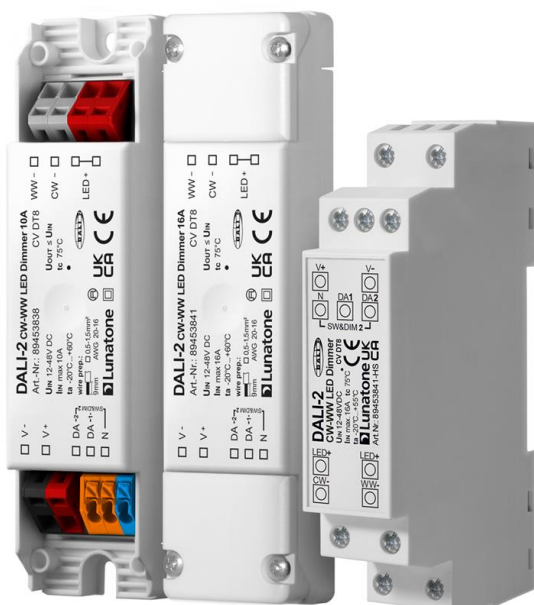# DALI-2 CW-WW LED Dimmer CV

Datasheet

Control Gear

DALI LED Dimmer (CV, DT8) for the control of tunable white luminaires (CW-WW)

Art. Nr. 89453836 (4A)

Art.Nr. 86458673 (8A)

Art. Nr. 89453838 (10A)

Art. Nr. 89453841 (16A)

Art. Nr. 89453841-HS (16A DIN Rail)

DALI-2 CW-WW LED-Dimmer CV Control Gear

Overview

- DALI LED-Dimmer for the control of tunable white luminaires

- suitable for constant voltage LED-modules with operating voltages from 12V to 48V

- **Operating Mode DT8**: one DALI-address for the independent control of light level and colour temperature (DALI DT8, Colour Type Tc)

- **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

- **SwitchDim2**: 2 switch-inputs offer control of level and colour without DALI

- dimming range 0.1%-100%

- adjustable PWM-frequency (122Hz/ 244Hz/ 488Hz/ 976Hz from FW version 4.6 on changed PWM frequencies: 122Hz / 250Hz / 500Hz / 1kHz)

- compact types for integration in luminaires, remote ceiling or DIN rail

- supply voltage type dependent of 12V to 28V DC or from 12V to 48V DC (according to the operating voltage of the led modules)

- type dependent max. input currents of 4A, 8A, 10A or 16A

- 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 USB-interface

- user-friendly factory default settings

From FW Version 4.6 onward:

- DALI-2 compatible
- LED calibration for light adjustment
- Configurable RESET behaviour

⟨DALI⟩2   C∈   UK CA

Specification, Characteristics

type	DALI-2 CW-WW LED Dimmer CV				
article number	89453836	86458673	89453838	89453841	89453841-HS

input: V+, V-

input type	supply, DC				
marking terminals	V+, V-				
supply voltage	12VDC … 28VDC	12VDC … 48VDC			
maximum input current I_in_max	4A	8A	10A	16A	
standby power consumption (12V)	~ 120mW				
power on behaviour	configurable: 0%-100% or last value				

input: DA, DA

input type	DALI, control signal
marking terminals	DA, DA
input voltage range	9,5V … 22,5V DC (according to IEC62386-101)
current consumption DALI	2mA
number of DALI-addresses	operating mode DT8, Dim2Warm: 1 operating mode Balance&Dim: 2

input: SW&DIM2

input type	-	SwitchDim2 (mains voltage)
marking terminals	-	N; SW&DIM2-1 (DA); SW&DIM2-2 (DA)
number of inputs	-	2
input voltage	-	230V AC ±10%
input supply frequency	-	50Hz

output: V+/LED+, CW-,WW-

output type	LED Dimmer, constant voltage PWM	
marking terminals	V+, CW, WW	LED+, CW-, WW-
number of outputs	2	
PWM frequency	FW: < 4.6. 122Hz/244Hz/488Hz/976Hz FW: ≥ 4.6: 122Hz/250Hz/ 500Hz / 1kHz	

general data

dimensions (LxWxH) [mm]	41x28x14	60x33x15	120x30x22	98x18x56
mounting	back box		remote ceiling	DIN rail
rated max. temperature tc	75°C			
expected life time (T <Tc)	>100.000h			
protection class	II in intended use			
protection degree	IP20			

