DALI LED
Power Supply

Datasheet

Control Gear

LED Power Supply with DALI control input (DT6)

constant voltage:
Art.Nr. 89453849-24V (CV, 24V, 25W)
(replaces: 89453849, 89453849-SD)

constant current:
Art.Nr. 89453849-250 (CC, 250mA)
Art.Nr. 89453849-350 (CC, 350mA)
Art.Nr 89453849-500 (CC, 500mA)
Art.Nr. 89453849-700 (CC, 700mA)
Art.Nr. 89453849-1050 (CC, 1050mA)

DALI LED Power Supply Control Gear

Overview

- 1 channel LED Power Supply
- types for constant voltage (24V) and constant current (250mA, 350mA, 500mA, 700mA, 1050mA) available
- control via DALI-address (DT6)
- SwitchDim2: level control via switching inputs without DALI
- dimming range from 0.1%-100%
- pwm-frequency adjustable (122Hz/244Hz/488Hz/976Hz from FW version 5 on changed PWM frequencies: 122Hz / 250Hz / 500Hz / 1kHz)
- suitable for integration in luminaires and remote ceiling
- supply voltage 230V AC
- CV-type: output 24V PWM, 1A max.
- CC-type: output with 250mA, 350mA, 500mA, 700mA or 1050mA
- low standby power consumption
- high efficiency
- configuration with DALI-Cockpit software tool and DALI USB interface
- overtemperature shutdown, integrated short circuit protection
- user-friendly factory default settings

Specification, Characteristics

Constant Voltage (CV)

type	**DALI 24V LED Power Supply CV DT6**
article number	89453849-24V

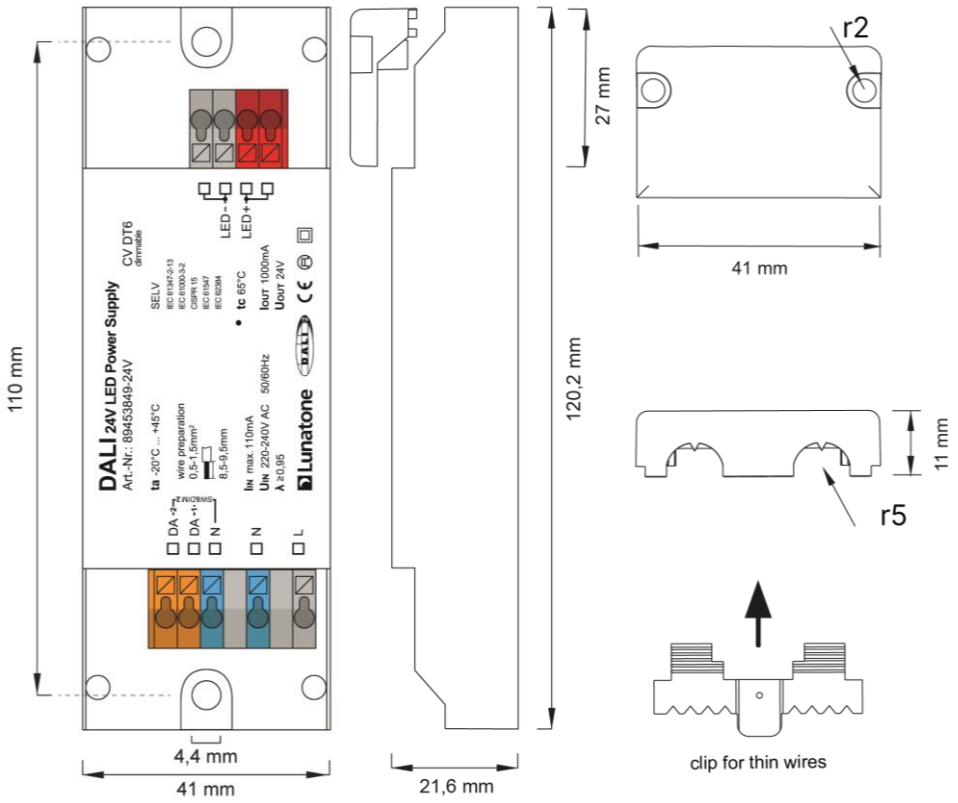
electrical data:	
supply	220-240V AC / 50-60Hz, Iin=0.12A, power factor > 0.95, inrush current < 0.2A
control input	DALI or SwitchDim2
current consumption DALI	2mA
number of DALI addresses	1
output	24V ± 0.5V PWM
galvanic isolation	SELV
max. output current	1A

