# wDALI-2 2Ch BT LED Dimmer CV

## Datasheet

**Wireless Control Gear**

2-channel BT LED Dimmer (CV, DT6)

Art. Nr. 89453827-BT (4A)

Datenblatt Deutsch:
https://www.lunatone.com/wp-content/uploads/2026/08/89453827-BT_wDALI-2_BT_2Ch_LED_Dimmer_CV_GER_D0151.pdf

# wDALI-2 BT 2Ch LED-Dimmer CV Control Gear

## Overview

- 2 channel Bluetooth DALI LED-Dimmer
- suitable for control of constant voltage LED-modules wirelessly via DALI
- wireless DALI connection via wDALI-2 Bridge, per Bridge up to 10 devices can be paired.
- **Operating Mode DT6**: individual channel control via 2 DALI addresses
- **Operating Mode Balance&Dim:** control by 2 DALI-addresses, one for adjusting the light level and one for adjusting the channel balance (e.g. colour temperature)
- **Operating Mode Dim2Warm:** one DALI-address for simultaneous adjustment of light level and colour temperature
- dimming range 0.1%-100%
- adjustable PWM-frequency 122Hz / 250Hz / 500Hz / 1kHz
- compact housing for integration in luminaires
- supply voltage from 12V to 28V DC
- max. input current of 4A, the maximum input current can be freely distributed between the channels
- low standby power consumption
- high efficiency
- configuration via PC-software DALI-Cockpit and DALI interface (e.g. DALI USB)
- user-friendly factory default settings
- LED calibration for light adjustment
- Configurable RESET behaviour

CE UK CA

## Specification, Characteristics

| **type** | **wDALI-2 2Ch BT CV** |
|---|---|
| article number | 89453827-BT |

| **supply: V+, V- (GND)** | |
|---|---|
| type of input | supply, DC |
| marking terminals | V+, V- |
| supply voltage $V_{in}$ | 12V DC … 28V DC (SELV) |
| max. input current $I_{in_max}$ | 4A |
| standby power consumption | ~120mW @12V |
| power on behaviour | configurable via DALI: 0%-100% or last actual level |

| **output: LED+, Ch1, Ch2** | |
|---|---|
| output type | LED dimmer, constant voltage (CV) PWM |

| | |
|---|---|
| marking terminals | LED+, Ch1, Ch2 |
| number of outputs | 2 |
| PWM frequency | 122Hz/250Hz/ 500Hz / 1kHz |

**environmental conditions**

| | |
|---|---|
| operational ambient temperature Ta | -20°C … +60°C |
| storing and transportation temperature | -20°C … +75°C |
| rel. humidity, none condensing | 15% … 90% |

**general data**

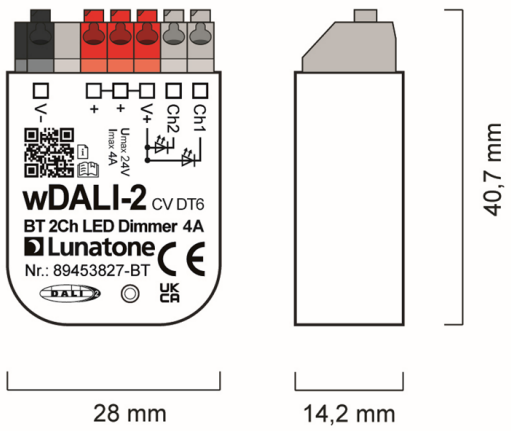
| | |
|---|---|
| dimensions (l x w x h) | 41 x 28 x 14 mm |
| mounting | back box |
| rated maximum temperature tc | 75°C |
| expected lifetime (T<Tc) | >100.000h |
| protection class | II in intended use |
| protection degree | IP20 |
| number of DALI-addresses | mode: DT6, Balance&Dim: 2<br>mode: Dim2Warm: 1 |
| wireless technology / policy | Bluetooth 5 |

