforehand:

http://192.168.2.10/Tc3PlcHmiWeb/Port_851/Visu/webvisu.htm

4.2 Navigation

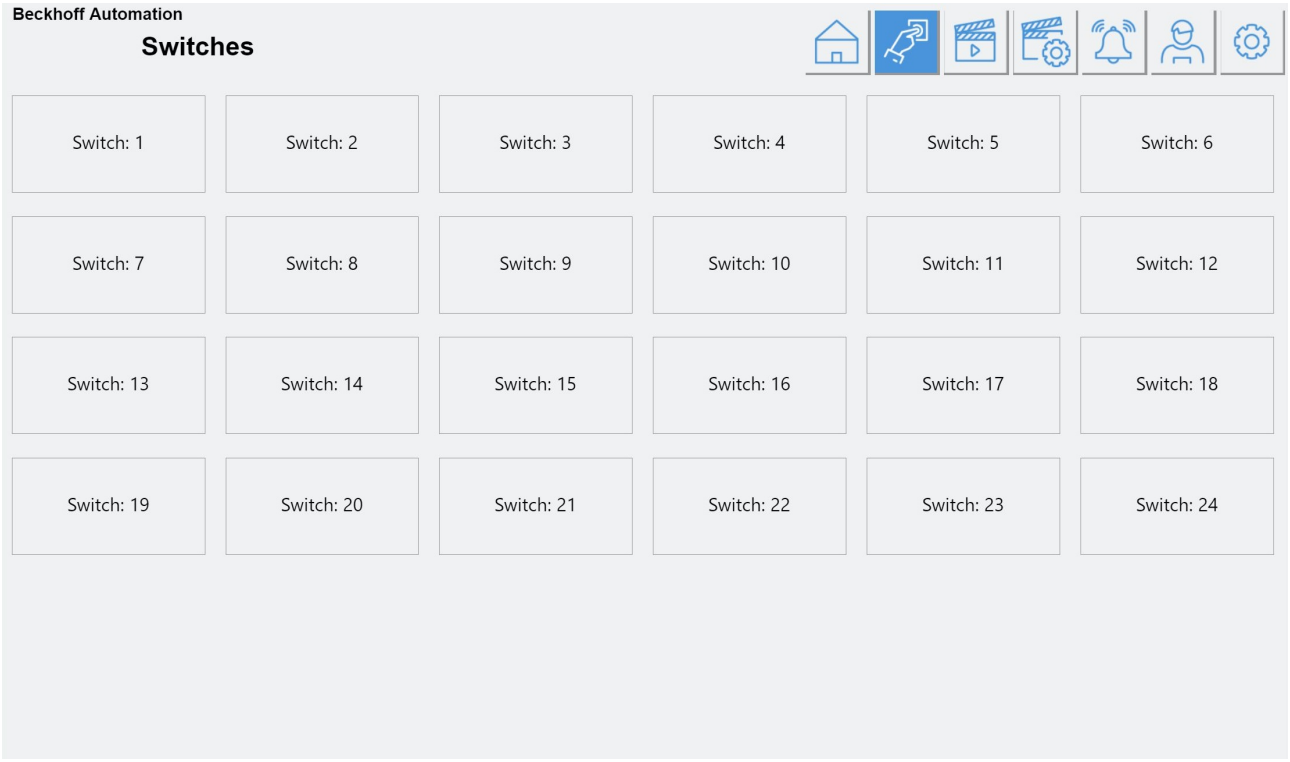
The navigation differs in the user and configuration interface. The system always starts up with the operator page. Buttons, scenes and individual scene groups can be operated without user login. The user also sees the current alarm states. The configuration interface can be accessed via the gear wheel. This usually requires a login.

When enabled, the **Home** button takes you back to your custom visualization.

4.3 Touch control

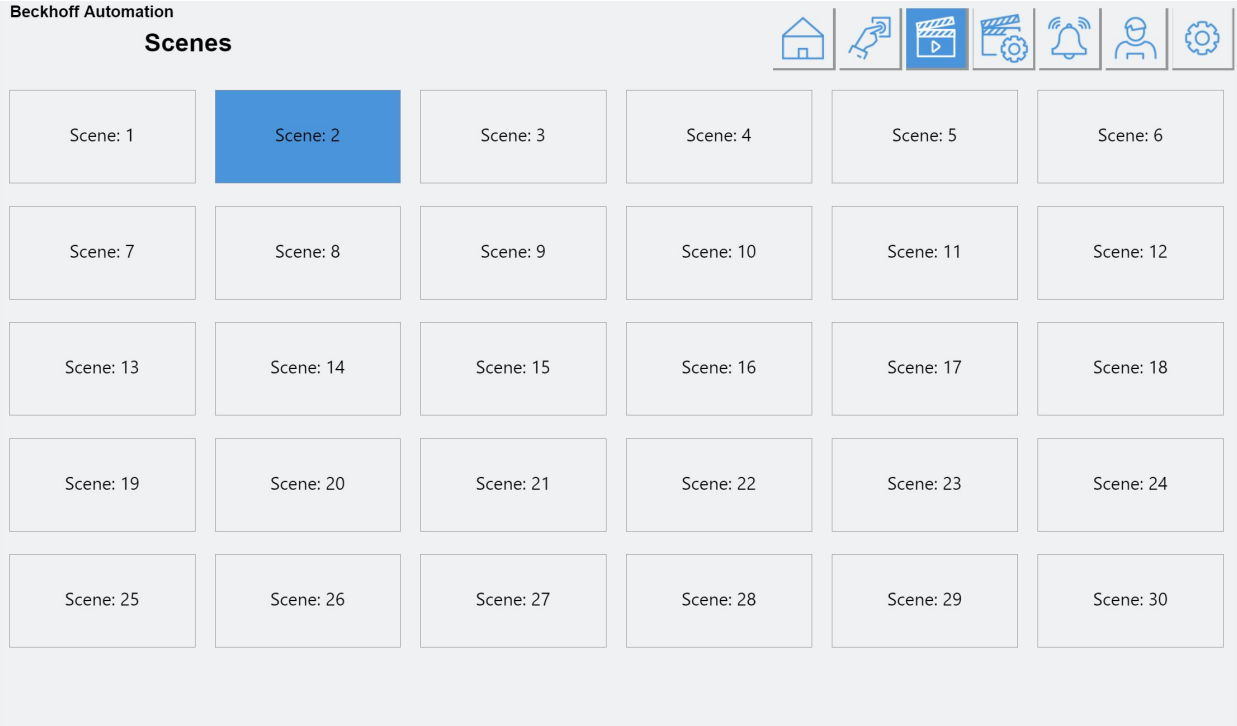
The page contains the first 24 buttons for direct operation without login.

The general activation is done on the Settings page 2.



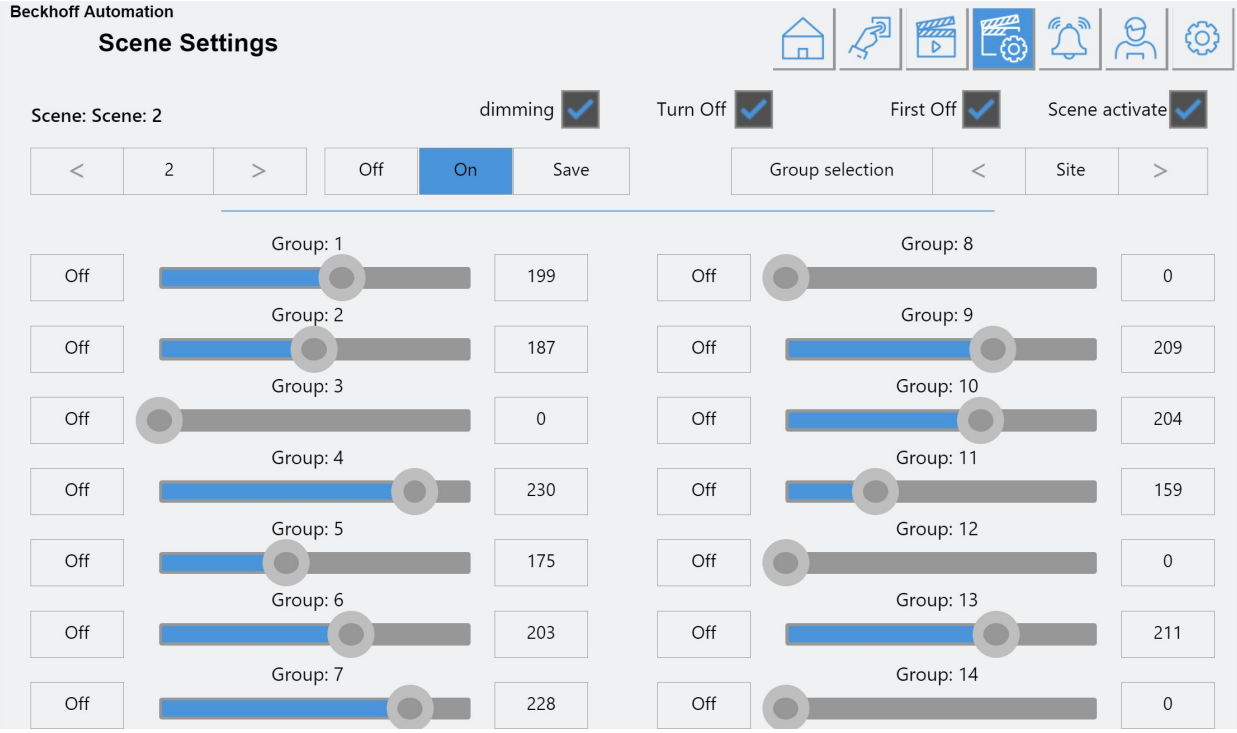
4.4 Scenes

The page contains 30 scenes for direct operation without login. Scenes that are not enabled are hidden. Calling up the scenes via push buttons/schedules is explained on the respective configuration pages.



4.5 Scene settings

Use the arrow keys or direct selection to navigate to the desired scene. For the respective scene, the assigned group circuits are displayed in the lower field. The assignment is made via the **Group selection** button. Each group circuit can be operated manually by means of a slider or direct input. Groups that are not enabled are displayed with a corresponding warning. Once the desired light pattern has been set, it can be saved as a scene via **Save**. The scene can be enabled or disabled via the **On** / **Off** buttons. All 200 possible groups can be selected for each scene. You can navigate here using the arrow keys on the right-hand side.



Scene name	The scene name can be changed by pressing the text box.
Dimming	Allows you to dim the entire scene by pressing and holding a button.
Switching off	Allows the scene to be switched off, if it is active. To avoid the button being pressed twice accidentally, this function should be disabled. To switch off, another scene can be stored with 0 as values.
Switch off first	If only one lighting group of this scene has a value greater than 0, the scene is first switched off when a button is pressed. If a direct transition from one scene to the next is desired, this function should be disabled.
Enable scene	Enables the scene. Inactive scenes are ignored and are invisible in the display.
Group selection	Enables the respective switching groups for the selected scene.

4.6 Groups

All groups are displayed simultaneously in one table. 200 groups are possible.

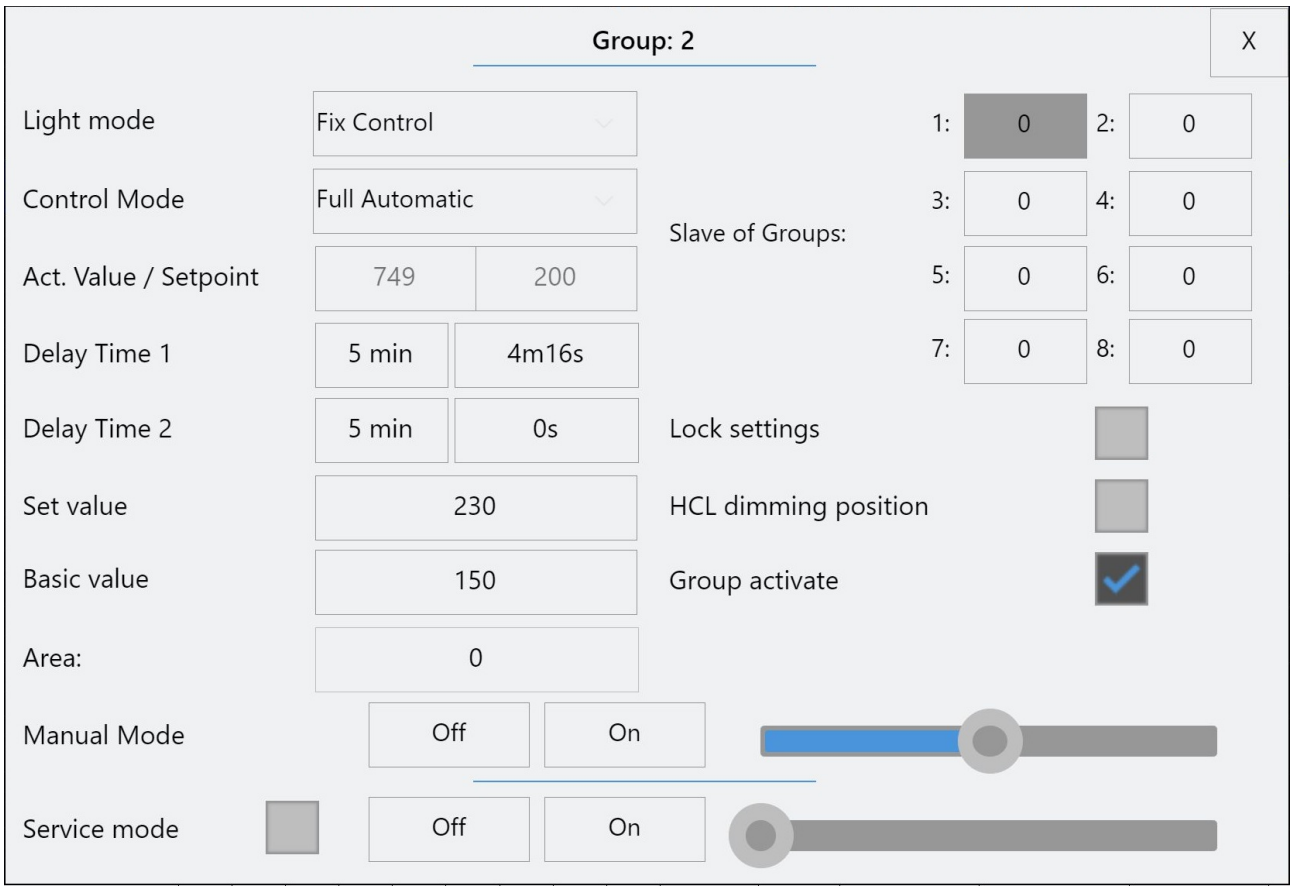
Each group can additionally be assigned to one of 10 areas.

Area assignments are helpful when certain groups are to be disabled, as long as they are not activated via push buttons or schedules.

Beckhoff Automation

Groups

	Group	Area	Set value	Basic value	Setpoint	Brightness
1	Group: 1		199	230	150		0
2	Group: 2		187	230	150		749
3	Group: 3		0	230	150		0
4	Group: 4		230	230	150		0
5	Group: 5		175	230	150		0
6	Group: 6		203	230	150		0
7	Group: 7		228	230	150		0
8	Group: 8		0	230	150		0
9	Group: 9		209	230	150		0
10	Group: 10		204	230	150		0
11	Group: 11		159	230	150		0
12	Group: 12		0	230	150		0
13	Group: 13		211	230	150		0
14	Group: 14		0	230	150		0
15	Group: 15		0	230	150		0


Group: 2
X
Light mode
Fix Control
Control Mode
Full Automatic
Act. Value / Setpoint
749
200
Delay Time 1
5 min
4m16s
Delay Time 2
5 min
0s
Set value
230
Basic value
150
Area:
0
Manual Mode
Off
On
Service mode
Off
On
Slave of Groups:
1: 0
2: 0
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
Lock settings
HCL dimming position
Group activate

Group	Display of the group designation; changeable in the dialog.
Maintenance 	Display in red if the maintenance mode is active. This overrides all other group commands. In this mode a group can be switched on or off and dimmed via a slider. For test purposes or for overriding in case of error (e.g. sensor is no longer triggered).
Occupancy 	Display of the current group presence in green. At least one sensor in the group detects a person.
Overrun time 1 	Display in green if the first overrun time is active. The current overrun time is displayed in the group dialog.
Overrun time 2 	Display in green if the second overrun time is active. The current overrun time is displayed in the group dialog.
Push buttons 	Display in green if the group has been switched via a push button or via manual mode. Manual mode (group, dialog or scene settings) overrides automatic mode.
Schedule 	Display in green if a schedule is active.
Scene 	Display in green when a scene overrides the group. The scene puts the group into manual mode.
Slave of groups 	Display in green if the group is addressed by another group. The value is switched to the basic value if no higher group requirement is pending. Also known as "swarm technology" or "light cone mode".
HCL dimming position 	Display in green if the set value/setpoint is influenced by the HCL curve. In the HCL settings, different dimming settings can be selected for different times of day to influence the luminous intensity. This function can be enabled here. Not recommended in the case of groups without HCL.
Light value 	Display of the current light value transmitted to the lamps. The value is displayed in Functional description [▶ 9].
Set value	The set value switches the light on at this fixed value as long as the group is directly requested. The value is displayed in Dali values, provided the control mode is active.
Basic value	The basic value is enabled via the 2nd overrun time or via the slave mode. The value is displayed in Dali values.
Setpoint	The setpoint specifies a value that the "Curr. brightness" should reach and maintain. The lamp value regulates itself in order to maintain the brightness.
Curr. brightness	The current brightness is formed from the mean value of all the sensors in the group. Like the setpoint, this value is to be regarded as having no unit and is not to be directly compared with Lux.
Overrun 1	The 1st overrun time specifies how long the lamps are held at their value without presence. If the time has expired, the 2nd overrun time is started and the lamps are set to the basic value.