environmental conditions

|		
operational ambient temperature	-20°C … +60°C	-20°C … +55°C
storing and transportation temperature	-20°C … +75°C	
rel. humidity, none condensing	15% … 90%	

article number	89453836	86458673	89453838	89453841	89453841-HS

terminals: V+, V-,LED+, CW-, WW-

terminals		V+,V-, LED+, CW-,WW-	
connection type		spring connector (cage clamp)	
wire size solid core	same as section terminals DA, DA, N see below	0,08 … 2,5 mm^2 (AWG28 … AWG14)	same as section terminals DA, DA, N see below
wire size fine wired		0,08 … 2,5mm^2 (AWG 28 … AWG 14)	
wire size using wire end ferrule		0,25 … 1 mm^2	
stripping length		5…6mm/0,2…0,24 inch	
release of wire		push back spring with tool	

terminals: DA, DA, N

terminals	DA, DA, V+, V-, CW,WW	DA, DA, N	DA, DA, V+, V-, N, LED+, CW-,WW-
connection type	spring terminal connector (push in cage clamp)		screw terminal
wire size solid core	0,2 … 1,5 mm^2 (AWG20 … AWG16)		0,5 … 2,5 mm^2 (AWG20 … AWG14)
wire size fine wired	0,2 … 1,5 mm^2 (AWG20 … AWG16)		0,5 … 2,5 mm^2 (AWG20 …AWG14)
wire size using wire end ferrule	0,25 … 1 mm^2		0,25 … 1,5 mm^2
stripping length	8,5 … 9,5mm / 0,33 … 0,37inch		7 mm / 0,27 inch
release of wire	push button		screw
tightening torque	-		0,5Nm
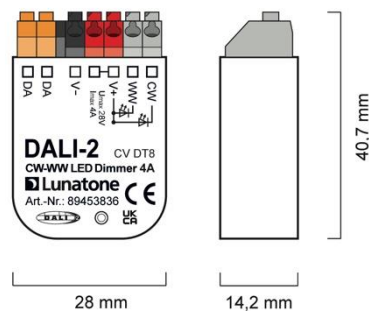
dimensions back box 4A
Version 4A Art.Nr.: 89453836

