



# DALI 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 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: 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



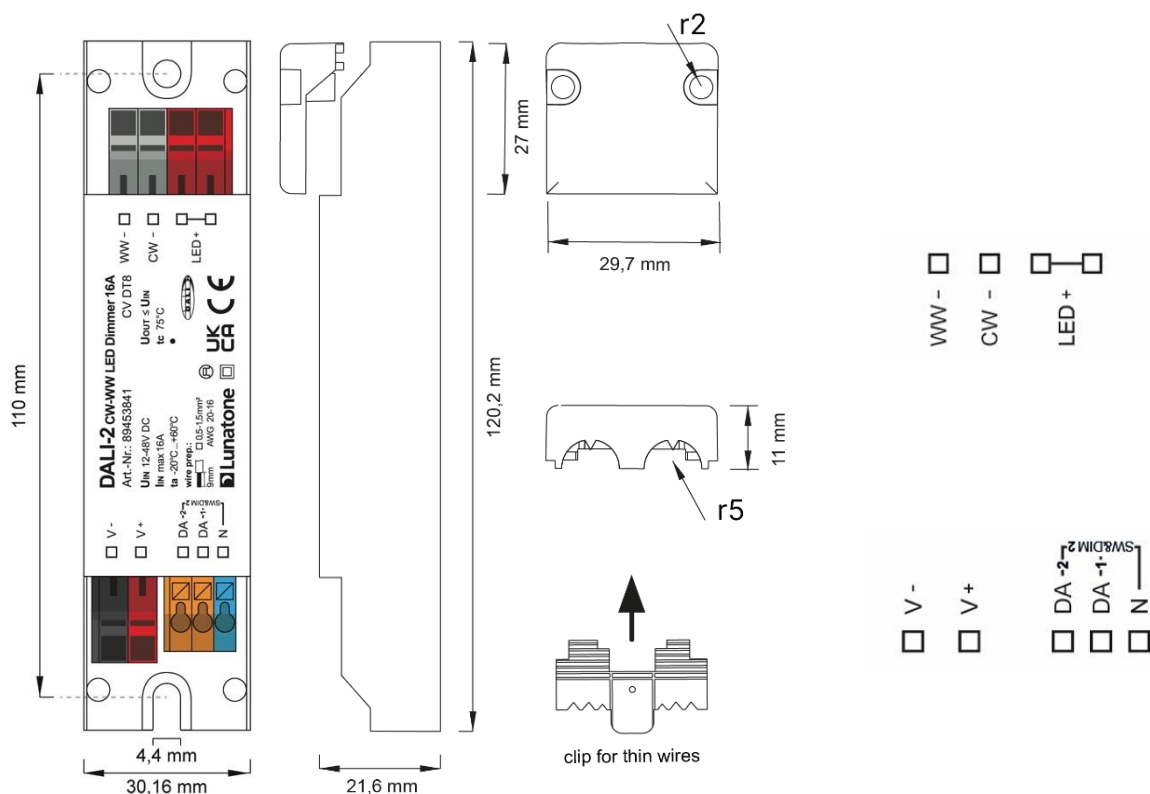
## Specification, Characteristics

type	DALI CW-WW Led Dimmer CV				
article number	89453836	86458673	89453838	89453841	89453841-HS
<b>electrical data:</b>					
supply voltage Vin	12VDC-28VDC	12VDC-48VDC			
maximum input current I_in_max	4A	8A	10A	16A	

article number	89453836	86458673	89453838	89453841	89453841-HS
control input	DALI	DALI SwitchDim2			
current consumption DALI	2mA				
number of DALI-addresses	operating mode DT8, Dim2Warm: 1 operating mode Balance&Dim: 2				
standby power consumption (12V)	120 mW				

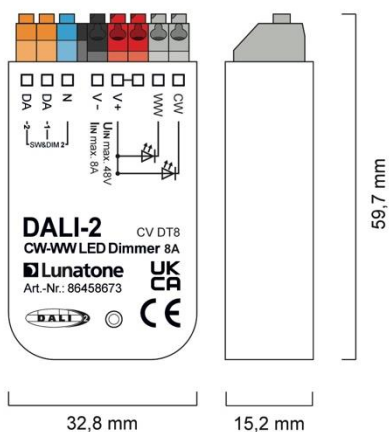
**technical data:**

power on behaviour	configurable via DALI: 0%-100% or last value			
storage/transportation temperature	-20°C ... +75°C			
ambient temperature	-20°C ... +60°C			-20°C ... +55°C
expected lifetime (at Tc<=75°C)	>100000h			
protection class	IP20			
max. connecting wire cross section	1.5 mm <sup>2</sup>		2.5 mm <sup>2</sup> / DALI & SwDim: 1.5 mm <sup>2</sup>	2.5mm <sup>2</sup>
dimensions (LxWxH)	40x28 x14 mm	60x33x15 mm	120x30x22 mm	98x18x56 mm
housing/mounting	back box		remote ceiling	DIN rail