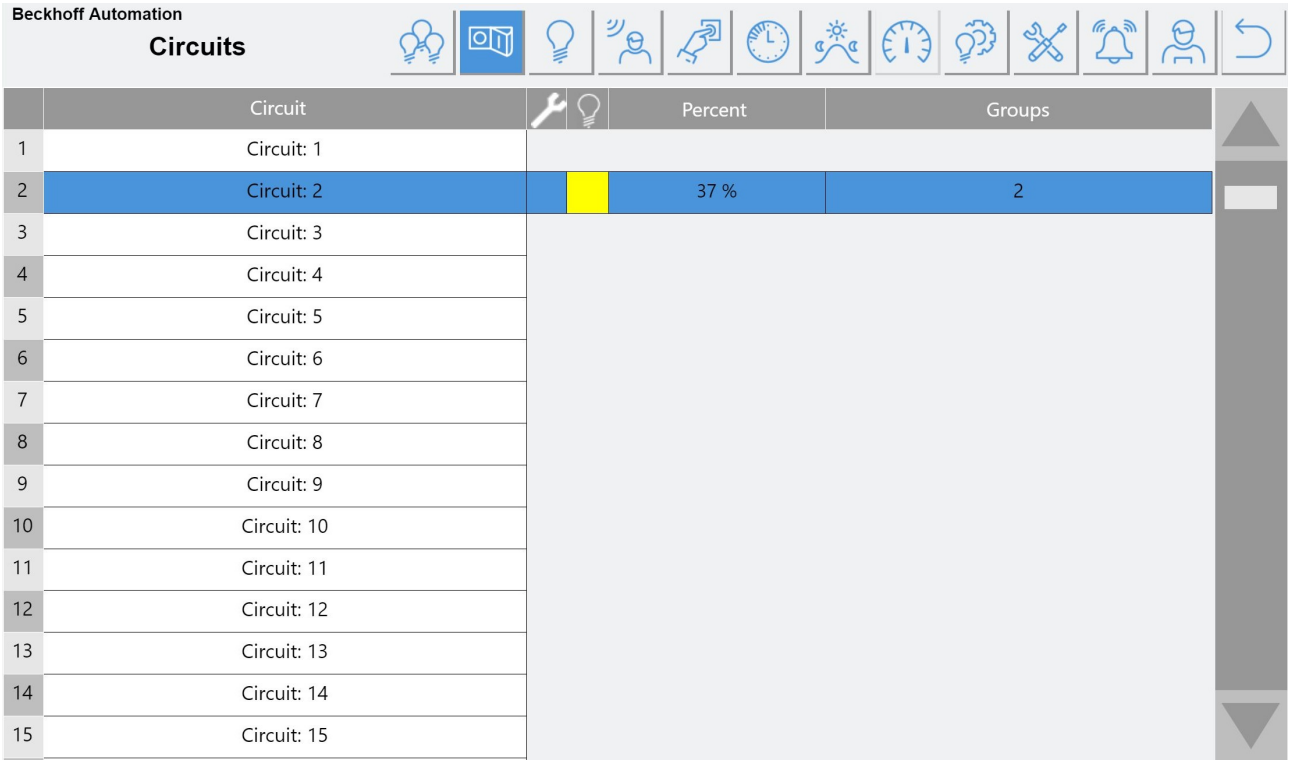
Overrun 2	The 2nd overrun time specifies how long the lamps are held at their basic value. If the time has expired, the lamps are switched off.
Disable settings	Disables global changes for this group. Global changes for the set values, basic values, setpoints, overrun times, etc. can be made on the **Settings** page.
Area	Each group can be assigned to one of 10 areas. The group is always activated if 0 is selected. As soon as a group has been assigned to an area, this group can only be switched on when the area has been activated beforehand via a push button or schedule.
Light mode	
Fixed Control	The Fixed Control directly accepts the set value.
Daylight Control	The Daylight Control changes the lamp value in relation to the difference between the actual value and the setpoint. Daylight Control parameters can be changed in the settings.
Control mode	
Sensor / push button / schedule	Switch-on takes place by sensor or push button or schedule. The status remains unchanged as long as a component is active.
Sensor + (push button / schedule)	Switch-on only takes place if the activation has taken place via the push button or a schedule and the sensor is also triggered.
Daylight Control	Always active in the "Daylight Control" mode. Activated via button/schedule in the "Fixed Control" mode. Presence always triggers. Useful with an area activation if only a light sensor without presence is available.
Fully automatic	The light switches on and off automatically via the sensor. If the light is operated or dimmed manually with the push button, the manual mode is retained until the overrun time without presence has elapsed. Schedules have no effect.
Semi-automatic	The light is switched on via the push button. The sensor only switches off automatically. If the light is operated or dimmed manually with the push button, the manual mode is retained until the overrun time without presence has elapsed. Schedules have no effect.
Manual push button	The light is switched on and off via the push button. Schedules have no effect. In Daylight Control mode the Daylight Control can be enabled/disabled via the push button.
Manual push button with overrun	The light is switched on and off via the push button. In addition, switching-off takes place on expiry of overrun time 1. Schedules have no effect. In Daylight Control mode the Daylight Control can be enabled/disabled via the push button.
Enable	Enables the group. Disabled groups are ignored and are invisible in the display.

4.7 Circuits

All circuits are shown in a table. Up to 30 circuits can be integrated (at the same time the physical output GVL_LS_IO.bCircuit[x]). The voltage (230 V, 24 V, etc.) that should be present at the output is irrelevant for the function.

The output is switched as soon as one of the four groups is active.

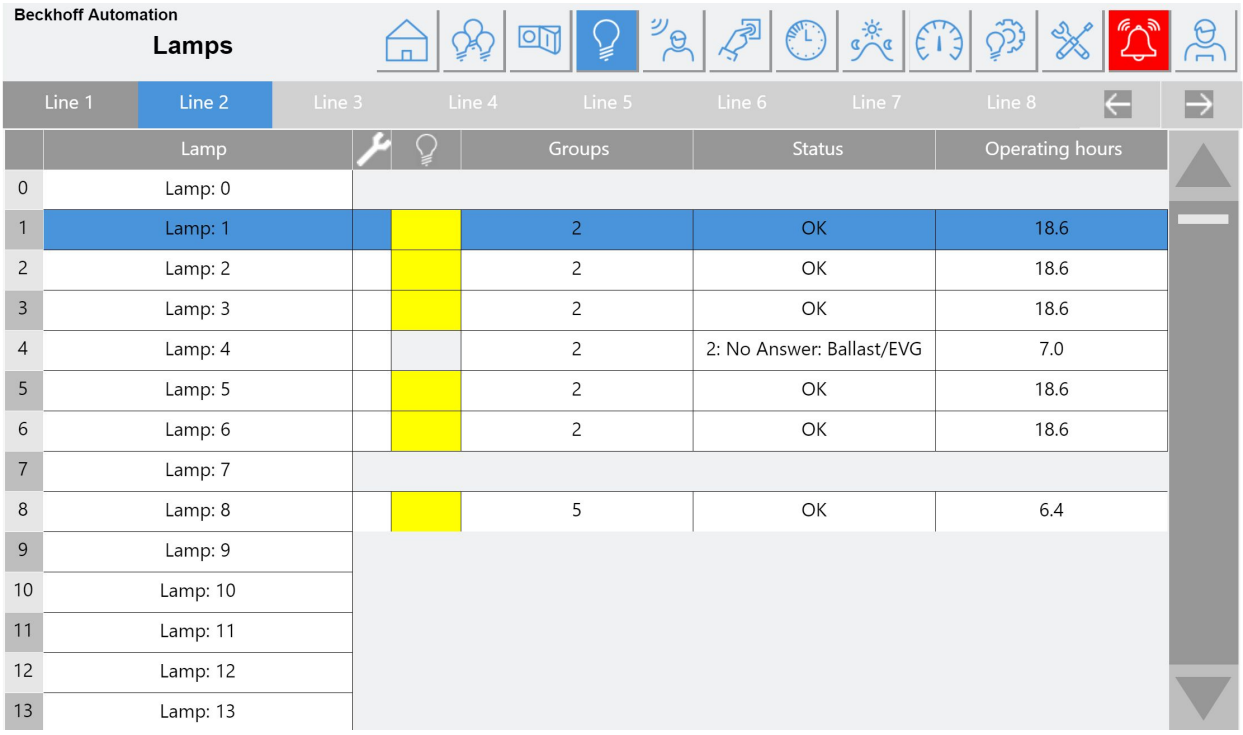
The group value is output simultaneously in percent, analog and as DMX value. This means that dimmer terminals (KL2751, KL2761 or 0..10V Analog Output terminals) can be integrated directly; for DMX terminals (EL6851) further programming is required.



Circuit	Display of the circuit designation; changeable in the dialog.
Maintenance 	Display in red if the maintenance mode is active.
Lamp 	Display in yellow if the circuit is switched on.
Percent	Display in percent.
Groups	All groups assigned to these circuits are displayed. Up to 4 groups can be assigned. The group "0" has no effect.
Maintenance mode	The maintenance mode for the circuit can be activated individually in the Circuits dialog. The circuit can be switched on or off.
Enable	Enables the circuit. Disabled circuits are ignored and are invisible in the display.

4.8 Lamps

All lamps are distributed to several lines. Each line has 0 to 63 lamps (at the same time the physical address).



	Lamp		Groups	Status	Operating hours
0	Lamp: 0				
1	Lamp: 1		2	OK	18.6
2	Lamp: 2		2	OK	18.6
3	Lamp: 3		2	OK	18.6
4	Lamp: 4		2	2: No Answer: Ballast/EVG	7.0
5	Lamp: 5		2	OK	18.6
6	Lamp: 6		2	OK	18.6
7	Lamp: 7				
8	Lamp: 8		5	OK	6.4
9	Lamp: 9				
10	Lamp: 10				
11	Lamp: 11				
12	Lamp: 12				
13	Lamp: 13				

Lamp designation	Display of the lamp designation; changeable in the dialog.
Lamp 	Display in yellow if the lamp is switched on.
Maintenance 	Display in red if the maintenance mode is active.
Current value / lamp value	Display of the current light value transmitted to the lamps. The value is displayed in Dali values [▶ 9].
Groups	All groups assigned to these lamps are displayed. Up to 8 groups can be assigned. The lamp always assumes the value of the group that currently specifies the largest Dali value. The group "0" has no effect.
Status	The state indicates whether the lamp or the control gear has an error.
Operating hours	Display of the operating hours. Each lamp is evaluated in a minute cycle. The manual override is not counted. The counted hours can be reset under **Replace control gear?**.
Maintenance mode	You can activate the maintenance mode individually for the lamps in the lamps dialog. All other lamp commands are thereby overridden. For test purposes or for overriding in case of error you can switch the lamps on or off or dim them via a slider.
Enable	Enables the lamp. Disabled lamps are ignored and are invisible in the display.
Replace control gear?	Reprogramming of the control gear from the controller (see below)

If a control gear has to be replaced, the reprogramming can be carried out automatically from the controller:

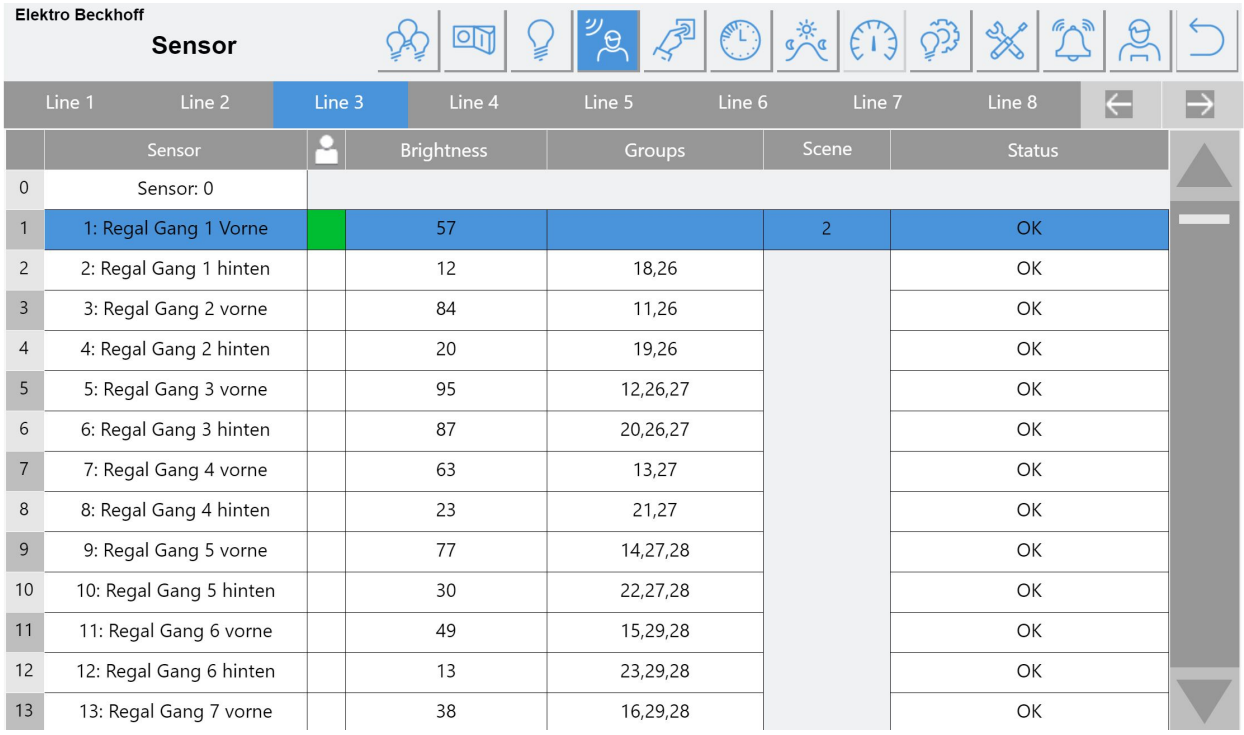
1. To do this, actuate the **Replace control gear?** button in the lamp dialog for the respective lamp.
   ⇨ A dialog opens containing warning notices. A maximum of one control gear may be replaced at any one time.
2. Start the addressing mode using the **Addressing Mode** button as soon as a control gear has been replaced.
3. On clicking **Start,** the new control gear will be programmed. It is given the same address that the previous one had.

⇨ The value **addressed control gears** should be "1" if the procedure has been successfully completed.

If several devices were addressed, they must be precisely allocated (see Addressing [▶ 26]).

4.9 Sensors

All sensors are distributed to several lines (at the same time the physical address).



	Sensor		Brightness	Groups	Scene	Status
0	Sensor: 0					
1	1: Regal Gang 1 Vorne		57		2	OK
2	2: Regal Gang 1 hinten		12	18,26		OK
3	3: Regal Gang 2 vorne		84	11,26		OK
4	4: Regal Gang 2 hinten		20	19,26		OK
5	5: Regal Gang 3 vorne		95	12,26,27		OK
6	6: Regal Gang 3 hinten		87	20,26,27		OK
7	7: Regal Gang 4 vorne		63	13,27		OK
8	8: Regal Gang 4 hinten		23	21,27		OK
9	9: Regal Gang 5 vorne		77	14,27,28		OK
10	10: Regal Gang 5 hinten		30	22,27,28		OK
11	11: Regal Gang 6 vorne		49	15,29,28		OK
12	12: Regal Gang 6 hinten		13	23,29,28		OK
13	13: Regal Gang 7 vorne		38	16,29,28		OK

Sensor	Display of the sensor designation; changeable in the dialog.
Presence 	Display in green if presence is detected.
Brightness	Display of the currently measured light value. This value is not assigned to a unit and is not to be compared directly with Lux.
Group	Display of all the groups that the sensor switches.
Scene	Display of the scene that the sensor switches.
Status	The status indicates whether the sensor has an error.
Type	The type specifies the sensor model. You can select it from a drop-down menu in the sensor dialog. It is essential to select the correct type.
Steinel Dali-2	e.g.: Steinel IR Micro, IS3360, IS345
Steinel LiveLink	e.g.: Steinel LiveLink HF360, LiveLink Dual HF, LiveLink IR, LiveLink Quattro HD
Steinel LS	e.g.: Steinel LiveLink light sensor
Steinel US	e.g.: Steinel LiveLink Dual US
BEG Luxomat	B.E.G. BMS: PD11-BMS-FLAT, PICO-BMS, PD2N-BMS, PD4-BMS, PD4N-BMS, PD4-BMS-GH, PD4-BMS-K, LC-Mini 120 BMS Osram Dali-2
Tridonic MSensor	Tridonic MSensor
Extern Input	Conventional sensors or your own logics for triggering the presence can be linked via the PLC. See the section on Programming [▶ 40].
Esylux	e.g.: PD-C 360/8 BMS DALI-2: Presence + brightness
Range	The value must be between 0 and 255. The higher the value, the larger the range of the detector. For HF/US sensors only.
Sensitivity	The value must be between 0 and 15. The smaller the value, the more sensitively the sensor reacts. For HF/US sensors only.
Enable	Enables the sensor. Disabled sensors are ignored and are invisible in the display. Enablement causes the simultaneous disablement of the corresponding Dali push button coupler on the same line and address.