connection plan back box 4A
Version 4A Art.Nr.: 89453836

DALI-2

CV DT8

CW-WW LED Dimmer 8A

⫿ Lunatone   UK CA
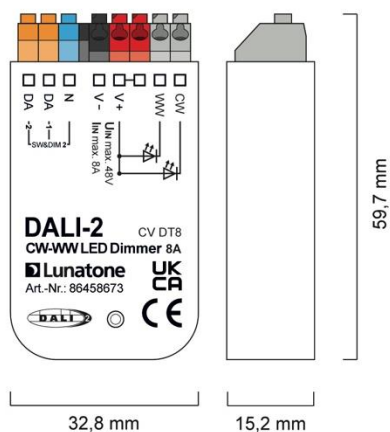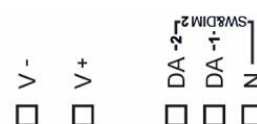
Art.-Nr.: 86458673   CE
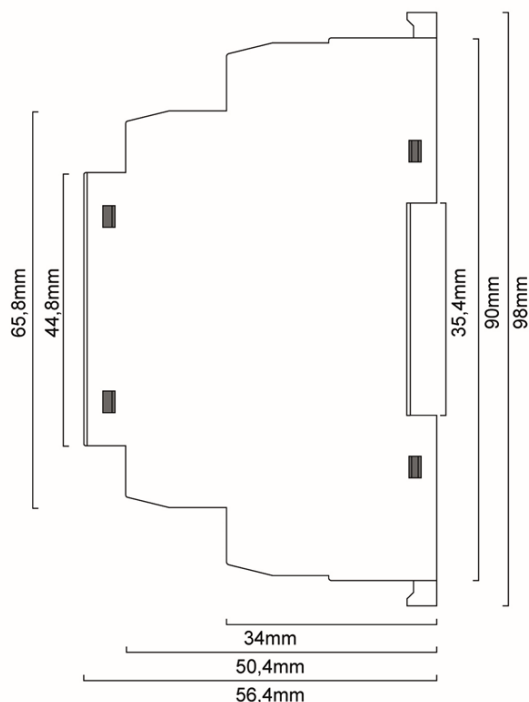
dimensions back box 8A
Version 8A Art.Nr.: 86458673
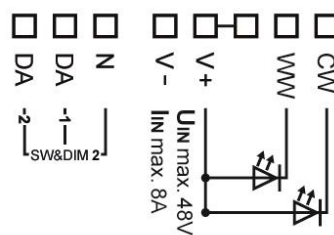
connection plan back box 8A
Version 8A Art.Nr.: 86458673
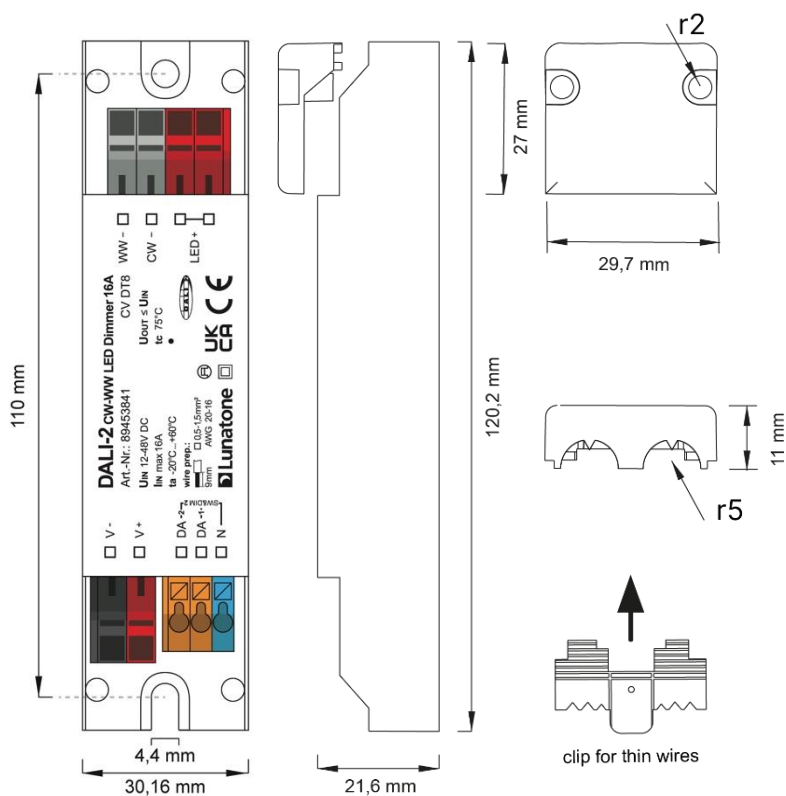
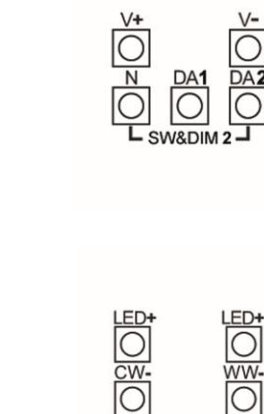dimensions remote ceiling
Version 16A Art.Nr.: 89453841
Version 10A Art.Nr.: 89453838

clip for thin wires

connection plan remote
ceiling
Version 16A Art.Nr.:
89453841
Version 10A Art.Nr.:
89453838

Lunatone

dimensions DIN rail housing
Version 16A Art.Nr.: 89453841-HS

connection DIN rail housing
Version 16A Art.Nr.: 89453841-HS

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 DALI-2 LED Dimmer back box versions can be installed in a flush-mounted installation box. Ensure proper working cable relief for installation in protection class II equipment

- The DALI-2 LED Dimmer remote ceiling versions are suitable for remote ceiling and integration in luminaires. Ensure proper working cable relief for installation in protection class II equipment

- The DALI-2 LED Dimmer DIN rail is suitable for DIN rail mounting, protection against electric shock has to be ensured by an appropriate enclosure.

