

## wDALI-2 1Ch BT LED Dimmer CC

### Datasheet

#### Wireless Control Gear



1-channel BT LED Dimmer (CC, DT6)

Art. Nr. 89453844-BT-350 (350mA)

# wDALI-2 1Ch BT LED Dimmer CC Control Gear

## Overview

- 1 channel Bluetooth DALI LED-Dimmer
- suitable for control of constant current LED-modules wirelessly via DALI
- wireless – DALI connection via [wDALI-2 Bridge](#)
- 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
- output voltage up to 45VDC
- integrated short circuit protection
- low standby power consumption
- high efficiency
- configuration via PC-software DALI-Cockpit, DALI interface (e.g. DALI USB) and wDALI-2 BT Bridge
- user-friendly factory default settings



## Specification, Characteristics

type	DALI 1Ch LED-Dimmer CC
article number	89453844-BT-350
<b>supply: V+, V-</b>	
type of input	supply, DC
marking terminals	V+, V-
supply voltage $V_{in}$	12VDC-48VDC
max. input current $I_{in\_max}$	350mA
rated power @12V	4.2W
rated power @48V	16.8W
standby power consumption	180mW @12V
power on behaviour	configurable via DALI: 0%-100% or last actual level
<b>output: LED+, LED-</b>	
output type	LED dimmer, constant current PWM
marking terminals	LED+, LED-
number of outputs	1
PWM frequency	122Hz/ 250Hz/ 500Hz / 1kHz
output voltage range $U_{led}$	3V-45V (at 48V supply)

max. output current $I_{led}$	350mA
max. output power @45V	15.75W
overload protection	yes
open circuit protection	yes
short circuit protection	yes

#### insulation data

impulse voltage category	II
pollution degree	2
rated insulation voltage	250V
rated impulse withstanding voltage	4kV
Isolation supply <-> output	no insulation
Insulation test voltage	3000V a.c.

#### environmental conditions

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

#### general data

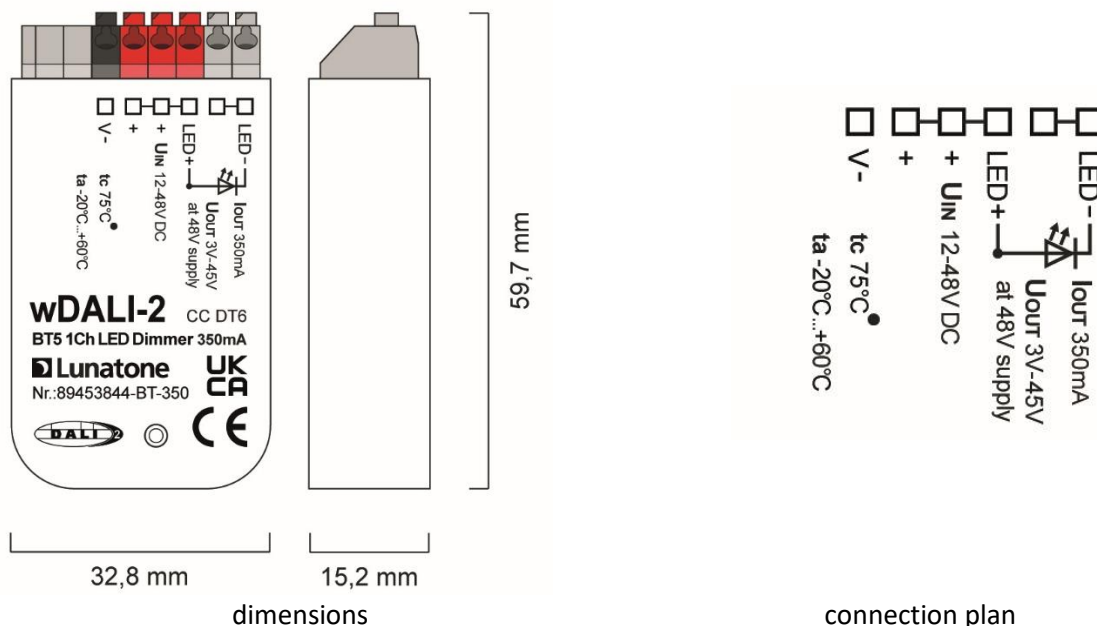
dimensions (l x w x h)	59 x33 x15 mm
mounting	back box
rated maximum temperature $t_c$	75°C
expected lifetime ( $T < T_c$ )	>100.000h
housing material	PC, class V0
protection class	II in intended use
protection degree housing	IP40
protection degree terminals	IP20
number of DALI-addresses	1
wireless technology / policy	Bluetooth 5