4.10 Push-buttons

All push buttons are shown in a table. Up to 100 push buttons can be integrated (at the same time the physical input GVL_LS_IO.bSwitch[x]).

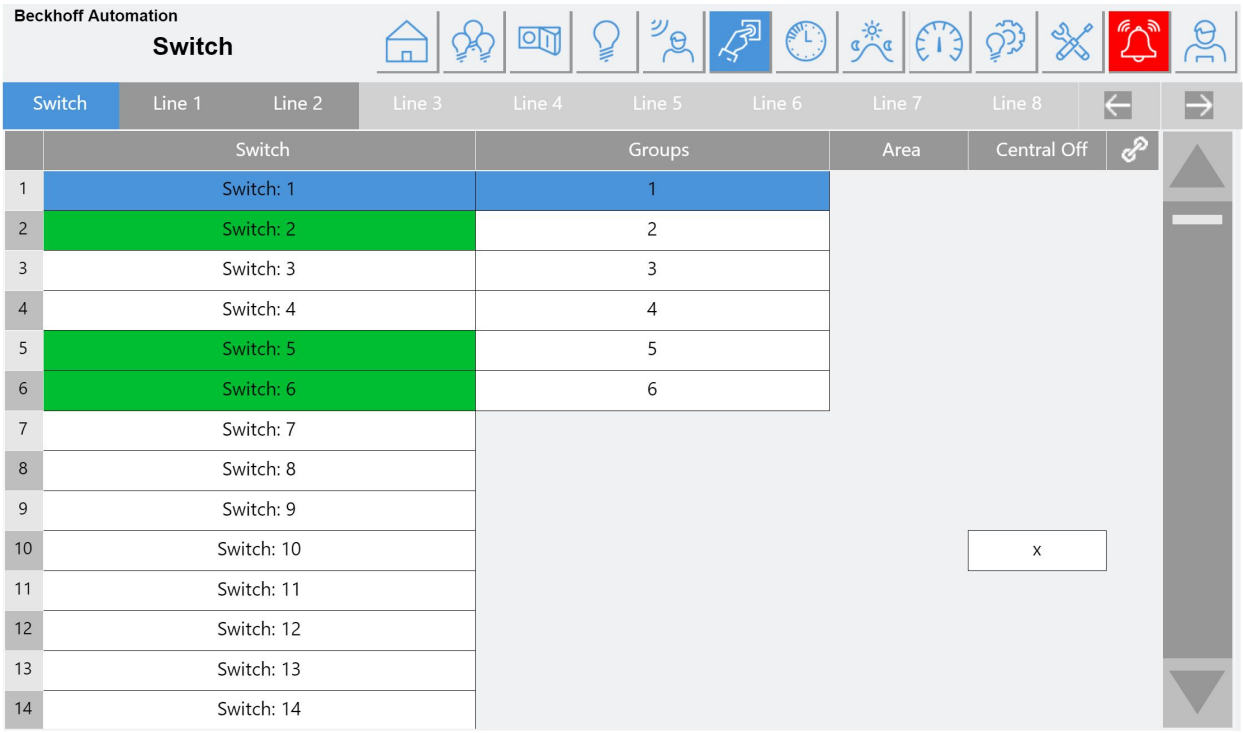
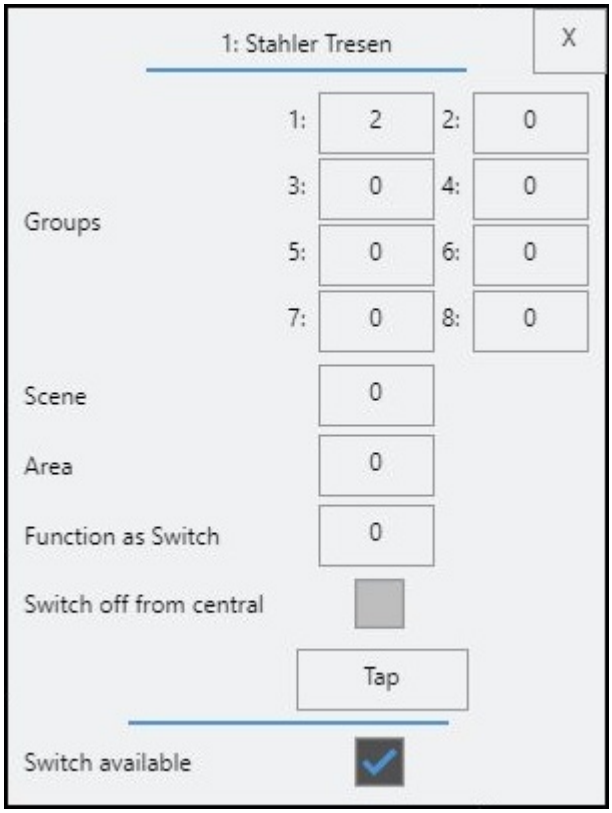


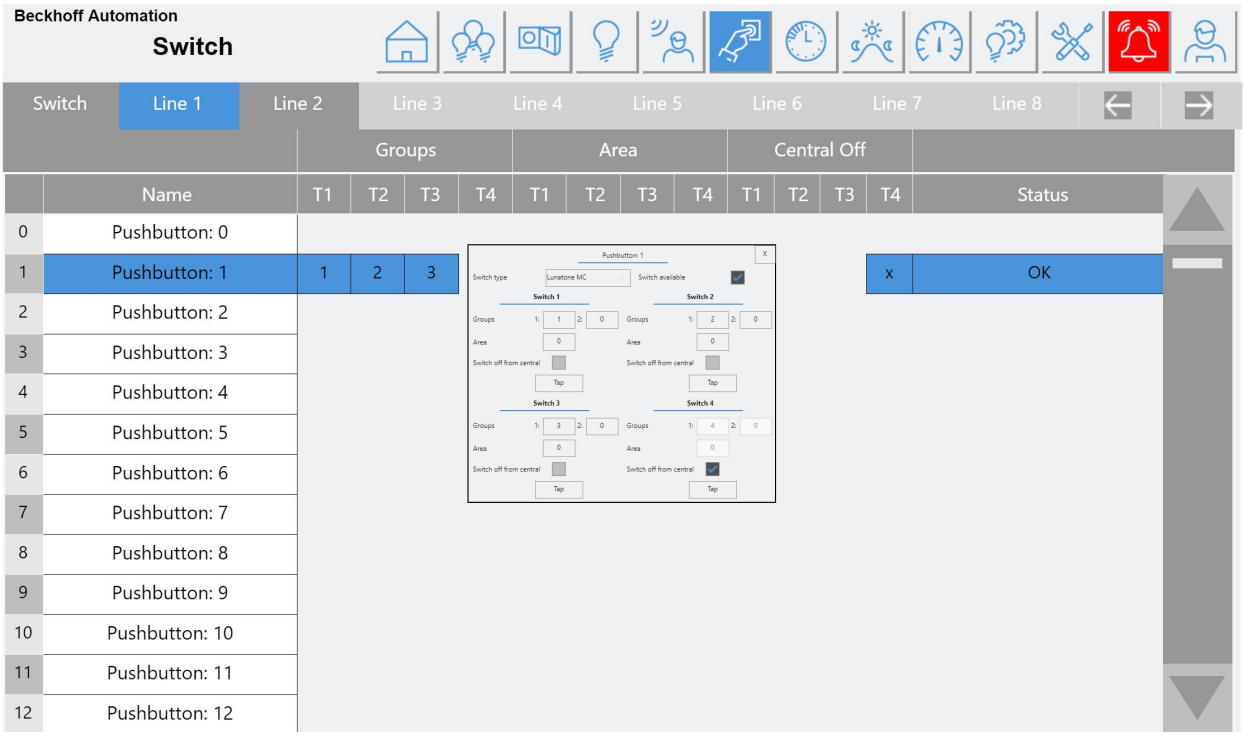
Fig. 1:

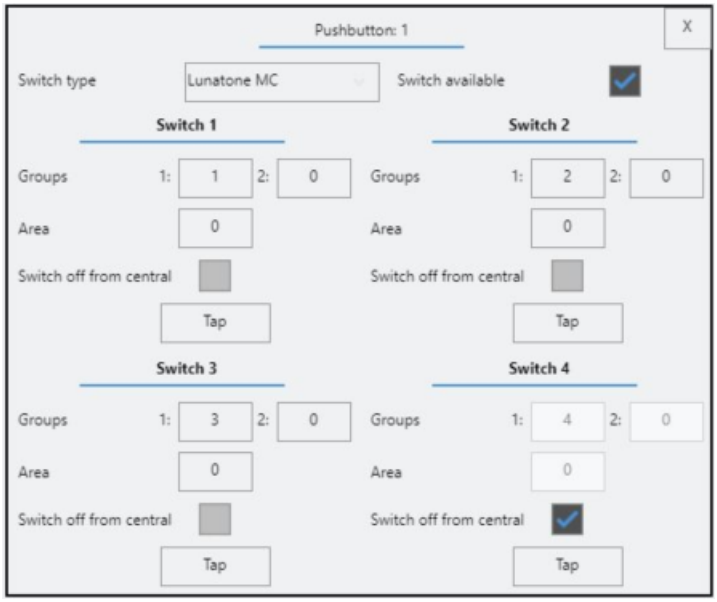


Push button	Display of the push button designation; changeable in the dialog. Display in green if the push button has been actively pressed.
Groups	All groups assigned to this push button are displayed. Up to 8 groups can be assigned.
Scene	Display of the scene that the push button switches.
Area	An area can be assigned to a push button here. The area can then be activated or blocked using this push button. The other functions are disabled. The push button can only be used again for other purposes when the area is "0" again.
Central off	An "**X**" indicates when this function has been activated for the push button. This function switches all groups off. The overrun times are reset. Schedules remain active. Exceptions for groups can be formed under **Settings**, e.g. if the corridor lighting should remain on.
Function as push button 	With this function you can assign the same function to the push button as another push button already has. Up to 4 push buttons can be assigned to another push button.
Buttons	In the dialog a button press can be triggered by actuating the button via the visualization.
Enable	Enables the push button. Disabled push buttons are ignored and are invisible in the display.

4.11 Dali push button coupler

All sensors are distributed to several lines (at the same time the physical address).

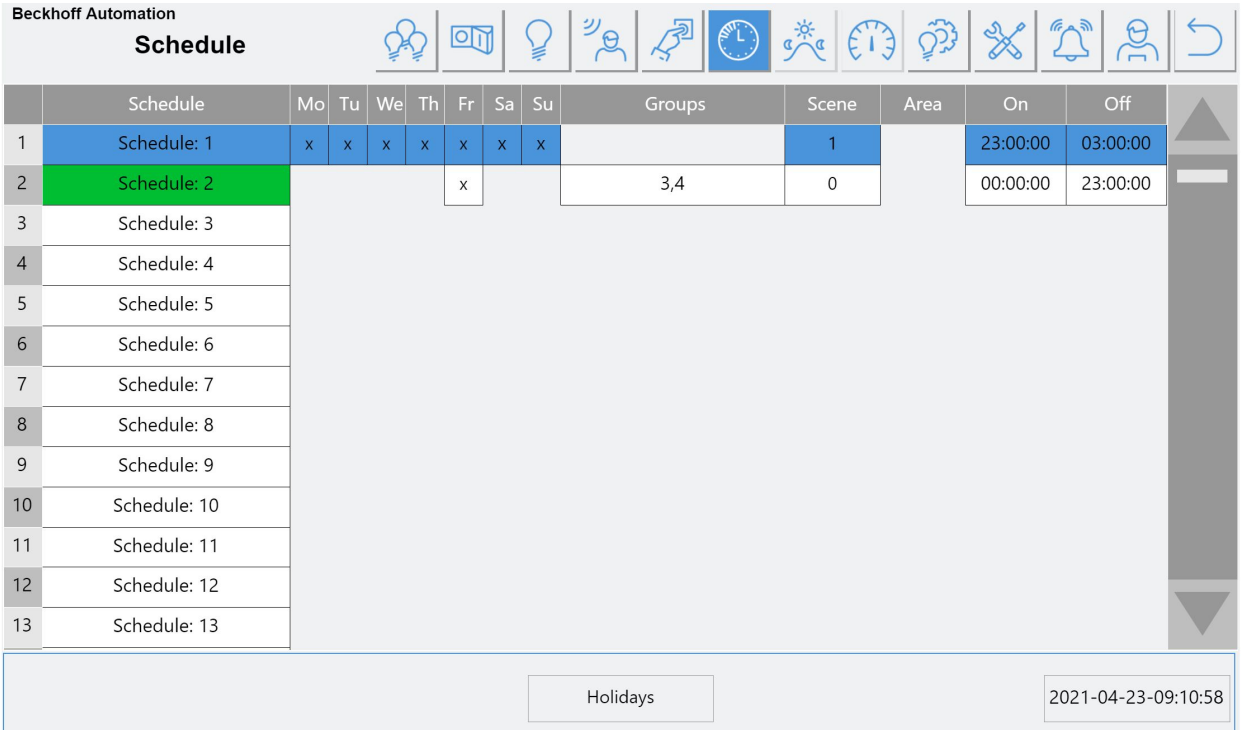


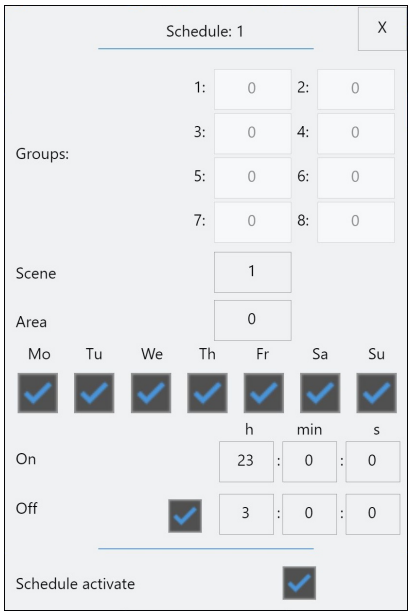


Name	Display of the push button designation; changeable in the dialog.
Groups **T1-T4**	Display in green if the push button has been actively pressed. All groups assigned to this push button are displayed. Up to two groups can be assigned per push button input T1-T4.
Area **T1-T4**	An area can be assigned to a push button here. The area can then be activated or blocked using this push button. The other functions are disabled. The push button can only be used again for other purposes when the area is "0" again.
Central off **T1-T4**	An "**X**" indicates when this function has been activated for the push button. This function switches all groups off. The overrun times are reset. Schedules remain active. Exceptions for groups can be formed under **Settings**, e.g. if the corridor lighting should remain on.
Status	The status indicates whether the push button coupler has an error.
Push button type	The type indicates the push button coupler model. You can select it from a drop-down menu in the sensor dialog. It is essential to select the correct type.
Lunatone MC	Lunatone MC+ Dali-2 Osram Push Coupler
Esylux Sensor	PD-C 360/8 BMS DALI-2
Buttons	In the dialog a button press can be triggered by actuating the button via the visualization.
Enable	Enables the push button. Disabled push buttons are ignored and are invisible in the display. Enablement causes the simultaneous disablement of the corresponding sensor on the same line and address. Does not apply to sensor with integrated push button coupler.

4.12 Schedules

All schedules are shown in a table. You can assign up to 8 groups or an area to each schedule. Depending on the control mode in the respective groups, a schedule can activate the group for sensor detection or switch the light directly.


Beckhoff Automation
Schedule
Schedule
Mo
Tu
We
Th
Fr
Sa
Su
Groups
Scene
Area
On
Off
1 Schedule: 1 x x x x x x x 1 23:00:00 03:00:00
2 Schedule: 2 x 3,4 0 00:00:00 23:00:00
3 Schedule: 3
4 Schedule: 4
5 Schedule: 5
6 Schedule: 6
7 Schedule: 7
8 Schedule: 8
9 Schedule: 9
10 Schedule: 10
11 Schedule: 11
12 Schedule: 12
13 Schedule: 13
Holidays
2021-04-23-09:10:58


Schedule: 1
X
Groups:
1: 0
2: 0
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
Scene
1
Area
0
Mo
Tu
We
Th
Fr
Sa
Su
h
min
s
On
23 : 0 : 0
Off
3 : 0 : 0
Schedule activate

Schedule name	Display of the schedule designation; changeable in the dialog. Display in green if the schedule is active.
Mo-Su	An "X" marks the days that were activated for the schedule.
Groups	All groups assigned to this schedule are displayed. Up to 8 groups can be assigned.
Scene	This scene is called up when the system is switched on. Optionally, you can select whether the scene should be switched off at switch-off time. Helpful for realizing several scene transitions.
Area	A schedule can be assigned an area here. The area can then be activated or blocked via this schedule. The group functions are disabled. The schedule can only be used again for other purposes when the area is "0" again.
Time: On	Switch-on point
Time: Off	Switch-off point
Enable	Enables the schedule. Disabled schedules are ignored and are invisible in the display.
Public holidays	Selected public holidays block the active schedule. Apart from the existing public holidays, you can enter your own special days.

