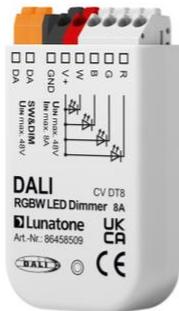# Lunatone

DALI RGBW
LED Dimmer CV

Datasheet

Control Gear

RGBW LED Dimmer (CV, DT8)

Art. Nr. 86458509 (8A)

Art. Nr. 89453840 (10A)

Art. Nr. 89453843 (16A)

Art. Nr. 89453843-HS (16A, dinrail)

DALI RGBW LED Dimmer CV Control Gear

Overview

- DALI LED-Dimmer for RGBW colour control
- 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 (DALI DT8, Type RGBWAF)
- **Operating Mode Colour&Dim**: control by 2 DALI-addresses, one for adjusting the light level and one for adjusting the colour
- **SwitchDim2**: 2 switch-inputs offer control of light 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 dinrail mounting
- supply voltage 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 distributed on the channels at will
- low standby power consumption
- high efficiency
- configuration via PC-software DALI-Cockpit and DALI USB-interface
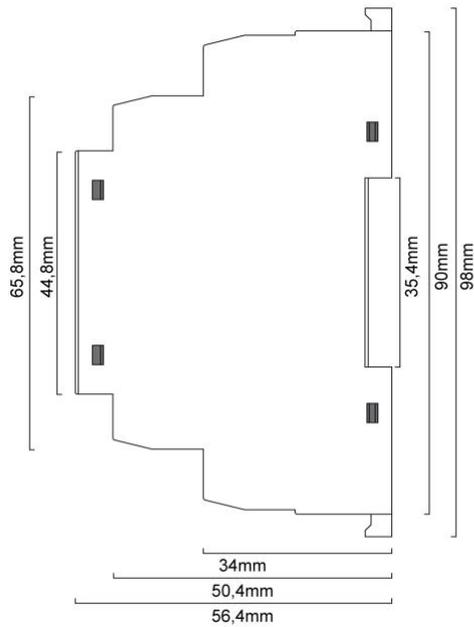- user-friendly factory default settings

From FW Version 4.6 onward:

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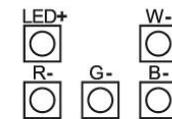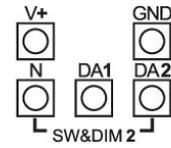- Configurable RESET behaviour

DALI 2 CE UK CA

Specification, Characteristics

type	DALI RGBW LED Dimmer CV			
article number	86458509	89453840	89453843	89453843-HS

electrical data:

supply voltage	12VDC-48VDC			
maximum input current I_in_max	8A	10A	16A	
control input	DALI SW&DIM 48V	DALI SwitchDim2 (mains voltage)		
current consumption DALI	2mA			
number of DALI-addresses	operating mode DT8: 1 operating mode Colour&Dim: 2			
standby power consumption (12V)	~ 120mW			

technical data:

|		
power on behaviour	configurable: 0%-100% or last value	
storage/transportation temperature	-20°C … +75°C	
operational ambient temperature	-20°C … +60°C	-20°C … +55°C

article number	86458509	89453840	89453843	89453843-HS
expected lifetime (at Tc<=75°C)	>100000h			
protection class	IP20			
max. connecting wire cross section	1.5 mm²	2.5 mm²/ DALI&SwDim: 1.5 mm²		2.5 mm²
dimensions (LxWxH)	59x33x15 mm	120x30x22 mm		98x18x56 mm
housing/mounting	back box	remote ceiling		DIN rail

dimensions remote ceiling
Version 16A Art.Nr.: 89453843
Version 10A Art.Nr.: 89453840

connection plan remote ceiling
Version 16A Art.Nr.: 89453843
Version 10A Art.Nr.: 89453840

