

DALI CDC

Datasheet

Circadian Daylight Control Device

DALI Control Device for automatic
colour temperature (T_c) adjustment
of tunable white luminaires



Art. Nr. 89453853
Art. Nr. 89453853-HS

DALI CDC Circadian Daylight Control Device

Overview

- Control device for DALI DT8 luminaires (colour mode Tc)
- biorhythmic time-adjusted colour temperature (Tc) reference value
- DALI real time clock
- daylight saving time (DST)
- configurable scene behaviour (firmware 1.5+)
- light level curve (firmware 2.0+)
- the time and the colour temperature characteristics over time can be configured with the help of the DALI Cockpit software tool
- The DALI CDC module is supplied directly via the DALI line, no additional power supply is required.
- A battery is included, the clock is set to local time (GMT+1) as factory default
- Simple installation due to DALI double-clamp connector
- Types for backbox installation and DIN rail mounting, suitable for installation in protection class II devices



Specification, Characteristics

type	DALI CDC	
article number	89453853	89453853-HS
DALI-Interface, supply: DA, DA		
input type	DALI, supply	
marking terminals	DA, DA	
input voltage range	9,5Vdc ... 22,5Vdc (acc. to IEC62386)	
max. current consumption DALI	5mA	
max. power consumption	<100mW	
number of DALI addresses	1	
insulation data:		
impulse voltage category	II	
pollution degree	2	
rated insulation voltage	250V	
insulation DALI / housing	reinforced isolation	
Insulation test voltage DALI / housing	3000Vac	
environmental conditions::		
storing and transportation temperature	-20°C ... +75°C	
operational ambient temperature	0°C ... +50°C	
rel. humidity, none condensing	15% ... 90%	

general data:

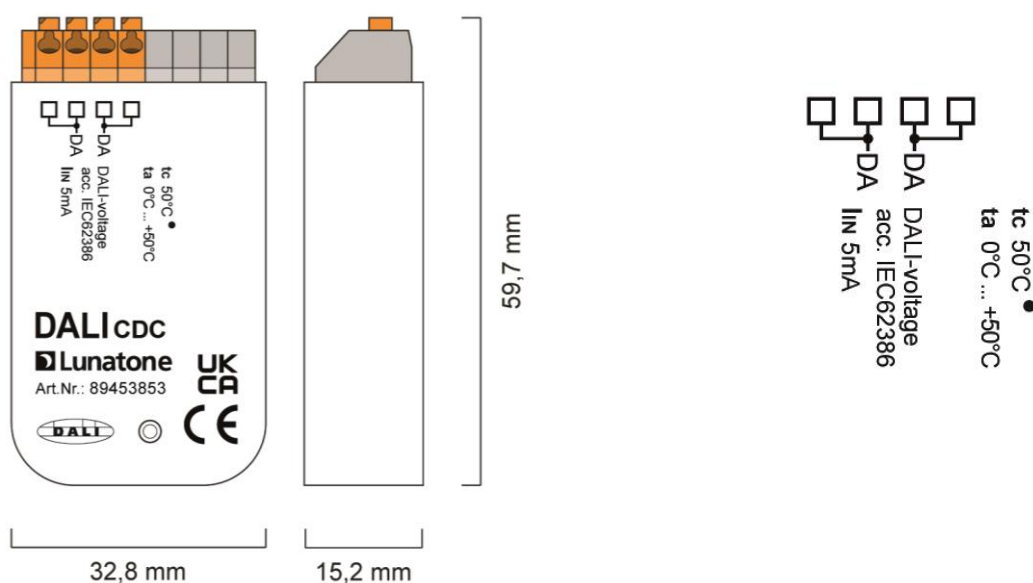
dimensions (l x w x h)	59mm x 33mm x 15mm	98mm x 17,5mm x 56mm
mounting	back box integration in class II devices	DIN rail mounting integration in class II devices
rated max. temperature tc	50°C	
expected life time @tc	50.000 h	
protection class	II in intended use	
protection degree housing	IP40	
protection degree terminals	IP20	
real time clock (accuracy)	quartz based (~20ppm)	