- 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)

- the connection to the DALI-line (DA,DA) is polarity free

- If used in Sw&Dim2 mode for both inputs the same phase has to be used

- The DALI-interface can handle mains voltage, protecting the device in case wrong wiring

- Wiring topology of the DALI-line: line, tree, star

DALI-2 CW-WW LED Dimmer CV, Datasheet   © 2025-10-06, Lunatone Industrielle Elektronik GmbH

- Connect only one wire on each terminal, if twin ferrules are used, take note of the maximum wire size

- The DALI wiring can be realised with standard low-voltage installation material. No special cables are required.

- The DALI line may be routed together with the mains voltage (in one cable or as single wires in a tube)

- The devices are designed for 4A, 8A, 10A, or 16A 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

☞ **Attention:** The DALI-signal is not classified as SELV circuit (Safety Extra Low Voltage). Therefore, the installation regulations for low voltage apply

☞ The voltage drop on the DALI line must not exceed 2V at maximum length (300m) and maximum bus load (250mA).

Typical Application

Control via DALI (all device versions)
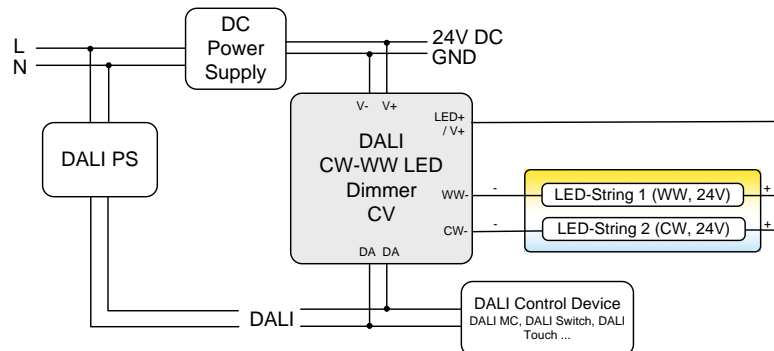
Control via SwitchDim2 (all device versions except Version 4A Art.Nr.: 89453836)
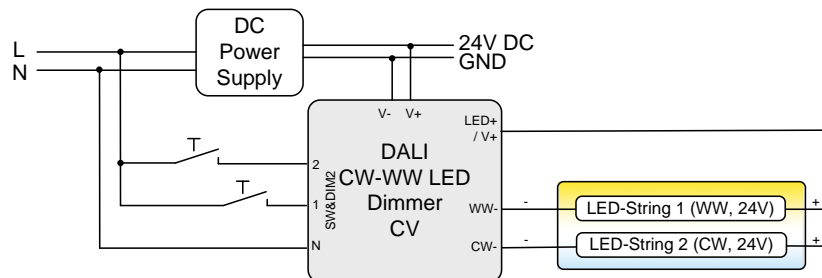
Commissioning

- After connection the Dimmer is ready to use. Delivery default settings see page 14.

- The DALI-2 Dimmer can be addressed with the DALI Cockpit PC Software.
  When using the DALI Cockpit Software, the PC must be connected to the DALI bus

via a suitable interface module ([DALI-2 USB](); [DALI USB](), [DALI-2 WLAN](), [DALI-2 Display](), [DALI-2 IoT](), [DALI 4Net](), [DALI SCI RS232]()). The DALI Dimmer is automatically recognised by the DALI Cockpit during the addressing process and listed in the device overview.

- Scene values, groups, DALI parameters and device specific settings can be configured in the DALI Cockpit, see section Cockpit: General Settings page 10 and following.

Operating Modes

The device offers three operating modes: DT8, Balance&Dim and Dim2Warm.

DT8 (factory default)
In this operating mode one DALI-address for the independent control of light level and colour temperature is used (Device Type 8 Mode Tc). From FW version 4.6 on Lunatone LED Dimmer are DALI 2 compatible and support DALI 2 commands.

SwitchDim2: Alternatively, the device can be controlled using 2 switch-inputs for mains voltage

SW&DIM2-1: light level
    short press: On/Off
    long press: dimming
SW&DIM2-2: colour temperature
    long press: change colour temperature

Balance&Dim
This operating mode is also suitable for operating tunable white luminaires using two DALI-addresses. The first address controls the light level, and the second address 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, 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 Balance&Dim mode provides an alternative to the DT8-Tc mode.

