DALI Bluetooth
DALI Touch BT

Manual
Control Device

DALI Bluetooth Interface for the control of DALI systems via mobile device

Art. Nr. 89453584 (DALI Bluetooth)
Art. Nr. 24035465-BT (DALI Touch BT)

V1.3

DALI Bluetooth Manual Control Module

Content

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1. Function

The DALI Bluetooth modules from Lunatone are interface devices between IOS or Android Bluetooth Low Energy capable mobile devices and DALI lighting systems. Apps are available for the mentioned operating systems.

With the help of the App the DALI-system can be controlled using several layouts, but there can be connected only one mobile device at the same time.

The function behind the layouts can be configured using the DALI-Cockpit software tool. For a module up to 32 layouts and a maximum of 12 buttons per layout are supported (firmware 4.0 and higher)[1]. Furthermore 5 standard designs are availabe. They can be used either as predefined or customized.

2. DALI-Touch App

The „DALI Touch"-App is available for IOS and android and can be downloaded from:

AppStore: https://itunes.apple.com/us/app/dalitouch/id994496429?ls=1&mt=8

Google Play: https://play.google.com/store/apps/details?id=com.lunatone.dalitouch

After app installation has been finished and the Bluetooth-module has been connected to the DALI-line (see chapter 4 - installation), the app is already connected to the module. In the "*app-overview*" all Bluetooth modules located within the range are shown with their currently "*active layout*" (see figure 1).
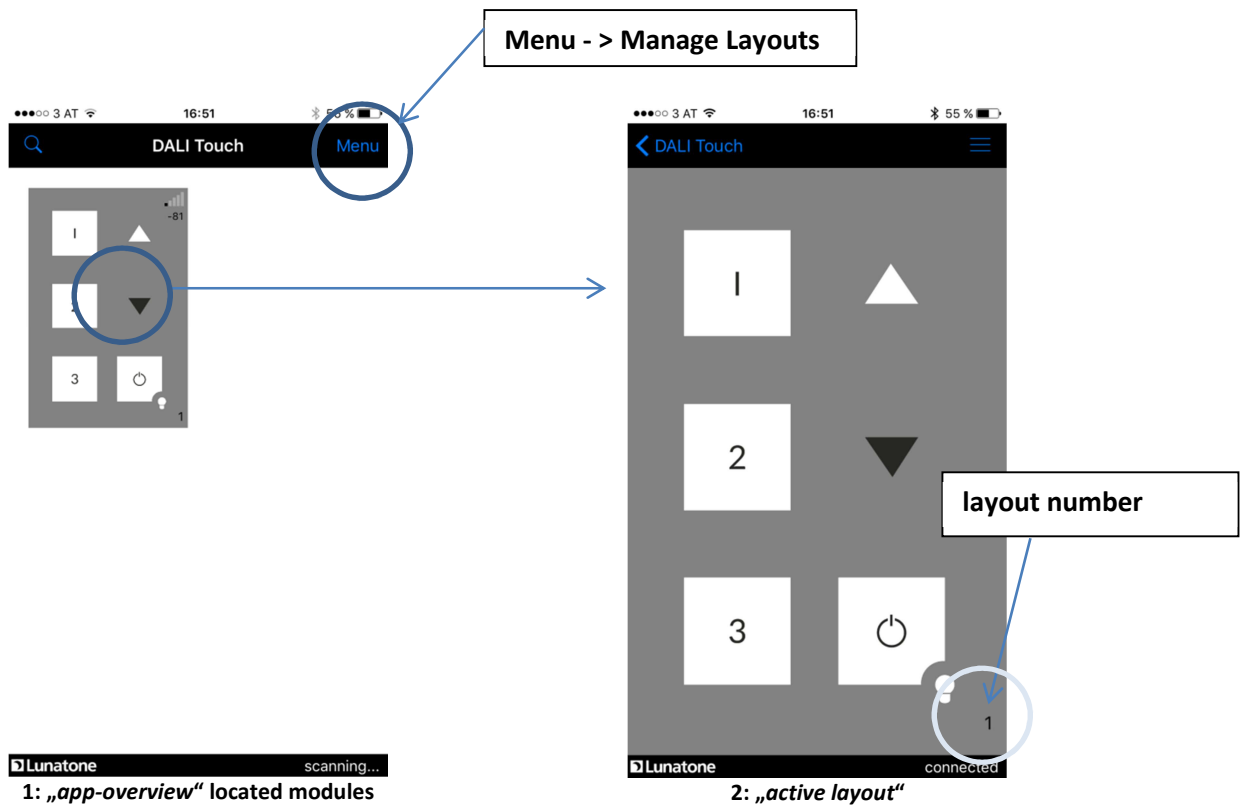
If one of the modules is selected in the "*app-overview*", the layout comes up (figure 2) and the DALI-circuit can already be controlled by the functions defined in the layout.

On the right bottom of the layout the layout number is shown. If any changes on the function are required, then this number indicates the layout which has to be adapted in the DALI-Cockpit.
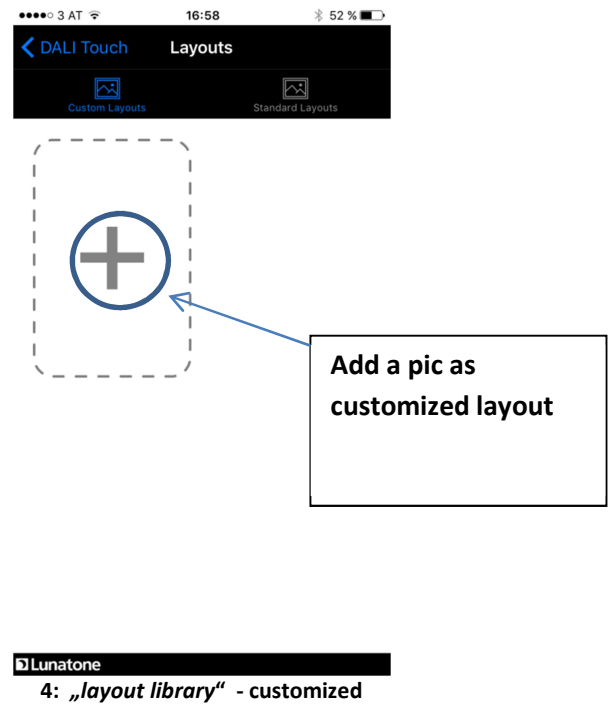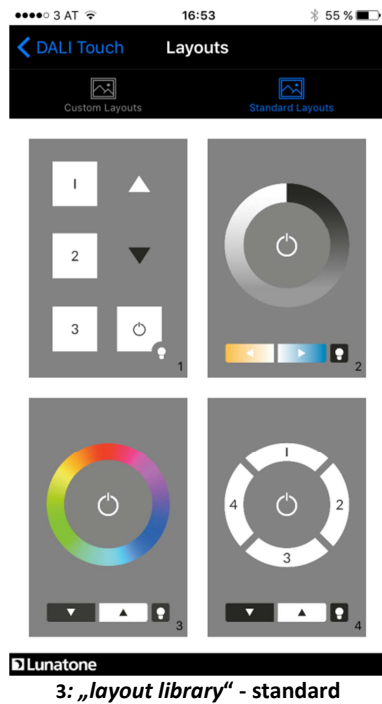
The pics used for the different layouts are managed in the "layout-library". It can be accessed via the *"Manage Layouts"* in the main menu ("*app overview*"). In "Standard-Layouts" (figure 3) the predefined layouts (number 1-5) are listed whereas in the „Customized-Layouts" (figure 4) for each number from 100-255 (range for customized layouts) a pic from the memory of your mobile device can be assigned. Already assigned pics can at any time be removed, changed or assigned to another layout by changing the number (figure 5 and figure 6). Finally the used pics can be sent per email e.g.

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[1] Please update older firmware versions. The last recent version is available under: http://lunatone.at/downloads/DALITouchBLE.zip. Follow the instruction in the info-file inside or check chapter 5 of this document.

for using exactly the same pic in the DALI-Cockpit config tool when configuring the corresponding layout.

Menu - > Manage Layouts

1: „*app-overview*" located modules

layout number

2: „*active layout*"

Manage layouts:

3: „*layout library*" - standard

Add a pic as customized layout

4: „*layout library*" - customized
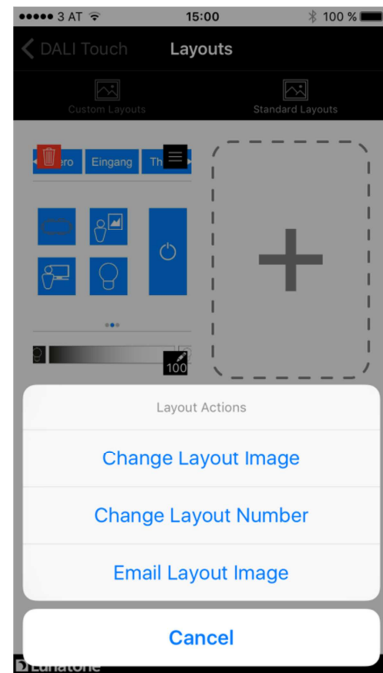
layout 100 added:
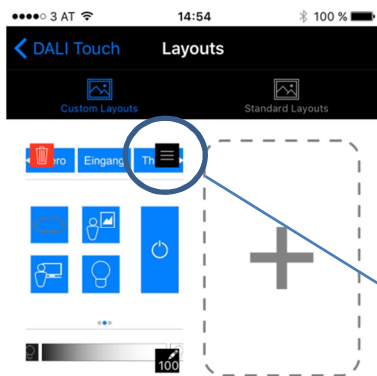
5: Customized Layout 100

6: Edit Options

additional hints:

7: searching for connection
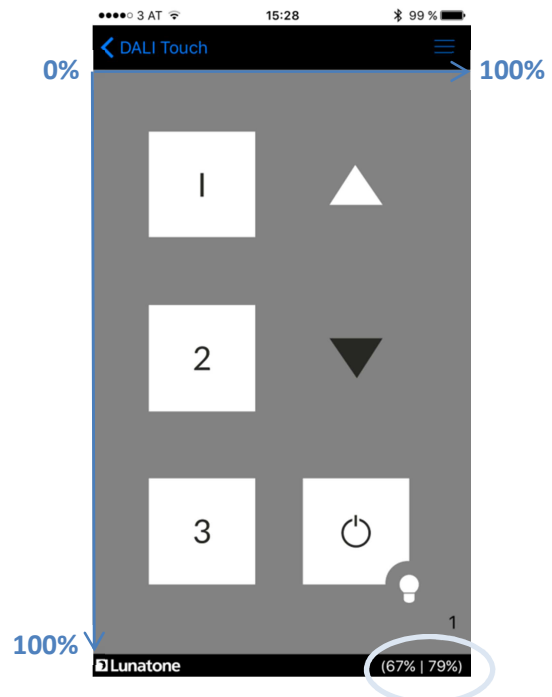
8: coordinates of last pressing action

9: unknown layout (no pic assigned)   **10: layout menu**
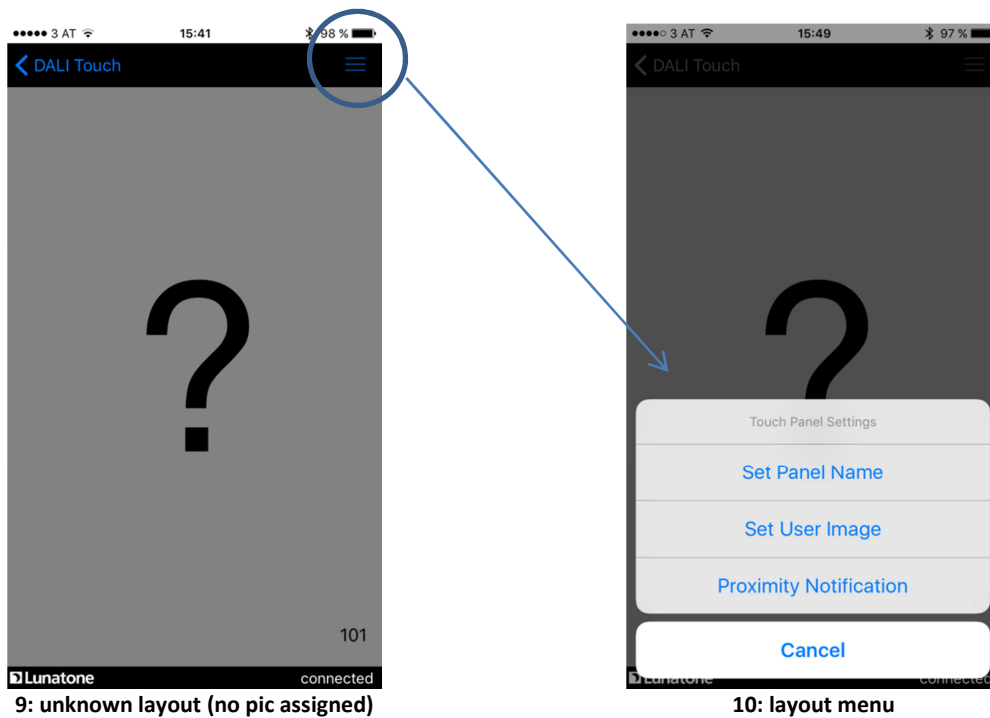
The search for a bluetooth connection is indicated by the symbol shown in figure 7.

After a pressing action the coordinates at which the action has been located is shown (in% relative to the screen size) for about 3 seconds on the bottom right (see figure 8). This information is quiet helpful for the definition of button coordinates in the DALI-Cockpit.

If the case occurs that a layout gets active, for which no pic has been assigned (like it is the case with layout 101 in figure 9), a big question mark will indicate this behaviour. The pic can then be assigned to Layout 101 either via "Manage Layouts" as already mentioned above or using menu function "Set User Image" (see layout menu figure 10).

The difference between these methods is as follows: The app has one "layout-library" in use, that means that each Bluetooth module that connects to the app uses the same layout-library and as a result the same pics for the same layout numbers. In difference a "*User image*" is only assigned to the currently active layout of the connected device, the pic defined in the layout manager is overruled in this case.

Besides the definition of a user image the panel name can be set as well as the proximitiy notfication can be enabled/disabled in the layout menu (see figure 10).

3. DALI Cockpit - Layout Configuration

The DALI Cockpit is the configuration tool for DALI systems from Lunatone, it is available as free download from the Lunatone-website (www.lunatone.at). Please check that you have the last recent version in use, otherwise Lunatone cannot ensure that all functions and devices are supported (for DALI BT-modules please use DALI-Cockpit Version 1.25 and higher).

With the help of the DALI-Cockpit DALI control gear and Lunatone control devices can be addressed and configured. All devices that are connected to the DALI-line and have been addressed are listed in the component tree (figure 11).

DALI Bluetooth module

DALI Touch BT module
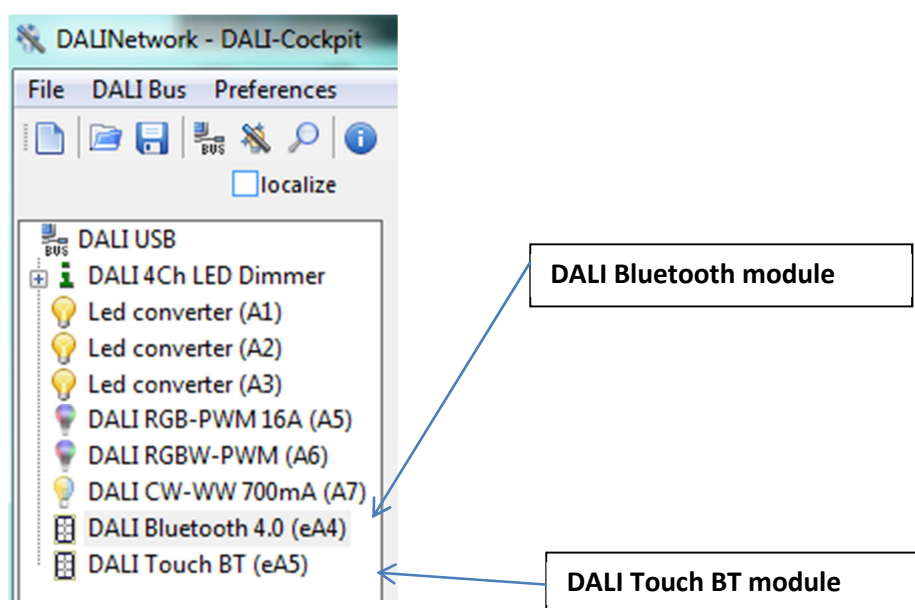
11: Component-Tree

Selecting a device in the component tree will open the corresponding configuration site.

3.1 General Settings

The configuration site of the DALI Bluetooth modules is separated in tabs, one for each layout and a general settings tab.

On the left there general functions like the info-field about the number of layouts and the buttons for adding/removing layouts and assigning/removing pics to layouts are located. The touchpanel-type offers an additional button for calibration of the physical touchpanel (see figure 12).

The header, marked as device info, provides information about the device (like manufacturer, article number, serial number and firmware version).

device info:

type, manufacturer etc.

firmware version

update function

Add Layout:

Standard layout

Empty layout

Copy of already existing layout

General Settings:

pincode (access protection)

proximity event

power-up behaviour

touchpanel LED

touchpanel beeper

12: Structure Configuration Site

General Settings:

Enable PIN: access protection by a 4 digit pin code. Once activated the app of a connected mobile device will ask for a valid pin.

proximity event: the proximity function offers the possibility to set a predefined action if a mobile device comes into the range of the bluetooth connection (e.g. for automatic switch on the light). The proximity function has to be enabled on the mobile device as well (function is supported up from Bluetooth version 1.0 and firmware version 4.3).

power-up: behaviour after a power brake has occured

TouchPanel-LED and Beeper: de-/-activate Led and beeper of the panel (DALI Touch BT only).

3.2 Layout Settings

Once a layout is selected addional options are available in the menu on the left. The selected layout can be deleted and the image that should be used for the layout can be selected. This is useful for defining the coordinates of the buttons. The buttons defined in the layout can be superimposed or supressed dependent on the „Show button hints" checkbox.
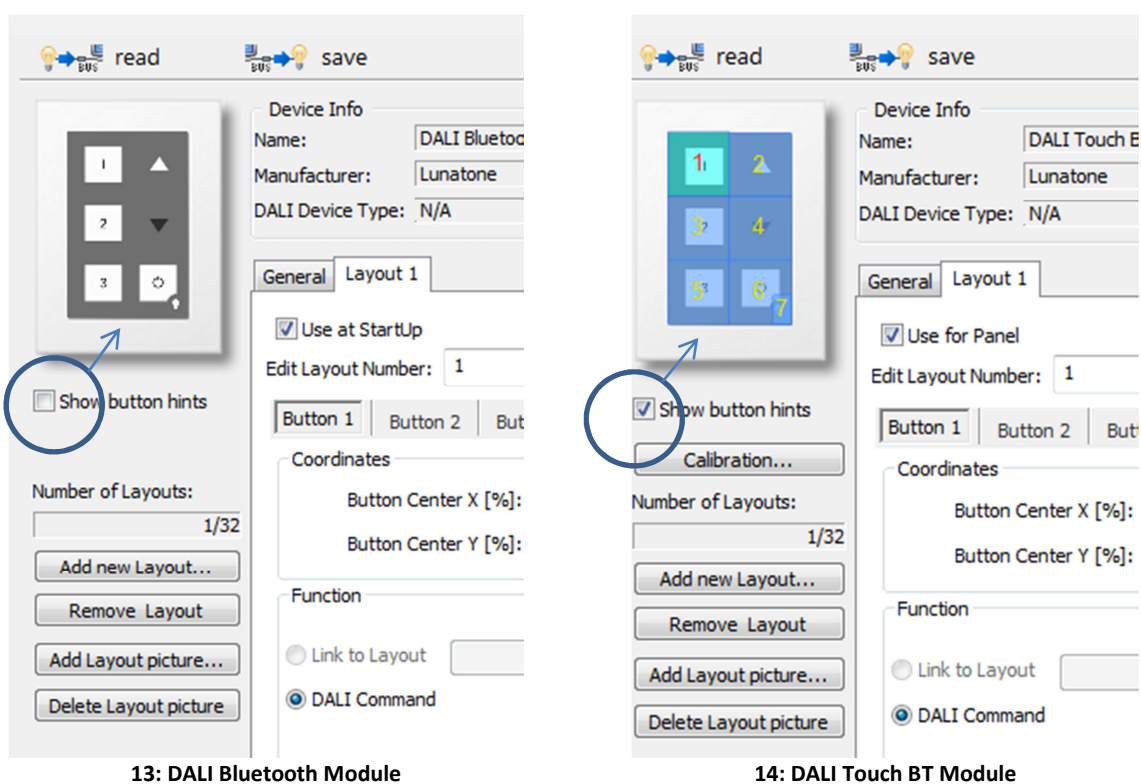
| 13: DALI Bluetooth Module | 14: DALI Touch BT Module |

Hint: A Start-Layout (DALI Bluetooth, „Use at StartUp") or a panel-layout (DALI Touch BT, „Use for Panel") must be available at any time. This layout cannot be deleted[2].

