wDALI-2 4Ch BT LED Dimmer CV

Datasheet

Wireless Control Gear

4-channel BT LED Dimmer (CV, DT6)

Art. Nr. 89453835-BT (8A)

Datenblatt Deutsch:
https://www.lunatone.com/wp-content/uploads/2026/08/89453835-BT_wDALI-2_BT_4Ch_LED_Dimmer_CV_GER_D0153.pdf

wDALI-2 BT 4Ch LED-Dimmer CV Control Gear

Overview

- 4 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 Colour&Dim**: control by 2 DALI-addresses, one for adjusting the light level and one for adjusting the colour
- dimming range 0.1%-100%
- adjustable PWM-frequency 122Hz / 250Hz / 500Hz / 1kHz
- compact housing for integration in luminaires
- supply voltage from 12V to 48V DC
- max. input current of 8A, 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

Specification, Characteristics

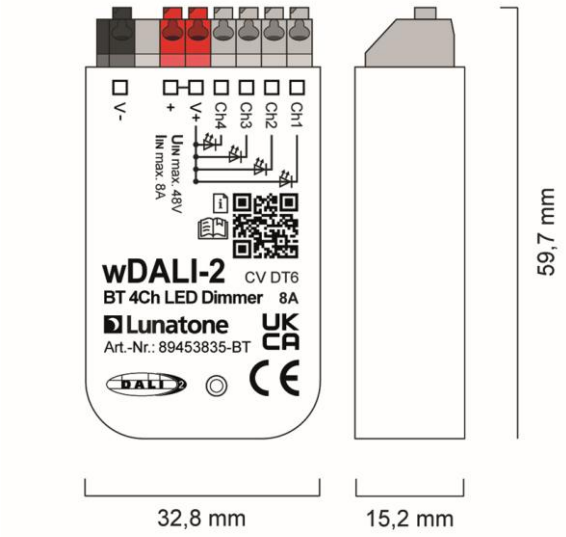
type	**wDALI-2 4Ch BT LED Dimmer CV**
article number	89453835-BT
supply: V+, V- (GND)	
type of input	supply, DC
marking terminals	V+, V-
supply voltage V_{in}	12V DC … 48V DC (SELV)
max. input current I_{in_max}	8A
standby power consumption	~120mW @12V
power on behaviour	configurable via DALI: 0%-100% or last actual level
output: LED+, Ch1, Ch2, Ch3, Ch4	
output type	LED dimmer, constant voltage (CV) PWM
marking terminals	LED+, Ch1, Ch2, Ch3, Ch4
number of outputs	4
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%

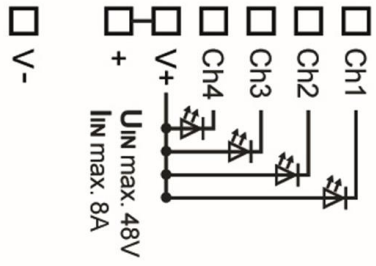
general data	
dimensions (l x w x h)	60 x 33 x 15 mm
mounting	back box
rated maximum temperature tc	75°C
expected lifetime (T<Tc)	>100.000h
protection class	II in intended use
protection degree	IP20
number of DALI-addresses	operating mode DT6: 4 operating mode Colour&Dim: 2
wireless technology / policy	Bluetooth 5

terminals: V-, V+, LED+, Ch1-, Ch2-	
connection type	spring terminal connector (push in cage clamp)
wire size solid core	0,2 … 1,5mm^2 (AWG 24 … AWG 16)
wire size fine wired	0,2 … 1,5mm^2 (AWG 24 … AWG 16)
wire size using wire end ferrule	0,25 … 1mm^2
stripping length	8,5 … 9,5mm / 0,33 … 0,37 inch
actuation type	push button