4.13 Human Centric Lighting (HCL)

The following functions must be enabled in the settings under "HCL".

Up to 24 interpolation points are possible per day. Fixed times can be entered and in addition the calculated sunrise and sunset can be referred to for the color temperature adjustment. All interpolation points are driven to linearly in relation to the steps. The color temperature can be fixed via manual operation by means of a slider. The color temperature applies to all lamps (broadcast).

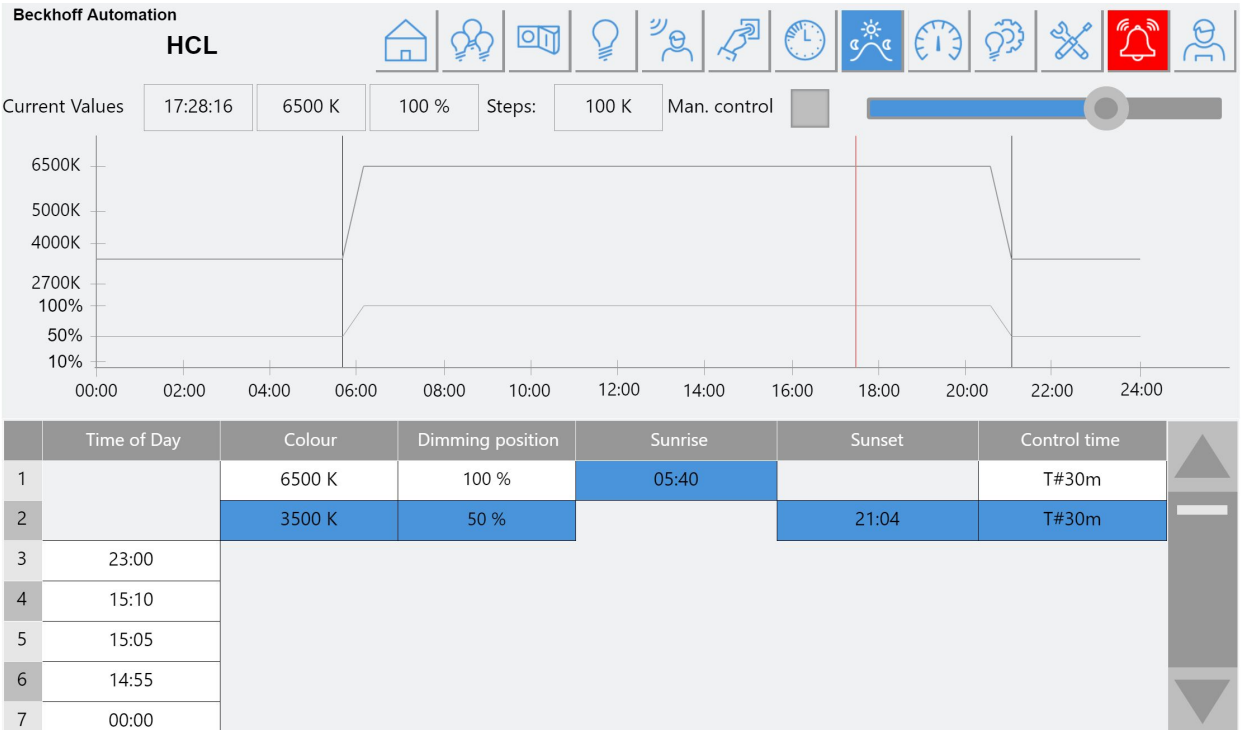
The times for this are calculated on the basis of the date and the specified longitudes and latitudes (see Settings [▶ 29]). The currently set process, the current time and the calculated sun values are illustrated in the diagram.

With regard to the possible times for sunrise and sunset, try to enter season-independent values if possible in order to avoid ups and downs of the color temperature.

After closing the dialog box, the table sorts itself in chronological order.

The dimming position changes the output value of a group proportionately – provided it has "HCL dimming position" enabled. In the Fixed Control mode the set value is influenced and in the Daylight Control mode the setpoint is changed accordingly.

According to current studies, TunableWhite only becomes genuine Human Centric Lighting through the dimming position. The desired HCL effect is only made possible by the color temperature and the matching luminous intensity.



Time	End time when the color value should be reached. This is at the same time the start point for the next interpolation point.
Color value	2700 .. 6500 Kelvin
Dimming position	Reduces/increases the set value/setpoint of all groups. Provided "HCL dimming position" is enabled for each group.
Sunrise	Displays the currently calculated sunrise. The selection may only be made and activated once.
Sunset	Displays the currently calculated sunset. The selection may only be made and activated once.
Drive time	Determines the drive time (after sunrise/before sunset) to the desired color temperature. Can be used to artificially prolong the effect.
Enable	Enables the interpolation point. Disabled interpolation points are ignored and are invisible in the display.

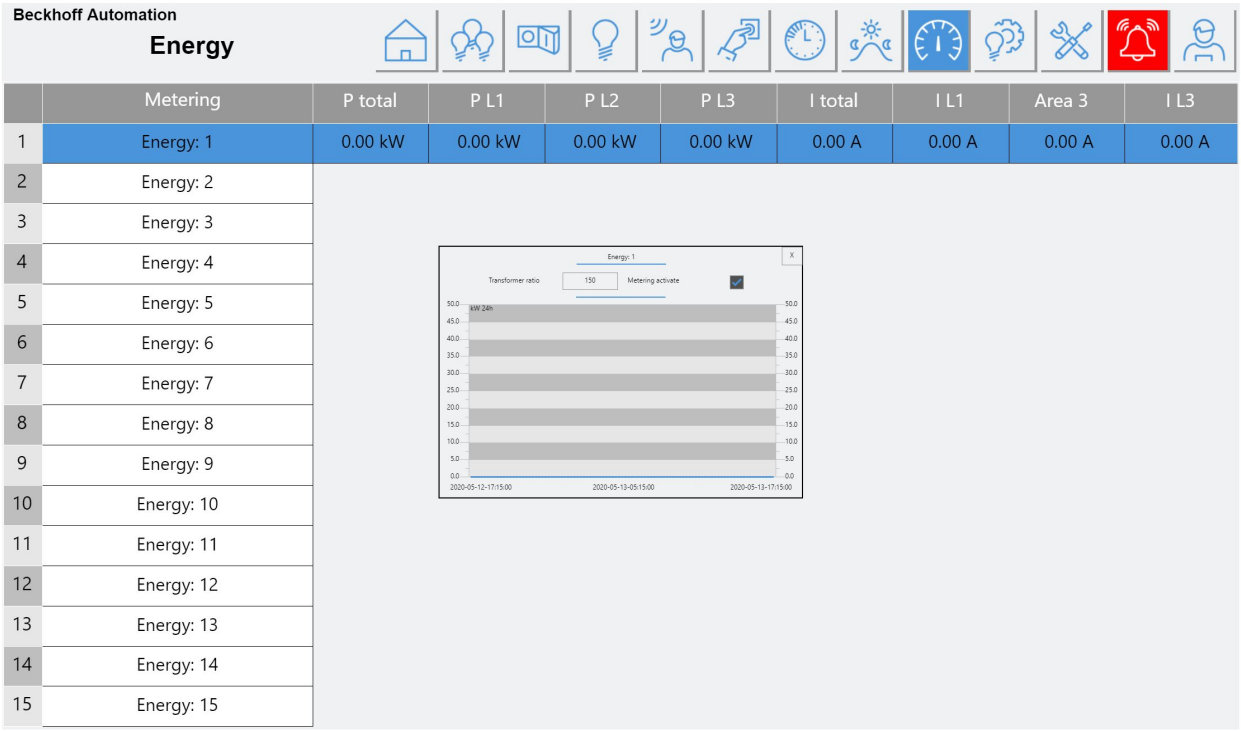
4.14 Energy

The following functions must be enabled in the settings under **Energy Measurement**.

Up to 15 measurements can be enabled. It is essential to observe the correct current direction of the transformer when connecting! (at the same time the physical input GVL_LS_IO. stIn_KL3403[x] and GVL_LS_IO. stOut_KL3403[x]).

The display contains live current and power values. The quarter-hourly average values over the last 24 hours are displayed in the dialog. The diagram display ranges from 0 to 50 kW.

All quarter-hourly values and the total kWh per day are backed up daily on the controller under "Active Energy kWh.csv" and "Active Power kW.csv" in the Energy folder. The path for backing up the files and for further use and evaluation can be changed in the Settings parameter (see Programming). The files can be downloaded from the controller by FTP.



Measurement	Display of the energy designation; changeable in the dialog.
P tot. **P L1-L3**	Momentary live power display in total kW and the individual conductors.
I tot. **I L1-L3**	Momentary live current display in total Amperes and the individual conductors.
Transformer ratio	Depending on the upstream transformer, the correct ratio of primary current to secondary current must be specified here. Be sure to observe the notes on use of the KL3403!
Enable	Enables the measurement. Disabled measurements are ignored and are invisible in the display.

4.15 Addressing

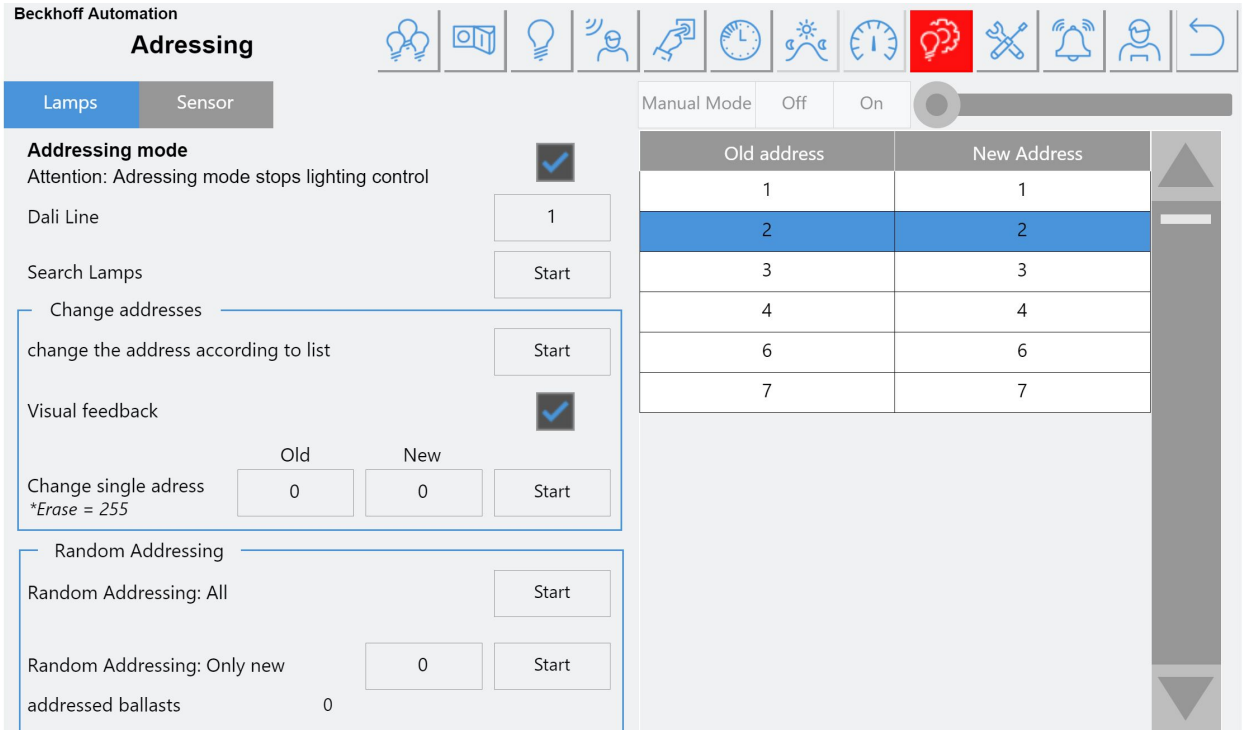
On the **Addressing** tab you can address Dali lines or activate the manual operation mode. In both cases the current group functions are constantly overridden until deactivated; the addressing mode takes precedence. During operation it is initially recommended to activate the manual operation so that the lighting is on for safety's sake.

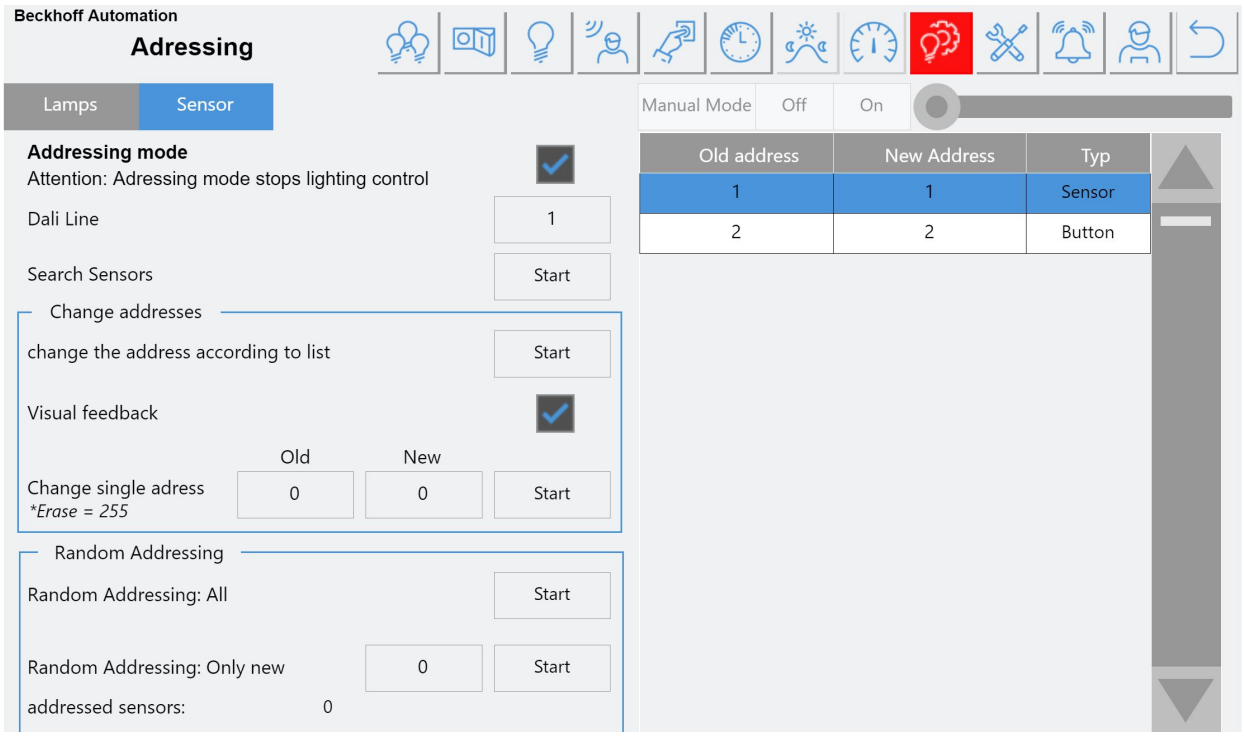
In manual operation, all lamps on all lines are addressed via a broadcast command. You can set the lamps directly to their maximum or minimum value. Alternatively you can dim directly to a certain value using the slider.

This mode is important, especially prior to the initial commissioning, so that the electricians can check and test their DALI wiring. If the individual lamps do not react here, this means that there is a defect in the control gear, the lamp or the cabling.

As soon as the addressing mode is activated, the individual options also become visible.

