

IP20    

**TALEXconverter LCAI 2x50 W 0500 K013 one4all**  
ECO series

### Product description

- Dimmable built-in LED control gear for LED
- Constant current LED control gear (with 2 adjustable output channels)
- Designed for outdoor and street luminaire
- Output power 2 x 50 W
- Suitable for mains voltage peaks (burst/surge) up to 4 kV
- Nominal life-time of 50,000 h (at ta 50 °C with a failure rate max.  $\leq 0.2\%$  per 1,000 h)
- 5-year guarantee

### Properties

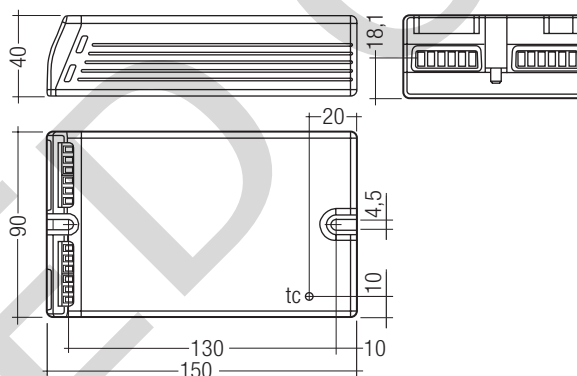
- Casing: polycarbonate, black
- Type of protection IP20
- Dip-coated

### Interfaces

- DALI DEVICE Type 6
- DSI
- switchDIM (with memory function)
- corridorFUNCTION (stepDIM)
- Input for LED temperature monitoring
- chronoSTEP

### Functions

- Overtemperature protection
- Short-circuit proof
- Overload protection
- Optical Balancing (adjustable output current)



### Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LCAI 2x050/0500 K013 one4all	28000799	10 pc(s).	600 pc(s).	0.325 kg



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### Technical data

Rated supply voltage	220 – 240 V
Input voltage, AC	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. current (at 230 V, 50 Hz, full load) <sup>①</sup>	0,5 A
Max. input power	121 W
$\lambda$ (at 230 V, 50 Hz, full load) <sup>①</sup>	0,95
Typ. efficiency (at 230 V, 50 Hz, full load) <sup>①</sup>	92%
Typ. power input on standby	< 0,5 W
Turn on time (at 230 V, 50 Hz, full load, acc. to DALI)	0,6 s
Turn off time (at 230 V, 50 Hz, full load)	0,5 s
Hold on time <sup>②</sup>	4 ms
PWM frequency	330 Hz
Dimming range	5 – 100 %
ta operating	-25 ... +50 °C
Max. casing temperature tc	70 °C
Dimensions L x W x H	150 x 90 x 40 mm
Hole spacing D	130 mm

### Specific technical data

Type	Output current range <sup>③</sup>	Output current tolerance <sup>③</sup>	Output voltage range	Max. output voltage <sup>④</sup>	Typ. output power
LCAI 2x050/0500 K013 one4all	300 – 700 mA (500 mA default)	± 5 %	50 – 105 V	210 V	100 W (2 x 50 W default)

<sup>①</sup> Valid at 100 % dimming level.

<sup>②</sup> At power failure

<sup>③</sup> The sum of the output current has to be max. 1 A (Ch1 + Ch2 ≤ 1 A).

<sup>④</sup> In no-load operation

### Standards

EN 55015  
EN 61000-3-2  
EN 61000-3-3  
EN 61347-1  
EN 61347-2-13  
EN 62384  
EN 61547  
EN 62386-101  
EN 62386-102  
EN 62386-207

### Overload protection

If the output voltage range is exceeded the LED control gear turns off the LED output and tries a restart every 10 seconds.

### Overtemperature protection

The LED control gear is protected against temporary thermal overheating. If the temperature limit is exceeded the output current of the LED is reduced. The temperature protection is activated between +1 °C and +9 °C above  $t_c$  max (see page 1).

### Short-circuit behaviour

In case of a short circuit at the LED output the LED output is switched off. Every 10 seconds the LED control gear tries to restart.

### No-load operation

The LED control gear is not damaged in the no-load operation. Every 10 seconds the LED control gear tries to restart. During no-load operation the max. output voltage (see page 1) can be obtained at the output.

### Expected life-time

Type	$t_c$	$t_a = 40\text{ °C}$	$t_a = 45\text{ °C}$	$t_a = 50\text{ °C}$
LCAI 2x050/0500 K013 one4all	Life-time	60 °C 100,000 h	65 °C 75,000 h	70 °C 50,000 h

### Storage conditions

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range ( $t_a$ ) before they can be operated.

### Glow wire test according to EN 60695-2-11

650 °C, 850 °C and 960 °C passed.

### Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current
Installation $\emptyset$	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	$I_{max}$ time
LCAI 2x050/0500 K013 one4all	14	19	24	28	12	17	22	26	13,2 A 60 $\mu$ s

### Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LCAI 2x050/0500 K013 one4all	<15	13	4	5	3	3

### Control input (DA/D1, DA/D2)

Digital DALI signal or switchDIM can be wired on the same terminals (DA/D1 and DA/D2).

### Digital signal DALI/DSI

The control input is non-polar and protected against accidental connection with a mains voltage up to 264 V. The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.

Different functions depending on each module.

#### Note:

The LED control gear 1 DALI address can be assigned.  
A second address to use isn't possible.

### switchDIM

Integrated switchDIM function allows a direct connection of a push to make switch for dimming and switching.

Brief push (< 0.6 s) switches LED control gear ON and OFF. The LED control gears switch-ON at light level set at switch-OFF.

When the push to make switch is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.

In installations with LED control gears with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED control gears can be synchronized to 50 % dimming level by a 10 s push.

Use of push to make switch with indicator lamp is not permitted.

### corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.

To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.

To activate the corridorFUNCTION without using software a voltage of 230V simply has to be applied for five minutes at the switchDIM connection.

The unit will then switch automatically to the corridorFUNCTION.

### stepDIM

The stepDIM function can be realized by configuration of the corridorFUNCTION. The configuration can be done by means of the masterCONFIGURATOR (pcaCONFIGURATOR).

#### Note:

If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling ballasts with conventional momentary-action switches or motion sensors.

To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.

Special attention must be paid to achieving clear zero crossings. Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

### Dimming

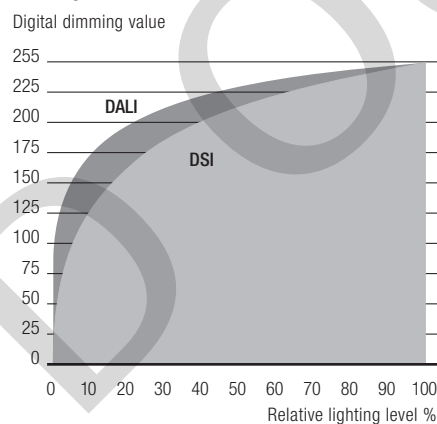
Dimming range 5 % to 100 %

Digital control with:

- DSI signal: 8 bit Manchester Code  
Speed 5 % to 100 % in 1.4 s
  - DALI signal: 16 bit Manchester Code  
Speed 5 % to 100 % in 0.1 s
- Programmable parameter:  
Minimum dimming level  
Maximum dimming level  
Default minimum = 5 %  
Programmable range  $5\% \leq \text{MIN} \leq 100\%$   
Default maximum = 100 %  
Programmable range  $100\% \geq \text{MAX} \geq 5\%$

Dimming curve is adapted to the eye sensitiveness.

### Dimming characteristics



Dimming characteristics as seen by the human eye

### chronoSTEP function

In the outdoor lighting and street lighting sector, it often makes sense to dim the lighting level during night hours in order to save energy. The chronoSTEP function is a tool that makes this easy to do.

The device automatically measures the switch-on and switch-off times of the lighting installation over the past three days.

The switch-on and switch-off times are typically the times at which the sun sets and rises. The midpoint of these two reference points is the time referred to as Virtual Midnight. The overall time interval between switch-on and switch-off points is called On Time.

### Notice

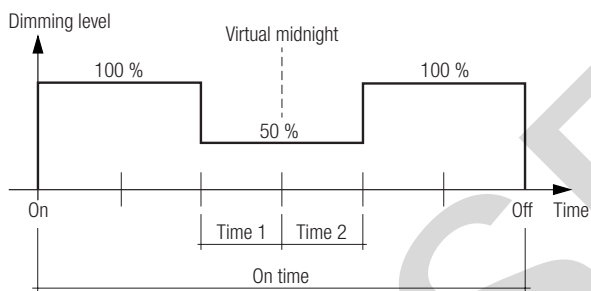
When calculating the On-Time, only values between 2 and 24 hours are counted. Values less than 2 hours could indicate a power failure and are therefore not saved. For settings longer than 24 hours, 24 hours is saved as the maximum possible value.

Two different output profiles are used to adjust the function settings. These profiles define which parameters can be adjusted.

### Profile 1: Setting Time 1 and Time 2

Two time intervals can be defined using Profile 1 (formerly U6M): Time 1 defines how many hours before Virtual Midnight the lighting is dimmed to a lower level; Time 2 defines how many hours after Virtual Midnight the dimming level is raised again.