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

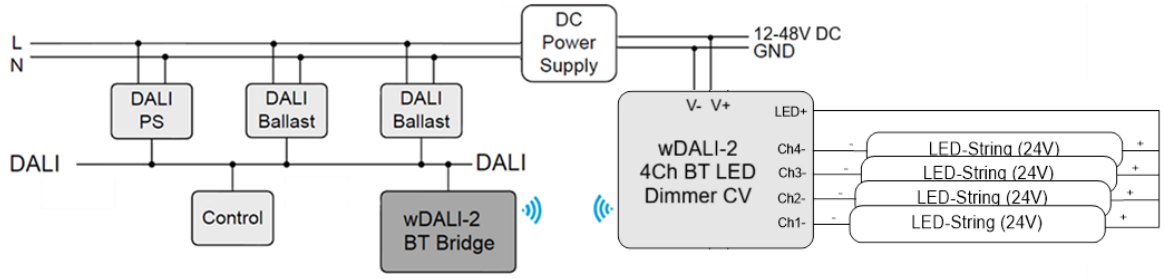


dimensions



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 8A 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.

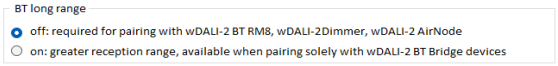
Commissioning

- 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

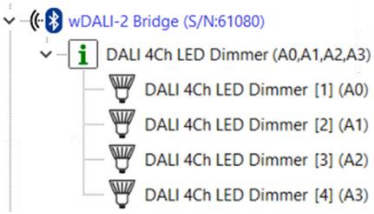
5. Start the search for the surrounding devices with "Pair Devices".

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.

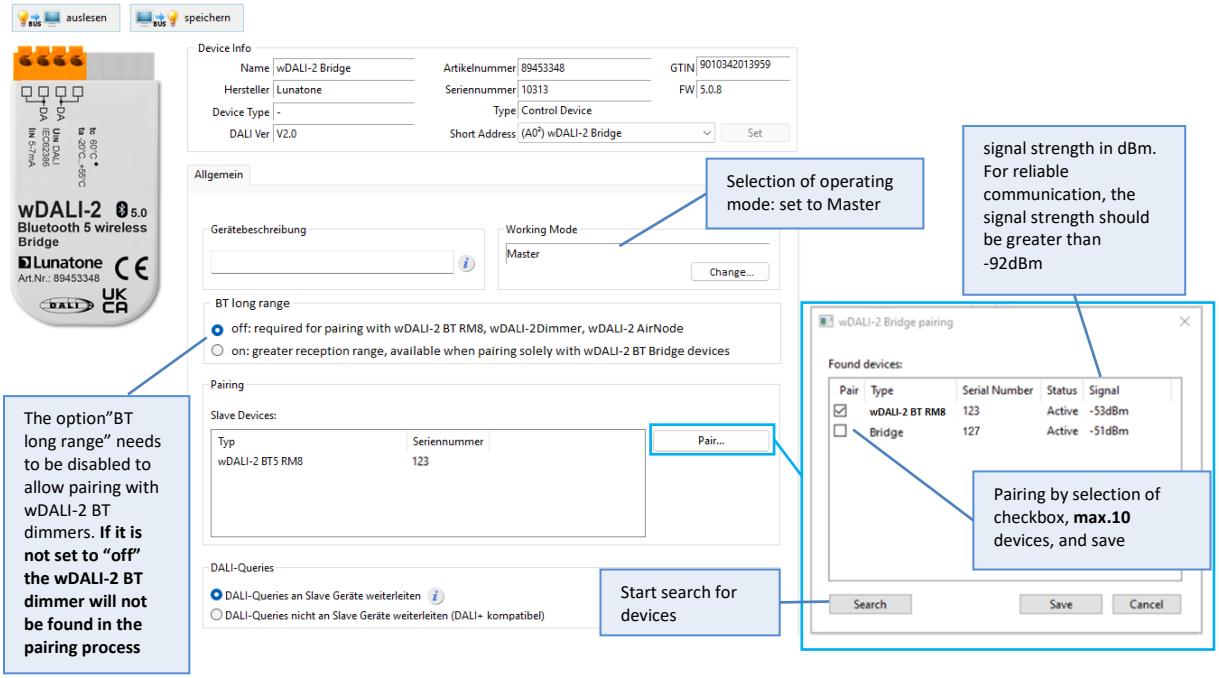


Figure 1 Coupling wDALI-2 Bridge – Master device page

Operating Modes

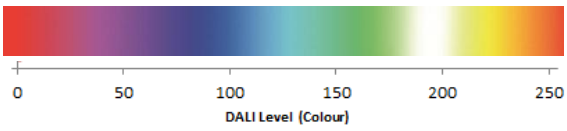
The device offers two operating modes: DT6 and Colour&Dim.