After a line has been scanned, the table shows all addressed operating devices in the line. Lamp/sensor addresses can be exchanged in this table. Lamps and sensors are addressed separately from one another and can have the same address (Dali-2 standard). Dali push button couplers are displayed as the type "Button". Sensors with integrated push button coupler appear as "Sensor/Button"





NOTE

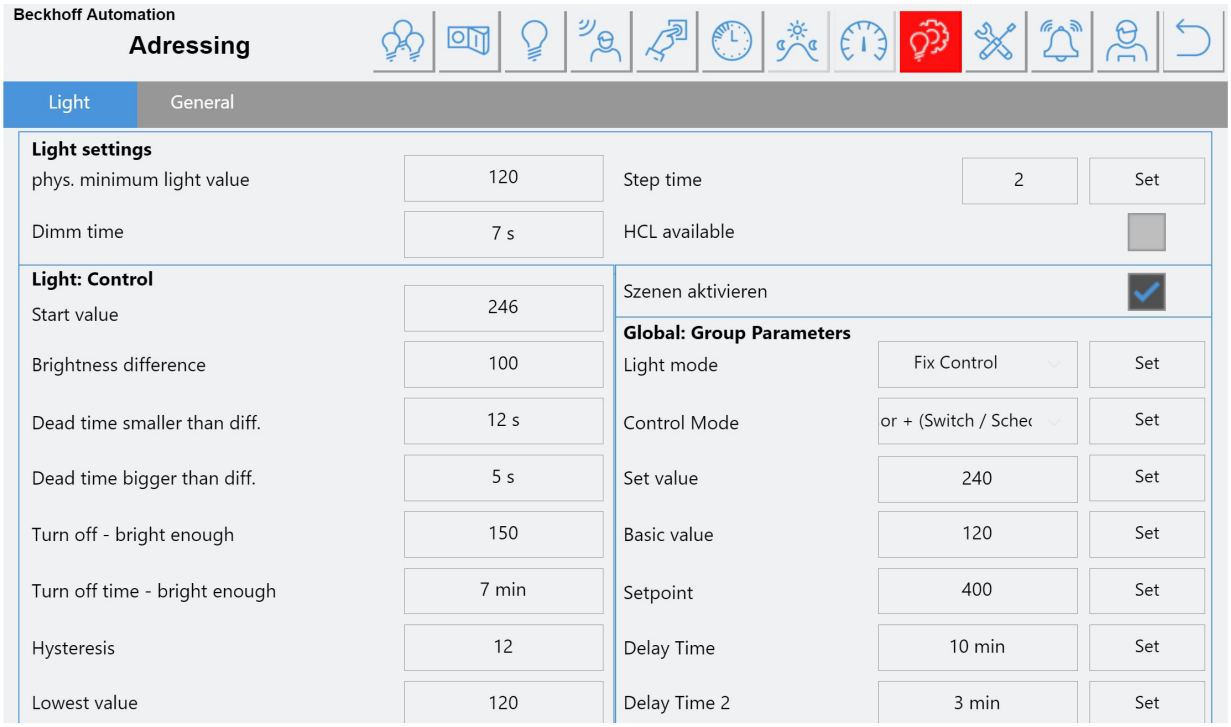
System without function

On activation the system has no function. The current "light picture" freezes.

Dali line	Selection of the Dali line to be addressed, scanned or changed.
Find lamps/sensors	On actuation of the Start button, the selected Dali line is scanned for already addressed operating devices.
Change address according to list	The operating devices and their addresses are displayed in the table. The left-hand column shows the current address. You can enter a new address in the right-hand column. The new addresses are written on pressing the Start button. No address may be available twice. If there are one or more double addresses, the addressing is not started and a corresponding error message is displayed. ***Note*** **If the procedure fails, there is probably at least one address that exists twice!**
Visual feedback	Lamps: All control gears in the line are set to the minimum level. If a control gear is selected in the table, then - provided it is marked - it will be set to the maximum level. Sensor: In the case of the sensors, the device detection is activated for at least 8 seconds and is retained until the next device is selected. As soon as the next device is selected, note that the previous device can continue to flash for up to 8 seconds! An interruption is technically impossible (Dali2 standard). Push button couplers can be identified via the button push.
Change single address	Re-addressing of individual lamps. Value "255" in **New** causes the address to be deleted. Helpful particularly in the case of double addressing.
Random addressing: All	On actuating the Start button, all control gears/sensors are addressed. The addresses are randomly issued. ***Note*** **Observe the safety dialog: Operating devices that have already been addressed will be re-addressed again!**
Random addressing: New only	On actuating the Start button, all new and unaddressed control gears/sensors are addressed. The addresses are randomly issued. This starts from the address entered.

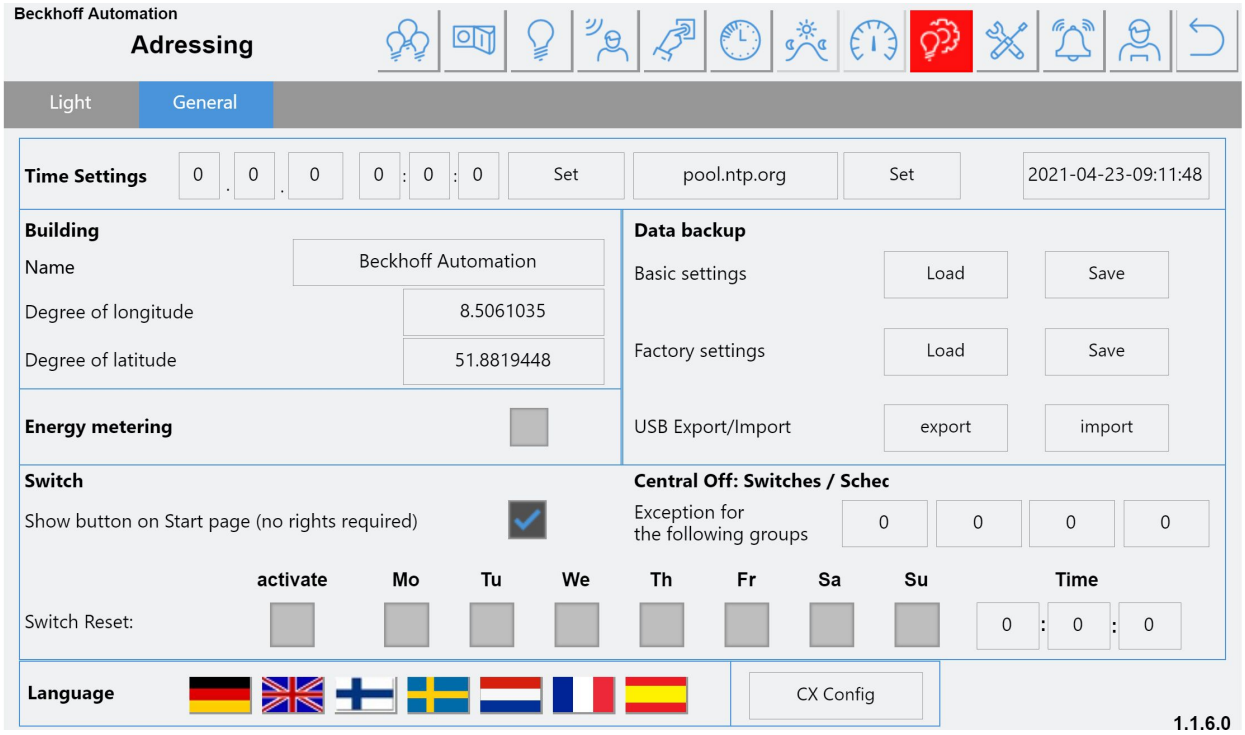
4.16 Settings

Page 1



Light settings	
Phys. minimum value lamp	Physical minimum value as a DALI value that all the lamps used support. In case of different minimum values, always specify the largest.
Dimming time	Time required to dim from the minimum to the maximum value.
Fade time	The fade time specifies the speed at which the luminous intensity should be changed. 1: 357.796 steps/s 2: 253.000 steps/s 3: 178.898 steps/s 4: 126.500 steps/s 5: 89.449 steps/s 6: 63.250 steps/s 7: 44.725 steps/s
HCL	Activates HCL (Tunable White).
Enable scenes	Enables scenes control.
Light mode control	
Starting value	The Dali value at which the lamps in the group start when the Daylight Control is activated.
Large brightness difference	If the difference between the setpoint and actual value is larger than the set value, "Dead time large difference" is used, otherwise "Dead time small difference".
Dead time small Difference	Dead time between the individual Dali commands with which the lamp level is changed if the brightness difference is small.
Dead time large Difference	Dead time between the individual Dali commands with which the lamp level is changed if the brightness difference is large.
Switch-off value/bright enough	If the brightness value around the switch-off value is larger than the setpoint, the group will be switched off after the switch-off time. During that time, however, the Daylight Control can still dim to the "lowest value".
Switch-off time if bright enough	Time period until the group is switched off when the switch-off value is reached.
Hysteresis	Control hysteresis around the setpoint. If the actual value ± of the hysteresis lies around the setpoint, the lamp value will not be changed.
Lowest value	The Dali value down to which the lamps should be dimmed. This must be greater than or equal to the "Phys. minimum lamp value".
Set global group values	The settings described below are made only after actuating the respective button. The values are written for all groups. However, you can block individual groups from this in the Groups [▶ 12].

Page 2



Time setting	You can set the time manually and activate it with the **Set** button, or retrieve it automatically from a time server. To do this, enter the address of the time server and activate it by clicking on the **Set** button.
Buildings	
Name	Text entry top left. e.g.: Story designation
Longitude	Necessary for sunrise/sunset calculations for HCL.
Latitude	Necessary for sunrise/sunset calculations for HCL.
Energy measurement	Enables energy measurement and data logging in csv format.
Push button	
Push button enable start page	Activates the display of the first 24 push buttons on the Start page. ***Note*** **Push buttons can be operated without login/rights!**
Exceptions for the following groups	Up to 4 groups can be selected that are not affected by the central-off of a push button. Particularly helpful for corridor lighting.
Reset push buttons	All push buttons are reset at the start time. Groups switched by push buttons are switched off if no other event (presence, schedule) is pending.
Language	German, English, Finnish, Swedish, Dutch, French, Spanish ***Note*** **Terms that have not yet been translated are in English!**
Data backup	
Basic settings	A dialog opens when the **Save** or **Load** button is pressed. In this dialog you enter the PIN (default: 1909). After correct entry, the buttons for saving and loading appear. The procedure can take a while depending on the project size.
Factory settings	A dialog opens when the **Save** or **Load** button is pressed. In this dialog you enter the PIN. After correct entry, the buttons for saving and loading appear. The procedure can take a while depending on the project size.
USB Export/Import	Exports the data from the controller to the USB flash drive, Imports the data from the USB flash drive to the controller. The data are not automatically loaded/enabled. Use the basic setting **Load**.
CX Config	This button only works on a touch panel (e.g. CP6606). Can be used for general device settings relating to FTP, firewall etc.

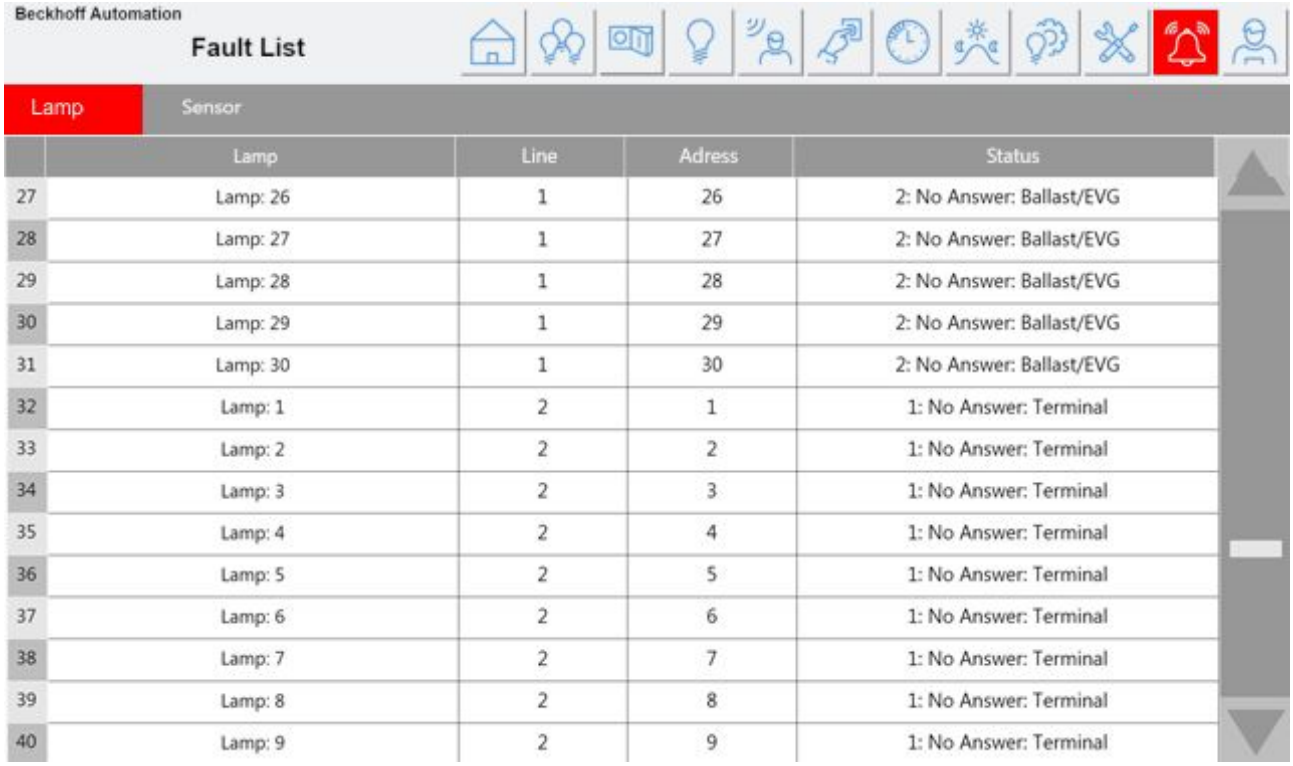
4.17 Error messages

The error messages are subdivided into lighting errors and sensor errors. Up to 50 error messages are collected and displayed. The error messages appear in the order from line 1 to the last Dali line. If there are more than 50 error messages, the 50th message is always the message with the highest line number and highest address.

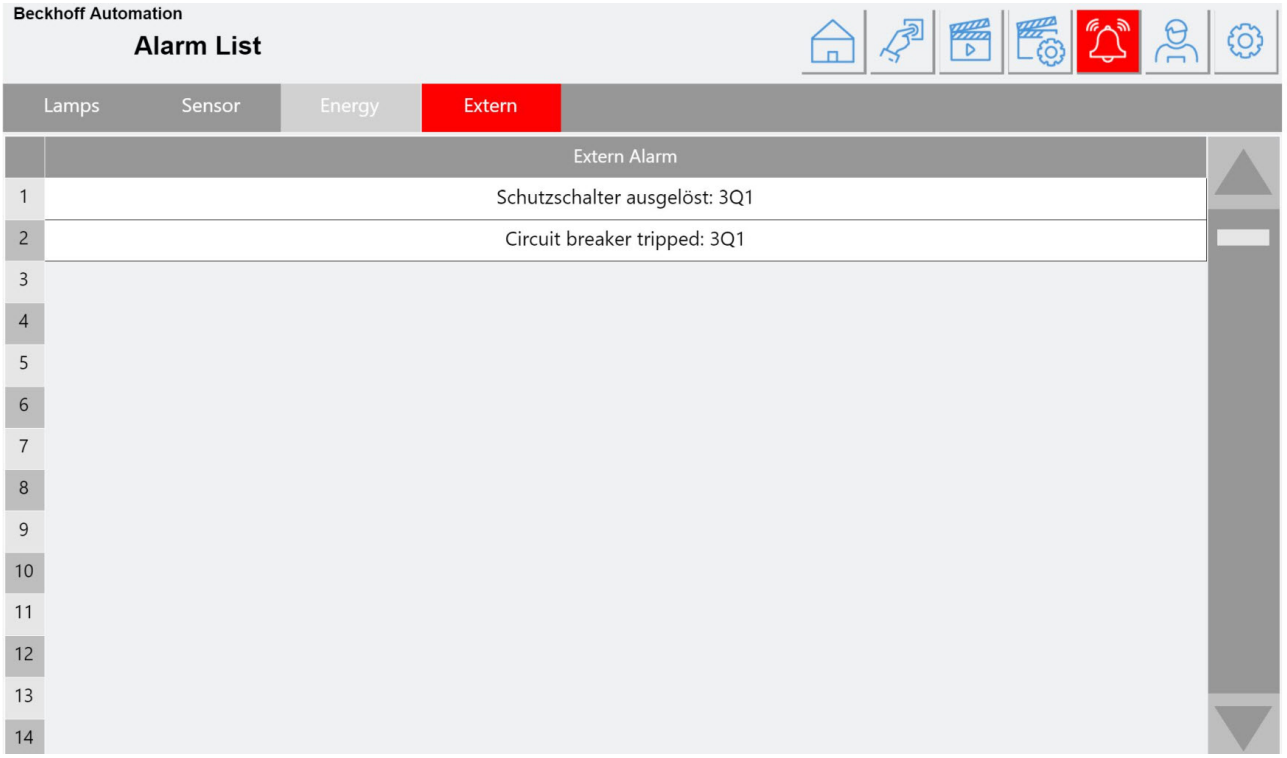
All errors displayed are still pending and disappear as soon as the error is no longer pending. Each error must initially be pending for over 5 minutes before it appears in the error message list. Short-term dropouts are always displayed directly in the individual lamp and sensor lists.

If energy measurement is enabled, the writing of the data is monitored and, in case of error, displayed as an error.

Further independent error messages can be added as external messages. Up to 50 alarms can be described (GVL_LS.stALarm[1..50]).