terminals:

connection type	spring terminal connector	screw connector
wire size solid core	0,5 ... 1,5 mm ² (AWG20 ... AWG16)	0,5 ... 2,5 mm ² (AWG20 ... AWG14)
wire size fine wired	0,5 ... 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 ... 9,5 mm / 0,33 ... 0,37 inch	7 mm / 0,27 inch
locking torque	-	0,5Nm
release of wire	push button	open screw

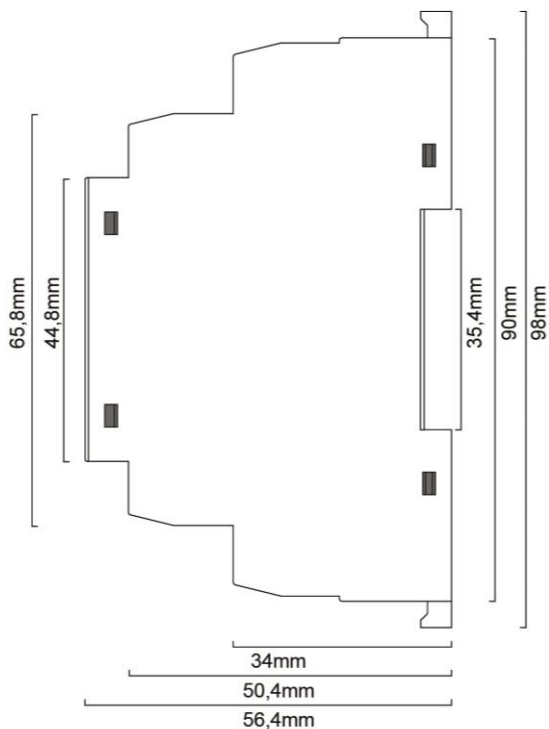
standards:

EMC	EN 61547 EN 50015 / IEC CISPR15	
safety	EN 61347-2-11 EN 61347-1	
markings	DALI, CE, UKCA	DALI, CE, UKCA, RCM

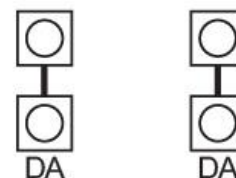


dimensions 89453853

connectors 89453853



dimensions DIN Rail version
89453853-HS



connectors DIN Rail version
89453853-HS

Installation

- The DALI CDC is intended for back box installation or integration in protection class II devices, the HS-type is suited for DIN rail mounting, ensure protection against electric shock by an appropriate enclosure
- Wiring as fixed installation in a dry and clean environment
- Installation only by qualified person when no voltage is applied
- Attend regulations regarding electrical installations of national authorities
- The DALI CDC is powered by the DALI line (typical current consumption 5 mA), no separate power supply needed
- the connection to the DALI-line is polarity free

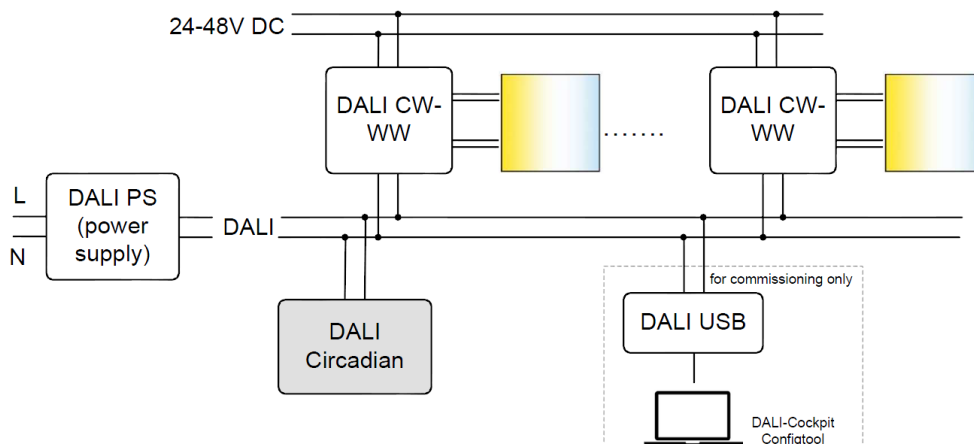
- DALI-line wiring with standard low voltage installation material
- The DALI-interface can handle mains voltage, protecting the device in case of wrong wiring
- Wiring topology of the DALI-line: Line, Tree, Star
- Connect only one wire on each terminal, if twin ferrules are used take care to the maximum wire size