Can be operated via DALI or SwitchDim2:

DALI-address 1, SW&DIM2-1: light level
DALI-address 2, SW&DIM2-2: balance
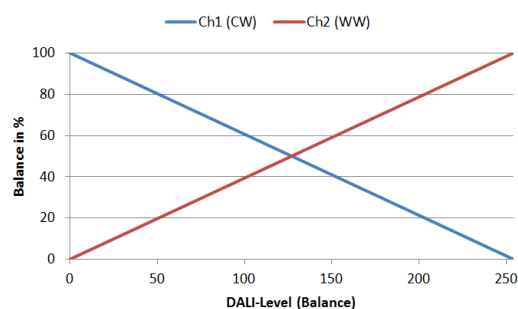
Dim2Warm
Both output channels are controlled by one DALI-address or SwitchDim2-input. The balance is coupled directly to the DALI dim level – the smaller the dim level the warmer the light.

DALI-address / SW&DIM2-1: Dim2Warm (Master)
    short press: On/Off
    long press: dimming
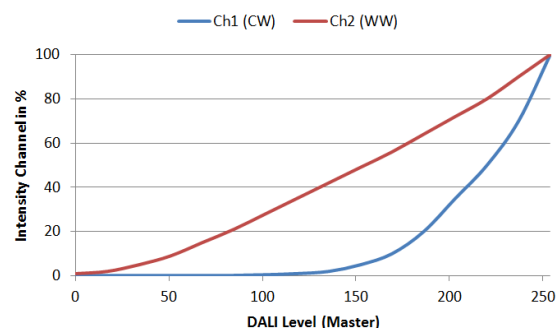
SW&DIM2-2: scene selector

The Dim2Warm table can be edited in the DALI Cockpit Software, see section Cockpit:

General Settings page 10 (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.
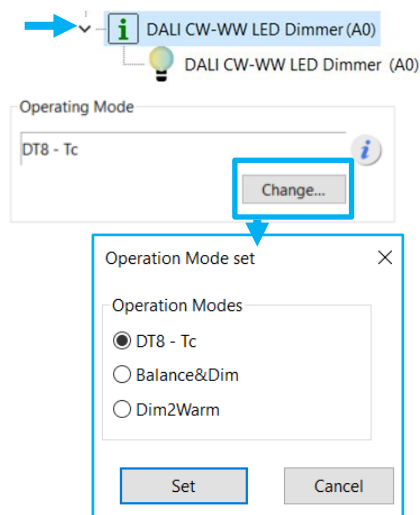

The operating mode can also be changed with the DALI-command SET OPERATING MODE (IEC 62386-102 Ed.2). When changing the operating mode, the number of used DALI-addresses might change as well, which requires a new addressing process. In the DALI-Cockpit this address assignment is performed automatically.

Operating Mode:

Number	Operating Mode
0x0	DT8 (factory default)
0x92	DT8
0x94	Balance&Dim
0x95	Dim2Warm