	Lamp	Line	Adress	Status
27	Lamp: 26	1	26	2: No Answer: Ballast/EVG
28	Lamp: 27	1	27	2: No Answer: Ballast/EVG
29	Lamp: 28	1	28	2: No Answer: Ballast/EVG
30	Lamp: 29	1	29	2: No Answer: Ballast/EVG
31	Lamp: 30	1	30	2: No Answer: Ballast/EVG
32	Lamp: 1	2	1	1: No Answer: Terminal
33	Lamp: 2	2	2	1: No Answer: Terminal
34	Lamp: 3	2	3	1: No Answer: Terminal
35	Lamp: 4	2	4	1: No Answer: Terminal
36	Lamp: 5	2	5	1: No Answer: Terminal
37	Lamp: 6	2	6	1: No Answer: Terminal
38	Lamp: 7	2	7	1: No Answer: Terminal
39	Lamp: 8	2	8	1: No Answer: Terminal
40	Lamp: 9	2	9	1: No Answer: Terminal



Digit	Error text	Description
1	No Answer: Terminal	The Dali gateway (KL6821) cannot be reached. Is the 24 V power supply missing for the terminal (red LED lights up)? Is the PLC correctly linked to the terminal?
2	No Answer: Control gear	The lamp does not answer. Circuit breaker on? Correct Dali address? Dali voltage measurable at the lamp (approx.14-16V)? Manual operation still active? Possible defect?
3	Overflow	The Dali bus is overloaded. Too many transmit commands? Push button sticking? Dali-2-incompatible devices connected?
4	No Answer: PLC Com	The PLC is not linked correctly to the Dali communication.
5/6	Dali collision	Several devices are transmitting simultaneously. Has a conventional Dali sensor been installed? No other master in the system may transmit commands.
56	Blocked: Dali I/O	Were the Digital Inputs on KL6821 used to send DALI configured DALI command? Reset: Restart the controller.
78	Short Circuit	Short circuit detected on the Dali bus.
xx	Undefined	An uncommon error has occurred. Please contact Support.

The numbers correspond to the Dali error codes. Further and more precise information can be found on the following page:

https://infosys.beckhoff.de/index.php?content=../content/1031/tcplclibdali/HTML/TcPlcLibDALIV2_Errorcodes.htm&id=

4.18 User

Login	Opens the Login dialog. The user logs in by entering his user name and password. He is automatically logged out again after a defined time without action.
Logout	Logs out the currently logged-in user. This option is only shown if a user is logged in.
Change password	Logs out the currently logged-in user. This option is only shown if a user is logged in.
User management	Opens the User management, in which you can delete users, create new users or change passwords. This option is only shown if a user is logged in with the appropriate rights.

The following preset groups and users exist on delivery:

Group	Rights
Admin	Full access

Login name	Group	Password
technik	Admin	technik
admin	Admin	1

5 Excel configuration

In general, the configuration can be done entirely via the visualization.

With larger systems it is recommended to carry out the configuration via Excel. In general, all worksheets are already available on the controller on delivery. Otherwise you can save them on the end device via **Save basic settings** on Settings page 2. You can copy these files to the USB flash drive using the **Export USB** function. All files are then located in the subfolder "Beckhoff" (the USB stick must not be write-protected). With network knowledge, the FTP directory ftp://192.168.2.10/ also lends itself. This is an example link; first adapt the IP to the corresponding device settings.

The limits of the input table must be adhered to!

The following files are created:

- Group_Data.csv
- Circuit_Data.csv
- Lamp_Data.csv
- Sensor_Data.csv
- Switch_Data.csv
- Switch_Dali_Data.csv
- Schedule_Data.csv
- HCL_Data.csv
- Energy_Data.csv
- Scenes_Data.cxv
- Scene_Group_Data.csv

NOTE

Do not change the table names or the file format!

Do not change the table names or the file format ".csv". All files must always be available – even if they aren't used.

Group_Data:

Parameter	Input
Name	Naming
Set Value	Lowest value (see Settings [▶ 29]).. 254
Basic Value	Lowest value (see Settings [▶ 29]).. 254
Setpoint	5..5000
Overrun time 1 (Delay time 1)	1..600 in minutes.
Overrun time 2 (Delay time 2)	0..600 in minutes
Parameters blocked	0: Free 1: Blocked
Area	0..10
Light mode	1: Fixed Control 2: Daylight Control
Control mode	0: Sensor, push button or schedule 1: Sensor with activation via schedule or push button 2: Daylight Control 3: Fully automatic 4: Semi-automatic 5: Manual push button 6: Manual push button with overrun
HCL dimming position	0: Disabled 1: Enabled
Slave Gr.1-Gr.8	0..200
Activate	0: Disabled 1: Enabled

Circuit_Data:

Parameter	Input
Name	Naming
Group 1.. 4	0..200
Activate	0: Disabled 1: Enabled

Lamp_Data:

Parameter	Input
Name	Naming
Group 1.. 8	0..200
Activate	0: Disabled 1: Enabled

Sensor_Data:

Parameter	Input
Name	Naming
Group 1.. 4	0..200
Scene	0: Disabled 1..30: Enabled
Sensor type	1: Steinel Dali-2 IR 2: Steinel LiveLink HF/IR 3: Steinel LiveLink light sensor 4: Steinel LiveLink US 5: BEG Dali-2 Luxomat, Osram Dali-2 6: Tridonic MSensor 7: Extern Input 8: Esylux Dali-2 9: Lunatone CS
Range	0..255 (low - high)
Sensitivity	1..15 (high - low)
Activate	0: Disabled 1: Enabled

Switch_Data:

Parameter	Input
Name	Naming
Group 1...8	1..200
Scene	0: Disabled 1..30: Enabled
Area	0: Disabled 1..10: Enabled
Central off	0: Disabled 1: Enabled
Function as	0: Disabled 1 .. 100: Enabled
Activate	0: Disabled 1: Enabled

Switch_Dali_Data:

Parameter	Input
Name	Naming
Switch type	1: Lunatone MC+ Dali-2, Osram Push Coupler 2: Esylux Sensor
Groups 1&2 T1-T4	1..200
Scene T1-T4	0: Disabled 1..30: Enabled
Area T1-T4	0: Disabled 1..10: Enabled
Central off T1-T4	0: Disabled 1: Enabled
Activate	0: Disabled 1: Enabled

Schedule_Data:

Parameter	Input
Name	Naming
Mo-Su	0: Disabled 1: Enabled
Group 1.. 8	0..200
Scene	0: Disabled 1..30: Enabled
Scene Off	0: Disabled 1: Enabled
Area	0: Disabled 1..10: Enabled
On h On m On s	0..23 0..59 0..59
Off h Off m Off s	0..23 0..59 0..59
Activate	0: Disabled 1: Enabled

HCL_Data:

Parameter	Input
Time Hour	0..23
Time Minute	0..59
Color	2700..6500
Dimming position	10..100
Sunrise	0: Disabled 1: Enabled
Sunset	0: Disabled 1: Enabled
Drive time in min	3..240
Activate	0: Disabled 1: Enabled

Energy_Data:

Parameter	Input
Name	Naming
ct ratio	1..10000
Activate	0: Disabled 1: Enabled

Scenes_Data:

Parameter	Input
Name	Naming
Dimming	0: Disabled 1: Enabled
Scene off	0: Disabled 1: Enabled
Scene first off (Scene first off)	0: Disabled 1: Enabled
Activate	0: Disabled 1: Enabled

Scene_Group_Data:

Parameter	Input
Group	(Display only: described by Scenes_Data)
Scene S1..S30	0: Disabled 1: Enabled
Value input	0..254

6 Programming

NOTE

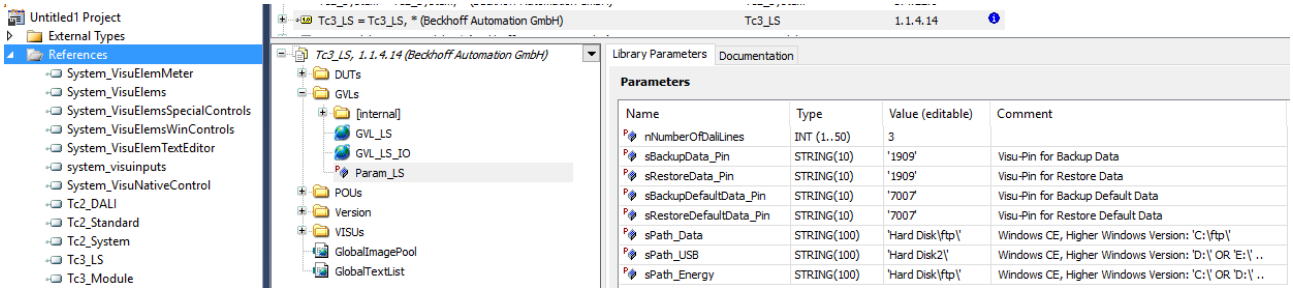
Tc2_DALI

A current Tc2_Dali library is required to ensure the function of the light solution. A minimum version of 3.6.18.0 is required.

Description

The Light Solution application consists of 2 PLC programs. The program BA_LS in a slower task and the Dali communication program BA_LS_Dali_Communication in a faster task. The number of Dali lines is specified in the library parameter settings.

Parameter




```
nNumberOfDaliLines          : INT(1..50) :=3;
sBackupData_Pin             : STRING(10) :='1909';
sRestoreData_Pin            : STRING(10) :='1909';
sBackupDefaultData_Pin      : STRING(10) :=' ';
sRestoreDefaultData_Pin     : STRING(10) :=' ';
sPath_Data                  : STRING(100):='\Hard Disk\ftp\';
sPath_USB                   : STRING(100):='Hard Disk2\';
sPath_Energy                : STRING(100):='Hard Disk\ftp\';
```

nNumberOfDaliLines	Input of the exact number to the KL6821
sBackupData_Pin	PIN for saving the configuration (basic setting).
sRestoreData_Pin	PIN for loading the configuration (basic setting).
sBackupDefaultData_Pin	PIN for saving the configuration (factory setting).
sRestoreDefaultData_Pin	PIN for loading the configuration (factory setting).
sPath_Data	FTP storage location
sPath_USB	USB storage location
sPath_Energy	Energy storage location

Global variables

GVL_LS

bManualMode	Broadcast: Manual operation is enabled.
nManualMode_Slider	Broadcast: The manual operation value is described.
nGroup_Value	Group: The group is set to manual mode when the value is changed and assumes the value.
stAlarm	stAlarm.bALarm: Enables the alarm display stAlarm.sName: Display text of the alarm

The following data points are exclusively read-only. The data points are intended only for information purposes.

stDaliCommandBuffer	Command buffer of all Dali terminals created, for further use. **Note The function of LS can be massively disturbed if used incorrectly!**
bGroup_Presence	Group: Summarized presence (current, overrun time 1, overrun time 2)
nGroup_ActValue	Group: Current luminous intensity in Dali
bGroup_Enabled	Group: Enabled/disabled
nGroup_Brightness	Group: Current brightness value of the sensors
nGroup_Setpoint	Group: Current setpoint
sGroup_Name	Group: Name of the group
bDaliLine_Lamp_Error	Lamps: Collective error message lamps per line
bDaliLine_Sensor_Error	Sensors: Collective error message sensors per line
rLamps_Operating_hours	Lamp: Operating hours
nLamps_ActValue	Lamp: Current luminous intensity in Dali
sLamps_Error	Lamp: Error text
sLamps_Name	Lamp: Name of the lamp
nLamps_Groups	Lamp: Specification of associated groups
bSensor_Presence	Sensor: Current presence
nSensor_ActValue	Sensor: Current brightness value of the sensors
sSensor_Error	Sensor: Error text
sSensor_Name	Sensor: Name of the sensor
sSwitch_Name	Push button: Name of the push button
sSwitch_Dali_Error	Dali push button: Error text
sSwitch_Dali_Name	Dali push button: Name of the push button coupler
rEnergy_AverageValue	Energy measurement: Quarter-hourly values over the last 24 hrs
stEnergy_Data	Energy measurement: Output of measured values (see ST_LS_Power)
nTemperature_HCL	HCL color temperature

Structure for the further use of the measured energy values:

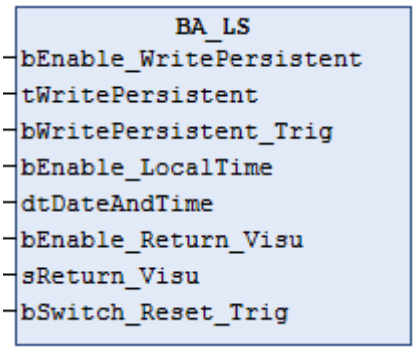
```
TYPE INTERNAL ST_LS_Power :
STRUCT
fIL1, fIL2, fIL3          :.LREAL;
fIg                       : LREAL;
fUL1, fUL2, fUL3          : LREAL;
fPL1, fPL2, fPL3          : LREAL;
fPg                       : LREAL;
fCosPhiL1, fCosPhiL2, fCosPhiL3: LREAL;
fCosPhi                   : LREAL;
fWL1, fWL2, fWL3          : LREAL;
fWg                       : LREAL;
fImaxL1, fImaxL2, fImaxL3 : LREAL;
fUmaxL1, fUmaxL2, fUmaxL3 : LREAL;
fPmaxL1, fPmaxL2, fPmaxL3 : LREAL;
fSg                       : LREAL;
fQg                       : LREAL;
fFrequencyL1, fFrequencyL2, fFrequencyL3 : LREAL;
END_STRUCT
END_TYPE
```

GVL_LS_IO

The following data points must be linked accordingly with the hardware.

stDali_In	Connect inputs to KL6821.
stDali_Out	Connect outputs to KL6821.
bSwitch	Inputs from push buttons, KNX, Modbus, EnOcean, etc. can be linked here.
bSwitch_FB	Push button feedback according to the index from bSwitch.
bIn_Sensor_Presence	Input for "External Input" mode with the sensors to switch presence. Conventional sensors or self-defined logics can be linked here.
nIn_Sensor_Brightness	Input for "External Input" mode at the sensors to transfer the brightness. Conventional sensors or self-defined logics can be linked here.
bCircuit	Circuit output
nCircuit_Percent	Circuit: Output value in percent
nCircuit_analog	Circuit: Output value in 0-32767
nCircuit_DMX	Circuit: Output value in 0-255
stIn_KL3403	Place input structure on KL3403.
stOut_KL3403	Place output structure on KL3403.
bSoft_Error	Output of collective error message for lamps and sensors.
bHard_Error	Output of hardware errors. Output is constantly on; the output automatically switches off if the components fail.

6.1 BA_LS



VAR_INPUT

```
    bEnable_WritePersistent    : BOOL := TRUE;
    tWritePersistent           : TIME := T#48H;
    bWritePersistent_Trig      : BOOL;
    bEnable_LocalTime          : BOOL := TRUE;
    dtDateAndTime              : DT;
    bEnable_Return_Visu        : BOOL := FALSE;
    sReturn_Visu               : STRING(70) := 'Webvisu';
    bSwitch_Reset_Trig         : BOOL;
```

bEnable_WritePersistent	Allows cyclic persistent writing to the controller.
tWritePersistent	Cyclic persistent saving of the configured data. The input bEnable_WritePersistent must be true.
bWritePersistent_Trig	A positive edge executes the persistent writing of the data. The input bEnable_WritePersistent must be true.
bEnable_LocalTime	Activates the local time of the runtime system.
dtDateAndTime	Used if bEnable_LocalTime is false.
bEnable_Return_Visu	Activates the "Back" button on the Start page. Target is sReturn_Visu.
sReturn_Visu	String of the target visualization.
bSwitch_Reset_Trig	A positive edge resets all switch/push button inputs.

6.2 BA_LS_Dali_Communication

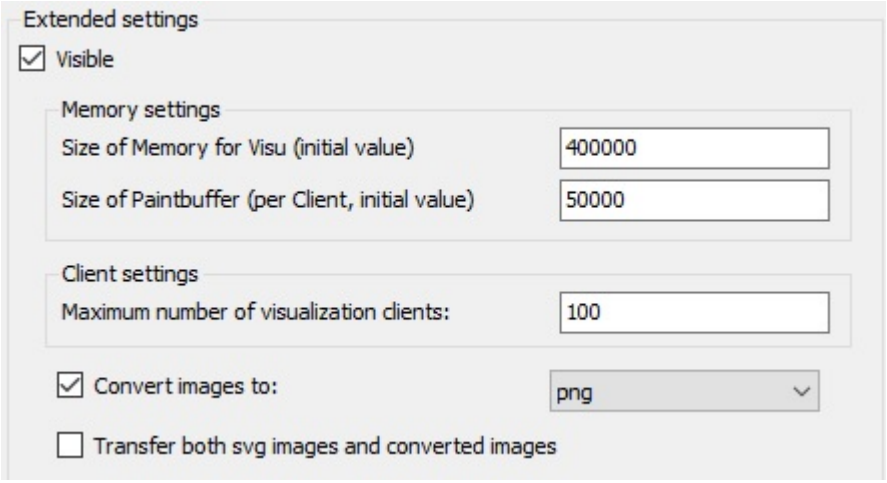
```
BA_LS_Dali_Communication
```

The call must take place in a faster task with a higher priority than the call of BA_LS. 3x faster is recommended.

6.3 Visualization Manager

The visualization is designed for the XS style. Unpleasant display errors can occur if you use a different style. You can also define the default language here.

It may be the case with some devices that graphics are not displayed properly. Then select **Extended settings → visible →Convert images to: →png**.