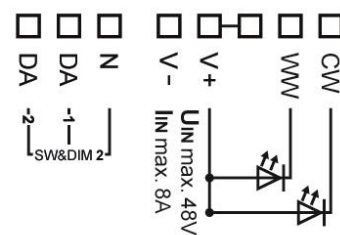


dimensions remote ceiling  
Version 16A Art.Nr.: 89453841  
Version 10A Art.Nr.: 89453838

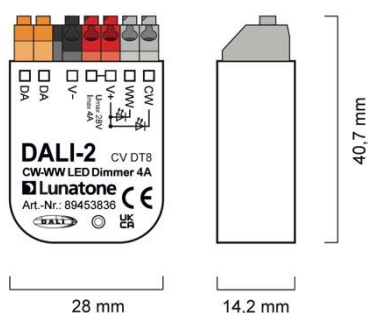
connection plan remote ceiling  
Version 16A Art.Nr.: 89453841  
Version 10A Art.Nr.: 89453838



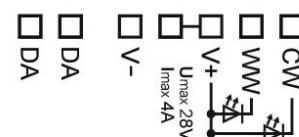
dimensions back box 8A  
Version 8A Art.Nr.: 86458673



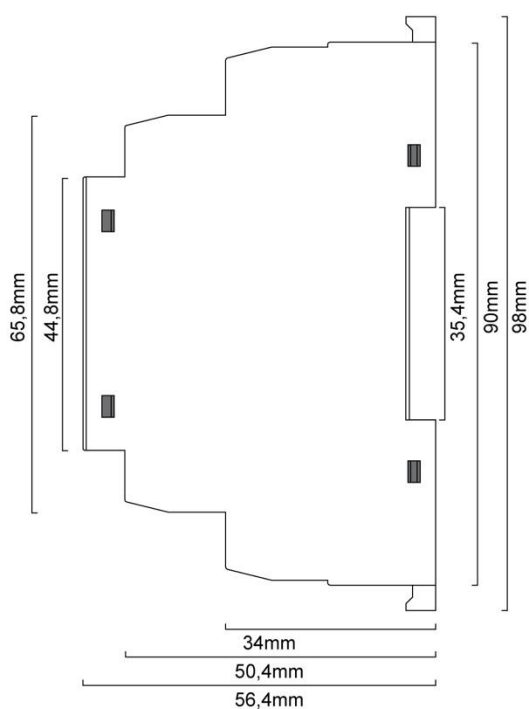
connection plan back box 8A  
Version 8A Art.Nr.: 86458673



dimensions back box 4A  
Version 4A Art.Nr.: 89453836



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



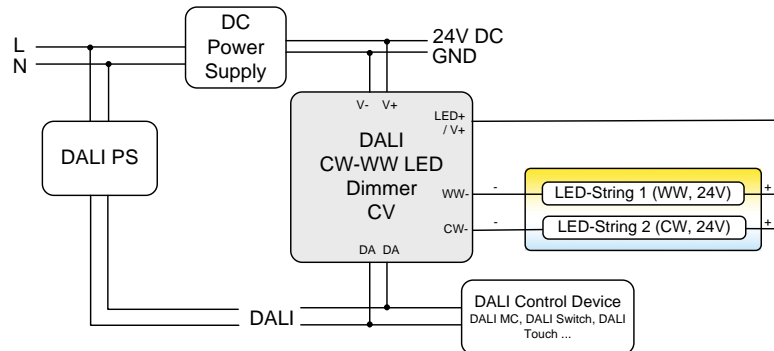
dimensions DIN rail housing  
Version 16A Art.Nr.: 89453841-HS