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[2] If the currently active layout has been deleted accidentally, a power cycle restarts the module in a defined state using the startup-layout as active layout.

Layout Number:

The number of the layout can be changed in the field „Edit Layout Number" (100…255), the number is used by the module to tell the app which layout (pic) should be shown.

Furthermore the layout numbers are used for the link-function. Assigning a link to another layout to a button offers the possibility to switch between several layouts and generate menu structures and so on.

Buttons:

Each layout supports up to 12 buttons. The position of each button is defined by its coordinates, in detail by its centre as well as its width and height. The coordinates are entered in % relative to the layout size (0/0 is top left, 100/100 is bottom right – see figure 8 and figure 15). The coordinates shown in the app when touching the layout are very helpful for defining the centre of a button.

If the checkbox „Show button hints" is selected, the areas of the defined buttons will be superimposed to the background pic. The currently active button is highlighted.

Button areas may overlap, in this case the button with the higher number has higher priority (like in fig 15 at which button 7 has higher priority than button 6).

15: Layout Seite Einstellungen

Function:

Each button a function can be assigned to. As function 2 different types are available:

- **a link to another layout**, this allows switching between different layouts and thus offers the generation of structures with submenus and so on
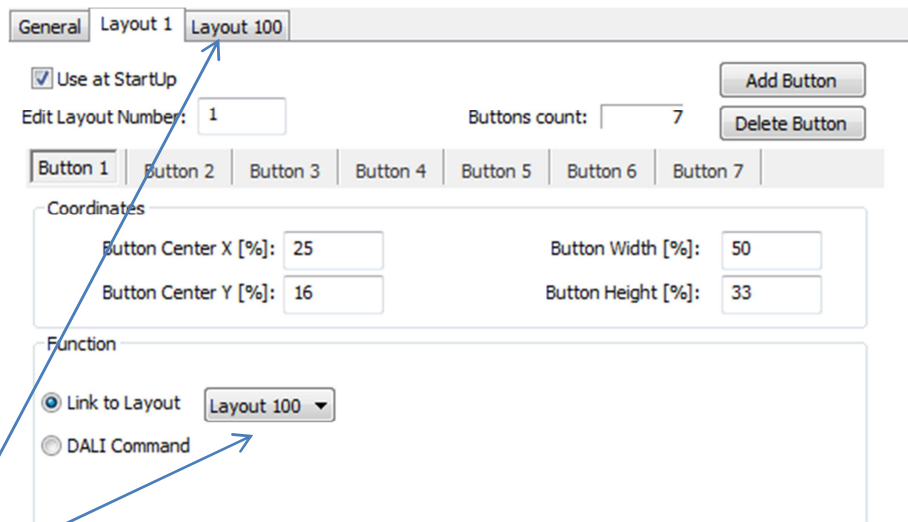
Function: Link selectable only if other layouts are available

16: Link Function

- **a DALI command**, this option includes several possibilities to send DALI commands on the DALI-line
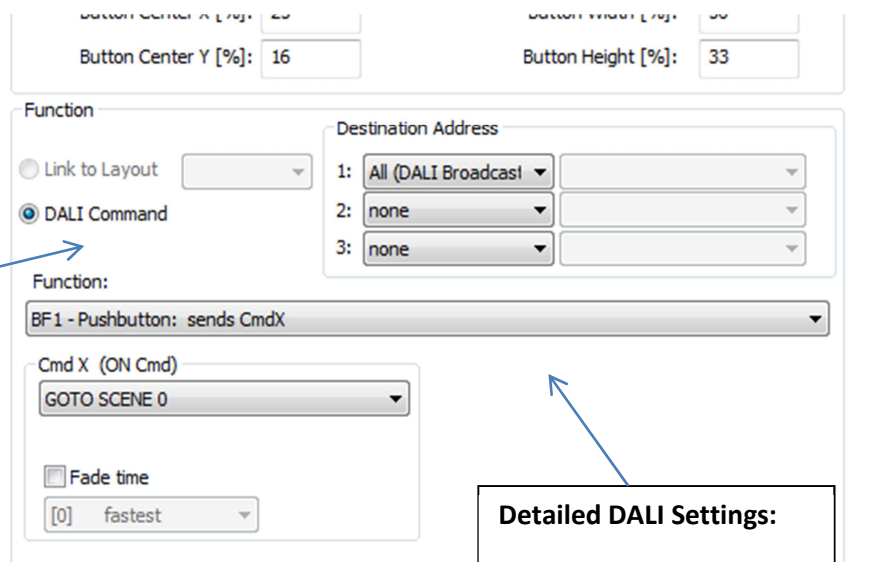
DALI-Function:

Adress(es) + Commands

17: DALI-Function

Detailed DALI Settings:

Effective range

Switching function

DALI command

4. Installation

The DALI-Bluetooth module is connected directly to the DALI-line. It is supplied directly by the DALI-line. The connection to the DALI-line is polarity-free.

The DALI Touch BT can be mounted on a wallbox, the DALI Bluetooth module can be inserted inside. Connecting wire cross section is 1,0mm^2 to 2,5mm^2 (Touch-type) and 0,5mm^2 to 1,5mm^2 (Interface only type).

The DALI-Bluetooth modules are mutlimaster capable, that means that several modules can be connected to the same DALI-line.

The DALI-Bluetooth module does not use a DALI address, hence all 64 addresses can be used for control gear..

5. Firmware Update

The actual firmware can be downloaded from

http://lunatone.at/downloads/DALITouchBLE.zip

Please ensure that you are using the last recent DALI-Cockpit version:

http://lunatone.at/de/dali-systeme/software/

Update Procedure:

1. Connect the DALI-Bluetooth Modul to the DALI-line. Connect your computer with the DALI-Cockpit tot he DALI-line using a DALI-USB or DALI RS232 interface.
2. Open the DALI-Cockpit and address the devices. Select the device in the component tree

The site will look similar to the example: (old firmware version 3.6)
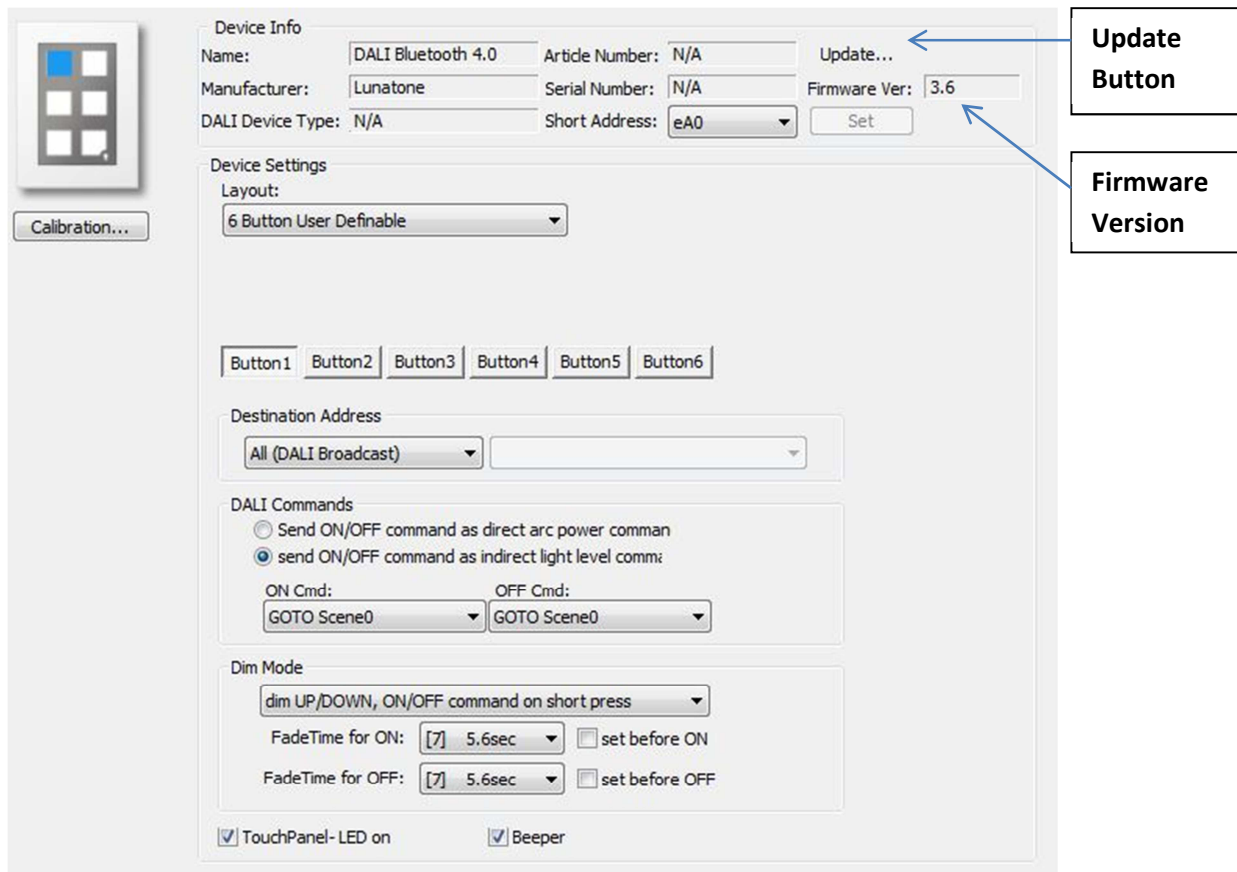
18: DALI Cockpit view with DALI Bluetooth Firmware 3.6