**terminals: V-, V+, LED+, Ch1-, Ch2-**

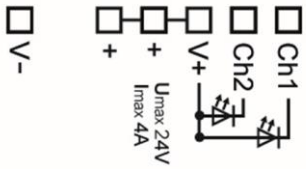
| | |
|---|---|
| connection type | spring terminal connector (push in cage clamp) |
| wire size solid core | 0,2 … 1,5mm² (AWG 24 … AWG 16) |
| wire size fine wired | 0,2 … 1,5mm² (AWG 24 … AWG 16) |
| wire size using wire end ferrule | 0,25 … 1mm² |
| stripping length | 8,5 … 9,5mm / 0,33 … 0,37 inch |
| actuation type | push button |

**standards**

| | |
|---|---|
| EMC | EN 61547<br>EN 55015 / IEC CISPR15 |
| electrical safety | EN 61347-2-13<br>EN 61357-1 |
| performance | EN 62384 |
| markings | CE, UKCA |

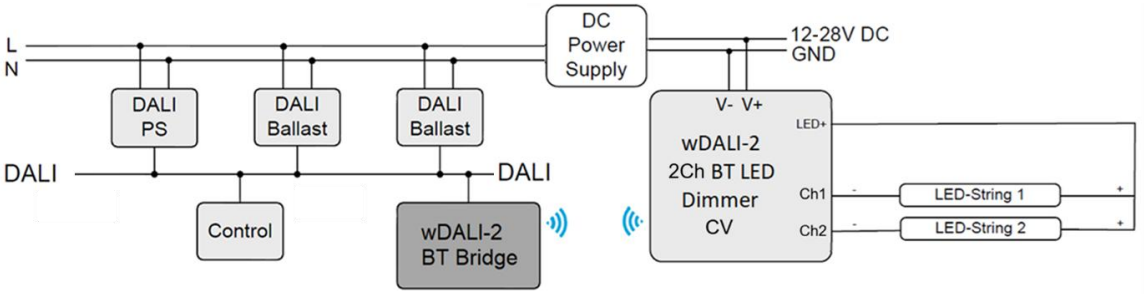



dimensions




connection plan

## Application Example




## Installation

RECOMMENDATION: Care should be taken on keeping cable lengths between DC power supply and dimmer, as well as between dimmer and luminaires (Led-Strings), as short as possible. This kind of installation will minimize the influence of voltage drops.

- The wDALI-2 BT LED Dimmer is intended for back box installation or integration in luminaires. Ensure proper working cable relief for installation in protection class II devices
- When installing and positioning, attention must be paid to the environment; metal housings and moisture as well as sources of interference impair the radio functionality. On problems with reception, check alternative position or orientation of the device.
- Range of the wireless connection up to 150m outdoors, inside buildings, depending on construction 8-12m. The communication is encrypted and based on BT5 protocol.
- The wiring should be carried out as a permanent installation in a dry and clean environment.
- Installation may only be carried out in a voltage-free state of the system and by qualified specialists.
- National regulations for setting up electrical systems must be followed.
- Connect the terminals V+ and V- only to a DC supply voltage of category SELV (Safety Extra Low Voltage).
- Connect only one wire on each terminal, if twin ferrules are used take care to the maximum wire size.
- The device is designed for 4A input current. External protection must be provided to ensure that this current is not exceeded permanently, even in the event of a fault or short circuit. If two dimmers are powered by one power supply, depending on the quality of the power supply regulation, mutual interference may occur, resulting in visible light fluctuations during dimming.

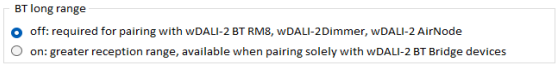
## Commissioning

- After connection the Dimmer needs to be paired to a wDALI-2 BT Bridge for control over DALI. Settings and device configuration can then be applied via DALI, with the wDALI-2 BT Bridge in the DALI Cockpit.
- For configuration of the device the PC with the DALI Cockpit Software, must be connected to the DALI bus with the wDALI-2 Bridge, via a suitable interface module (DALI-2 USB; DALI USB, DALI-2 WLAN, DALI-2 Display, DALI-2 IoT, DALI 4Net, DALI SCI RS232). Information on addressing and pairing to the wDALI-2 BT Bridge see section “Pairing”.
- After pairing the wDALI-2 BT Dimmer will be found during the addressing process. The device is then available in the DALI Cockpit device overview
- Scene values, groups, DALI parameters and device specific settings can be configured in the DALI Cockpit, see section DALI Cockpit: General Settings page 7 and following.
- The "Identify" function can be used for localization after addressing. With the DALI command IDENTIFY, or selecting the checkbox “localise” in the DALI Cockpit.

