# TRIDONIC

TALEXXconverter LCA 75W 900–1800mA one4all lp PRE
PREMIUM series

Product description

- Dimmable built-in constant current LED Driver
- Adjustable output current between 900 and 1,800 mA
  via ready2mains™ Programmer, I-select 2 plugs or DALI
- Max. output power 75 W
- Up to 91 % efficiency
- Power input on stand-by < 0.15 W
- Dimming range 1 – 100 %
- Nominal life-time up to 100,000 h
- 5-year guarantee
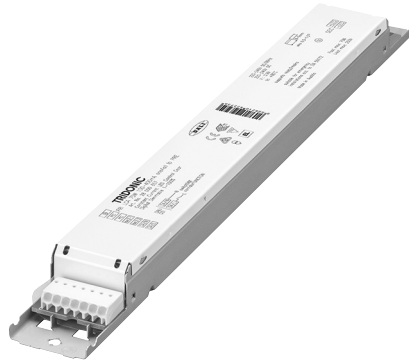
Housing properties

- Low profile metal casing with white cover
- Type of protection IP20

Interfaces

- one4all (DALI DT 6, DSI, switchDIM, corridorFUNCTION)
- ready2mains™ (configuration and dimming via mains)
- Terminal blocks: 0° push terminals

Functions

- Adjustable output current (DALI, ready2mains™, I-select 2)
- Constant light output function (CLO)
- Power-up fading at AC
- Configurable via ready2mains™
- Service monitor to log certain events
- Protective features (overtemperature, short-circuit, overload,
  no-load, input voltage range, reduced surge amplification)
- Suitable for emergency lighting acc. to EN 50172

Benefits

- Application-oriented operating window for maximum compatibility
- Best energy savings due to low stand-by losses and high efficiency
- Flexible configuration via DALI, ready2mains™ and I-select 2
- Reliability proven by life-time up to 100,000 h and 5-year guarantee

Typical applications

- For linear/area lighting in office applications

→

Standards, page 4

IP20 SELV ⬛ ▽¹¹⁰ ⎰²ᵐ⎱ EL EAC ⬨ CE ⬨ RoHS

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. current (at 230 V, 50 Hz, full load)[1] [2]	228 – 363 mA
Typ. current (220 V, 0 Hz, full load, 15 % dimming level)[2]	50 – 71 mA
Leakage current (at 230 V, 50 Hz, full load)[1] [2]	< 550 µA
Max. input power	83 W
Typ. efficiency (at 230 V / 50 Hz / full load)[2]	91 %
λ (at 230 V, 50 Hz, full load)[1]	0.98
Typ. power input on stand-by[3]	< 0.15 W
Typ. input current in no-load operation	33 mA
Typ. input power in no-load operation	0.41 W
In-rush current (peak / duration)	31.9 A / 230 µs
THD (at 230 V, 50 Hz, full load)[1]	< 8.2 %
Time to light (at 230 V, 50 Hz, full load)[1]	< 0.6 s
Time to light (DC mode)	< 0.3 s
Switchover time (AC/DC)	< 0.3 s
Turn off time (at 230 V, 50 Hz, full load)	< 4 ms
Output current tolerance[1]	± 3 %
Max. output current peak (non-repetitive)	≤ output current + 40 %
Output LF current ripple (< 120 Hz)	± 5 %
Max. output voltage (no-load voltage)	60 V
Dimming range	1 – 100 %
Mains surge capability (between L – N)	1 kV
Mains surge capability (between L/N – PE)	2 kV
Surge voltage at output side (against PE)	< 500 V
Dimensions L x W x H	360 x 30 x 21 mm
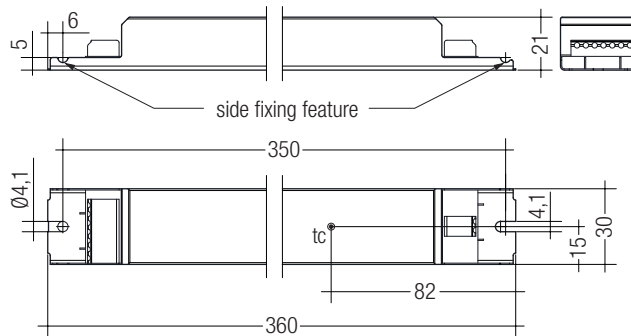
Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LCA 75W 900-1800mA one4all lp PRE	28000660	10 pc(s).	760 pc(s).	0.266 kg