general data	
dimensions (L x W x H)	120mm x 41mm x 22mm
mounting/housing	remote ceiling / integration in luminaires
expected lifetime (at tc<=65°C)	>50000h
housing material	PC, class V0
protection degree housing	IP40
protection degree terminals	IP20
power on behaviour	configurable via DALI: 0%-100% or last value

environmental conditions	
storing and transportation temperature	-20°C … +75°C
operational ambient temperature Ta	-20°C … +45°C

terminals	
connection type	spring terminal connector (push in cage clamp)
wire size solid core	0,2 … 1,5mm² (AWG 24 … AWG 16)
wire size fine wired	0,2 … 1,5mm² (AWG 24 … AWG 16)
wire size using wire end ferrule	0,25 … 1mm²
stripping length	8,5 … 9,5mm / 0,33 … 0,37 inch
housing material	PA66, class V0
actuation type	push button

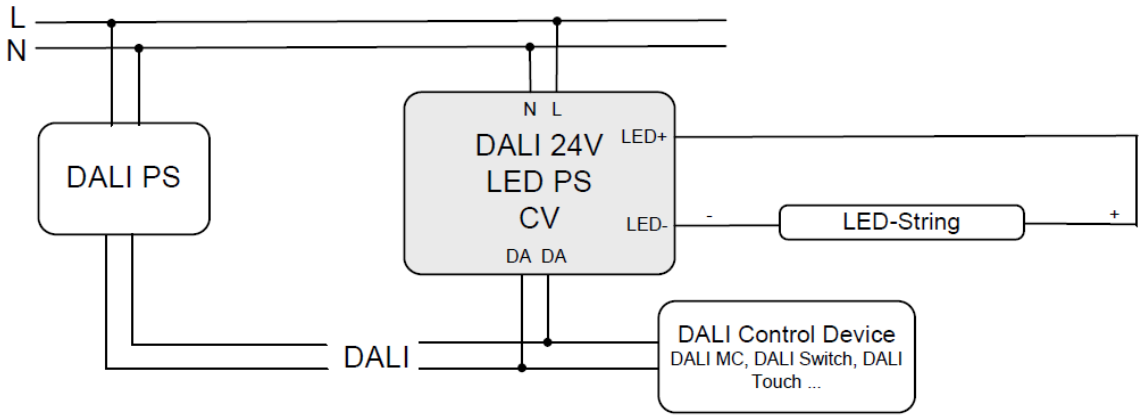
IEC 61347-2-13
IEC 61000-3-2
CISPR 15
IEC 61547
IEC 62384



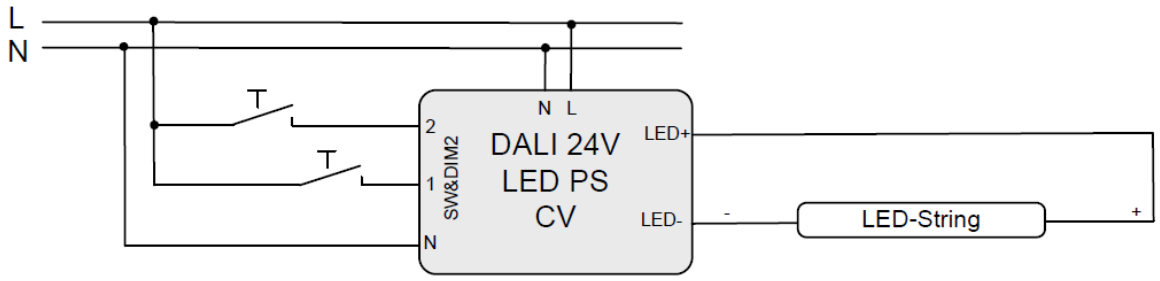
geometry CV *connection plan CV*

Application Example – LED PS Constant Voltage

Recommendation: Care should be taken on keeping cable lengths between dimmer and luminaires (Led-Strings) as short as possible. This kind of installation will minimize the influence of voltage drops.