HINT: The DALI-signal is not classified as SELV circuit. Therefore the standards for installation in low voltage system apply.



The voltage drop on the DALI-line shall not exceed 2V.



typical application

Commissioning

- After installation the DALI CDC is ready for use
- The configuration can be done with the help of the DALI-Cockpit software (interface module to DALI-line required, e.g. DALI USB, DALI SCI RS232, DALI4Net)
- The DALI CDC is automatically detected during the addressing procedure and is then shown in the component tree
- The device can be selected – date and time can be set and the daylight curve can be configured.

Function

The DALI CDC module sends the configured colour temperature value (Tc-value) to the set effective range once every minute. As effective range a single address, group address or broadcast can be used.

The colour temperature (Tc) characteristics are based on 24 support points (one for each hour). Between these support points the value is interpolated.

Colour Temperature table - Factory Default Settings

Time	Tc[K]	Time	Tc[K]
0h	2700K	12h	5800K
1h	2700K	13h	5685K
2h	2700K	14h	5318K
3h	2700K	15h	4767K
4h	2700K	16h	4101K
5h	2700K	17h	3412K
6h	2700K	18h	2700K
7h	3412K	19h	2700K
8h	4101K	20h	2700K
9h	4767K	21h	2700K
10h	5318K	22h	2700K
11h	5685K	23h	2700K

Configurable Behaviour of the DALI CDC on Scene Commands

Firmware Version 1.5 and later, the reaction of the CDC to a GOTO SCENE X command on the DALI Bus can be configured. The DALI CDC can be activated and deactivated by a scene recall or the command can be ignored. This behaviour can be set up separately for scene commands sent directly to the device address, to the effective range or sent broadcast

Device Info
 Name: DALI CDC, Article Number: 89453853, Firmware Ver: 2.3.1
 Manufacturer: Lunatone, Serial Number: 100759
 DALI Device Type: 0, Short Address: A6

Synchronize Device Clock
 Use computer clock
 18/10/2021 17:01:27 Set
 Time zone settings: UTC+01:00
 Enable Daylight Saving Time Mode

Circadian settings
 Enable
 Color temp: 00:00 - 1900K MASK, 01:00 - 1900K MASK, 02:00 - 1900K MASK, 03:00 - 1900K MASK, 04:00 - 1900K MASK
 Brightness: 1900 K, MASK %
 Destination Address: Group 0 (G0)

	Broadcast	Own address	Destination address	Time (min) 1-240		Broadcast	Own address	Destination address	Time (min) 1-240
0	ignore	enable	ignore	forever	8	ignore	ignore	ignore	forever
1	disable	disable	ignore	forever	9	ignore	ignore	ignore	forever
2	ignore	ignore	ignore	forever	10	ignore	ignore	ignore	forever
3	ignore	ignore	ignore	forever	11	ignore	ignore	ignore	forever
4	ignore	ignore	ignore	forever	12	ignore	ignore	ignore	forever
5	ignore	ignore	ignore	forever	13	ignore	ignore	ignore	forever
6	ignore	ignore	ignore	forever	14	ignore	ignore	ignore	forever
7	ignore	ignore	ignore	forever	15	ignore	ignore	ignore	forever