3. Press the update button and enter the code from the Zip-File for enabling the update feature

4. The update window pops up -> Select the hex-file from the Zip and press start. The update can last up to 15 minutes.
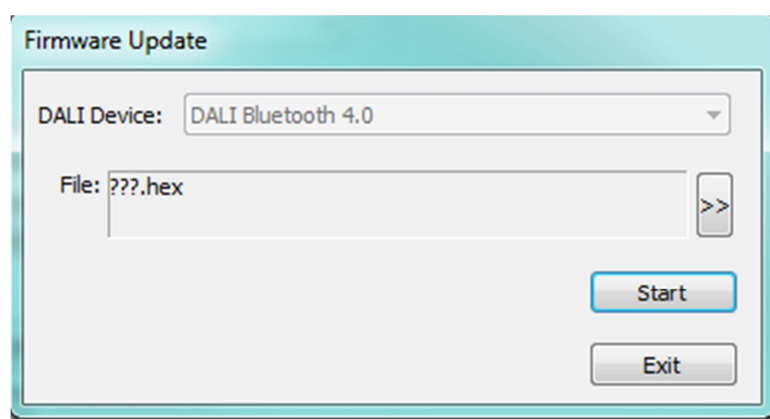
19: Firmware Update

5. After the Update has finished, **the device must be readdressed** (right click on the device in the component-tree and selecting "delete" removes the device from the component-tree and deletes the address).

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6. Application Examples

6.1 Entrance Area of an Office Building

Situation: The building in this example has several areas: Office, Entrance, Bar. The example will put the focus on the "Eingang" (entrance area).

Requirements: The entrance area (-> DALI Gruppe 15) is divided in subareas, which should be dimmed together, but optionally each subarea should be controlled separately (brightness and tunable white).

Subareas of entrance area:

waiting area
DALI Group 0

ambient light
DALI Group 1

reception area
DALI group 2

another area, e.g.:
outdoor area

Principle Layout Menu „Eingang":

Select Building Area
in this example the focus is put on the entrance „Eingang"

Select Sub Area
the active area is indicated – another press on the marked button will open the control site for this sub area

On/Off of the currently active sub area

Control Building Area

Dimming whole entrance area („Eingang")
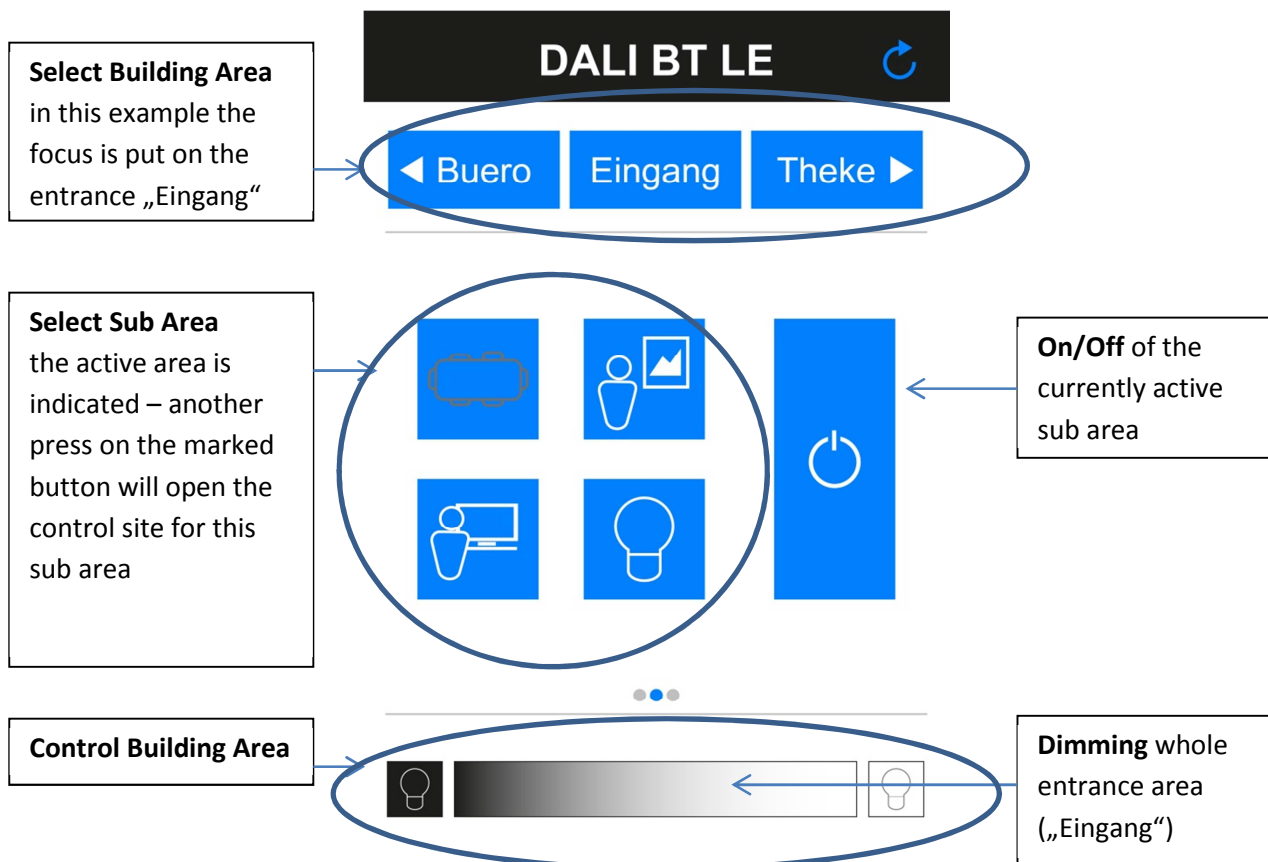
20: layout menu „Eingang"
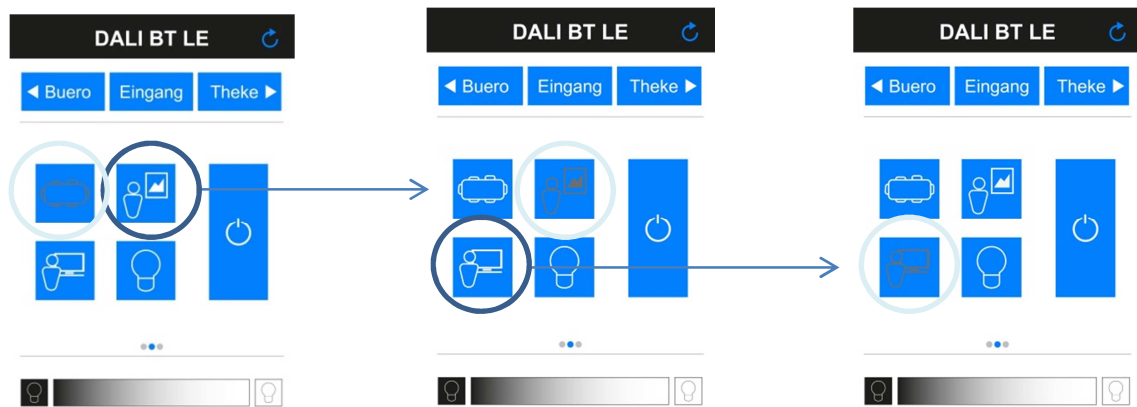
21: Switching between sub areas, the currently active sub area is indicated

Principle Layout Controls:

Press on active area (here waiting area) -> control site

back to menu

indicator sub area, here „waiting area"

Maximum

Scene Cool White

Dim

Tunable White

OFF / Minimum

Scene Warm White
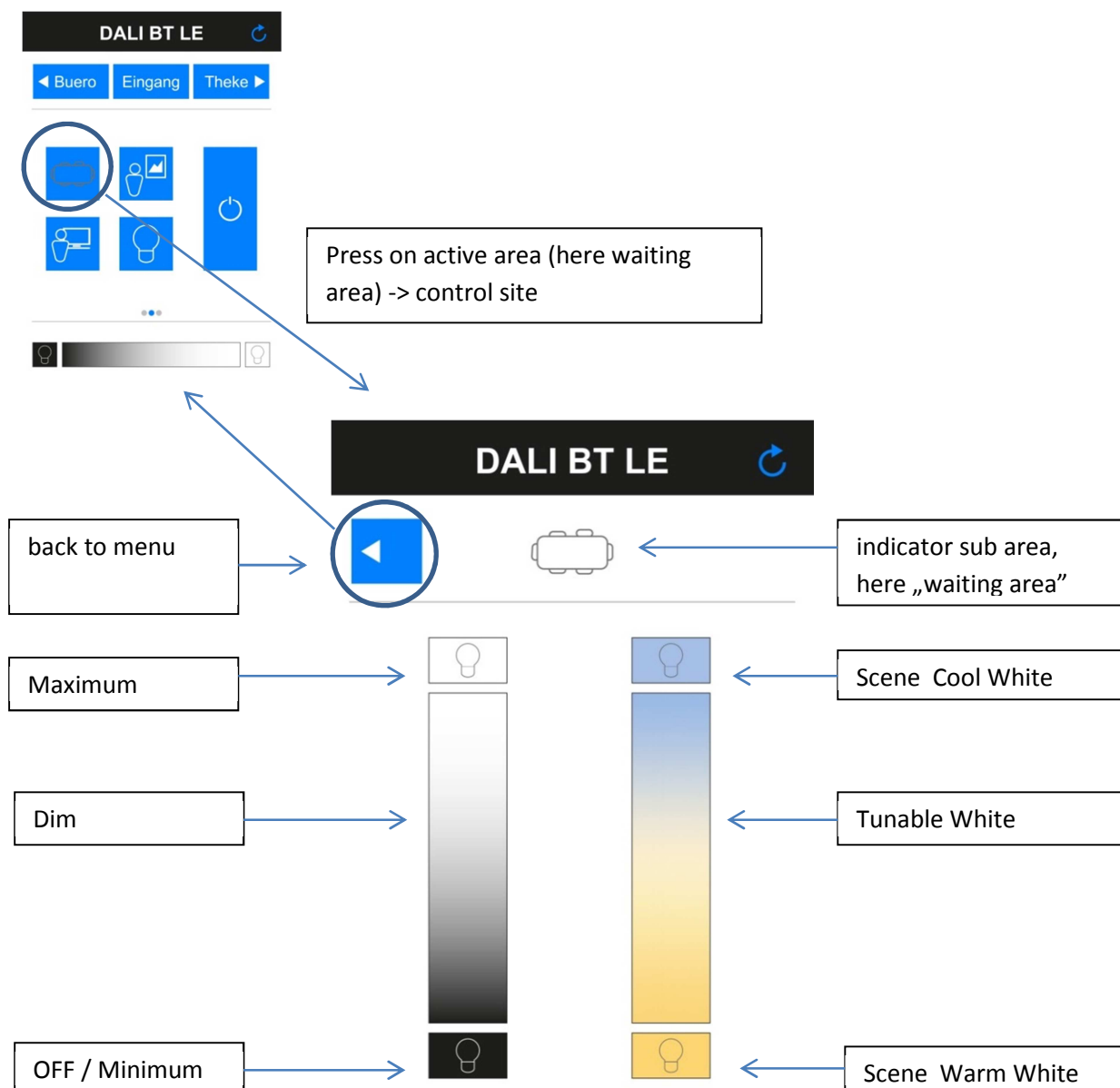
22: Layout Control of Sub Area (Dimming and Tunable White)