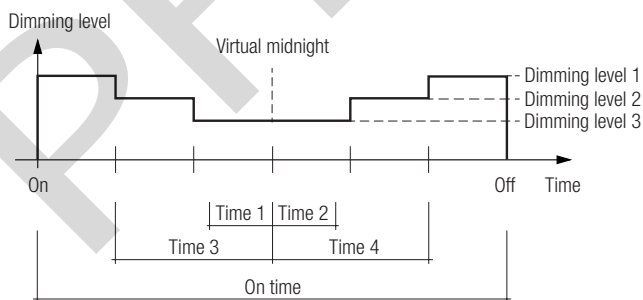
The two dimming levels are preset to fixed percentage values that cannot be modified.



Time 1 and Time 2 can be set via ON/OFF cycles of the mains supply voltage (programming mode 1).

### Profile 2: Setting Time 1, 2, 3, and 4 and Dimming level 1, 2 and 3

Profile 2 can be used to define four time intervals and three dimming levels. The combination of values allows more precise control of the dimming level at different times before and after Virtual Midnight.



The different predefined chronoSTEP scenes can be chosen via ON/OFF cycles of the mains supply voltage (programming mode 2).

### LED temperature control

The device offers the possibility to connect a Silicon based temperature sensor (KTY81-210, KTY82-210) to monitor the LED temperature and protect the module against thermal damages.

If the temperature limit is exceeded the LED output will be dimmed or turned off. If the temperature falls below threshold the device will automatically return to the nominal operation.

The use of a NTC or PTC resistor is not possible.

The device can be operated without a sensor (default setting).

The function can be adjusted via masterCONFIGURATOR

### Optical Balancing (adjustable output current)

The Optical Balancing function lets you split the available current level between two channels. Each channel can be assigned values between 300 and 700 mA or be disabled. The total current for both channels must not exceed 1 Amp maximum. The various combinations of output currents can be used to implement a range of lighting schemes.

The function is configured using a combination of masterCONFIGURATOR and ON/OFF cycles of the supplying (programming mode 2):

- In masterCONFIGURATOR the output current for both channels can be set and assigned to a scene.
- Different predefined output currents can be chosen via the ON/OFF cycles of the supplying (programming mode 2).

### Programming

With appropriate software and a USB interface different functions can be activated and various parameters can be configured in the TALEXconverter LCAI 2x50W K013 one4all. All that is needed is a DALI-USB and the software (masterCONFIGURATOR).

### masterCONFIGURATOR

For programming the corridorFUNCTION, device configuration (fade time, ePowerOnLevel, etc.) DC level, compatibility settings, and startup date and for resetting.

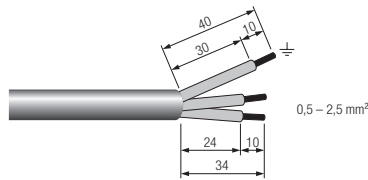
① For further information of the programming use the product manual please visit [www.tridonic.com](http://www.tridonic.com)

## Installation instructions

### Wiring type and cross section (mains supply)

Stranded wires with end ferrule with a cross section from 0.5 up to 1.5 mm<sup>2</sup> or solid wire from 1.5 up to 2.5 mm<sup>2</sup> may be used for wiring.

Please use only one wire per push-in terminal.



### Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The recommended secondary cable length is max. 2 m.
- Depending on the design of the luminaire it may be possible to improve the radio interference properties by earthing the device at the earth connection ⊕.
- Earth only needed for special functional reasons, but if earth will be connected it has to be a protectional earth (PE).
- Secondary switching is not permitted.
- The LED control gear has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.

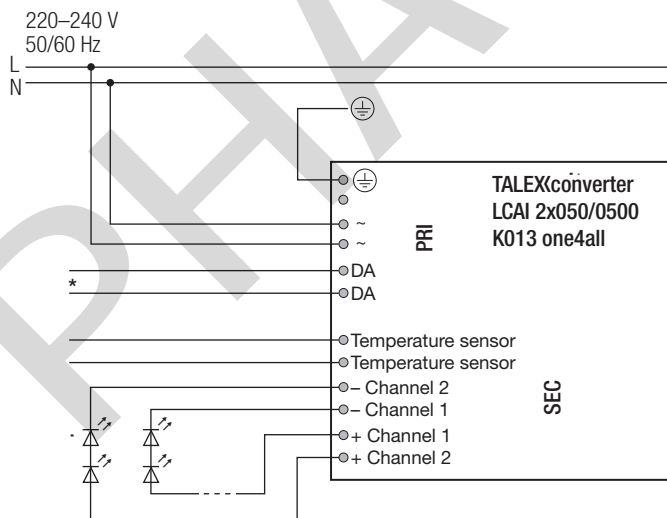


LED control gear is not SELV (output voltage up to 210 V).

### Installation note

Max. torque at the clamping screw: 1.0 Nm / M4

### Circuit diagram



\* digital DSI/DALI signal or switchDIM

### Isolation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V<sub>DC</sub> for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). To avoid damage to the electronic devices this test must not be conducted.

### Additional information

Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

No warranty if device was opened.