## Pairing

1. Connect the DALI interface (e.g. DALI-2 USB) to the DALI bus and the PC and start the DALI Cockpit software.
2. Start device addressing. An address is assigned to the DALI bridge and the device is displayed in the device tree.
3. Open the wDALI-2 Bridge device page, in the settings select the mode “Master"

4. At section “BT long range” select option “off”




and save the changes to the device


5. Start the search for the surrounding devices with "Pair Devices".

The found devices are listed, the search can be ended by selecting “stop”

6. Select the desired devices via the checkbox and press save to pair them with the master device. A maximum of 10 devices can be paired to one DALI Bridge.
7. If the sub-lines should be addressed: in section „DALI Queries“, enable the option „ forward DALI-Queries to Slave devices“

and save the changes to the device 


8. Restart the addressing as "System extension" via or the DALI interface device "Addressing".
9. The wDALI-2 devices are found and listed in the DALI Cockpit device tree as sub-items of the master bridge.

10. The respective device pages can be selected, read

and configured

via the DALI Cockpit and master bridge, identical to other DALI bus devices.

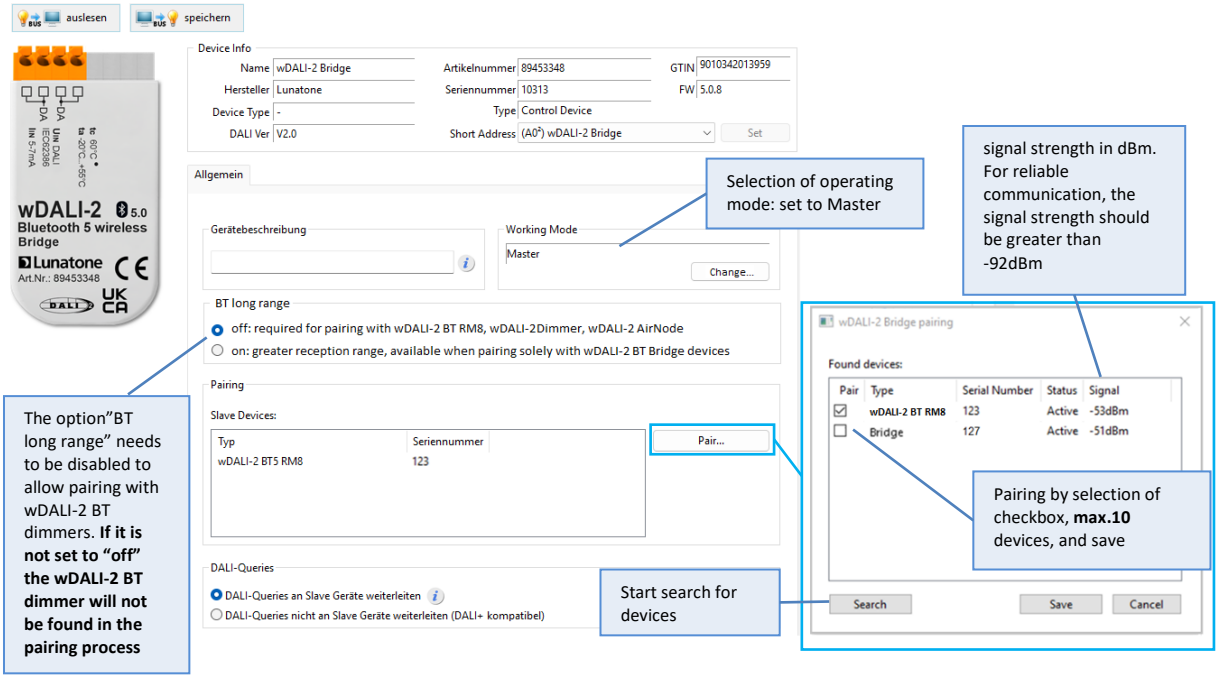



*Figure 1 Coupling wDALI-2 Bridge – Master device page*

## Operating Modes

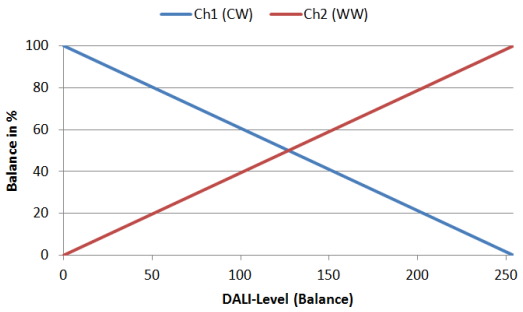
The device offers several operating modes:DT6, Balance&Dim and Dim2Warm.