Overview operating mode DT8
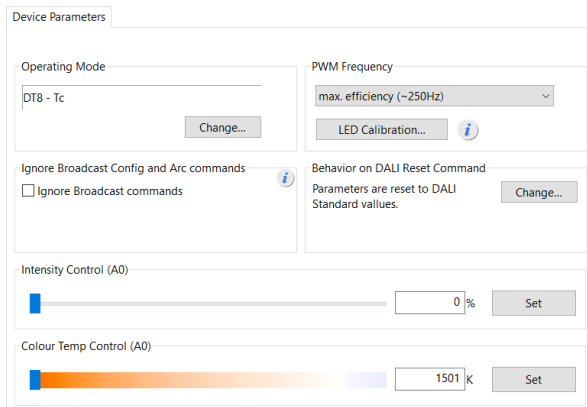
Overview operating mode Dim2Warm
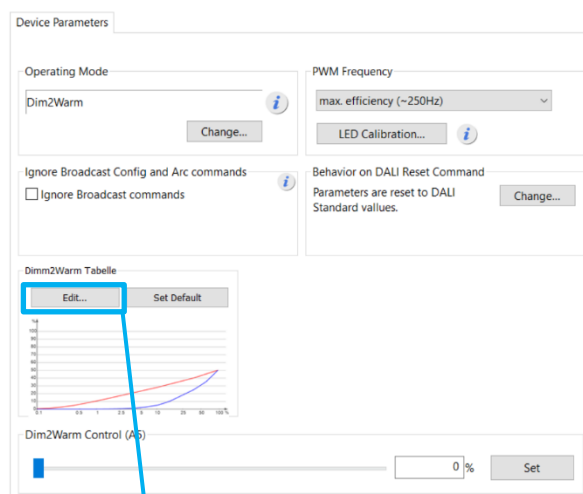
Overview operating mode Balance&Dim
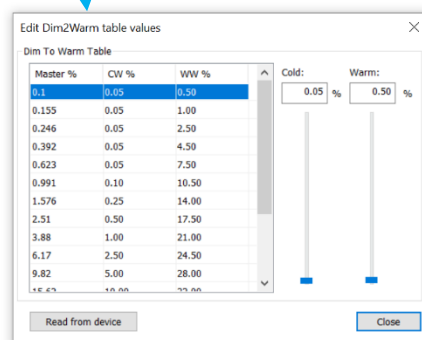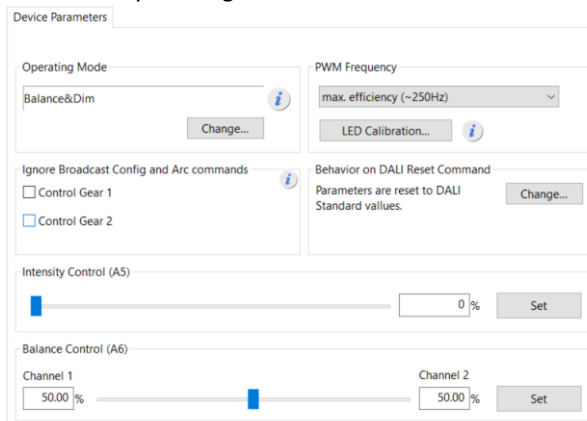
*change of the Dim2Warm table are being saved via "Save" to the device as other device parameters

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DALI-2 CW-WW LED Dimmer CV, Datasheet   © 2025-10-06, Lunatone Industrielle Elektronik GmbH

Cockpit: General Settings

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

- *DT8:* 2 sliders, one for level and one for colour temperature