Specific technical data

Type	Output current	Min. forward voltage	Max. forward voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	Max. casing temperature tc	Ambient temperature ta max.	I-select 2 resistor value[4]
	900 mA	20 V	50.0 V	45.0 W	50.9 W	228 mA	85 °C	-25 ... +65 °C	open
	950 mA	20 V	50.0 V	47.5 W	53.5 W	241 mA	85 °C	-25 ... +65 °C	5.26 kΩ
	1,000 mA	20 V	50.0 V	50.0 W	56.2 W	253 mA	85 °C	-25 ... +65 °C	5.00 kΩ
	1,050 mA	20 V	50.0 V	52.5 W	58.6 W	263 mA	85 °C	-25 ... +65 °C	4.76 kΩ
	1,100 mA	20 V	50.0 V	55.0 W	61.2 W	274 mA	85 °C	-25 ... +65 °C	4.55 kΩ
	1,150 mA	20 V	50.0 V	57.5 W	63.9 W	286 mA	80 °C	-25 ... +60 °C	4.35 kΩ
	1,200 mA	20 V	50.0 V	60.0 W	65.4 W	296 mA	80 °C	-25 ... +60 °C	4.17 kΩ
LCA 75W 900-1800mA one4all lp PRE	1,250 mA	20 V	50.0 V	62.5 W	69.1 W	308 mA	80 °C	-25 ... +60 °C	4.00 kΩ
	1,300 mA	20 V	50.0 V	65.0 W	71.5 W	318 mA	80 °C	-25 ... +60 °C	3.85 kΩ
	1,350 mA	20 V	50.0 V	67.5 W	74.1 W	329 mA	80 °C	-25 ... +60 °C	3.70 kΩ
	1,400 mA	20 V	50.0 V	70.0 W	76.9 W	341 mA	80 °C	-25 ... +60 °C	3.57 kΩ
	1,500 mA	20 V	50.0 V	75.0 W	82.1 W	363 mA	75 °C	-25 ... +55 °C	3.33 kΩ
	1,600 mA	20 V	46.9 V	75.0 W	81.6 W	361 mA	75 °C	-25 ... +55 °C	3.13 kΩ
	1,700 mA	20 V	44.1 V	75.0 W	81.6 W	361 mA	75 °C	-25 ... +55 °C	2.94 kΩ
	1,800 mA	20 V	41.7 V	75.0 W	81.8 W	362 mA	75 °C	-25 ... +55 °C	short circuit (0 Ω)

[1] Valid at 100 % dimming level.

[2] Depending on the selected output current.

[3] Depending on the DALI traffic at the interface.

[4] Not compatible with I-select (generation 1).

I-SELECT 2 PLUG PRE / EXC

Product description

- Ready-for-use resistor to set output current value
- Compatible with LED Driver featuring I-select 2 interface;
  not compatible with I-select (generation 1)
- Resistor is base isolated
- Resistor power 0.25 W
- Current tolerance ± 2 % additional to output current tolerance
- Compatible with LED Driver series PRE and EXC

Example of calculation for third party resistors

- R [kΩ] = 5 V / I_out [mA] x 1000
- Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W;
  base isolation necessary
- When using a resistor value beyond the specified range, the output
  current will automatically be set to the minimum value (resistor
  value too big), respectively to the maximum value (resistor value too
  small)
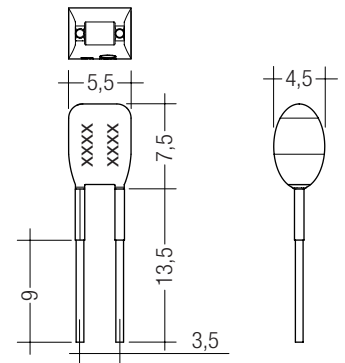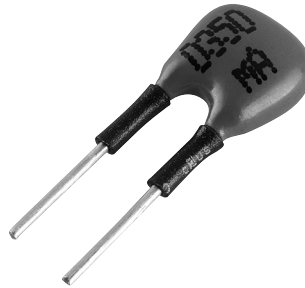
Ordering data