DT6 (factory default)
In this operating mode each channel can be controlled by its own DALI address (Device Type 6).

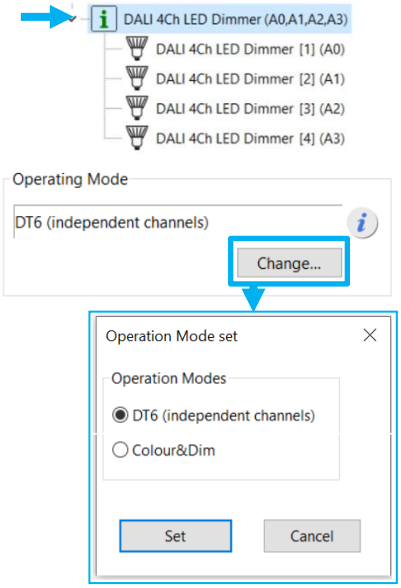
Colour&Dim
This operating mode is suitable for operating RGB—luminaires. Two DALI-addresses are used, the first address to control the light level and the second address to change the distribution on the output channels (e.g. for colour adjustments).

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

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



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



The operating mode can also be set with the DALI-command SET OPERATING MODE (IEC 62386-102 Ed.2). When changing the operating mode, the number of used DALI-addresses might change as well, which requires a new addressing process. In the DALI-Cockpit this address assignment is performed automatically.

Operating Mode:

Number	Operating Mode
0	DT6
0x90	DT6 (factory default)
0x93	Colour&Dim

DALI Cockpit: General Settings

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

- *DT6:* 4 sliders, for the light level of each respective channel
- *Colour&Dim:* 2 sliders one for level and one for colour

Additionally the following configurations can be made.

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:

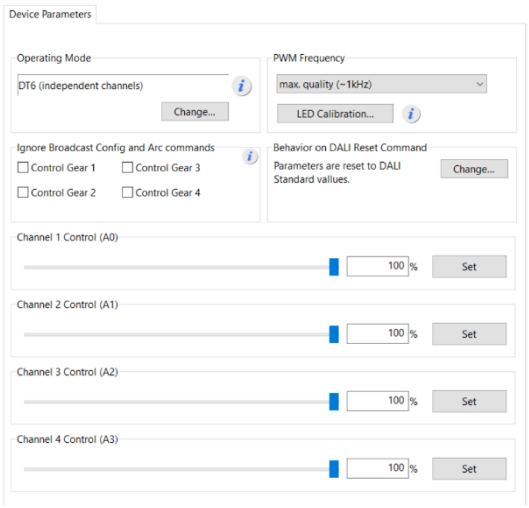
- *Ignore command*: the DALI reset command does not trigger any changes to the device settings.
- *DALI standard*: the selected device settings are reset to the values defined in the DALI standard (see *Table 1* second column: DALI standard values)
- *Custom settings*: the current device settings can 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”.

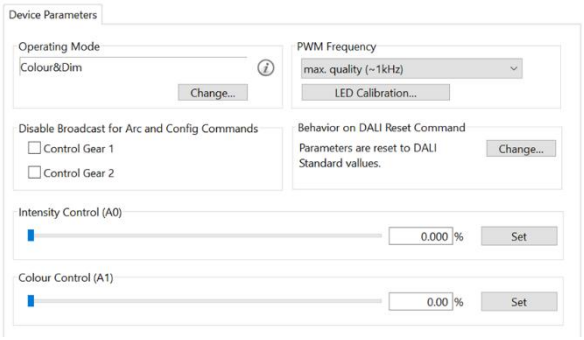
For each channel, the MIN level (default: 0.1%) an intermediate value (default: 33%) and the MAX level (default: 100%) can be adjusted and matched between light sources.