#### terminals: V+, V-, LED+, LED-

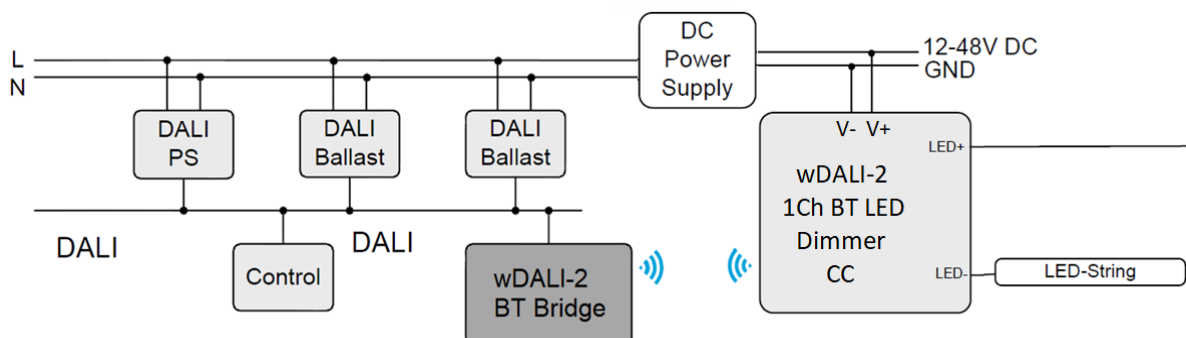
connection type	spring terminal connector (push in cage clamp)
wire size solid core	0,2 ... 1,5mm <sup>2</sup> (AWG 24 ... AWG 16)
wire size fine wired	0,2 ... 1,5mm <sup>2</sup> (AWG 24 ... AWG 16)
wire size using wire end ferrule	0,25 ... 1mm <sup>2</sup>
stripping length	8,5 ... 9,5mm / 0,33 ... 0,37 inch
housing material	PA66, class V0
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



### Application Example



### Installation

- 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 impair the radio functionality. On problems with reception, check alternative 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)

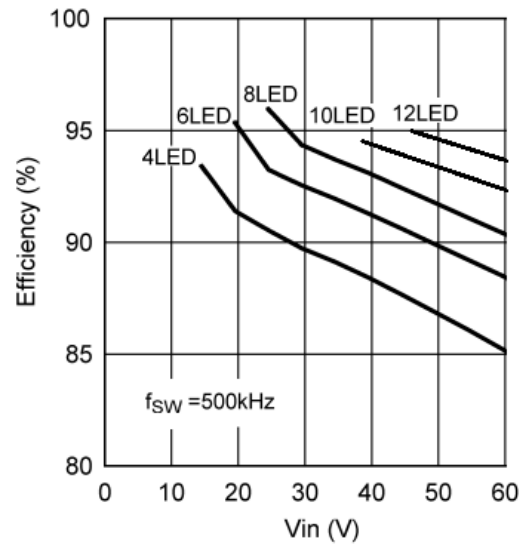
- Connect only one wire on each terminal, if twin ferrules are used, take note of the maximum wire size



**Hint:**

For highest efficiency the input voltage should range between 3V and 10V above the LED-voltage:

- 4-6 LEDs: 24V
- 6-9LEDs: 36V
- 10-12 LEDs: 48V



**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".
- The wDALI-2 BT Dimmer can be paired with the wDALI-2 BT Bridge and can then be found during the addressing process. The device is then available in the DALI Cockpit device overview

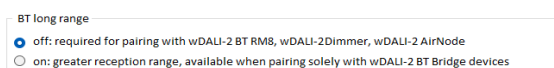
- Scene values, groups, DALI parameters and device specific settings can be configured in the DALI Cockpit, see section DALI Cockpit Configuration page 7 and following.
- The "Identify" function can be used for localization after addressing. With the DALI command IDENTIFY, or selecting the checkbox "localise" in the DALI Cockpit.
  - lokalise

## 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"



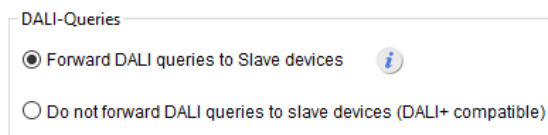
and save the changes to the device

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



The found devices are listed, the search can be ended by selecting "cancel"

6. Select the desired devices (up to 10 devices) via the checkbox and press save to pair them with the master device.
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 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 device pages can be selected, read

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

The image shows the physical wDALI-2 Bluetooth 5.0 wireless bridge device on the left. The main part of the image is a screenshot of the DALI Cockpit software interface. Annotations include:

- Device Info:** Name: wDALI-2 Bridge, Hersteller: Lunatone, Device Type: -, DALI Ver: V2.0, Short Address: (A0²) wDALI-2 Bridge.
- Allgemein:** Working Mode: Master.
- BT long range:** off: required for pairing with wDALI-2 BT RM8, wDALI-2Dimmer, wDALI-2 AirNode.
- Pairing:** Slave Devices table with columns Typ, Seriennummer, and a Pair... button.
- DALI-Queries:** DALI-Queries an Slave Geräte weiterleiten selected.
- wDALI-2 Bridge pairing dialog:** Found devices table with columns Pair, Type, Serial Number, Status, Signal. Annotations point to the checkbox selection and signal strength.

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

## DALI Cockpit Configuration

With the help of the DALI-Cockpit software the device can be configured. The device can be assigned to groups, scene values can be set and DALI parameters can be set (Min Level, Max Level, Power On Level, System Failure Level, Fade Time, Fade Rate). Besides these standard DALI settings 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 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 below

When selected the device does not react to light level (DAP), control commands or configuration commands (excl. group assignments).

setting the light value to be calibrated

apply the set light value and start the adjustment

fine tuning of the light value via direct feedback for comparison between lights

LED calibration

Set and adjust the physical parameters of the light source:

Channel 1

Min Level adjustment

LED MIN 0.1 %

Calibration

33% Level adjustment (white balance)

33% Level 33.332 %

Calibration

Max Level adjustment

LED MAX 100 %

Calibration

Behavior on DALI Reset Command

on DALI Reset command: DALI Standard

Valid for

- Scene Levels
- DT8 Scene Colours
- MIN Level, MAX Level, Actual Level
- Fade time / Fade Rate
- Groups
- PowerOnLevel, System Failure Level

Reset Behavior - Custom Settings

Save current device settings for reset behavior

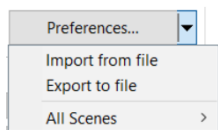
Save

Set Cancel

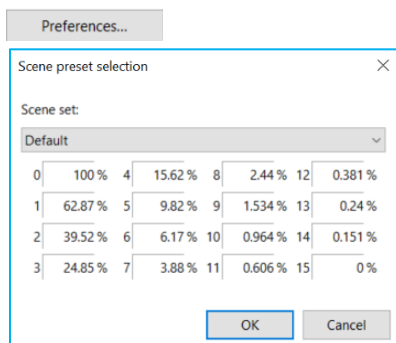
Figure 2 Cockpit overview page – LED calibration and settable RESET behaviour