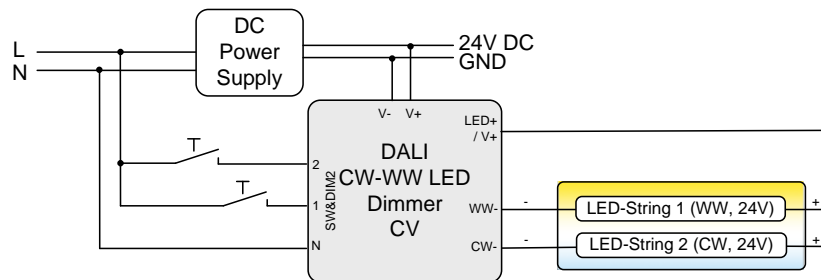
connection DIN rail housing  
Version 16A Art.Nr.: 89453841-HS

**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.

Control via DALI (all device versions):



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



## 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).

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

SwD1: light level

short press: On/Off

long press: dimming

SwD2: colour temperature

long press: change colour temperature

### Balance&Dim

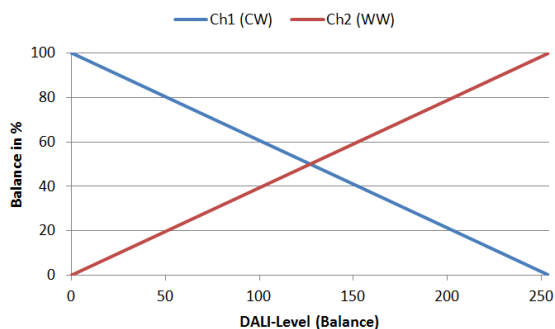
This operating mode is also suitable for operating tunable white luminaires using two DALI-addresses. The first address controls the light level, and the second address is used for changing the distribution on the output channels (e.g. for tunable white applications or balancing direct/indirect lighting).

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, SwD1: light level

DALI-address 2, SwD2: balance



### Dim2Warm

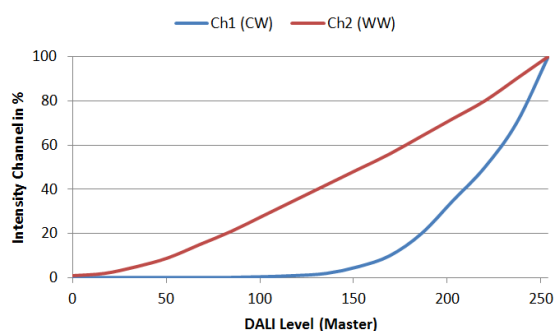
Both output channels are controlled by one DALI-address or SwD-input. The balance is coupled directly to the DALI dim level – the smaller the dim level the warmer the light.

DALI-address 1,

SwD1: Dim2Warm (Master)

short press: On/Off

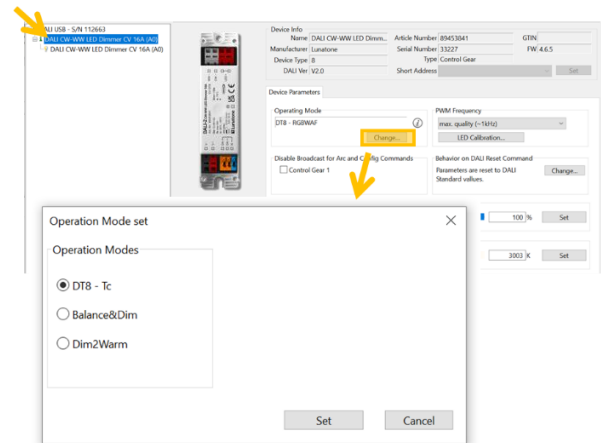
long press: dimming



SwD2: scene selector

### 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.



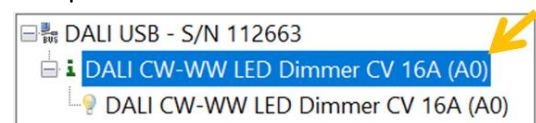
The operating mode can also be changed with the DALI-command SET OPERATING MODE (IEC 62386-102 Ed.2). When changing the operating mode, the number of used DALI-addresses might change as well, which requires a new addressing process. In the DALI-Cockpit this address assignment is performed automatically.

Operating Mode:

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

### Cockpit: General Settings

Component tree: selection of device overview



On the overview page, there are different control elements, depending on the operating mode (*DT8*: slider for level and colour temperature, *Balance&Dim*: slider for level and balance, *Dim2Warm*: slider for input value adaption and an option to edit the Dim2Warm-table). Also, the following configuration options are available. (see also Figure 1., page 8)

## Overview Operating mode DT8

Device Info

Name	DALI CW-WW LED Dimm...	Article Number	89453841	GTIN	
Manufacturer	Lunatone	Serial Number	33227	FW	4.6.5
Device Type	8	Type	Control Gear		
DALI Ver	V2.0	Short Address			

Device Parameters

Operating Mode: DT8 - RGBWAF Change...