Number of the Scene command (Scene 0 to 15)

Configurable behaviour of the CDC for scene commands that are sent **Broadcast** on the DALI Bus
 options: ignore (= has no influence on the CDC), enable the CDC, disable the CDC

Configurable behaviour of the CDC for scene commands that are sent to **the address of the CDC**
 options: ignore (= has no influence on the CDC), enable the CDC, disable the CDC

Configurable behaviour of the CDC for scene commands that are sent to **the same destination address as the CDC's**
 options: ignore (= has no influence on the CDC), enable the CDC, disable the CDC

Time settings: how long the change of behaviour is active for: 1-240min or „forever“.
 (“forever” meaning until the next scene command sets the CDC behaviour)

Cockpit Settings, CDC behaviour on Scene Commands

Example 1.: When manually controlling the effective range with a pushbutton, the CDC should be deactivated for 1 hour.

Button settings: sends Scene 0 to the same effective range as CDC before sending other control commands.

CDC settings: for Scene 0

	Broadcast	Own address	Destination address	Time (min) 1-240
0	ignore	ignore	disable	60

Example 2.: When manually controlling the light in general, the CDC should be deactivated until it is restarted manually.

Button settings: Button 1: Scene 0 broadcast to control the light manually and deactivate the CDC - Button 2, scene 1 to the address of the CDC to activate it.

CDC Settings:

	Broadcast	Own address	Destination address	Time (min) 1-240
0	disable	ignore	ignore	forever
1	ignore	enable	ignore	forever

When the CDC is activated with a Scene command, it immediately sends the colour temperature for the current time.

Adjustable Brightness

Firmware Version 2.0 and later: a brightness value of 0% -100% can be defined for each support point.

The brightness value is linearly interpolated between the two brightness values of the support points and sent to the destination address, every minute alongside the colour temperature value.

With the setting “MASK”, sending the brightness value can be deactivated for each support point. With this, no brightness value is sent for that hour, and the brightness value set last (or manually selected) is retained.

If a support point with a brightness value is followed by a support point with brightness set to MASK, the set brightness value is only sent once at the beginning of the hour.

Delivery default: “MASK” for all support points, i.e.: as delivery default the CDC has no influence on the brightness.

Example of different brightness settings per hour:

...	09:00	10:00	11:00	12:00	13:00	...
...	MASK	10%	MASK	20%	100%	...

The above settings will give:

One single brightness command at 10:00: 10% and no following brightness commands until 12:00.

At 12:00: brightness set to 10% and further commands every minute with values linearly interpolated to reach 100% at 13:00.

Date and time

Date and time can be read using QUERY SCENE commands:

QUERY SCENE 0 LEVEL: seconds

QUERY SCENE 1 LEVEL: minutes

QUERY SCENE 2 LEVEL: hours

QUERY SCENE 3 LEVEL: day of month

QUERY SCENE 4 LEVEL: month

QUERY SCENE 5 LEVEL: year-2000

Delivery Default Settings

Time zone: GMT+1

Daylight saving: not activated

Effective range: broadcast

Behaviour on scene commands: all scenes set to „ignore“

Circadian Settings:

Time	Tc[K]	Time	Tc[K]
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2h	2700K	14h	5318K
3h	2700K	15h	4767K
4h	2700K	16h	4101K
5h	2700K	17h	3412K
6h	2700K	18h	2700K
7h	3412K	19h	2700K
8h	4101K	20h	2700K
9h	4767K	21h	2700K
10h	5318K	22h	2700K
11h	5685K	23h	2700K

Brightness: MASK for all time points

Purchase Information

Art.Nr. 89453853: DALI CDC, DALI control device for automatic adjustment of tuneable white luminaires, back box installation and class II device integration

Art.Nr. 89453853-HS: DALI CDC, DALI control device for automatic adjustment of tuneable white luminaires, DIN rail mounting (1DU)

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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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.