- *Balance&Dim:* 2 sliders, one for level and one for balance
- Dim2Warm: 1 slider for input value adaption and an Edit-Function for the Dim2Warm-table.

Additionally, the following configurations can be made:

PWM Frequency
The PWM frequency can be selected:
122Hz / 244Hz / 488Hz / 976Hz.
From FW version 4.6 changed PWM frequencies: 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
From FW 4.6. on 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%. From FW version 4.6 on, 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 1
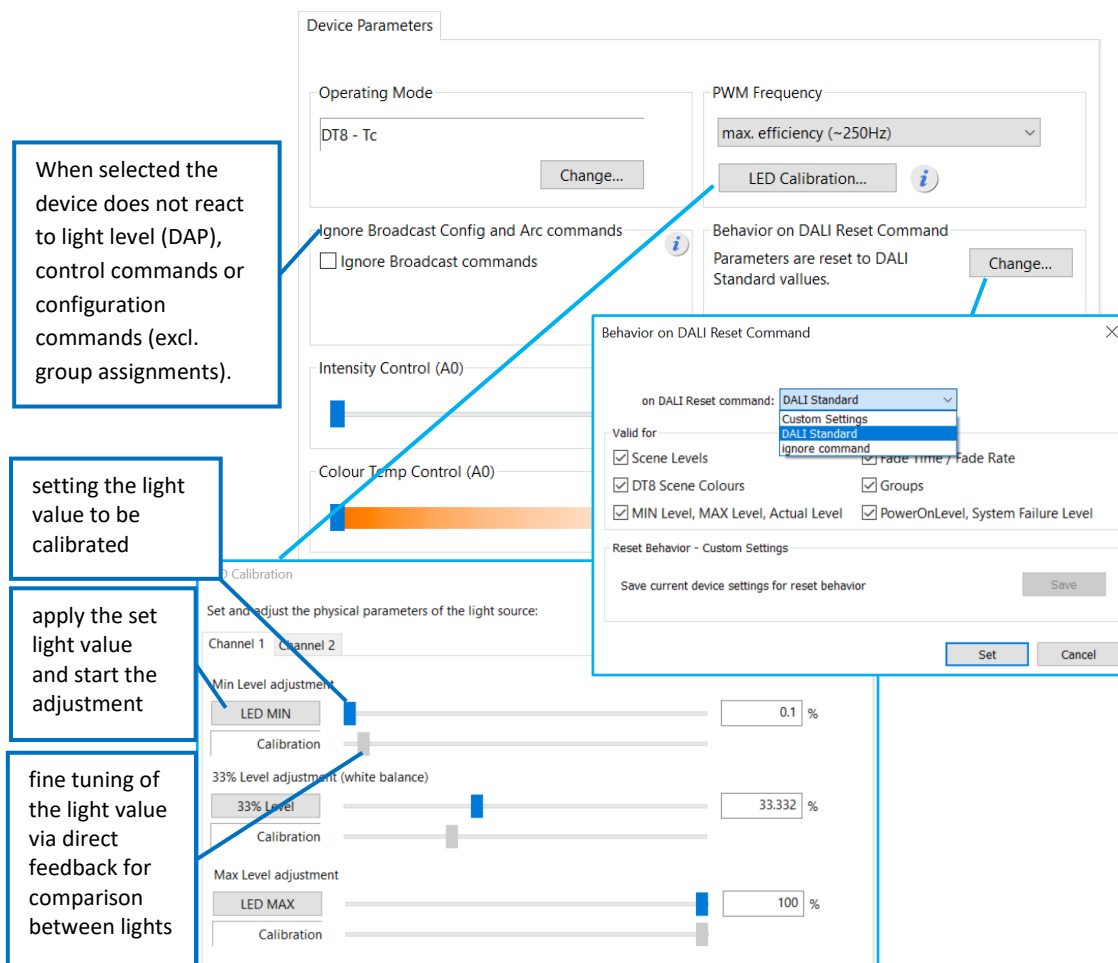
Figure 1 Cockpit overview page – LED calibration and settable RESET behaviour