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 page operating mode DT6



Overview page operating mode Colour&Dim



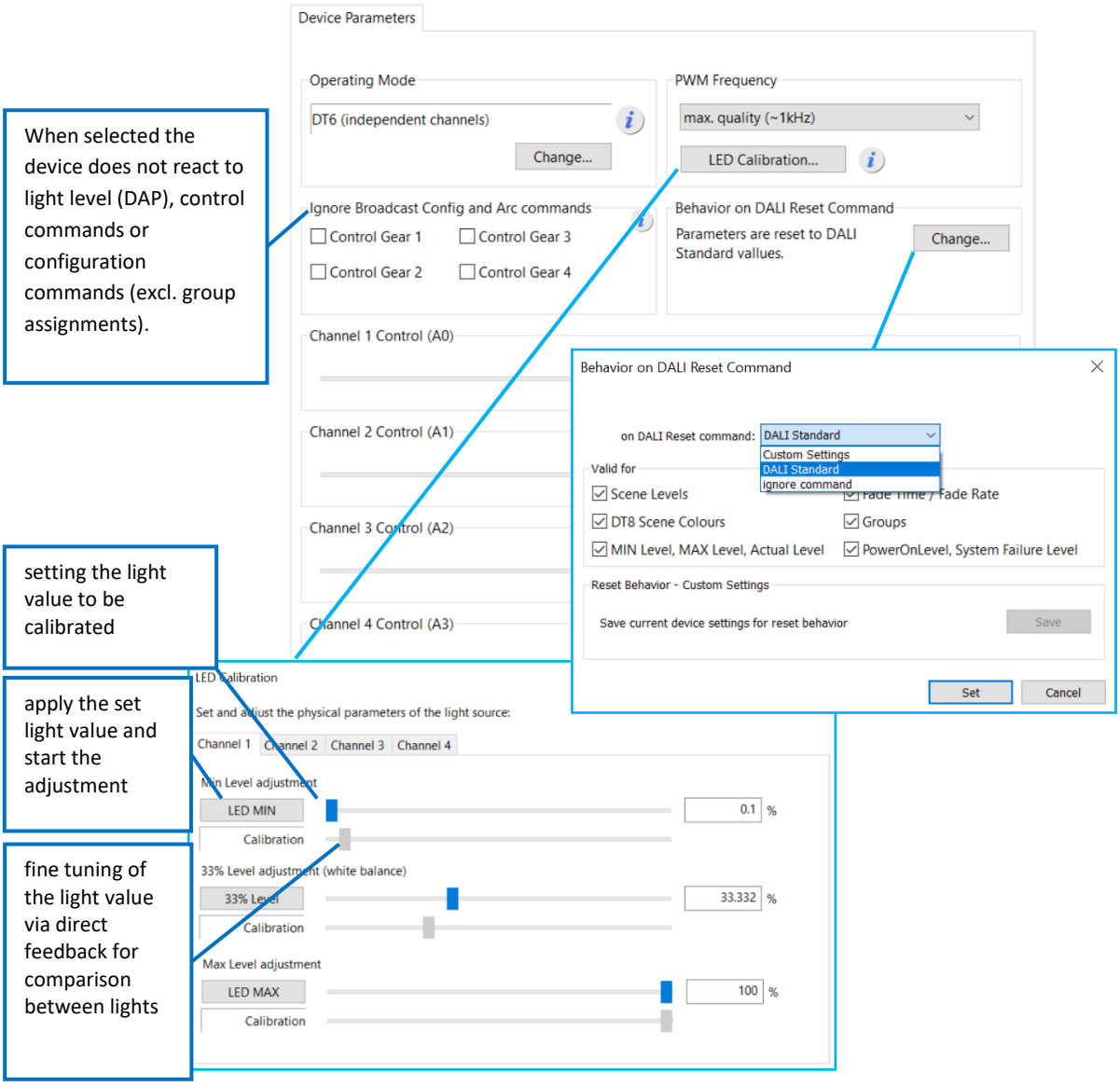


Figure 2 Cockpit overview page – LED calibration and settable RESET behaviour

DALI Cockpit: Additional Settings

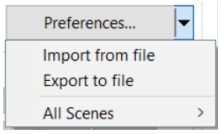
Besides the settings on the general page each channel can be selected separately in the component tree for individual configuration.