Required Layouts, Numbering and Group Assignment:

 Waiting Area (Group 0)
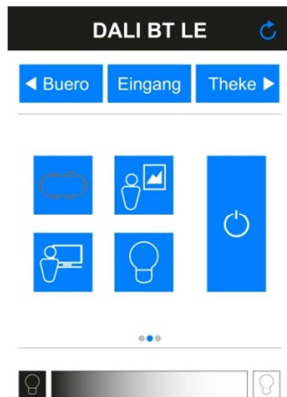
Layout 100 (Waiting Area „selected")

Layout 101 (Control Group 0 – Waiting Area)

 Ambient Light (Group 1)

Layout 102 (Ambient Light „selected")

Layout 103 (Control Group 1 – Ambient Light)

 Reception (Group 2)
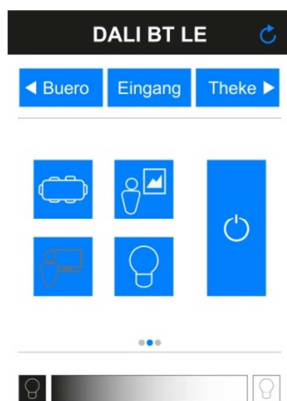
Layout 104 (Reception „selected")
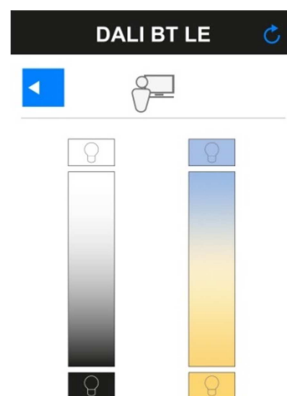
Layout 105 (Control Group 3 - Reception)

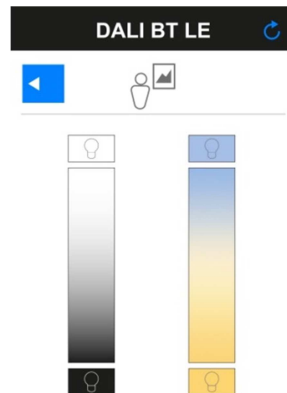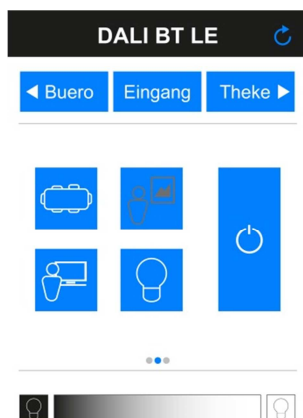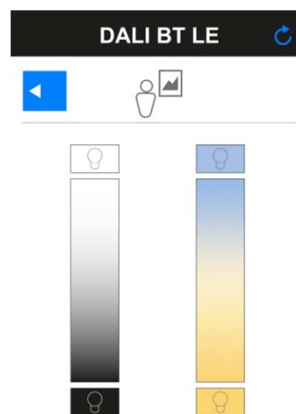**Waiting Area (Group 0)** - Menu with Waiting Area selected -> Layout 100

DALI BT LE

◄ Buero | Eingang | Theke ►

Select other Building Area - **Link Layout xxx**

Switch to Ambient Light (Group 1) -**Link Layout 102**

Goto Contol of Waiting Areas (Group 0) – **Link Layout 101**

On/Off Waiting Area - **DALI G0 On/Off**

Switch to Outdoor Area – **Link Layout xxx**

Switch to Reception (Group 2) -**Link Layout 104**

Dimming Entrance Area - **DALI G15 Up/Down**
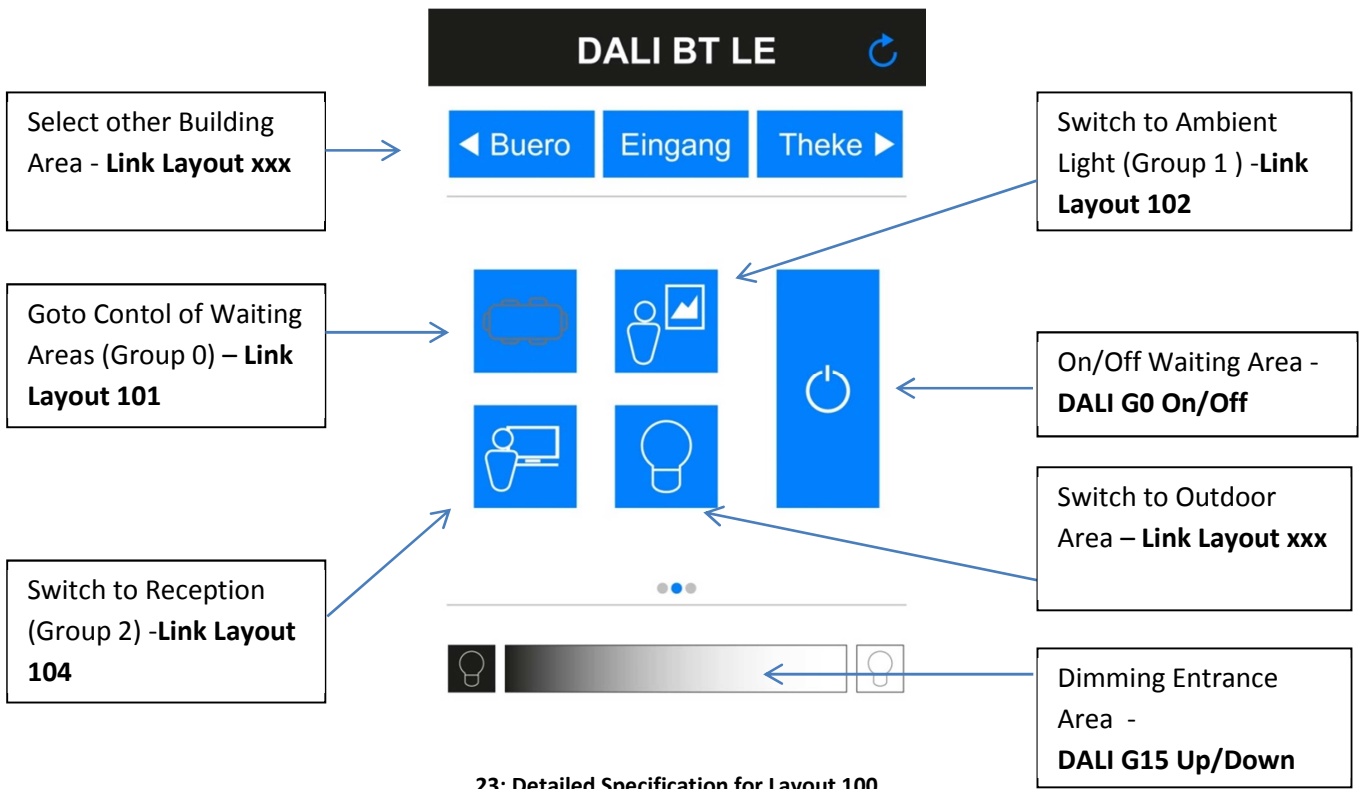
23: Detailed Specification for Layout 100