**DT6 (factory default)**
In this operating mode each channel can be controlled by its own DALI address (Device Type 6). The dimmers support DALI 2 commands.

**Balance&Dim**
This operating mode is also suitable for operating tunable white luminaires using two DALI-addresses. The first controls the light level and the second is used for changing the distribution on the output channels (e.g. for tunable white applications or balancing direct/indirect lighting).

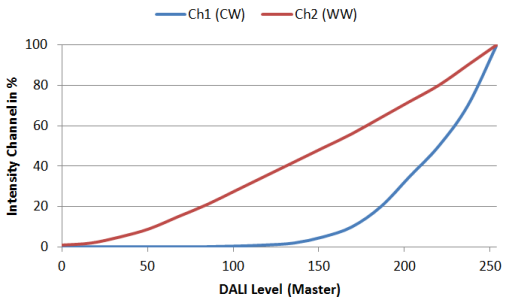
The Balance&Dim mode allows colour temperature adjustments without affecting the light level and vice versa. For each channel only DALI-standard commands like dim up/down but also DAP are used. Thus, the device can be used with all common controls and gateways (e.g. KNX). The Balance&Dim mode provides an alternative to the DT8-Tc mode.

DALI-address 1: light level
DALI-address 2: balance



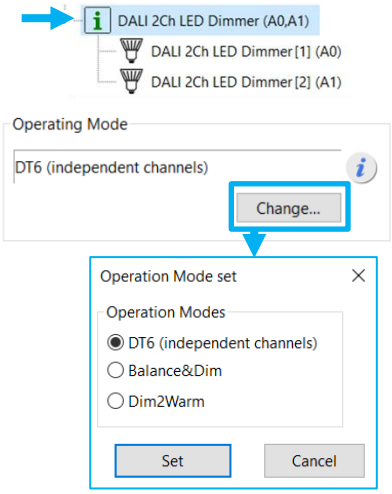

**Dim2Warm**
Both output channels are controlled by one DALI-address. The balance is coupled directly to the DALI dim level – the smaller the dim level the warmer the light.

DALI-address: Dim2Warm (Master)
short press: On/Off
long press: dimming




The dim2warm table can be edited in the DALI Cockpit Software – see section DALI Cockpit: General Settings and page 7 (Overview operating mode Dim2Warm).

**Selection of operating mode**
With the help of the PC-software tool DALI-Cockpit the operating mode can be easily set on the general settings page.




Switching between operating modes can also be done with the help of the DALI-command SET OPERATING MODE (IEC 62386-102 Ed.2). When changing the operating mode the number of used DALI-addresses can change as well and this requires a new addressing procedure. In the DALI-Cockpit this address assignment is performed automatically.

Operating Modes:

| Number | Operating Mode |
|---|---|
| 0x0 | DT6 |
| 0x90 | DT6 (factory default) |
| 0x94 | Balance&Dim |
| 0x95 | Dim2Warm |

## DALI Cockpit: General Settings

On the overview page respective control elements are available for each operating mode

- *DT6:* 2 sliders, one for the light level of each respective channel
- *Balance&Dim:* 2 sliders, one for level and one for balance,
- Dim2Warm: slider for input value adaption and Edit-Function for the Dim2Warm-table.

**PWM Frequency**
The PWM frequency can be selected: 122Hz / 250Hz / 500Hz / 1kHz.

**Ignore Broadcast Commands**
The broadcast control of each channel can be deactivated individually. Through selection of “Ignore Broadcast”, the respective channel does no longer respond to broadcast commands on the DALI bus (group assignments are not ignored).