Component Tree:

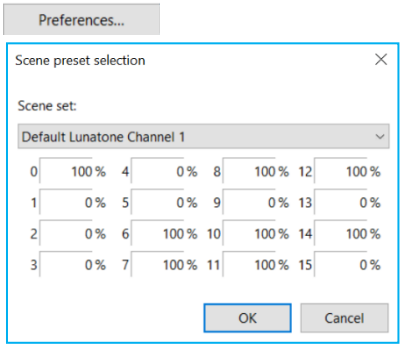
For each address: the group membership, scene values and DALI-parameters can be set. In Colour&Dim operating mode, channel 2 sets colours. *Figure 3* on page 10 shows the available settings for each channel (these are the same for all operating modes)

Scene settings

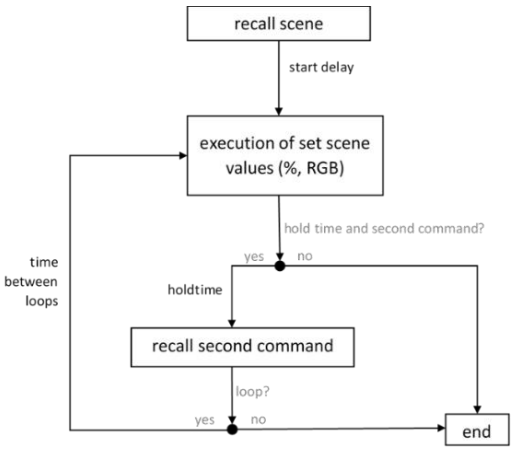
Via the arrow button the scene settings can be imported and exported.

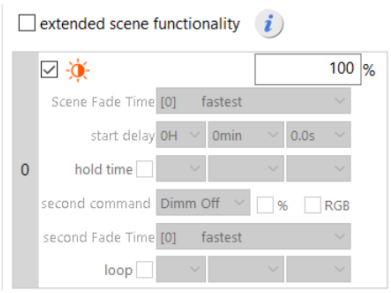


Via the button „Preferences“ the default scene settings can be loaded.

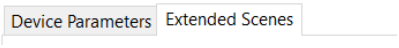


Extended scene settings can be configured. With extended scenes it is possible to automatically change between 2 scene values (once or looped). Thereby enabling configuration of blinking lights, time delayed switch off or light repetitions, as well as traveling lights with multiple dimmers.

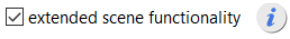




Extended Scenes are available for each of the 16 scenes on the second tab:

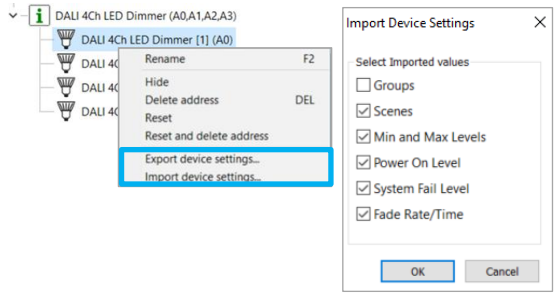


By enabling the extended scenes these are used instead of the standard scenes on the “Device Parameters” tab