typical application with DALI control



typical application with SwitchDim

Constant Current (CC)

type	**DALI LED Power Supply CC DT6**				
article number	89453849-250	89453849-350	89453849-500	89453849-700	89453849-1050

electrical data:

supply	220-240V AC / 50-60Hz, Iin=0.12A, power factor > 0.95; inrush current < 0.2A				
control input	DALI or SwitchDim2				
current consumption DALI	2mA				
number of DALI addresses	1				
output current	250mA	350mA	500mA	700mA	1050mA
range of output voltage	12V-44V	12V-44V	12V-36V	12V-26V	12V-17V
galvanic isolation	SELV				

general data

dimensions (L x W x H)	120mm x 41mm x 22mm
mounting/housing	remote ceiling / integration in luminaires
expected lifetime (at tc<=65°C)	>50000h
housing material	PC, class V0
protection degree housing	IP40
protection degree terminals	IP20
power on behaviour	configurable via DALI: 0%-100% or last value

environmental conditions

storing and transportation temperature	-20°C … +75°C
operational ambient temperature Ta	-20°C … +45°C

terminals

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

IEC 61347-2-13
IEC 61000-3-2
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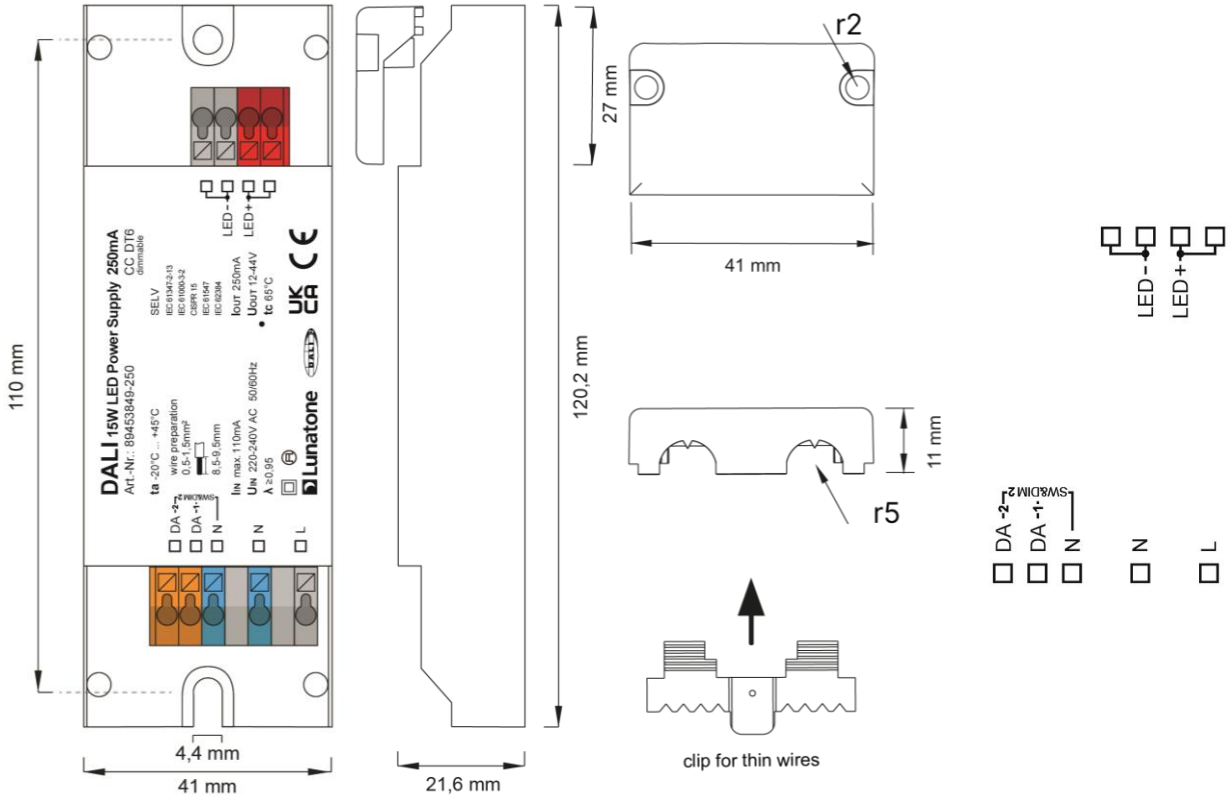
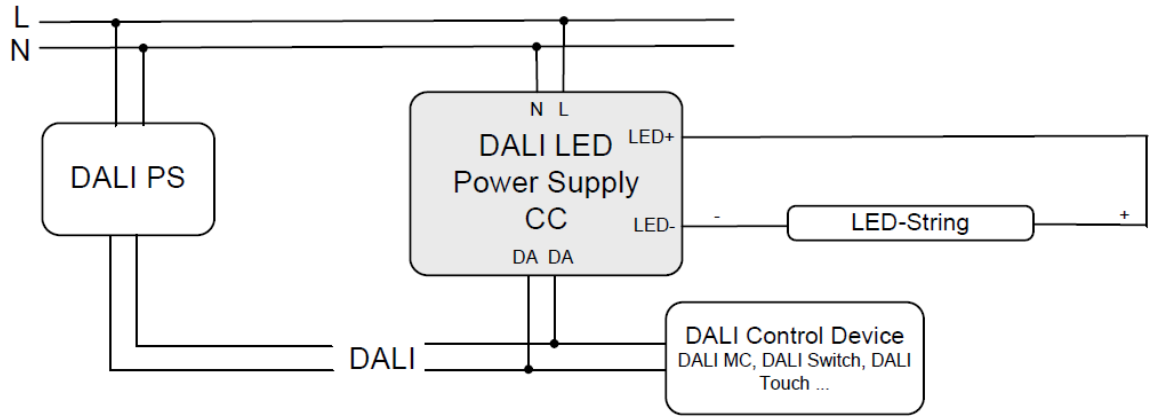
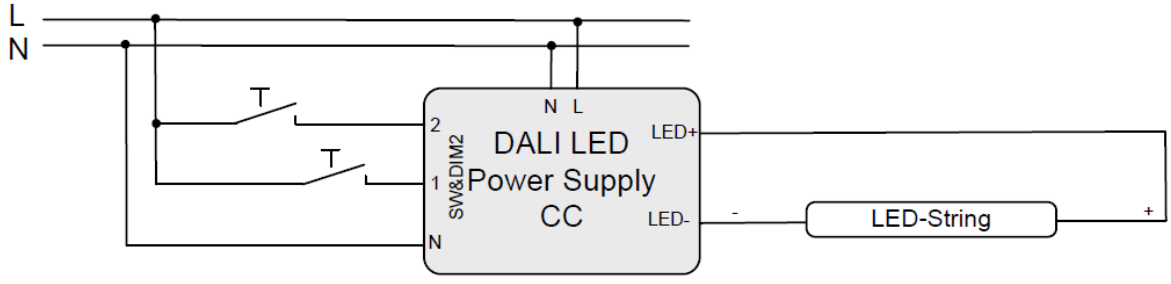