Type	Article number	Colour	Marking	Current	Packaging bag	Weight per pc.
I-SELECT 2 PLUG 900MA BL	28001122	Blue	0900 mA	900 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	28001123	Blue	0950 mA	950 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	28001124	Blue	1000 mA	1,000 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	28001225	Blue	1050 mA	1,050 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1100MA BL	28001126	Blue	1100 mA	1,150 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1150MA BL	28001127	Blue	1150 mA	1,150 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1200MA BL	28001128	Blue	1200 mA	1,200 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1250MA BL	28001129	Blue	1250 mA	1,250 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1300MA BL	28001130	Blue	1300 mA	1,300 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1350MA BL	28001131	Blue	1350 mA	1,350 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1400MA BL	28001132	Blue	1400 mA	1,400 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1500MA BL	28001133	Blue	1500 mA	1,500 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1600MA BL	28001134	Blue	1600 mA	1,600 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1700MA BL	28001135	Blue	1700 mA	1,700 mA	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	28001099	Blue	MAX	MAX	10 pc(s).	0.001 kg

1. 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 (according to DALI standard V2)
EN 62386-102
EN 62386-207
According to EN 50172 for use in central battery systems
According to EN 60598-2-22 suitable for emergency lighting installations

2. Thermal details and life-time

4.1 Expected life-time

Expected life-time

| Type	Output current	ta	40 °C	45 °C	50 °C	55 °C	60 °C	65 °C
LCA 75W 900-1800mA one4all lp PRE	900 – 1,100 mA	tc	60 °C	65 °C	70 °C	70 °C	75 °C	85 °C
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	90,000 h	75,000 h	50,000 h
	>1,100 – 1,400 mA	tc	60 °C	65 °C	70 °C	75 °C	80 °C	–
		Life-time	> 100,000 h	> 100,000 h	> 100,000 h	80,000 h	50,000 h	–
	>1,400 – 1,800 mA	tc	65 °C	65 °C	70 °C	75 °C	–	–
		Life-time	> 100,000 h	> 100,000 h	90,000 h	70,000 h	–	–

The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components
(e.g. ELCAP) measured. Detailed information on request.
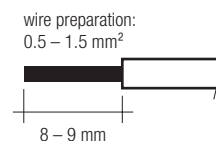
3. Installation / wiring
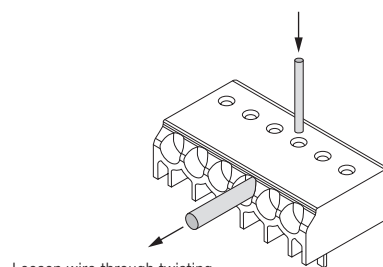
3.1 Circuit diagram
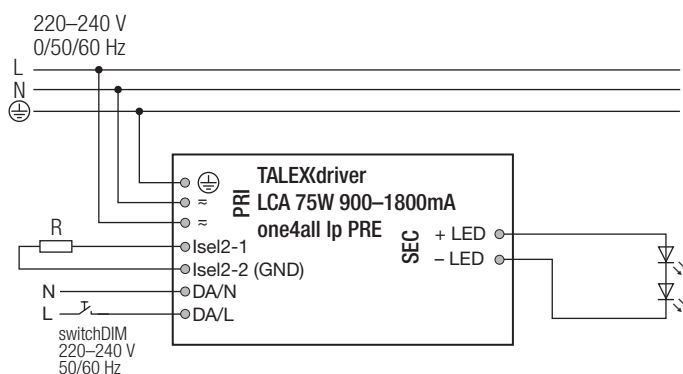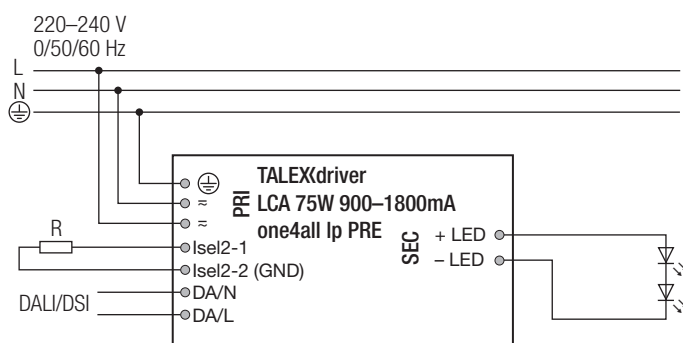
3.2 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED Driver/supply

wire preparation:
0.5 – 1.5 mm²

8 – 9 mm

3.3 Loose wiring

Loosen wire through twisting and pulling or using a Ø 1 mm release tool

For wiring in dimming operation with ready2mains refer to the ready2mains Gateway datasheet.