Waiting Area (Gruppe 0) - Control Group 0 (Waiting Area) ->Layout 101

DALI BT LE

Back to Menu -**Link Layout 100**

Scene 0: Cool White - **DALI G0 Goto Scene 0**

Maximum - **DALI G0 Recall Max**

Tunable White Cooler - **DALI G0 – Makro Tc Cooler**

Dim Up - **DALI G0 Up**

Dim Down - **DALI G0 Down**

Tunable White Warmer - **DALI G0 – Makro Tc Warmer**

Minimum/OFF - **DALI G0 Recall Min / Off**

Scene 1: Warm White - **DALI G0 Goto Scene 1**
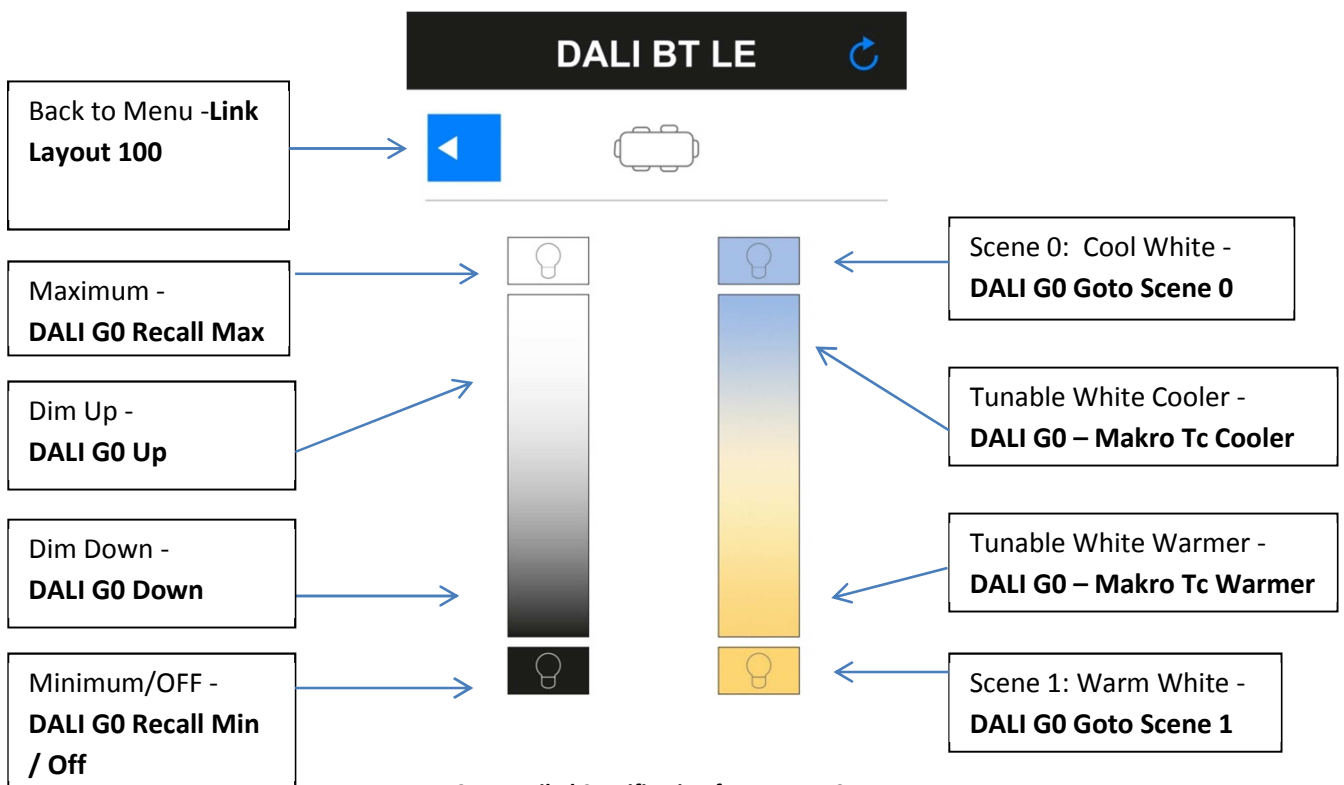
24: Detailed Specification for Layout 101

DALI-Cockpit, Procedure:

1. Add New Layout -> Empty Layout -> Layout 100
2. Add Layout Picture
3. Add Additional Layouts you want to link to (e.g. Layout 101 – Control Waiting Area)
4. Add Button -> Define Coordinates -> Define Function -> Save for programming button to device (reply point 4 for each button)
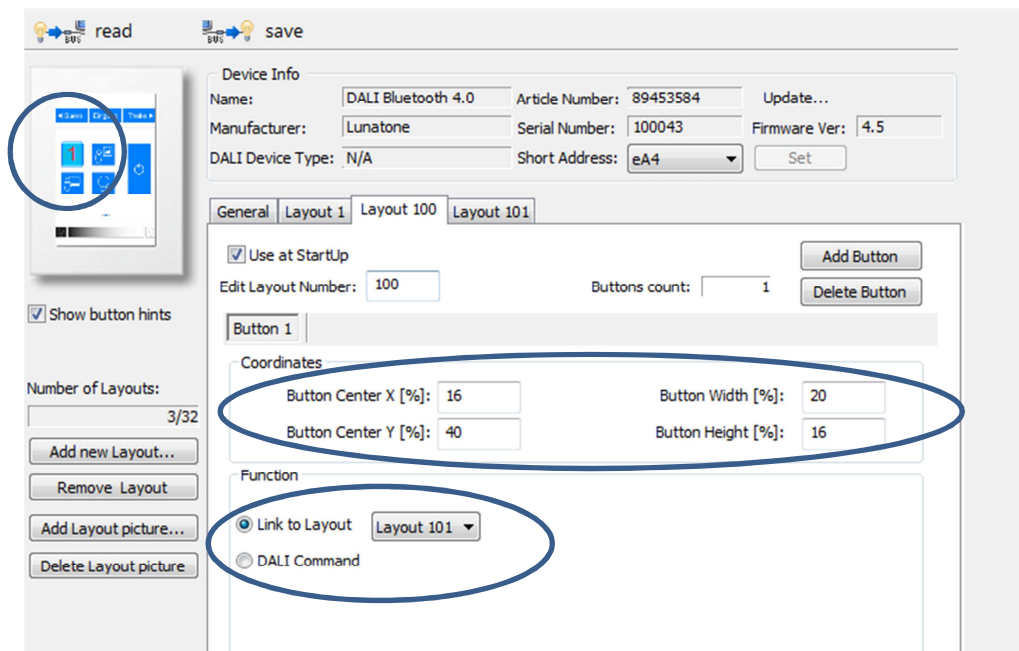
25: Button 1 – Link to Layout 101
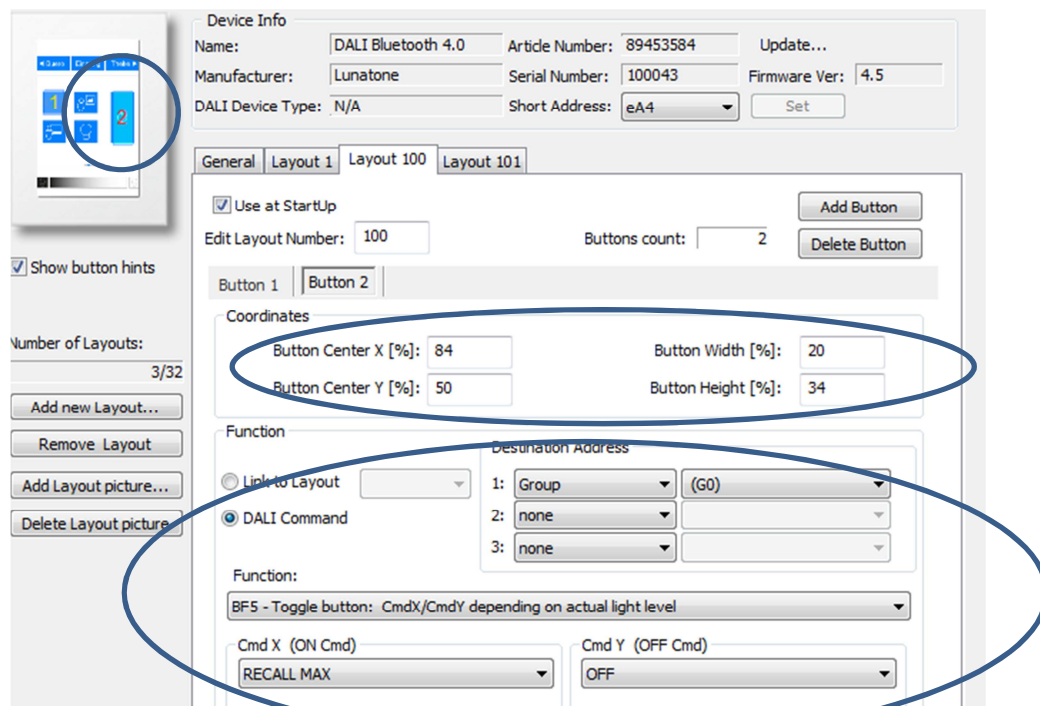
26: Button 2 - On/Off Waiting Area (DALI Group 0)
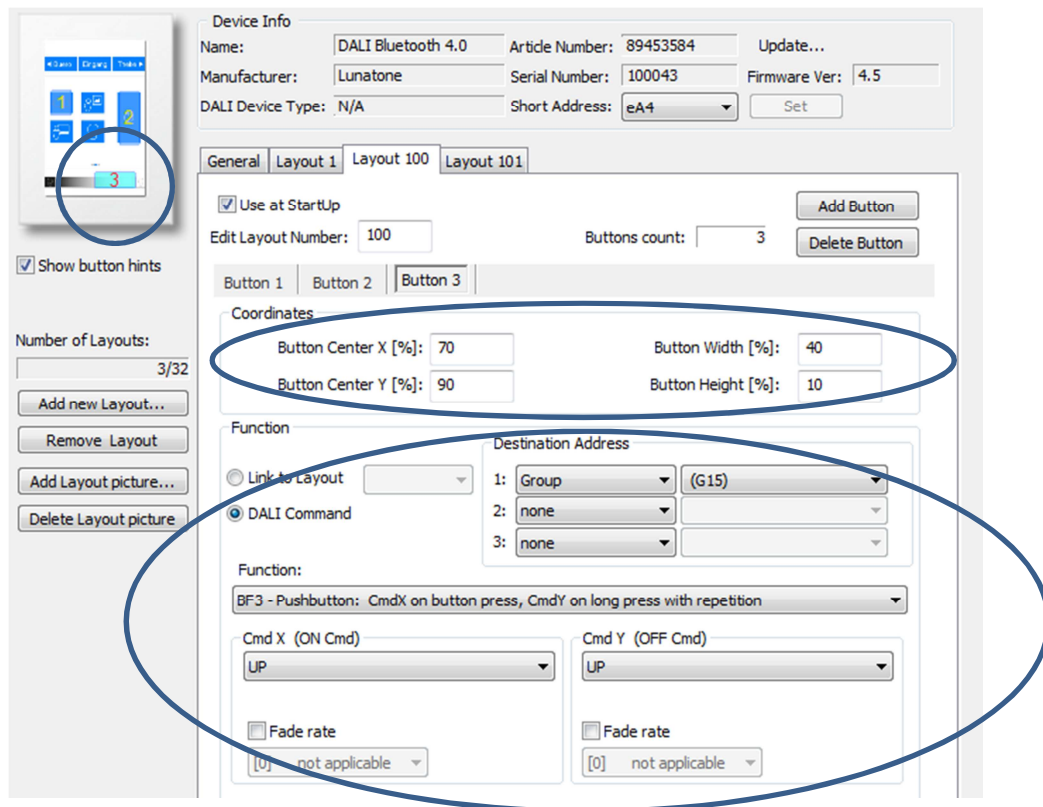
27: Button 3 – Dim Up Entrance Area (DALI Group 15)

For further buttons and layouts the procedure is always the same.