geometry CC *connection plan CC*

Application Example – LED PS Constant Current



DALI application



SwitchDim application

Installation

- The DALI LED PS is an independent control gear, it is suitable for remote ceiling and integration in luminaires
- Ensure proper working cable relief for installation in protection class II equipment
- 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 power supply terminals L and N to mains voltage according to the labelling.
- 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
- Wiring topology of the DALI-line: line, tree, star
- 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)

Attention: Do not connect or disconnect the LED when voltage is applied

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).

Commissioning

- After connection the LED PS is ready to use. Delivery default settings see page 11.
- The device 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 LED PS 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 DALI Cockpit Configuration page 8 and following.

Operating Modes

The device can be controlled by different methods: DALI or SwitchDim2

DALI

In this operating mode the light level of the device is controlled via its DALI address (Device Type 6).

SwitchDim2

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

SW&DIM2-1: light level
short press: On/Off
long press: dimming
SW&DIM2-2: scene selector (short press)

Please note that prior versions provide an additional switch input marked as L‘. This input has to be used in addition to the DALI-input and not instead of it.

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 / 244Hz / 488Hz / 976Hz.
From FW version 5 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 5. 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 5 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 below

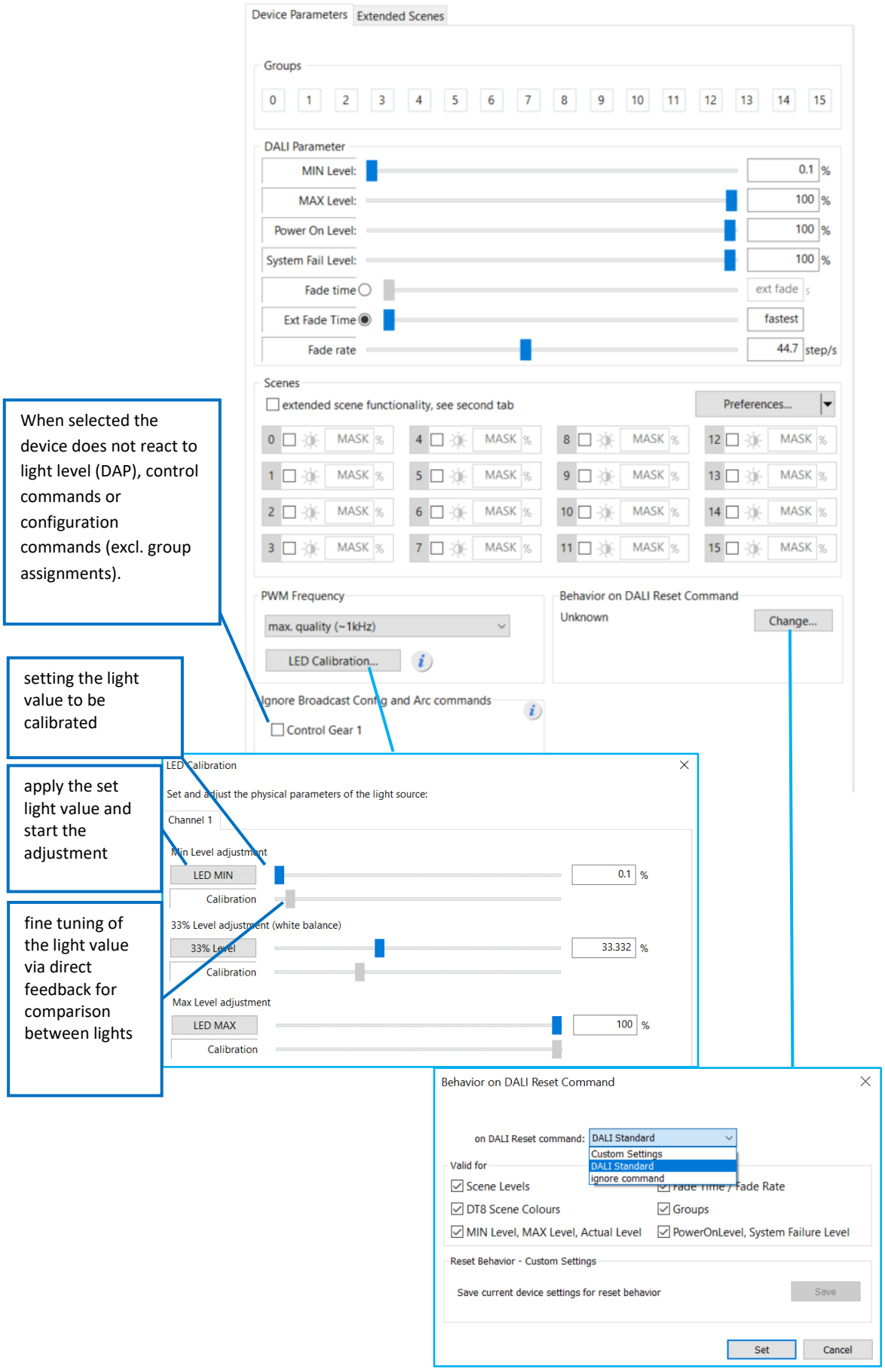
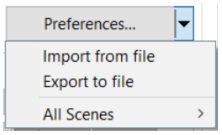


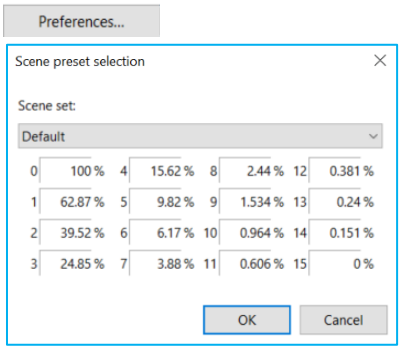
Figure 1 Cockpit overview page – LED calibration and settable RESET behaviour

Scene settings

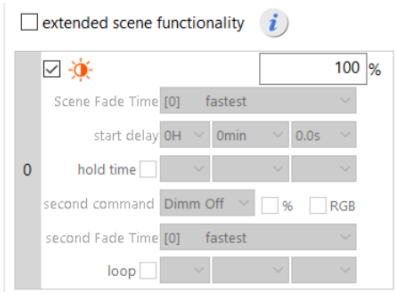
Via the arrow button the scene settings can be imported and exported.