### Scene settings

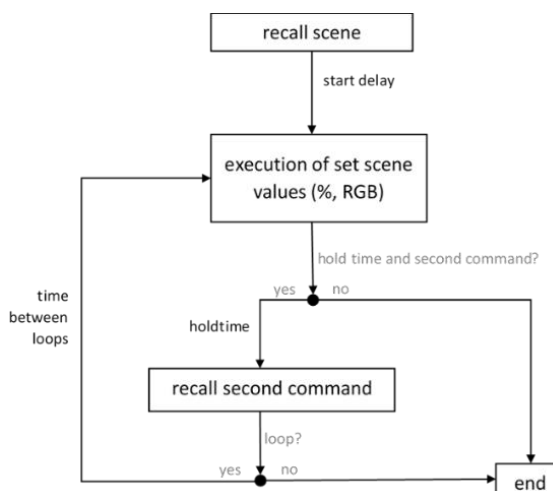
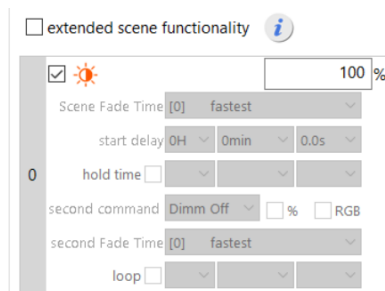
Via the arrow button the scene settings can be imported and exported.



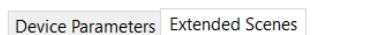
Via the button „Preferences“ the default scene settings can be loaded.



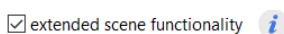
Extended scene settings can be configured. With extended scenes it is possible to automatically change between 2 scene values (once or looped). Thereby enabling configuration of blinking lights, time delayed switch off or light repetitions, as well as traveling lights with multiple dimmers. The extended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



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

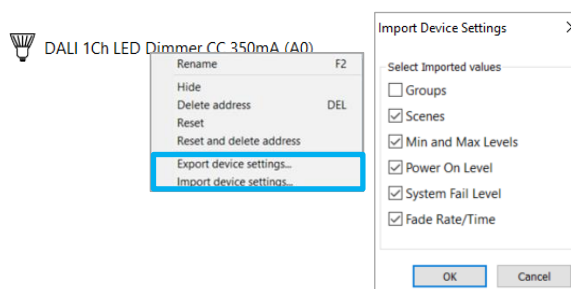


By enabling the extended scenes these are used instead of the standard scenes on the “Device Parameters” tab



### Import/Export settings

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



## 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
<b>Operating mode</b>	DT6		N/A (remains unchanged)
<b>Min Level</b>	0.1%		0.1%
<b>Max Level</b>	100%		100%
<b>Power On Level</b>	Last light level (= MASK)		100%
<b>System Failure Level</b>	100%		100%
<b>Fade Time</b>	1s [2]		none
<b>Fade Rate</b>	89.4 steps/s [5]		44.7 steps/s
<b>PWM-Frequency</b>	250Hz		N/A (remains unchanged)
<b>Scene values</b>	<b>Scene</b>	<b>Value</b>	All scenes MASK
	0	100%	
	1	63%	
	2	40%	
	3	25%	
	4	16%	
	5	10%	
	6	6%	
	7	4%	
	8	2,5%	
	9	1,5%	
	10	1%	
	11	0,6%	
	12	0,4%	
	13	0,24%	
	14	0,15%	
	15	0%	
<b>Behaviour on DALI RESET command</b>	set DALI Standard values, see column 2		N/A (remains unchanged)

## Purchase Order Information

**Art.Nr. 89453844-BT-350**

DALI 1Ch BT LED Dimmer CC  
constant current 350mA  
supply 12V-48V DC,  
output voltage range 3V-45V,  
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

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](mailto:support@lunatone.com)

Requests: [sales@lunatone.com](mailto:sales@lunatone.com)

[www.lunatone.com](http://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.