**Adjustable RESET behaviour**
The response to a DALI reset command is configurable. The following options are available:

- *Ignore command*: the DALI reset command does not trigger any changes to the device settings.
- *DALI standard*: the selected device settings are reset to the values defined in the DALI standard (see table 1 below - second column: DALI standard values)
- *Custom settings*: the current device settings can be saved. With a DALI Reset command, the selected parameters (6 check boxes) are then reset to these saved values.

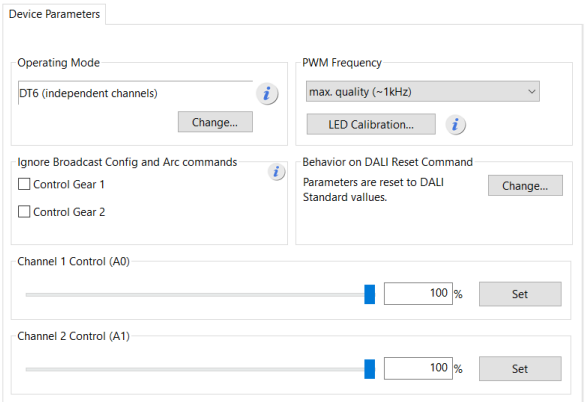
**Calibration - light adjustment**

The dimming range reaches from 0.1% to 100%. It is possible to calibrate different light sources, with the option: “LED Calibration”.

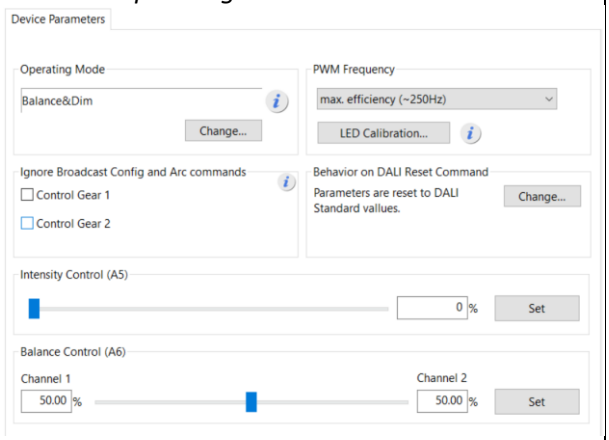
For each channel, the MIN level (default: 0.1%) an intermediate value (default: 33%) and the MAX level (default: 100%) can be adjusted and matched between light sources.

To do this, the desired level with the upper slider needs to be set. Apply the value and start the fine adjustment by pressing the button next to it. The appropriate fine adjustments can now be made with the calibration slider below. See also Figure 2