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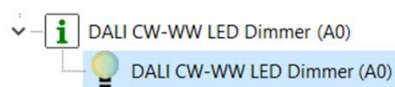
For each address the group membership can be set as well as scene values and DALI-parameters. In Balance&Dim operating mode all values assigned to channel 2 are representing the balance.

Figure 2 on page 13 shows the setting options for operating mode DT8.

Figure 3 on page 13shows the settings for each channel for operating modes Balance&Dim and Dim2Warm.

In operating modes Balance&Dim and Dim2Warm the available settings are the same for each channel.

DT8 – Tc Limits and Colour Temperature step size
The Tc step size can be increased (instead of the DT8 Tc DALI standard value: 1), to speed up colour temperature changes when using the commands TC STEP COOLER/WARMER.
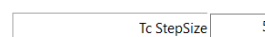
The values "Physical Warmest"/"LED Warmest" ad "Physical coolest"/"LED coolest" capture the range the connected LED allows.

"Tc warmest" and "Tc coolest" colour temperatures represent the limit values for colour temperature like the Min and Max level do for the brightness. These values can be adjusted to compensate for colour differences between different light sources.

Scene settings

Via the arrow button the scene settings can be imported and exported.
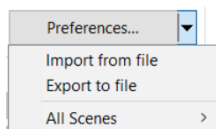
Via the button „Preferences" the default scene settings can be loaded.
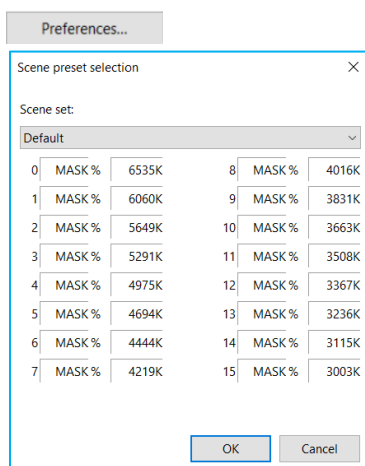
From FW 6.0 on, extended scene settings can be configured. With extended scenes it is possible to automatically change between 2 scene values (once or looped). Thereby enabling configuration of blinking lights, time delayed switch off or light repetitions, as well as traveling lights with multiple dimmers.
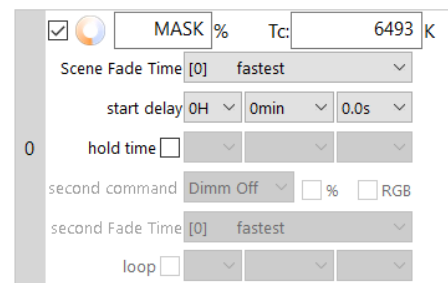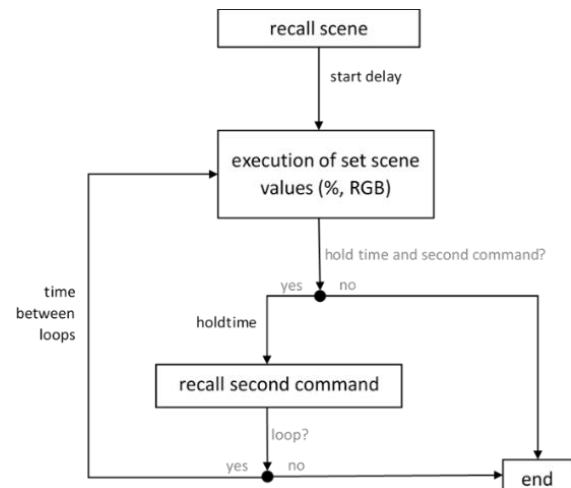
Extended Scenes are available for each of the 16 scenes on the second tab:
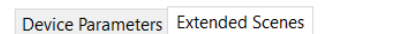
By enabling the extended scenes these are used instead of the standard scenes on the "Device Parameters" tab
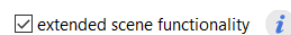
Import/Export settings

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

Figure 2 Settings in the operating mode DT8

Figure 3 Settings for each channel in the operating modes Balance&Dim und Dim2Warm

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DALI-2 CW-WW LED Dimmer CV

Factory Default Settings

Before the initial addressing is performed, the device can already be controlled by a group address. This predefined grouping will be deleted during the first addressing procedure. Afterwards groups can be assigned as usual (e.g. with the DALI Cockpit).

By sending a DALI-Reset command the device is set to the DALI default values as defined in the standard.

The factory default values as well as the DALI-standard values are summarised in *Table 1* below.

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

	Delivery default			DALI norm
Operating mode	DT8			N/A (remains unchanged)
SwitchDim2	SW&DIM2-1: light level SW&DIM2-2: colour temperature			N/A (remains unchanged)
Min Level	0.1%			0.1%
Max Level	100%			100%
Power On 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
Tc-step size	3			N/A (remains unchanged)
PWM-Frequency	FW ≥ 4.6: 1kHz FW < 4.6: 122Hz			N/A (remains unchanged)
Control before initial addressing	G0 (G0 and G1 in operating mode Balance&Dim)			None
Scene values	Scene	light level	colour temperature	All scene values MASK
	0	MASK	6535 K	
	1	MASK	6060 K	
	2	MASK	5649 K	
	3	MASK	5291 K	
	4	MASK	4975 K	
	5	MASK	4694 K	
	6	MASK	4444 K	
	7	MASK	4219 K	
	8	MASK	4016 K	
	9	MASK	3831 K	
	10	MASK	3663 K	
	11	MASK	3508 K	
	12	MASK	3367 K	
	13	MASK	3236 K	
	14	MASK	3115 K	
	15	MASK	3003 K	
Behaviour on DALI RESET command	set DALI Standard values, see column 2			N/A (remains unchanged)

Purchase Order Information

Art.Nr. 89453836: DALI CW-WW LED Dimmer, CV, input current 4A, 12V-28V DC, back box

Art.Nr. 86458673: DALI CW-WW LED Dimmer, CV, input current 8A, 12V-48V DC, SwitchDim2, back box

Art.Nr. 89453838: DALI CW-WW LED Dimmer, CV, input current 10A, 12V-48V DC, SwitchDim2, remote ceiling & integration in luminaires

Art.Nr. 89453841: DALI CW-WW LED Dimmer, CV, input current 16A, 12V-48V DC, SwitchDim2, remote ceiling & integration in luminaires

Art.Nr. 89453841-HS (16A DIN Rail): DALI CW-WW LED Dimmer, CV, input current 16A, 12V-48V DC, SwitchDim2, DIN rail housing

Additional Information and Equipment

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

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

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

Contact

Technical Support: support@lunatone.com

Requests: sales@lunatone.com

www.lunatone.com

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.