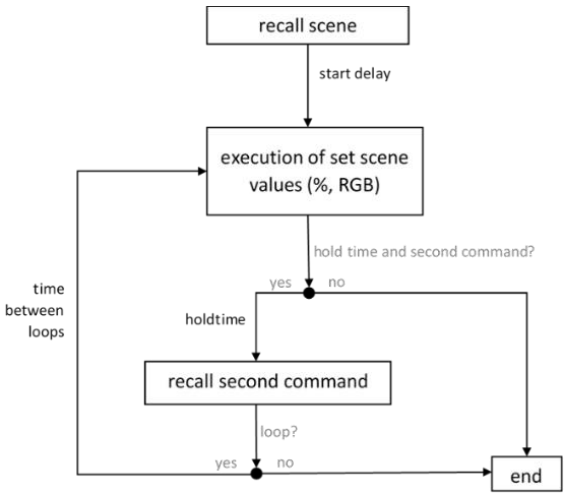


Via the button „Preferences“ the default scene settings can be loaded.

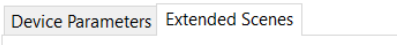


From FW 6.0 on, extended scene settings can be configured. With extended scenes it is possible to automatically change between 2 scene values (once or looped). Thereby enabling configuration of blinking lights, time delayed switch off or light repetitions, as well as traveling lights with multiple dimmers. The extended scene settings can be configured in the second tab:

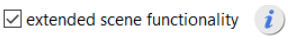




Extended Scenes are available for each of the 16 scenes on the second tab:

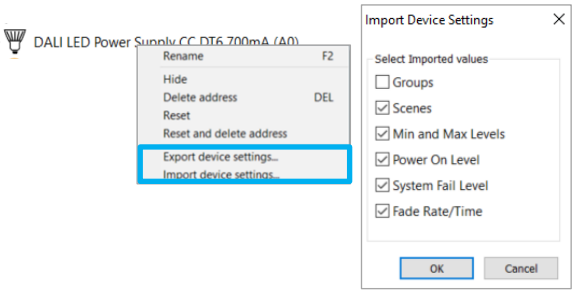


By enabling the extended scenes these are used instead of the standard scenes on the “Device Parameters” tab



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

Before the initial addressing is performed, the device can already be controlled by group address G0. This predefined grouping will be deleted during the first addressing procedure. Afterwards groups can be assigned as usual (e.g. with the help of the DALI Cockpit).

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

The factory default values as well as the DALI-norm 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	DT6	N/A (remains unchanged)
SwitchDim2	SW&DIM2-1: light level SW&DIM2-2: scene selector	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
PWM-Frequency	CC: 250Hz, CV: 1kHz	N/A (remains unchanged)
Control before initial addressing	G0	none
Scene values	**Scene** / **Value** 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%	All scenes MASK
Behaviour on DALI RESET command	set DALI Standard values, see column 2	N/A (remains unchanged)

Purchase Information

Art. Nr. 89453849-24V: DALI 24V LED Power Supply, constant voltage (CV), 24V, 25W, Imax=1A, SwitchDim2, remote ceiling & integration in luminaires

Art. Nr. 89453849-250: DALI 15W LED Power Supply, constant current (CC), 250mA, Uout=12V-44V, SwitchDim2, remote ceiling & integration in luminaires

Art. Nr. 89453849-350: DALI 15W LED Power Supply, constant current (CC), 350mA, Uout=12V-44V, SwitchDim2, remote ceiling & integration in luminaires

Art. Nr. 89453849-500: DALI 20W LED Power Supply, constant current (CC), 500mA, Uout=12V-36V, SwitchDim2, remote ceiling & integration in luminaires

Art. Nr. 89453849-700: DALI 20W LED Power Supply, constant current (CC), 700mA, Uout=12V-26V, SwitchDim2, remote ceiling & integration in luminaires

Art. Nr. 89453849-1050: DALI 20W LED Power Supply, constant current (CC), 1050mA, Uout=12V-17V, SwitchDim2, remote ceiling & integration in luminaires

phase-out type:
Art. Nr. 89453849-SD: DALI 24V LED Power Supply, constant voltage (CV), 24V, 25W, Imax=1A, remote ceiling, extra switch-input

phase-out type:
Art. Nr. 89453849: DALI 24V LED Power Supply, constant voltage (CV), 24V, 25W, Imax=1A, remote ceiling

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 DALI products
http://www.lunatone.at/en/

Lunatone datasheets and manuals
http://lunatone.at/en/downloads/

Contact

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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.