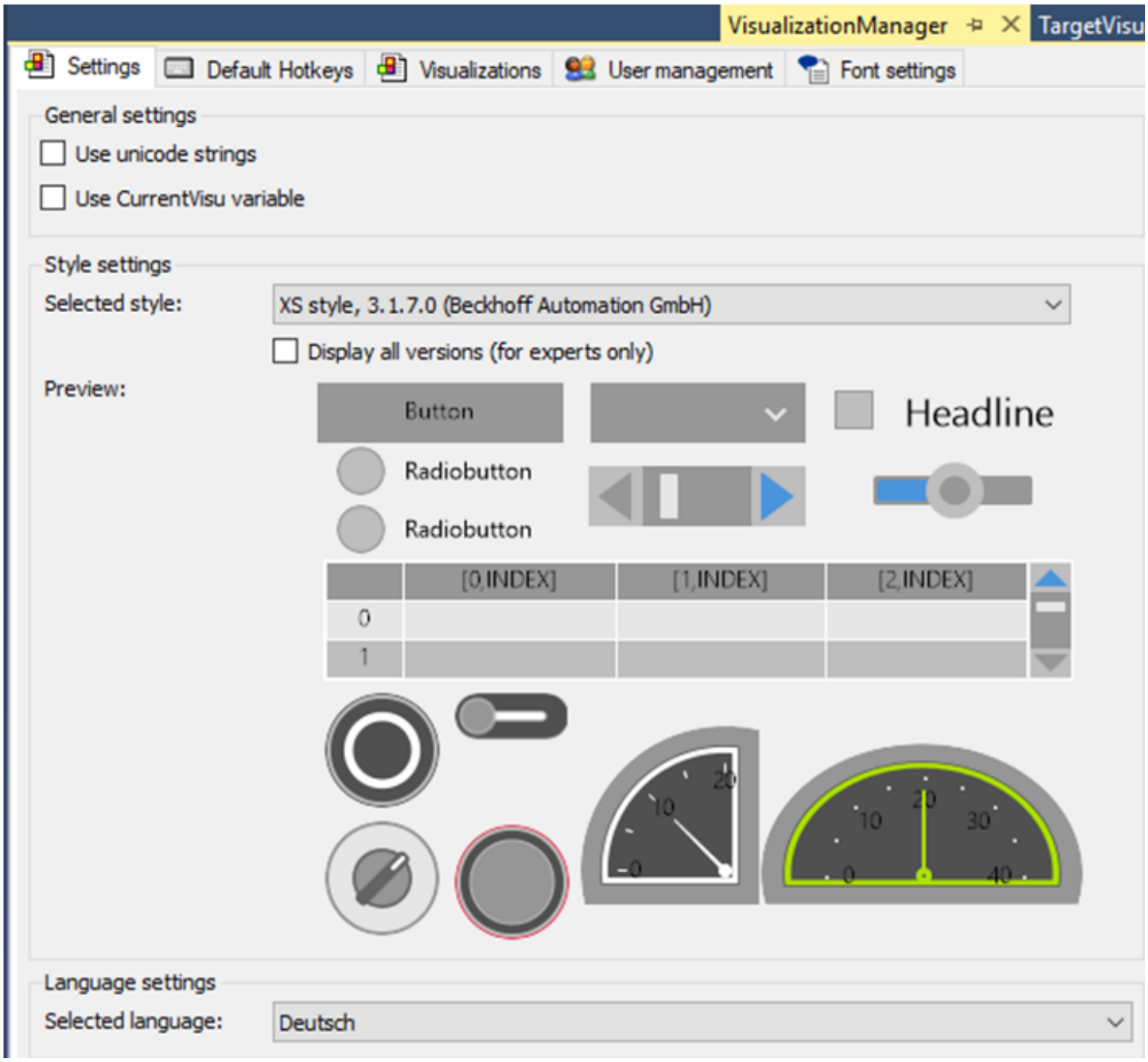


If the problem persists, it may help to clear the browser cache.

NOTE

Secure the functions!

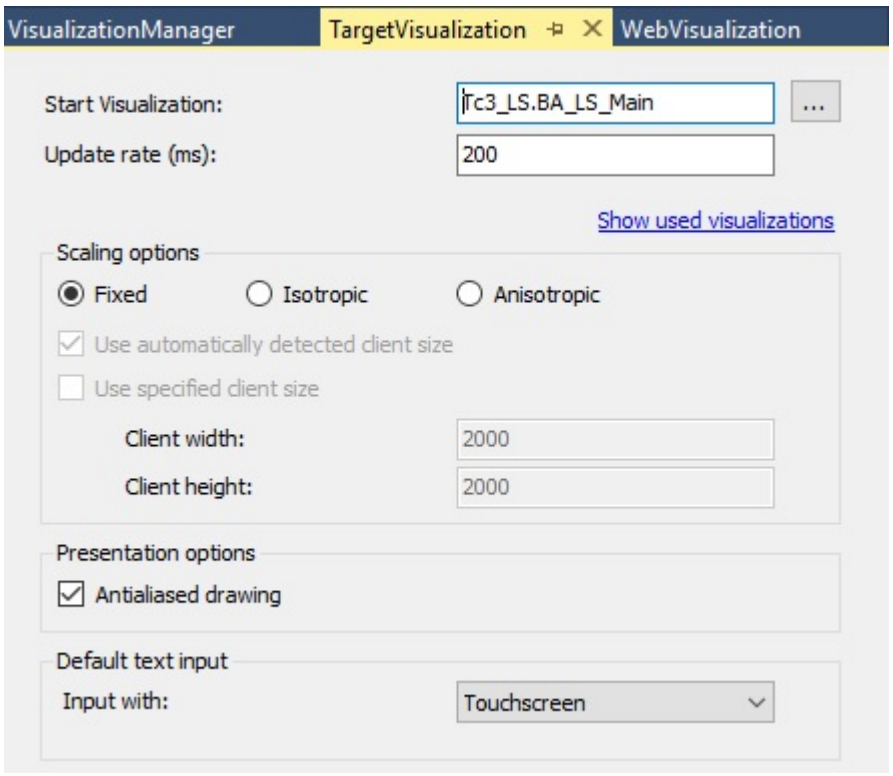
Be sure to create a user management, as otherwise all functions will be operable without a password!

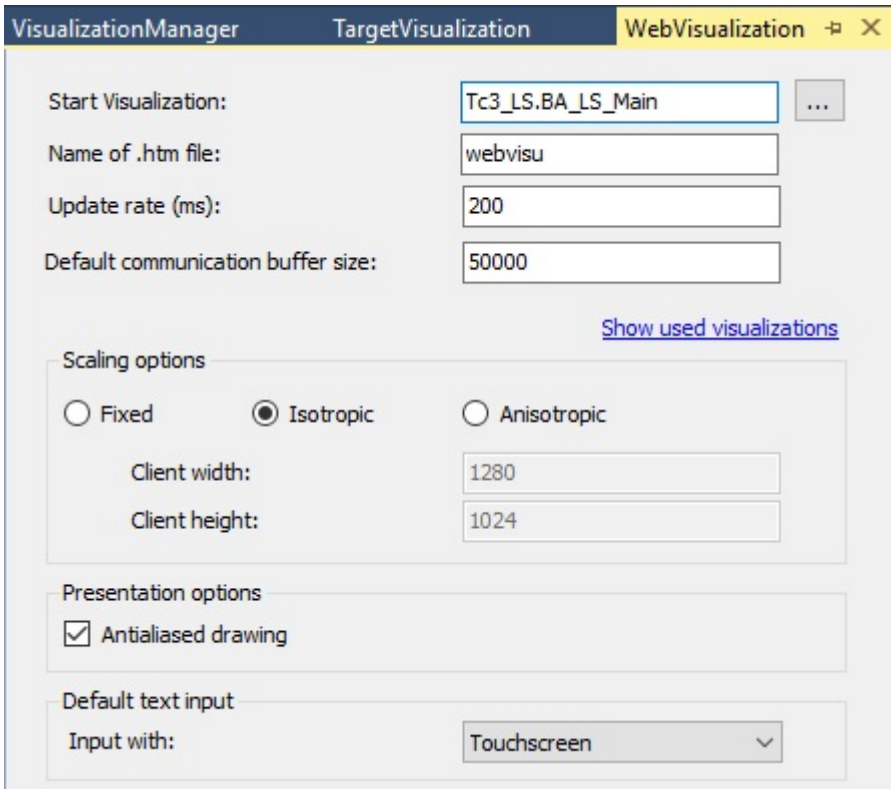


The start visualization for the target and web visualization must be linked as follows:

"Tc3_LS.BA_LS_Main"

If you use the web visualization without tablet, set the **Default Text input** to "Keyboard" so that the entries can be made via the keyboard.


VisualizationManager
TargetVisualization
WebVisualization
Start Visualization:
Tc3_LS.BA_LS_Main
...
Update rate (ms):
200
Show used visualizations
Scaling options
Fixed
Isotropic
Anisotropic
Use automatically detected client size
Use specified client size
Client width:
2000
Client height:
2000
Presentation options
Antialiased drawing
Default text input
Input with:
Touchscreen

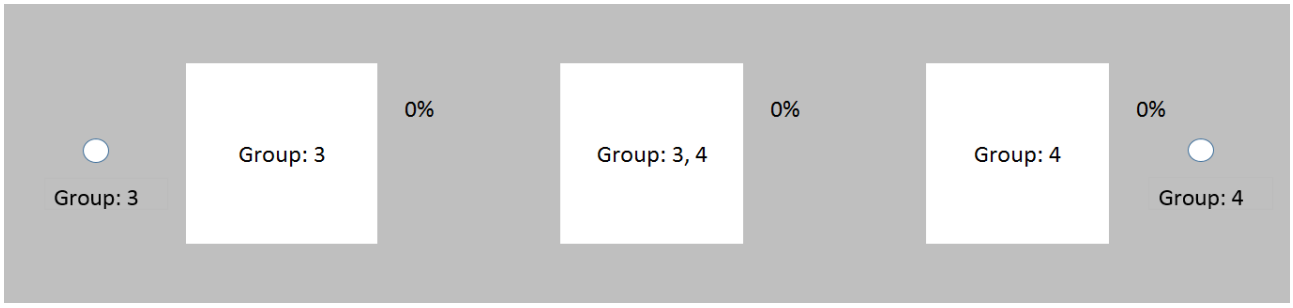

VisualizationManager
TargetVisualization
WebVisualization
Start Visualization:
Tc3_LS.BA_LS_Main
...
Name of .htm file:
webvisu
Update rate (ms):
200
Default communication buffer size:
50000
Show used visualizations
Scaling options
Fixed
Isotropic
Anisotropic
Client width:
1280
Client height:
1024
Presentation options
Antialiased drawing
Default text input
Input with:
Touchscreen

7 Examples

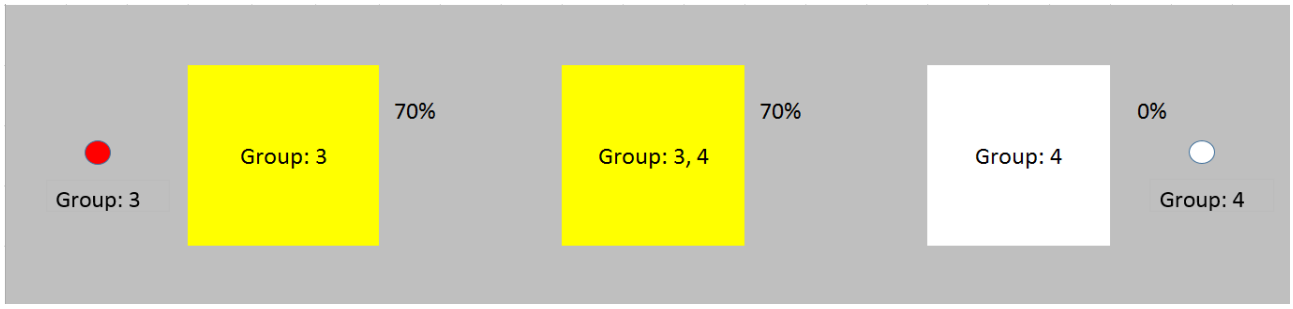
7.1 Groups

All lamps can be assigned to several groups. The light intensity is determined by the highest light value of all groups:

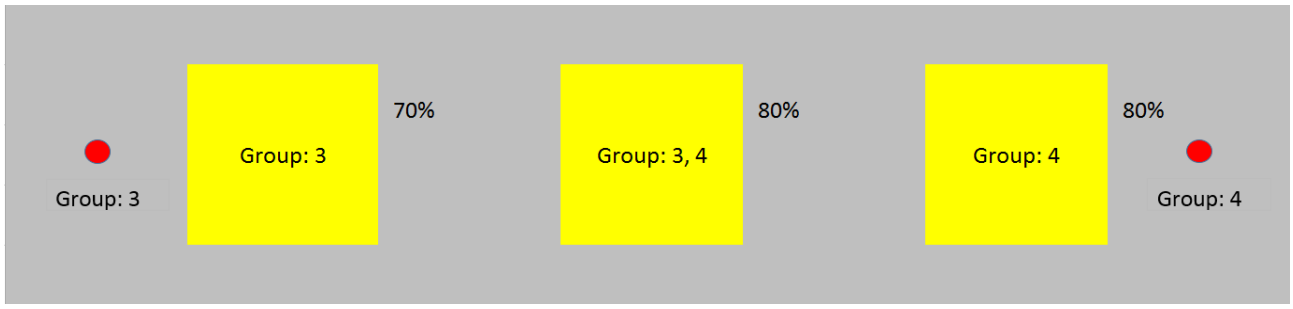
Three individual lamps can be seen in the first illustration. The set value of group 3 is 70% while that of group 4 is 80%. The basic value of both groups is 30%. One group is assigned to each of the sensors (group 3 and group 4).



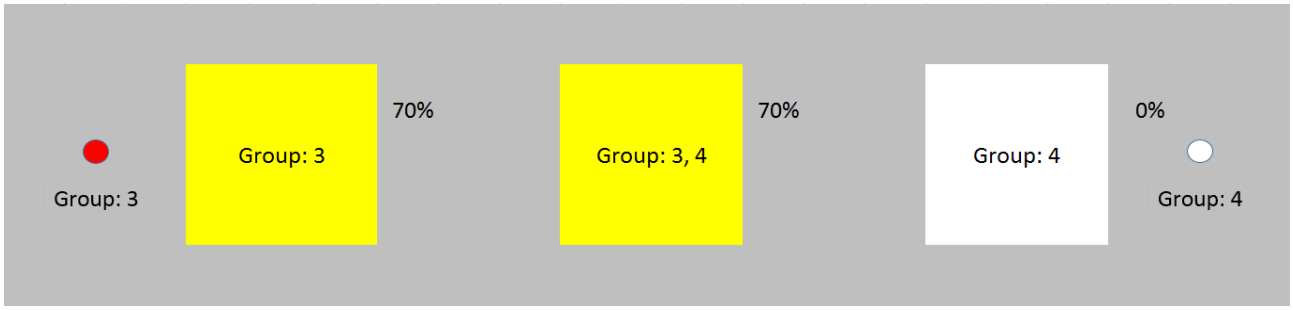
In the next illustration, the sensor in group 3 detects presence. As a result, the lamps in group 3 are set to the set value 70%.



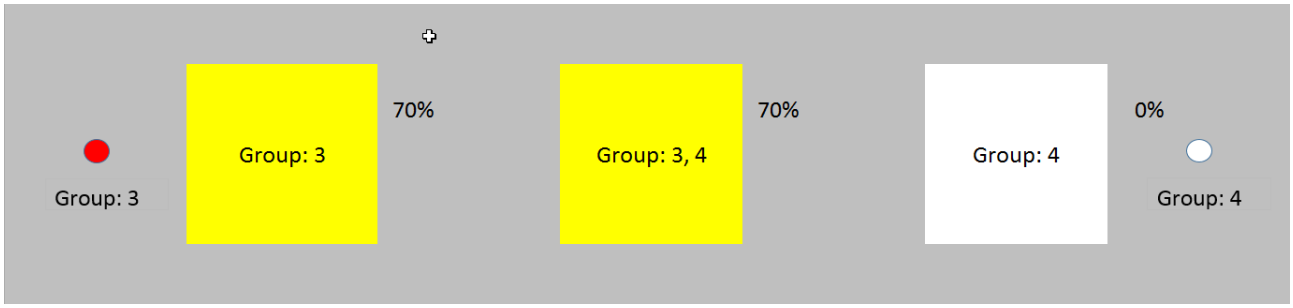
The sensor in group 4 now also detects presence. The lamps in group 4 are set to the set value 80%.



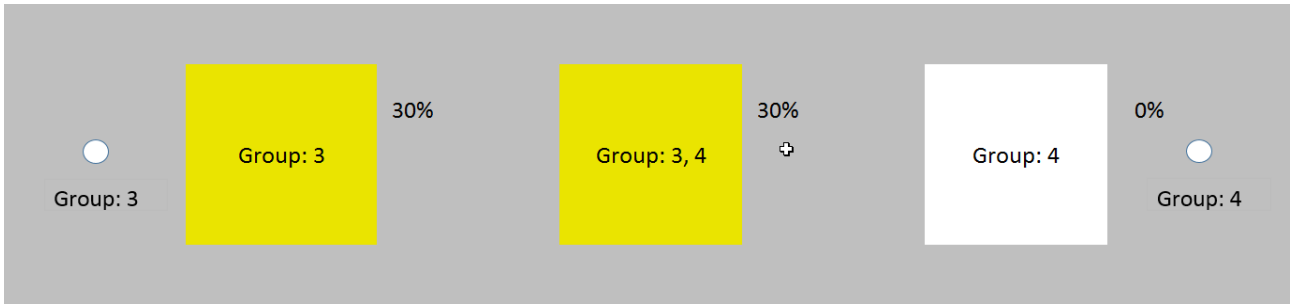
In the following illustration, group 4 no longer has presence. The right-hand lamp is set to the basic value on expiry of the 1st overrun time and the middle lamp is reduced to the set value of group 3.