PWM Frequency: max. quality (~1kHz) LED Calibration...

Disable Broadcast for Arc and Config Commands: ☐ Control Gear 1

Behavior on DALI Reset Command: Parameters are reset to DALI Standard values. Change...

Intensity Control (A0): 100 % Set

Colour Temp Control (A0): 3003 K Set

## Overview Operating mode Balance&Dim

Device Info

Name	DALI CW-WW LED Dimm...	Article Number	89453841	GTIN	
Manufacturer	Lunatone	Serial Number	33227	FW	4.6.5
Device Type	6	Type	Control Gear		
DALI Ver	V2.0	Short Address			

Device Parameters

Operating Mode: Balance&Dim Change...

PWM Frequency: max. quality (~1kHz) LED Calibration...

Disable Broadcast for Arc and Config Commands: ☐ Control Gear 1 ☐ Control Gear 2

Behavior on DALI Reset Command: Parameters are reset to DALI Standard values. Change...

Intensity Control (A0): 100 % Set

Balance Control (A1): Channel 1 100.00 % Channel 2 0.00 % Set

## Overview Operating mode Dim2Warm

Device Info

Name	DALI CW-WW LED Dimm...	Article Number	89453841	GTIN	
Manufacturer	Lunatone	Serial Number	33227	FW	4.6.5
Device Type	6	Type	Control Gear		
DALI Ver	V2.0	Short Address			

Device Parameters

Operating Mode: Dim2Warm Change...

PWM Frequency: max. quality (~1kHz) LED Calibration...

Disable Broadcast for Arc and Config Commands: ☐ Control Gear 1

Behavior on DALI Reset Command: Parameters are reset to DALI Standard values. Change...

Dim2Warm Tabelle: Edit... Set Default

Dim2Warm Control (A0): 100.00 % Set

Edit Dim2Warm table values

Master %	CW %	WW %
0.100	0.05	0.50
0.155	0.05	1.00
0.246	0.05	2.50
0.392	0.05	4.50
0.623	0.05	7.50
0.991	0.10	10.50
1.576	0.25	14.00
2.51	0.50	17.50
3.88	1.00	21.00
6.17	2.50	24.50
9.82	5.00	28.00
15.63	10.00	32.00

Cold: 0.05 % Warm: 0.50 %

Read from device Close

The **PWM frequency** can be selected:  
122Hz / 244Hz / 488Hz / 976Hz.

From FW version 4.6 changed PWM frequencies: 250Hz / 500Hz / 1kHz.

The **broadcast control** can be deactivated for each channel individually.

### Adjustable RESET behaviour:

From FW version 4.6 up, 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)

### Calibration - light adjustment:

The dimming range extends 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, set the desired level with the upper slider. 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 Figure 1., page 8.