In order to use the layouts on the mobile device, the app firstly requires the images used for the layouts, hence they have to be transferred to the smartphone and correctly assigned in the "layout library". Furthermore the view has been changed from the currently active layout to the newly implemented one. This can either be done by adding a link on the current layout that points to the new one or by defining the new layout as StartUp layout and power cycle the device.
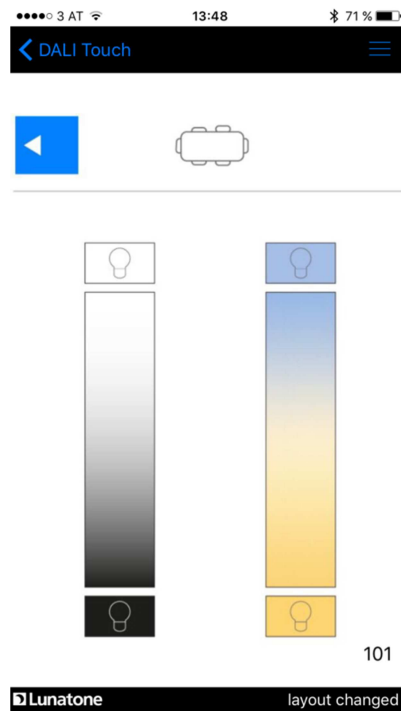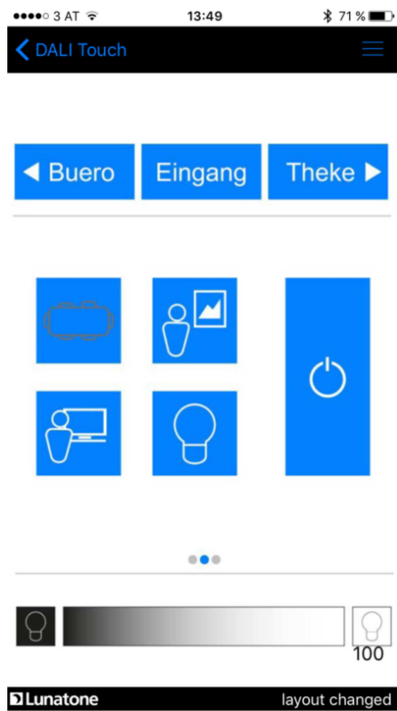
28: Screenshots Layout 100 and Layout 101

7. Appendix A: Standard-Layouts

The well known layouts used by the DALI-Touchpanel (ArtNr. 24065365) can be loaded as presets and modified by the customer.

Standard Layouts:

6-Button Layout (Standard Layout Nr 1)

Scene Buttons:

Recall Scene 1-3

Dim Buttons

Dim Up and Dim Down

Off:

Off-Button

Finder-LED:

Red Led to find the physical touch in the dark.

Long press: Led On/Off
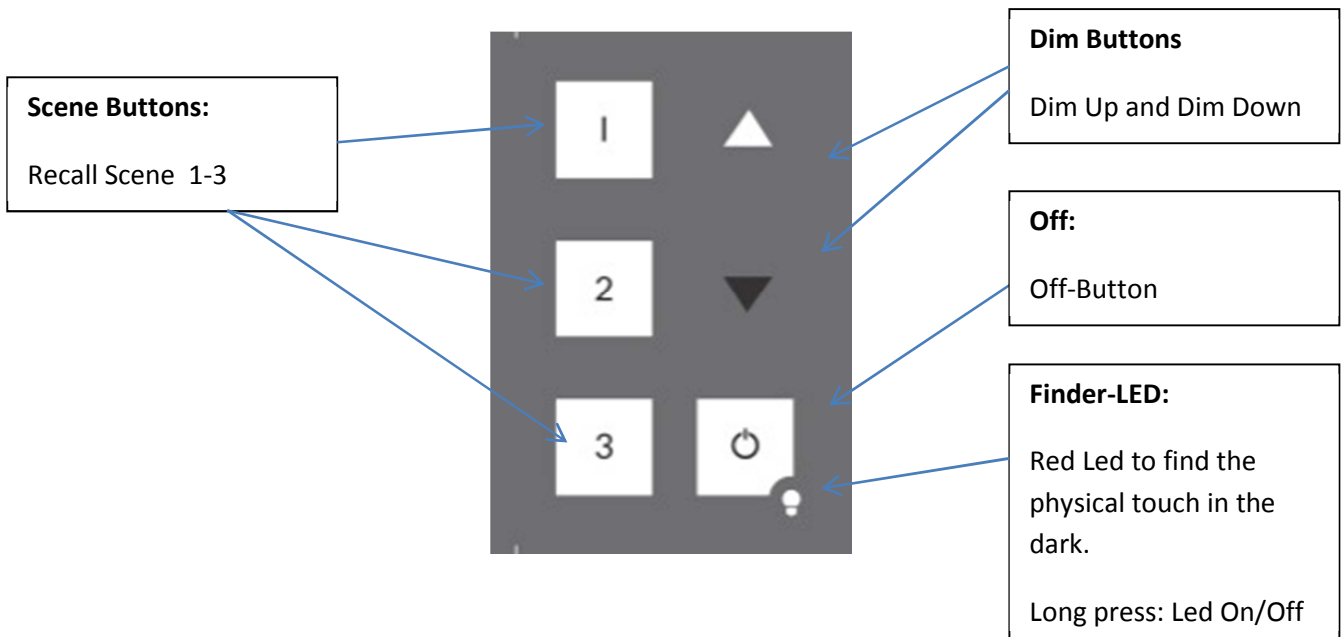
Tunable White Layout (Standard Layout Nr 2)

Dim Wheel:

Recalls discrete DAP-Values

Color Temperature:

Warmer

Color Temperature

Cooler

On/Off:

On/Off dependent on the light status

Finder-LED:

Red Led to find the physical touch in the dark.

Long press: Led On/Off
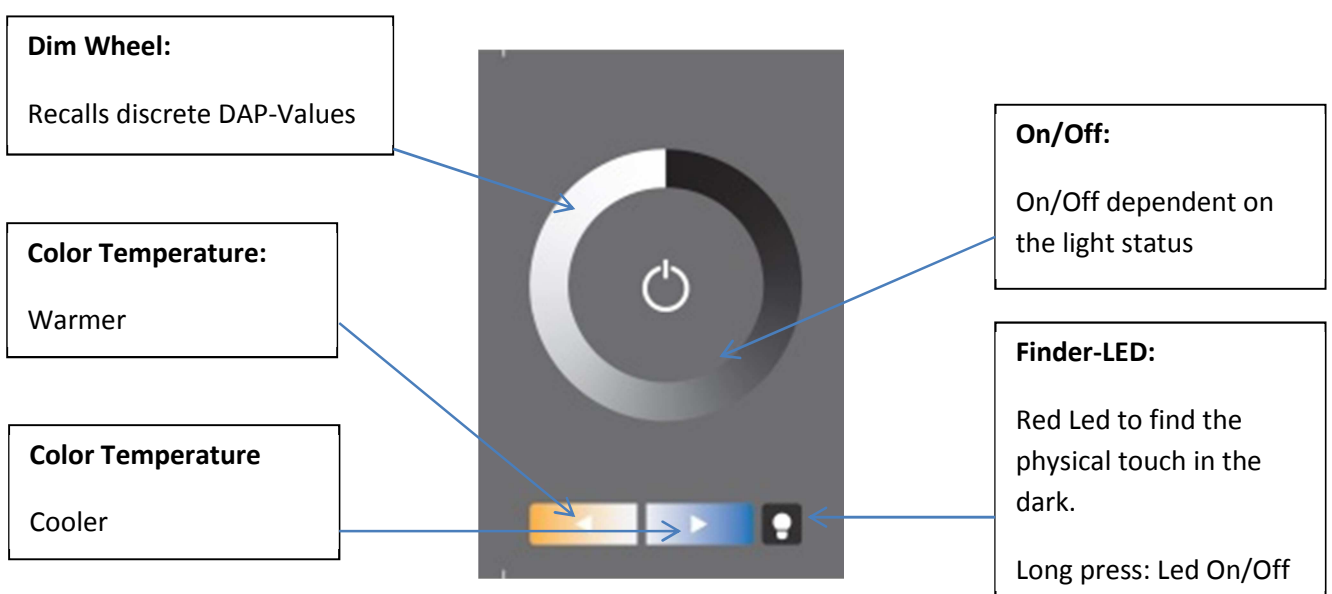
Color Layout (Standard Layout Nr 3)

The Color Wheel is divided in 16 scenes. When you touch the wheel a GOTO SCENE X command is sent to the effective range. The scene number depends on the position.

Goto Scene 15	
Goto Scene 0	
Goto Scene 1	
Goto Scene 2	

On/Off:

On/Off dependent on the light status

Color Wheel:

Selecting a Color, the corresponding GOTO SCENE Cmd is sent.

Finder-LED:

Red Led to find the physical touch in the dark.