The second overrun time has now expired for group 4. The right-hand lamp is switched off.



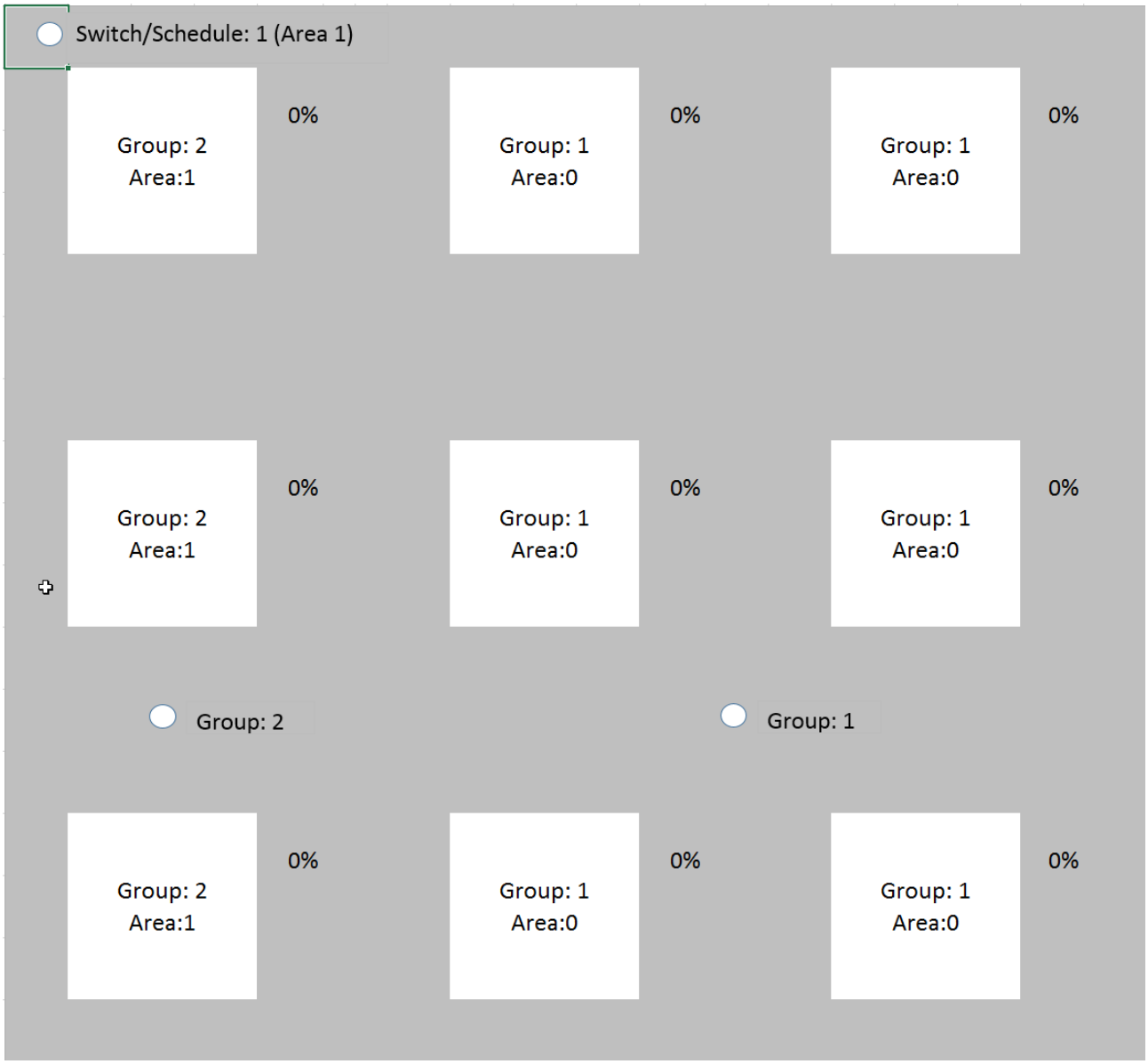
In the last illustration, group 3 no longer has presence and the 1st overrun time has expired. The left-hand and middle lamps are set to the basic value. On expiry of the 2nd overrun time these are also switched off.



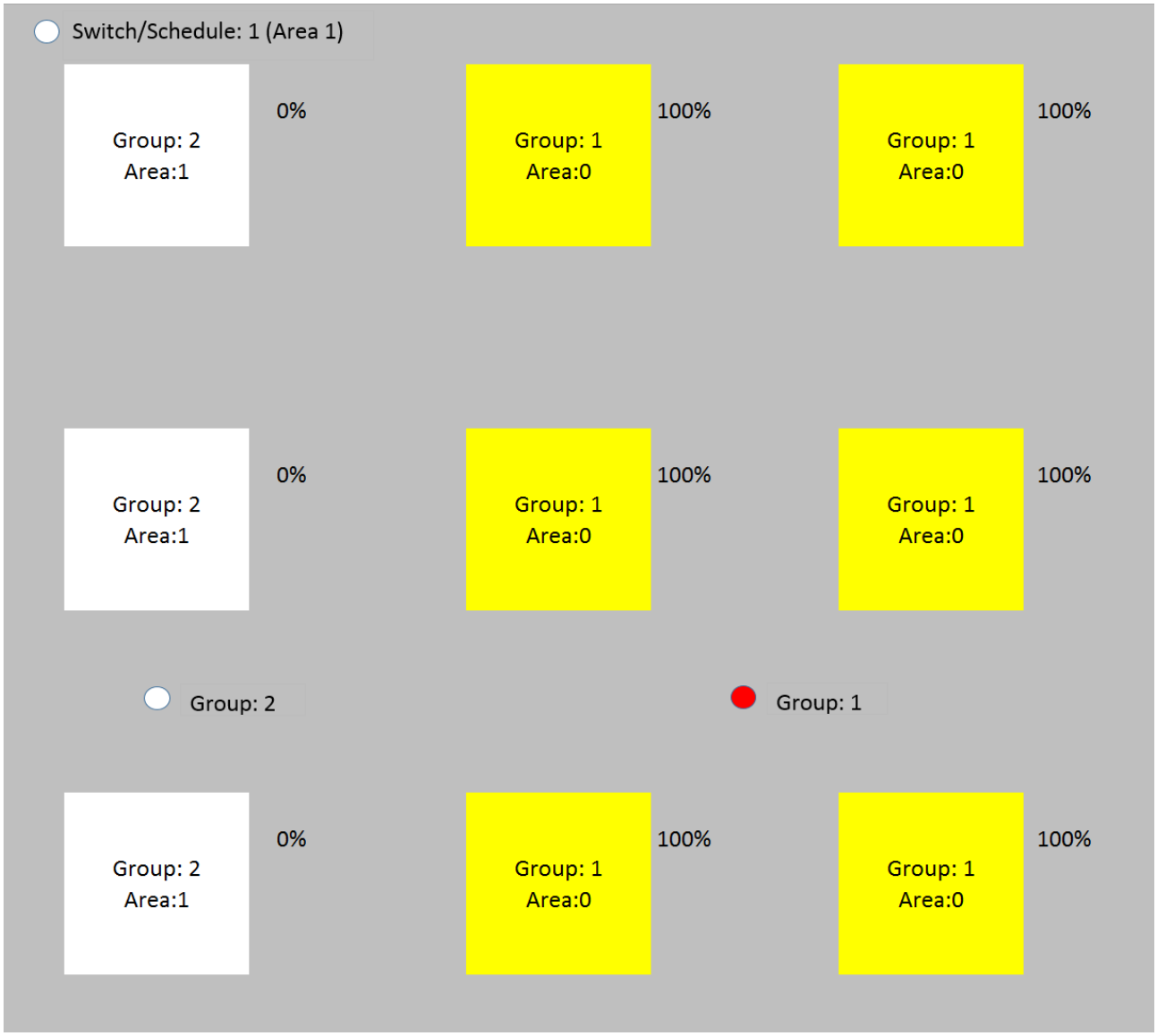
7.2 Area

All groups can be assigned to an area. Each area must first be released so that a group is active.

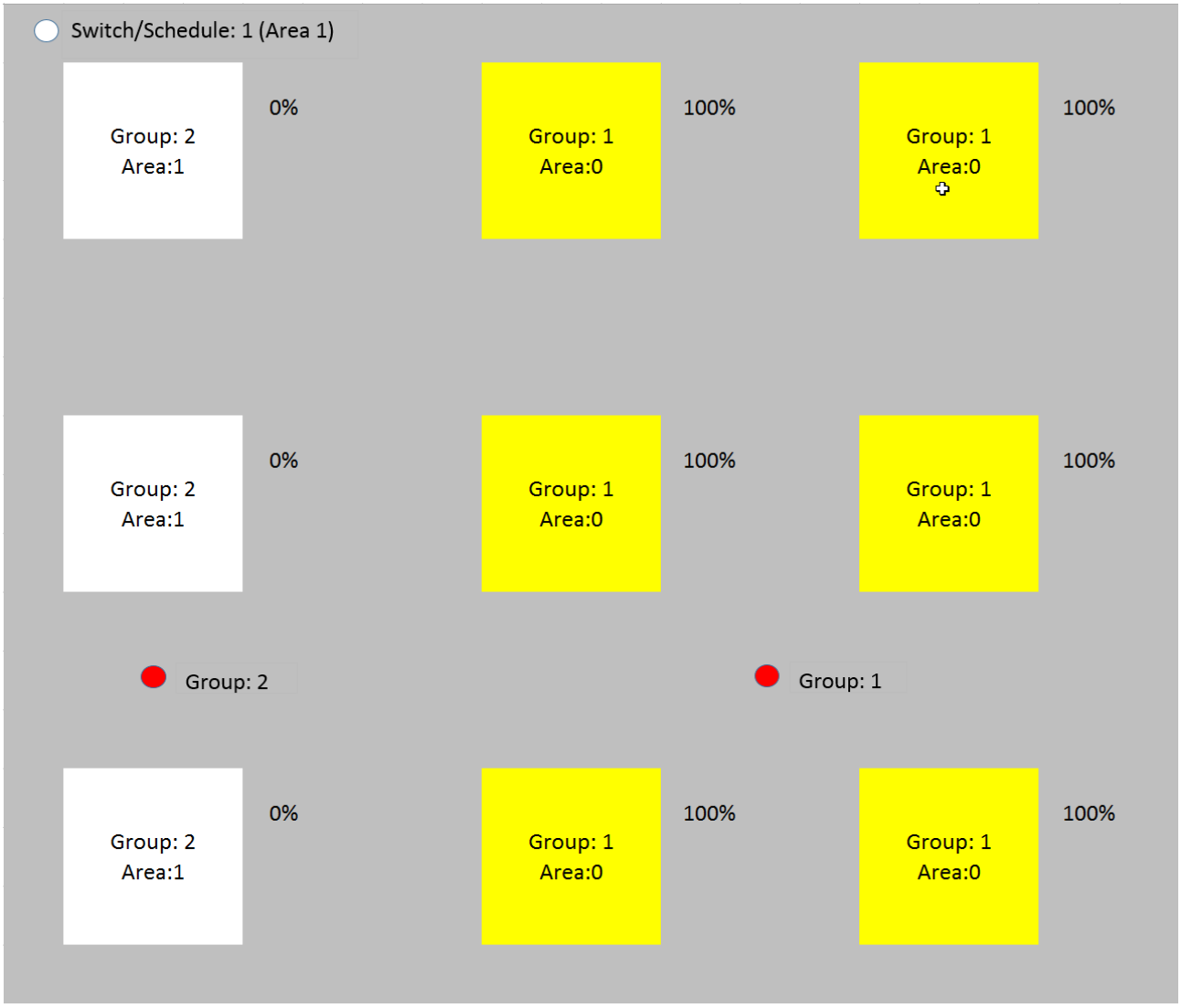
In the first illustration, group 1 is not assigned to any area. Group 2 belongs to area 1. No push-button or schedule that switches area 1 is currently active.



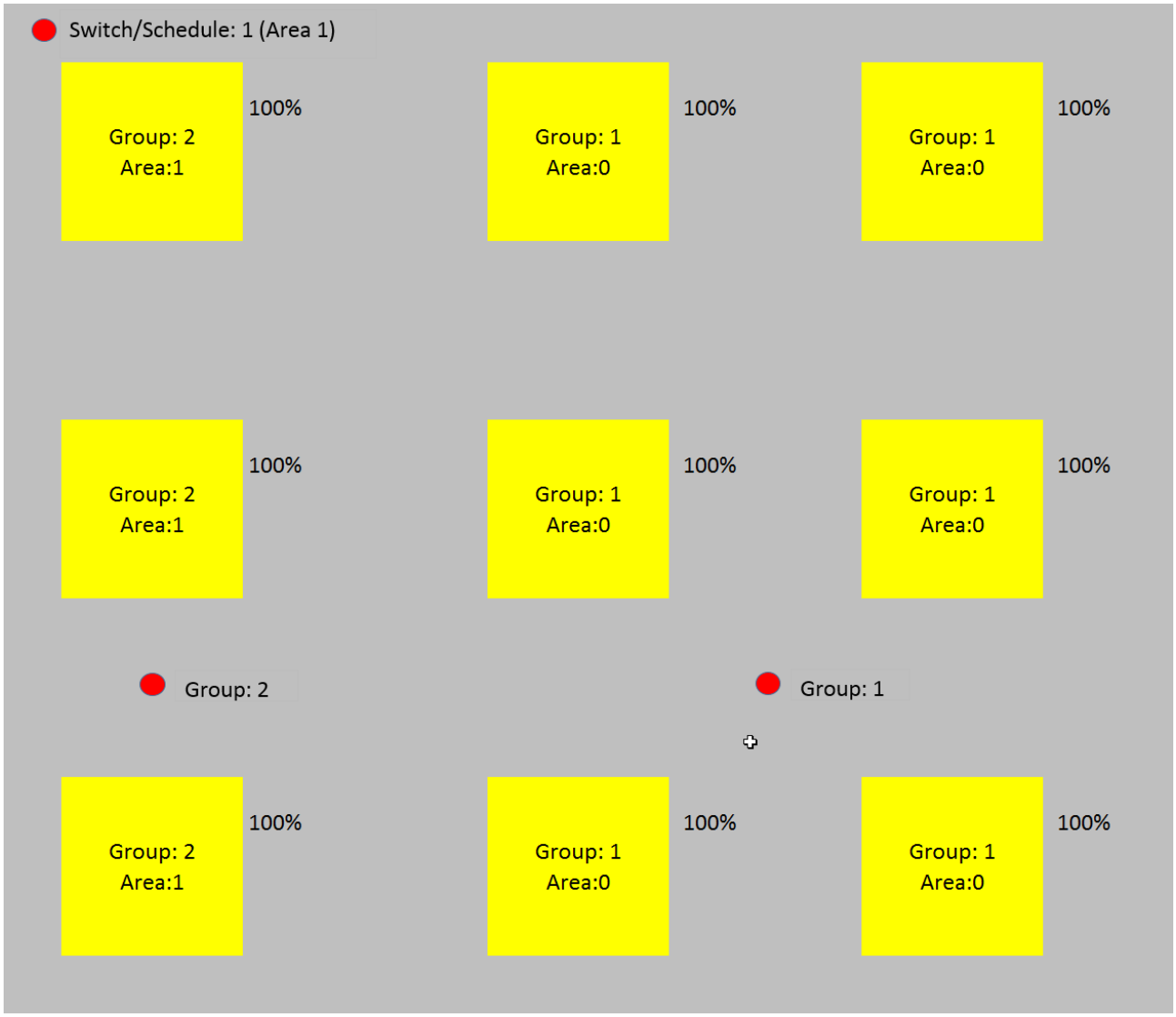
In the next illustration, the sensor for group 1 has triggered and the light is switched on. This group is activated directly without an area assignment.



In the following illustration, the sensor for group 2 has now also triggered. The light remains off because the area has not yet been activated.



In the last illustration, the area is activated via a push-button/schedule. Group 2 is switched on.


Switch/Schedule: 1 (Area 1)
Group: 2
Area:1
100%
Group: 1
Area:0
100%
Group: 1
Area:0
100%
Group: 2
Area:1
100%
Group: 1
Area:0
100%
Group: 1
Area:0
100%
Group: 2
Group: 1
Group: 2
Area:1
100%
Group: 1
Area:0
100%
Group: 1
Area:0
100%

8 Appendix

Building-Automation@Beckhoff.com

8.1 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for local support and service on Beckhoff products!

The addresses of Beckhoff's branch offices and representatives round the world can be found on her internet pages: https://www.beckhoff.com

You will also find further documentation for Beckhoff components there.

Beckhoff Support

Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

- support
- design, programming and commissioning of complex automation systems
- and extensive training program for Beckhoff system components

Hotline:	+49 5246 963 157
Fax:	+49 5246 963 9157
e-mail:	support@beckhoff.com

Beckhoff Service

The Beckhoff Service Center supports you in all matters of after-sales service:

- on-site service
- repair service
- spare parts service
- hotline service

Hotline:	+49 5246 963 460
Fax:	+49 5246 963 479
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