Import/Export settings

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



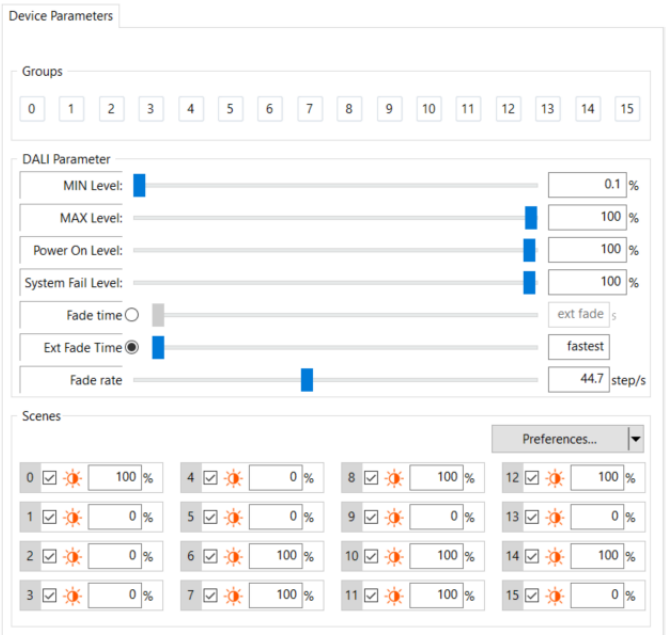


Figure 3 Cockpit settings for each channel

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

<table>
<tr><th></th><th>Delivery default</th><th>DALI norm</th></tr>
<tr><td>Operating mode</td><td>DT6</td><td>remains unchanged</td></tr>
<tr><td>Min Level</td><td>0.1%</td><td>0.1%</td></tr>
<tr><td>Max Level</td><td>100%</td><td>100%</td></tr>
<tr><td>PowerOn Level</td><td>Last light level (= MASK)</td><td>100%</td></tr>
<tr><td>System Failure Level</td><td>100%</td><td>100%</td></tr>
<tr><td>Fade Time</td><td>1s [2]</td><td>none</td></tr>
<tr><td>Fade Rate</td><td>89.4 steps/s [5]</td><td>44.7 steps/s</td></tr>
<tr><td>PWM-Frequency</td><td>250 Hz</td><td>remains unchanged</td></tr>
<tr><td>Scene values</td><td>
<table>
<tr><th>Scene</th><th>Ch1</th><th>Ch2</th><th>Ch3</th><th>Ch4</th></tr>
<tr><td>0</td><td>100%</td><td>0%</td><td>0%</td><td>0%</td></tr>
<tr><td>1</td><td>0%</td><td>100%</td><td>0%</td><td>0%</td></tr>
<tr><td>2</td><td>0%</td><td>0%</td><td>100%</td><td>0%</td></tr>
<tr><td>3</td><td>0%</td><td>0%</td><td>0%</td><td>100%</td></tr>
<tr><td>4</td><td>0%</td><td>0%</td><td>100%</td><td>100%</td></tr>
<tr><td>5</td><td>0%</td><td>100%</td><td>0%</td><td>100%</td></tr>
<tr><td>6</td><td>100%</td><td>0%</td><td>0%</td><td>100%</td></tr>
<tr><td>7</td><td>100%</td><td>0%</td><td>100%</td><td>0%</td></tr>
<tr><td>8</td><td>100%</td><td>100%</td><td>0%</td><td>0%</td></tr>
<tr><td>9</td><td>0%</td><td>100%</td><td>100%</td><td>0%</td></tr>
<tr><td>10</td><td>100%</td><td>0%</td><td>100%</td><td>100%</td></tr>
<tr><td>11</td><td>100%</td><td>100%</td><td>0%</td><td>100%</td></tr>
<tr><td>12</td><td>100%</td><td>100%</td><td>100%</td><td>0%</td></tr>
<tr><td>13</td><td>0%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>14</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>15</td><td>0%</td><td>0%</td><td>0%</td><td>0%</td></tr>
</table>
</td><td>All scenes MASK</td></tr>
<tr><td>Behaviour on DALI RESET command</td><td>set DALI Standard values, see column 2</td><td>remains unchanged</td></tr>
<tr><td>Ignore Broadcast commands</td><td>no</td><td>remains unchanged</td></tr>
</table>

Purchase Order Information

Art.Nr. 89453835-BT: 4-channel Bluetooth LED Dimmer, CV, max. input current 8A, 12V-48V 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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www.lunatone.com

CE UK CA

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.