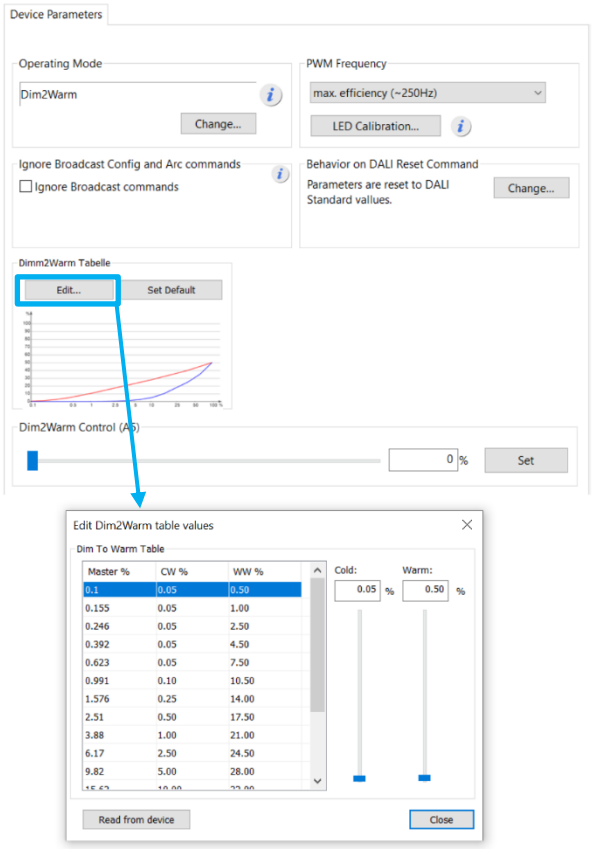
*Overview operating mode DT6*




*Overview operating mode Balance&Dim*




*Overview operating mode Dim2Warm*




**change of the Dim2Warm table are being saved via “Save” to the device as other device parameters*

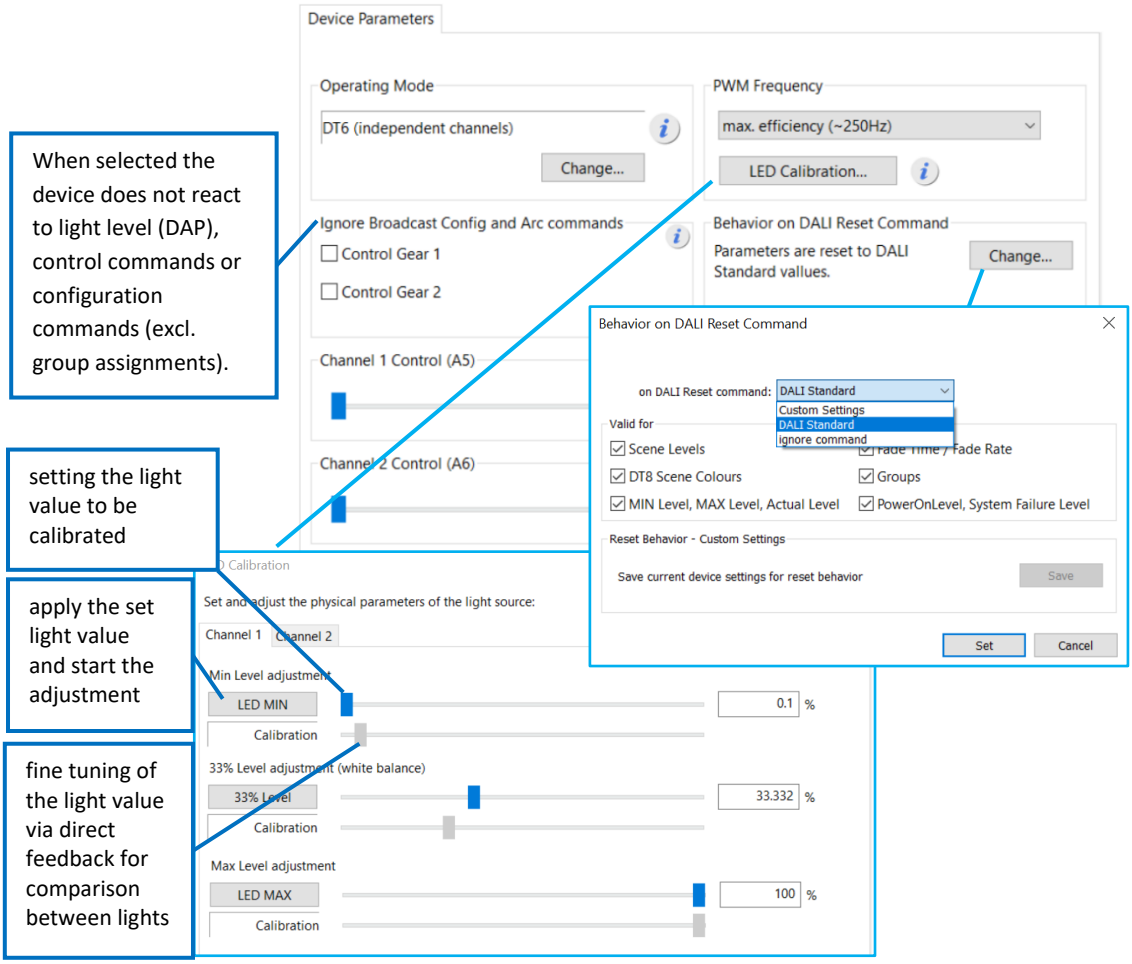
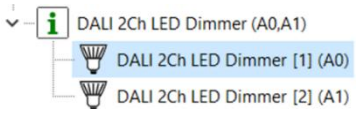



*Figure 2 Cockpit overview page – LED calibration and settable RESET behaviour*

## DALI Cockpit: Additional Settings

Besides the settings on the general page each channel can be selected separately in the component tree for individual configuration.