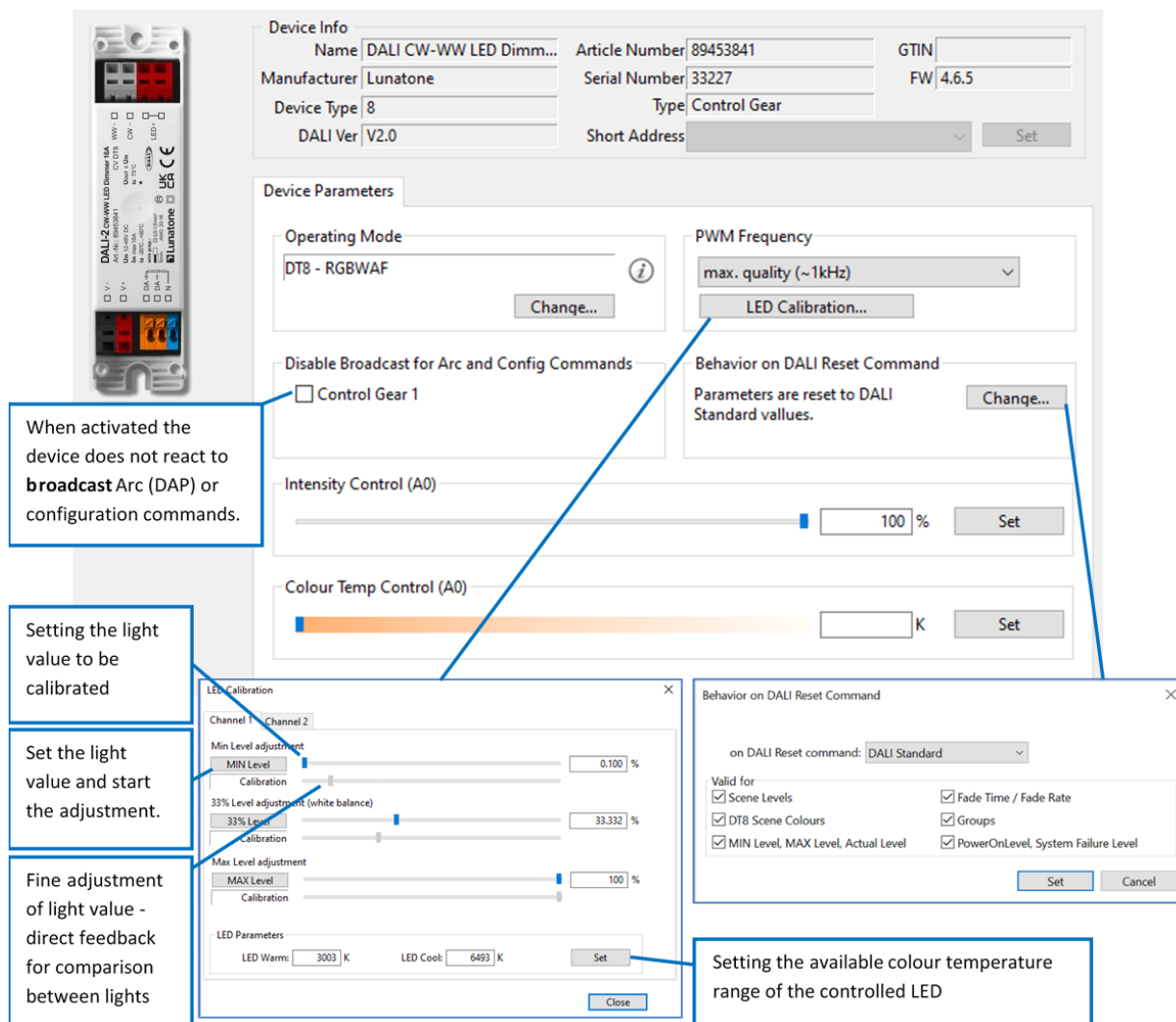


Figure 1 Cockpit Overview – general Settings

## 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.

The settings for each operating mode are depicted below, page 9.

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

In Balance&Dim operating mode, values assigned to channel 2 are representing the balance.

**Operating mode DT8:** besides the DALI settings, the Tc step size can be adjusted, this is a simple way to speed up colour temperature changes when using the commands TC STEP COOLER/WARMER. DT8 Tc-standard value.1



## Settings in the operating mode DT8

**Device Info**

Name	DALI CW-WW LED Dim...	Article Number	89453841	GTIN	
Manufacturer	Lunatone	Serial Number	33227	FW	4.6.5
Device Type	8	Type	Control Gear		
DALI Ver	V2.0	Short Address (A0)	DALI CW-WW LED Dimmer C	Set	

**Device Parameters**

Gruppenzugehörigkeit

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

**Scenes**

0	<input type="checkbox"/>	MASK	%	8	<input type="checkbox"/>	MASK	%
1	<input type="checkbox"/>	MASK	%	9	<input type="checkbox"/>	MASK	%
2	<input type="checkbox"/>	MASK	%	10	<input type="checkbox"/>	MASK	%
3	<input type="checkbox"/>	MASK	%	11	<input type="checkbox"/>	MASK	%
4	<input type="checkbox"/>	MASK	%	12	<input type="checkbox"/>	MASK	%
5	<input type="checkbox"/>	MASK	%	13	<input type="checkbox"/>	MASK	%
6	<input type="checkbox"/>	MASK	%	14	<input type="checkbox"/>	MASK	%
7	<input type="checkbox"/>	MASK	%	15	<input type="checkbox"/>	MASK	%