dimensions back box
Version 8A Art.Nr.: 86458509

connection plan back box
Version 8A Art.Nr.: 86458509

Anschlussplan Dose

dimensions DIN rail
Version 16A Art.Nr.: 89453843-HS

connection plan DIN rail
Version 16A Art.Nr.: 89453843-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 (for all Versions):
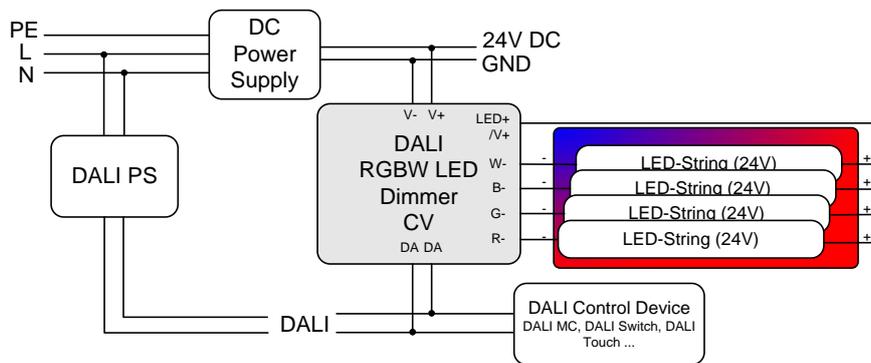
Control via SW&DIM 48V (for 8A Version, Art. Nr. 86458509):
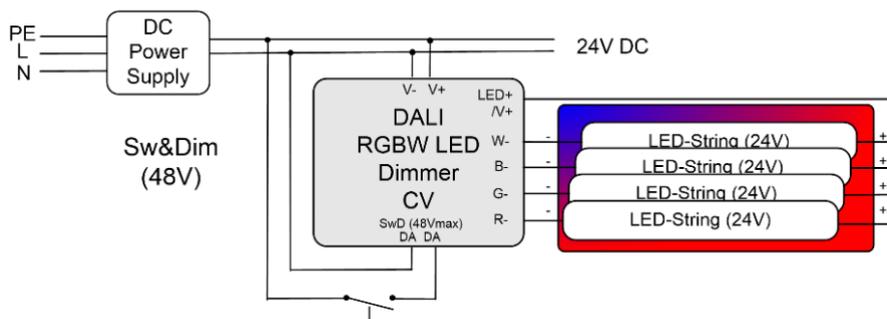
Control via SwitchDim2 (for 10A and 16A Versions, Art. Nr. 89453840, Art. Nr. 89453843, Art. Nr. 89453843-HS):
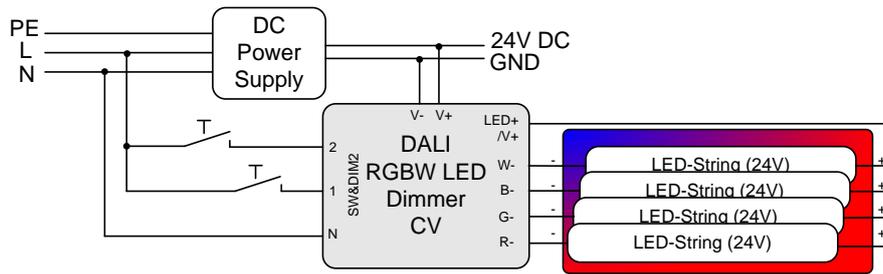
Operating Modes

The device offers two operating modes: DT8 and Colour&Dim.

DT8 (factory default)
In this operating mode one DALI-address for the independent control of light level and colour is used (Device Type 8 RGBWAF).

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
      long press: change colour

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 for changing the distribution on the output channels (e.g. for colour adjustments).

The Colour&Dim mode allows colour adjustments without affecting the 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 mode.

Can be operated via DALI or SwitchDim2:

DALI-address 1, SwD1: light level
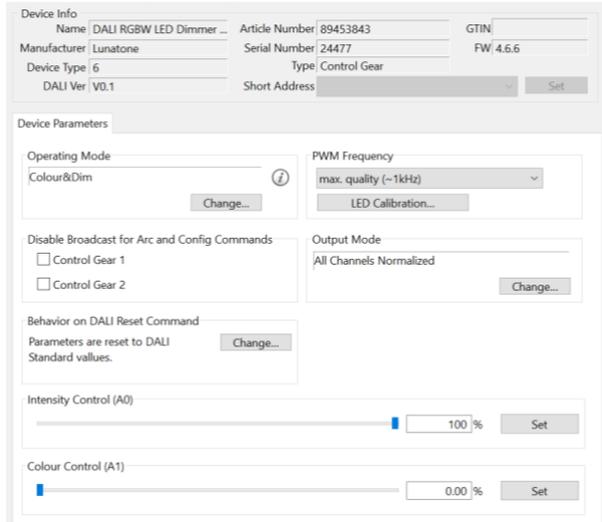DALI-address 2, SwD2: colour
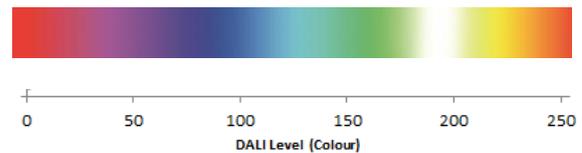
Selection of operating mode
With the help of the PC-software tool DALI-Cockpit the operating mode can be easily set on the general settings page.
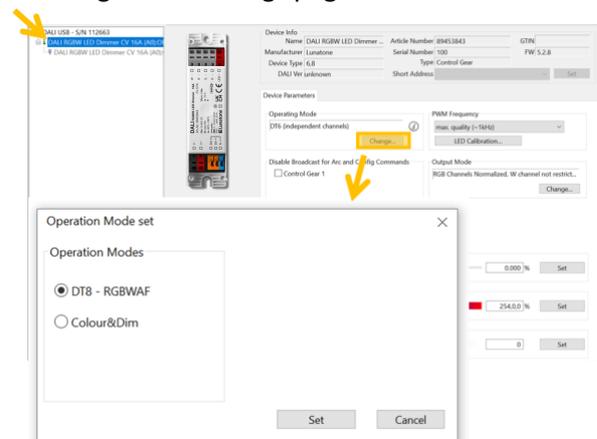
Overview: Operating mode: DT8-RGBWAF
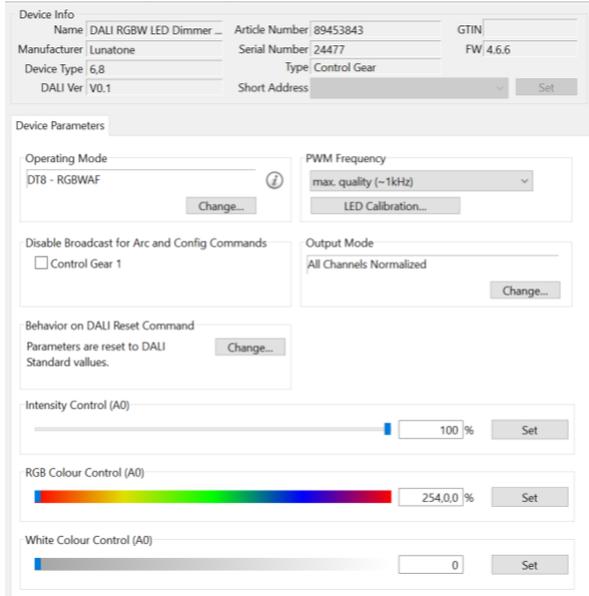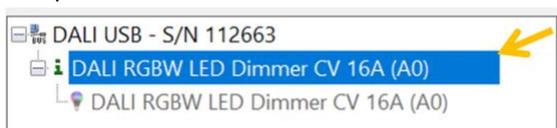

Overview: Operating mode: Color&Dim

The operating modes 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
0x93	Colour&Dim

Cockpit: General Settings

Component tree: selection of device overview

On the overview page, there are different control elements, depending on the operating mode (*DT8*: a slider for level, a slider for colour and a slider for the white channel, *Colour&Dim:* a slider for level, a slider for

colour). Also, the following configuration options are available. (see also Figure 1.) 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.

Output mode normalization: From FW version 4.6 up, the type of normalization can be selected:
1. Normalization over all 4 channels (RGBW)
2. Normalization over the 3 colour channels (RGB), the white channel (W) is not restricted.

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.

Figure 1 Cockpit Overview page: 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, selection of a channel

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

The settings for each operating mode are depicted below.

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.