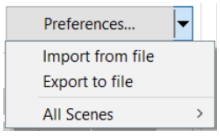



For each address the group membership can be set as well as scene values and DALI-parameters. In Balance&Dim operating mode all values assigned to channel 2 are representing the balance.

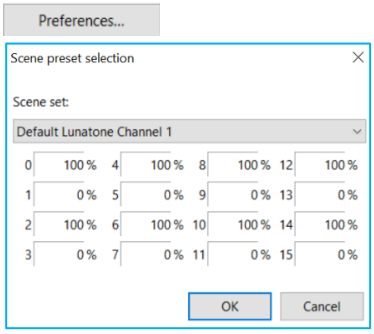
*Figure 3* on page 10 shows settings for each channel for all operating modes: DT6, Balance&Dim and Dim2Warm.

**Scene settings**

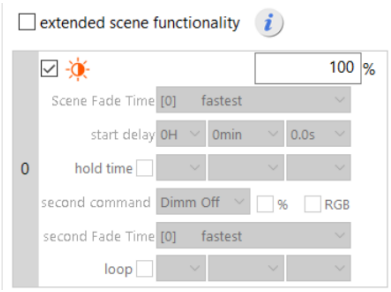
Via the arrow button the scene settings can be imported and exported.

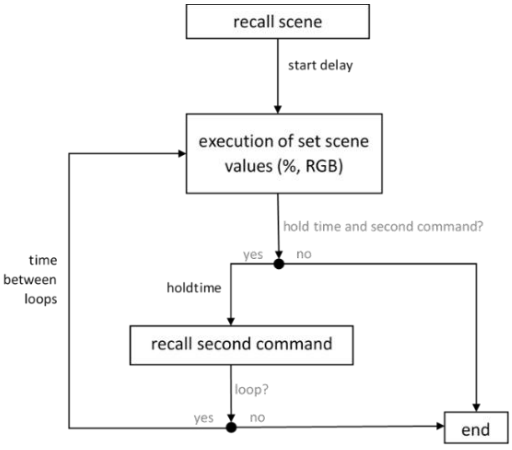



Via the button „Preferences“ the default scene settings can be loaded.

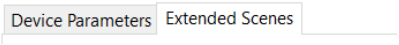


Extended scene settings can be configured. With extended scenes it is possible to automatically change between 2 scene values (once or looped). Thereby enabling configuration of blinking lights, time delayed switch off or light repetitions, as well as traveling lights with multiple dimmers.

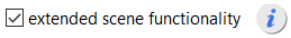



Extended Scenes are available for each of the 16 scenes on the second tab:




By enabling the extended scenes these are used instead of the standard scenes on the “Device Parameters” tab