Long press: Led On/Off

Dim Buttons

Dim Up and Dim Down

Goto Scene 8

Goto Scene 7
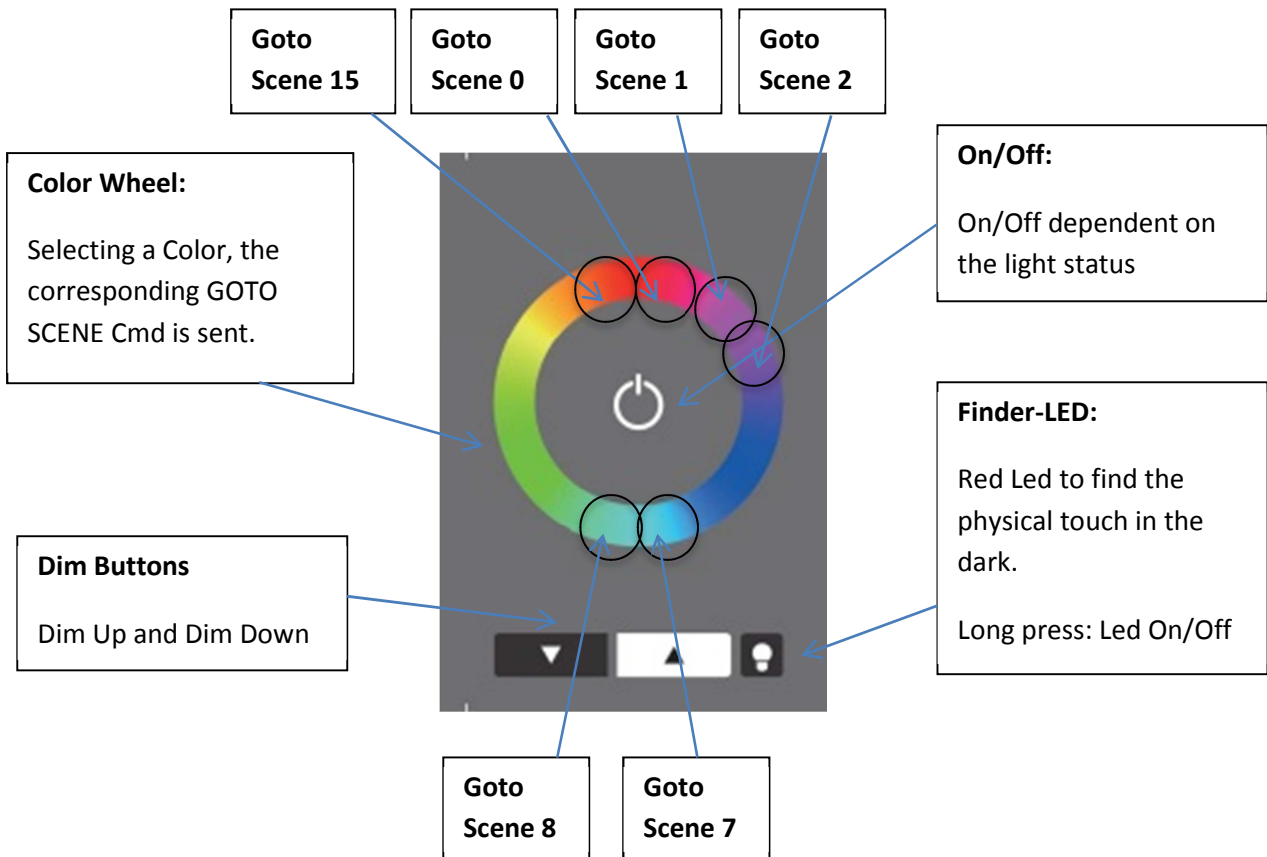
The device does only recall scenes when using this layout. The color values have to be stored in the scenes of the control gear itself. The big advantage of this method is that it can be used for DT8 capable control gear as well as for systems using one address for each color.

7-Button Layout (Standard Layout Nr 4)

Scene Buttons:

Recall Scene 1-4

Dim Buttons

Dim Up and Dim Down

On/Off:

On/Off dependent on the light status

Finder-LED:

Red Led to find the physical touch in the dark.

Long press: Led On/Off
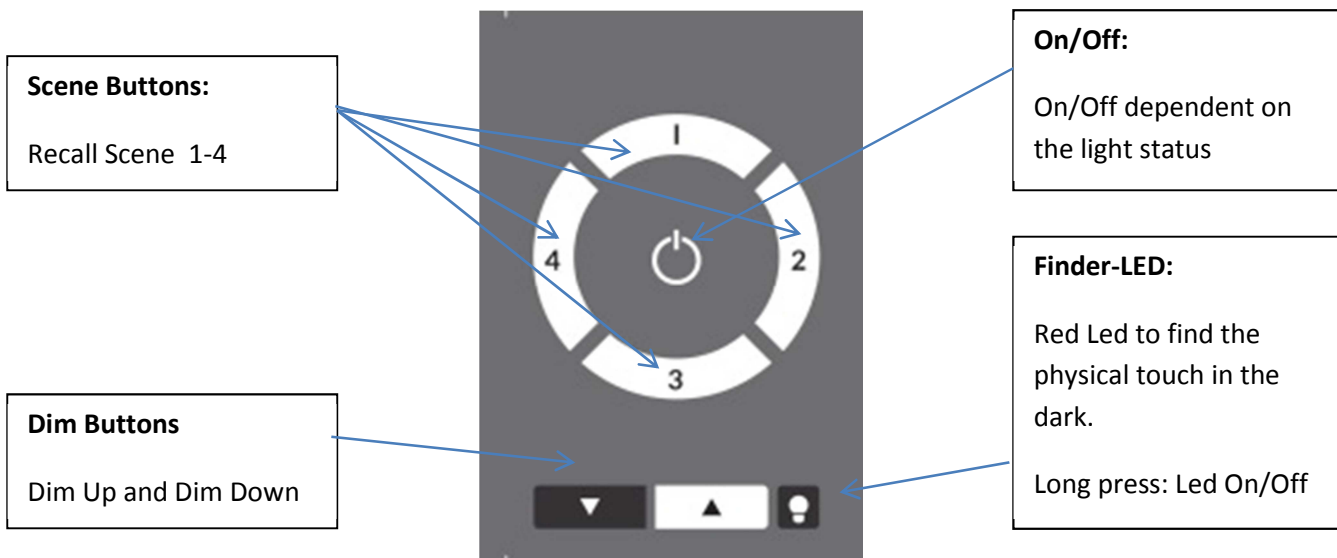
Color Layout with Address-Selection (Standard Layout Nr 5)

Address Select Button

Select effective Range

Color Wheel:

Selecting a Color, the corresponding GOTO SCENE Cmd is sent.

Dim Buttons

Dim Up and Dim Down

Finder-LED:

Red Led to find the physical touch in the dark.

Long press: Led On/Off
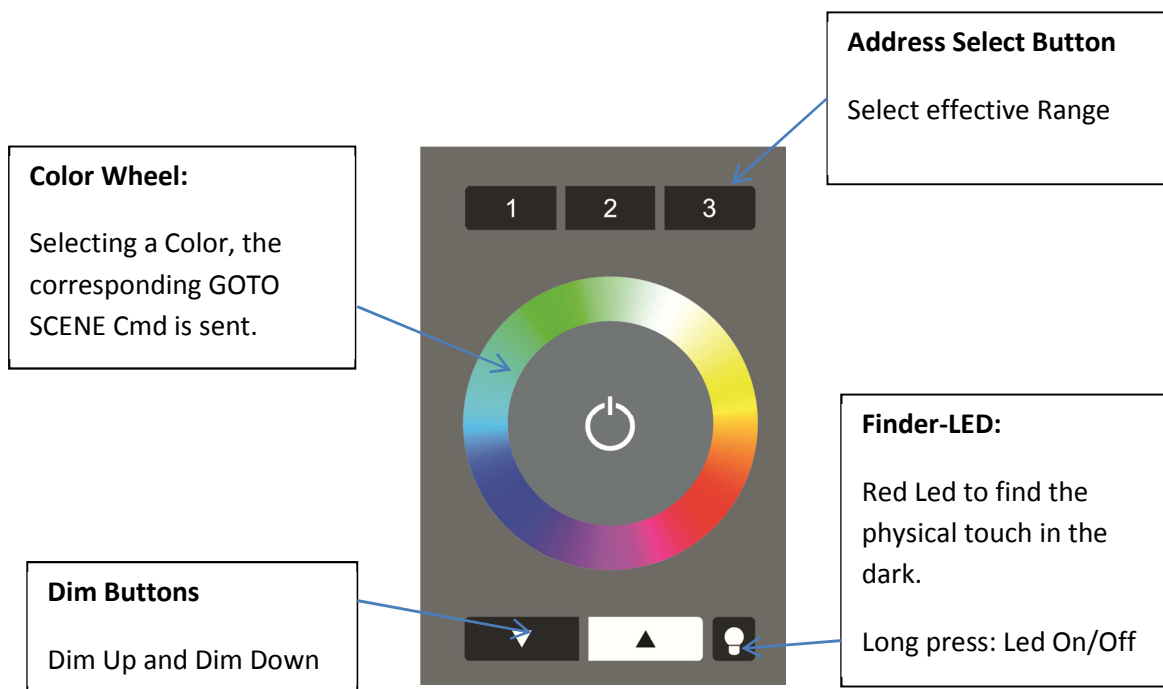
8. Appendix B: Typical Color Scene Values for Color Wheels of RGB (Color) and RGBW (Color 3Button) Layout

For making the the color wheel layouts work, the scene values of the control gear have to be set correctly. Please find attached typical values (please note that the color is dependent on the illuminant light itself.

RGBW 4-Channel control gear (color layout with address selection):

Scene	DT8-Scene Value				Single Channels (100% brightness)			
	R	G	B	W	R	G	B	W
0	0	0	0	254	0%	0%	0%	100%
1	84	42	0	127	33%	17%	0%	50%
2	127	63	0	63	50%	25%	0%	25%
3	170	73	0	12	67%	29%	0%	5%
4	210	44	0	0	83%	17%	0%	0%
5	254	0	0	0	100%	0%	0%	0%
6	220	0	26	0	87%	0%	10%	0%
7	182	0	71	0	72%	0%	28%	0%
8	0	0	254	0	0%	0%	100%	0%
9	0	20	235	0	0%	8%	93%	0%
10	0	70	180	0	0%	28%	71%	0%
11	0	120	120	15	0%	47%	47%	6%
12	0	250	10	0	0%	98%	4%	0%
13	0	254	0	0	0%	100%	0%	0%
14	70	170	0	0	28%	67%	0%	0%
15	112	112	0	30	44%	44%	0%	12%

RGB 3-Channel (color layout without white):

Scene	DT8-Scene Value			Single Channels (100% brightness)		
	R	G	B	R	G	B
0	211	0	42	83%	0%	17%
1	169	0	84	67%	0%	33%
2	127	0	127	50%	0%	50%
3	84	0	169	33%	0%	67%
4	42	0	211	17%	0%	83%
5	0	0	254	0%	0%	100%
6	0	50	203	0%	20%	80%
7	0	101	152	0%	40%	60%
8	0	152	101	0%	60%	40%
9	0	203	50	0%	80%	20%
10	0	254	0	0%	100%	0%
11	50	203	0	20%	80%	0%
12	101	152	0	40%	60%	0%
13	152	101	0	60%	40%	0%

14	203	50	0	80%	20%	0%
15	254	0	0	100%	0%	0%