Settings in the operating mode **DT8**
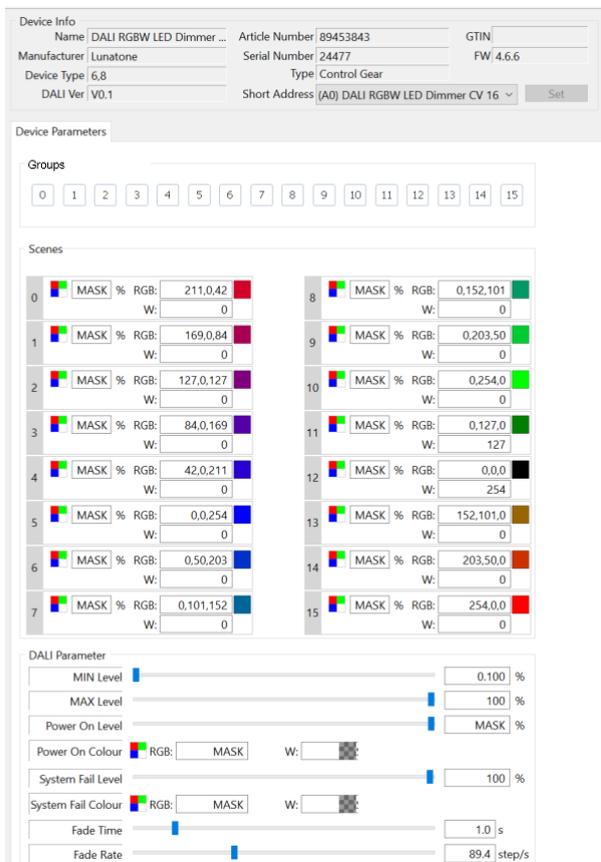
Settings for each channel in the operating mode **Colour&Dim**
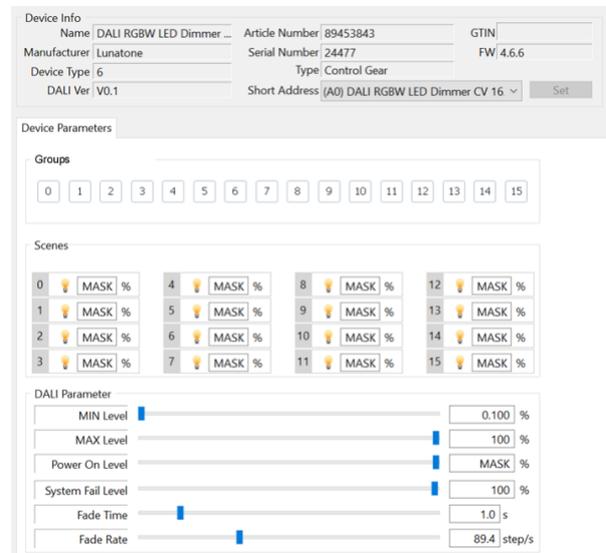
Summary of the factory default settings (delivery state):

	Factory default	DALI Standard
operating mode	DT8	---
switchDim2	SwD1: light level SwD2: colour	---
Min Level	0.1%	0.1%
Max Level	100%	100%
Power On Level	MASK (last value)	100%
System Failure Level	100%	100%
Fade Time	1s	None
Fade Rate	89.4 steps/s	44.7 steps/s
PWM-Frequency	122Hz or 1kHz for FW 4.6 and up	---
Groups before initial addressing	G0 (or G0 and G1 in operating mode Colour&Dim)	None
Scene values	(see scene table below)	all scenes: MASK (brightness: MASK colour: MASK, and white: MASK)
Behaviour at DALI RESET command	set DALI Standard values, see column 2	---

Scene values:

Scene		RGB	White	Scene		RGB	White
☑ 0	MASK %	211,0,42	0	☑ 8	MASK %	0,152,101	0
☑ 1	MASK %	169,0,84	0	☑ 9	MASK %	0,203,50	0
☑ 2	MASK %	127,0,127	0	☑ 10	MASK %	0,254,0	0
☑ 3	MASK %	84,0,169	0	☑ 11	MASK %	0,127,0	127
☑ 4	MASK %	42,0,211	0	☑ 12	MASK %	0,0,0	254
☑ 5	MASK %	0,0,254	0	☑ 13	MASK %	152,101,0	0
☑ 6	MASK %	0,50,203	0	☑ 14	MASK %	203,50,0	0
☑ 7	MASK %	0,101,152	0	☑ 15	MASK %	254,0,0	0

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

Purchase Order Information

Art.Nr. 86458509: RGBW LED Dimmer, CV, input current 8A, 12V-48V DC, back box

Art.Nr. 89453840: RGBW LED Dimmer, CV, input current 10A, 12V-48V DC, SwitchDim2, remote ceiling & integration in luminaires

Art.Nr. 89453843: RGBW LED Dimmer, CV, input current 16A, 12V-48V DC, SwitchDim2, remote ceiling & integration in luminaires

Art.Nr. 89453843-HS: RGBW LED Dimmer, CV, input current 16A, 12V-48V DC, SwitchDim2, DIN rail mounting

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.

Additional Information and Equipment

Lunatone DALI Cockpit
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/

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www.lunatone.com