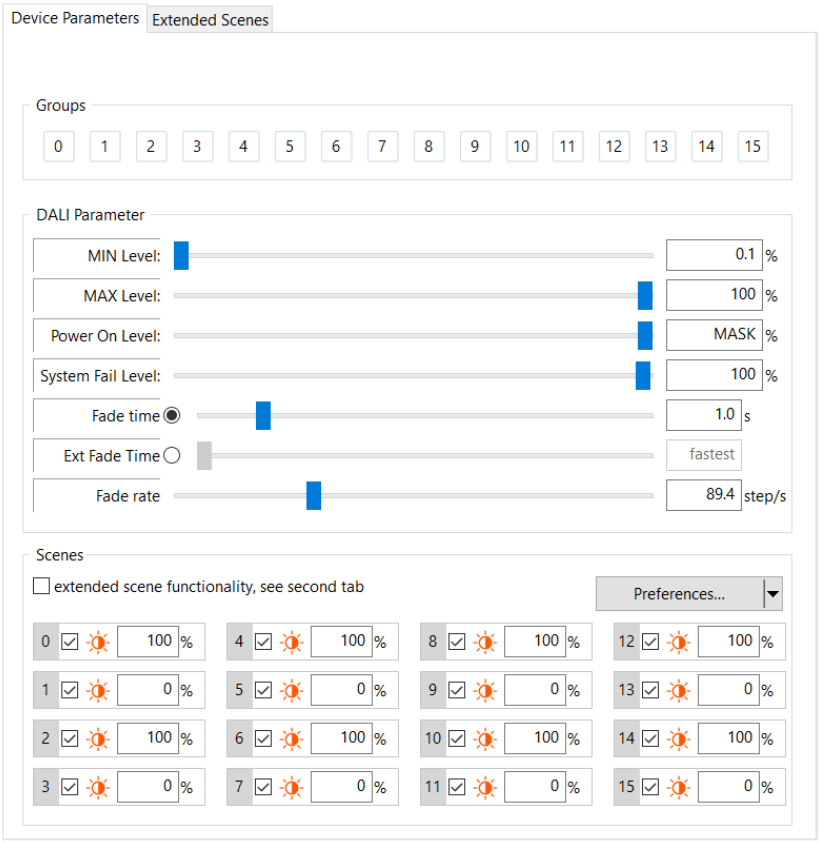
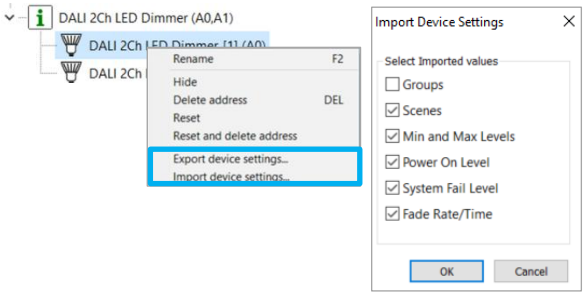




*Figure 3 Cockpit settings for each channel*

**Import/Export settings**

With a right click on the channel in the device-tree overview the device settings can be exported or imported.




## Factory Default Settings

The factory default values as well as the DALI-norm values are summarised in *Table 1* below. By sending a DALI-Reset command the device is set to DALI default values as defined in the standard.

*Table 1 factory default settings column 1, DALI Standard settings column 2*

| | **Delivery default** | **DALI norm** |
|---|---|---|
| **Operating mode** | DT6 | remains unchanged |
| **Min Level** | 0.1% | 0.1% |
| **Max Level** | 100% | 100% |
| **PowerOn Level** | Last light level (= MASK) | 100% |
| **System Failure Level** | 100% | 100% |
| **Fade Time** | 1s [2] | none |
| **Fade Rate** | 89.4 steps/s [5] | 44.7 steps/s |
| **PWM-Frequency** | 250 Hz | remains unchanged |
| **Scene values** | **Scene** / **Ch1** / **Ch2**<br>0 / 100% / 0%<br>1 / 0% / 100%<br>2 / 100% / 0%<br>3 / 0% / 100%<br>4 / 100% / 0%<br>5 / 0% / 100%<br>6 / 100% / 0%<br>7 / 0% / 100%<br>8 / 100% / 0%<br>9 / 0% / 100%<br>10 / 100% / 0%<br>11 / 0% / 100%<br>12 / 100% / 0%<br>13 / 0% / 100%<br>14 / 100% / 0%<br>15 / 0% / 100% | All scenes MASK |
| **Behaviour on DALI RESET command** | set DALI Standard values, see column 2 | remains unchanged |
| **Ignore Broadcast commands** | no | remains unchanged |

## Purchase Order Information

**Art.Nr. 89453827-BT:** 2-channel Bluetooth LED Dimmer, CV, max. input current 4A, 12V-28V DC, back box

**Accessories**
**wDALI-2 Bluetooth Wireless DALI Bridge**
Art. Nr. 89453348:
Art. Nr. 89453348-PS
https://www.lunatone.com/en/product/wdali-2-bluetooth-5-wireless-bridge/

## Additional Information and Equipment

Lunatone datasheets and manuals
https://www.lunatone.com/en/downloads-a-z/

Lunatone DALI products
https://www.lunatone.com/en/

DALI-Cockpit – DALI system configuration tool, free when using a Lunatone interface device
https://www.lunatone.com/en/product/dali-cockpit/

## Contact

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### Disclaimer

Subject to change. Information provided without guarantee. The datasheet refers to the current delivery.

The compatibility with other devices must be tested in advance to the installation.

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