**DALI Parameter**

MIN Level	<input type="range"/>	0.100 %
MAX Level	<input type="range"/>	100 %
Power On Level	<input type="range"/>	100 %
Power On Colour	<input type="range"/>	
System Fail Level	<input type="range"/>	100 %
System Fail Colour	<input type="range"/>	
Fade Time	<input type="range"/>	ext fade s
Ext Fade Time	<input type="range"/>	fastest
Fade Rate	<input type="range"/>	44.7 step/s

**Tc Limits**

Tc Warmest	<input type="range"/>	3058 K
Tc Coolest	<input type="range"/>	6493 K

Tc StepSize

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

**Device Info**

Name	DALI CW-WW LED Dim...	Article Number	89453841	GTIN	
Manufacturer	Lunatone	Serial Number	33227	FW	4.6.5
Device Type	6	Type	Control Gear		
DALI Ver	V2.0	Short Address (A0)	DALI CW-WW LED Dimmer C	Set	

**Device Parameters**

Gruppenzugehörigkeit

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

**Scenes**

0	<input type="checkbox"/>	MASK	%	4	<input type="checkbox"/>	MASK	%	8	<input type="checkbox"/>	MASK	%	12	<input type="checkbox"/>	MASK	%
1	<input type="checkbox"/>	MASK	%	5	<input type="checkbox"/>	MASK	%	9	<input type="checkbox"/>	MASK	%	13	<input type="checkbox"/>	MASK	%
2	<input type="checkbox"/>	MASK	%	6	<input type="checkbox"/>	MASK	%	10	<input type="checkbox"/>	MASK	%	14	<input type="checkbox"/>	MASK	%
3	<input type="checkbox"/>	MASK	%	7	<input type="checkbox"/>	MASK	%	11	<input type="checkbox"/>	MASK	%	15	<input type="checkbox"/>	MASK	%

**DALI Parameter**

MIN Level	<input type="range"/>	0.100 %
MAX Level	<input type="range"/>	100 %
Power On Level	<input type="range"/>	100 %
System Fail Level	<input type="range"/>	100 %
Fade Time	<input type="range"/>	1.0 s
Ext Fade Time	<input type="range"/>	fastest
Fade Rate	<input type="range"/>	89.4 step/s

## 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.

Summary of the factory default settings (delivery state):

	Factory default	DALI Standard
<b>operating mode</b>	DT8	---
<b>switchDim2</b>	SwD1: light level SwD2: colour temperature	---
<b>Min Level</b>	0.1%	0.1%
<b>Max Level</b>	100%	100%
<b>Power On Level</b>	MASK (last value)	100%
<b>System Failure Level</b>	100%	100%
<b>Fade Time</b>	1s	None
<b>Fade Rate</b>	89.4 steps/s	44.7 steps/s
<b>Tc-Stepsize</b>	3 increments	1
<b>PWM-Frequency</b>	122Hz or 1kHz for FW 4.6 and up	---

<b>Groups before initial addressing</b>	G0 (or G0 and G1 in operating mode Balance&Dim)	None
<b>Scene values</b>	<div> <div> <input checked="" type="checkbox"/> 0 MASK % 6535 %K                 <input checked="" type="checkbox"/> 8 MASK % 4016 %K             </div> <div> <input checked="" type="checkbox"/> 1 MASK % 6060 %K                 <input checked="" type="checkbox"/> 9 MASK % 3831 %K             </div> <div> <input checked="" type="checkbox"/> 2 MASK % 5649 %K                 <input checked="" type="checkbox"/> 10 MASK % 3663 %K             </div> <div> <input checked="" type="checkbox"/> 3 MASK % 5291 %K                 <input checked="" type="checkbox"/> 11 MASK % 3508 %K             </div> <div> <input checked="" type="checkbox"/> 4 MASK % 4975 %K                 <input checked="" type="checkbox"/> 12 MASK % 3367 %K             </div> <div> <input checked="" type="checkbox"/> 5 MASK % 4694 %K                 <input checked="" type="checkbox"/> 13 MASK % 3236 %K             </div> <div> <input checked="" type="checkbox"/> 6 MASK % 4444 %K                 <input checked="" type="checkbox"/> 14 MASK % 3115 %K             </div> <div> <input checked="" type="checkbox"/> 7 MASK % 4219 %K                 <input checked="" type="checkbox"/> 15 MASK % 3003 %K             </div> </div>	all scenes: MASK  (brightness: MASK and colour temperature: MASK)
<b>Behaviour at DALI RESET command</b>	set DALI Standard values, see column 2	---

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

## 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

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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.