3.4 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 max. secondary cable length is 2 m (4 m circuit), this applies for LED output as well as for I-select 2.
- Secondary switching is not permitted.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.

3.5 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset or via interface (DALI, DSI, switchDIM, ready2mains).

3.6 Earth connection

The earth connection is conducted as protection earth (PE). The LED Driver can be earthed via earth terminal or metal housing. If the LED Driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following behaviour:
- Electromagnetic interferences (EMI)
- LED glowing at stand-by
- Transmission of mains transients to the LED output

In general it is recommended to earth the LED Driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and thereby representing a high capacity against earth.

3.7 I-select 2 resistors connected via cable

For details see:
http://www.tridonic.com/com/en/download/technical/LCA_PRE_LC_EXC_ProductManual_en.pdf.

4. Electrical values

4.1 Operating window

—————— Operating window 100 %
············· Operating window dimmed
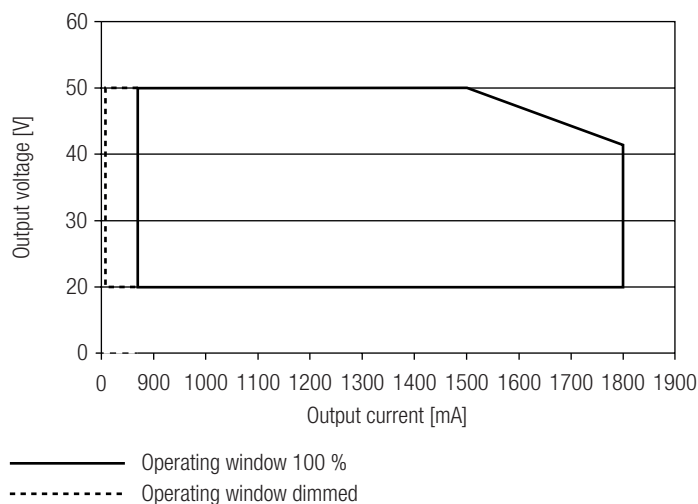
Make sure that the LED Driver is operated within the given window under all operating conditions, also in dimming operation. Otherwise certain limitations may occur. This is due to the nature of amplitude modulation dimming. The stated minimum output voltage shall not be undercut as this may cause the device to shut-down. In this respect, special attention needs to be paid to DC operation.
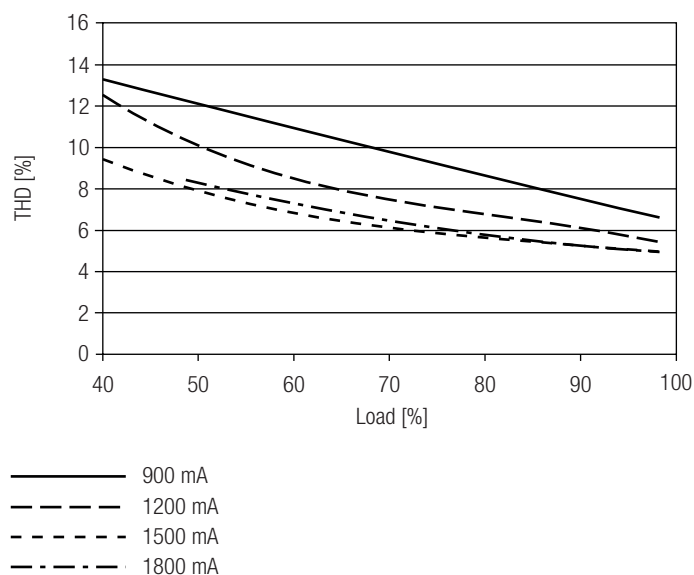
4.2 Efficiency vs load
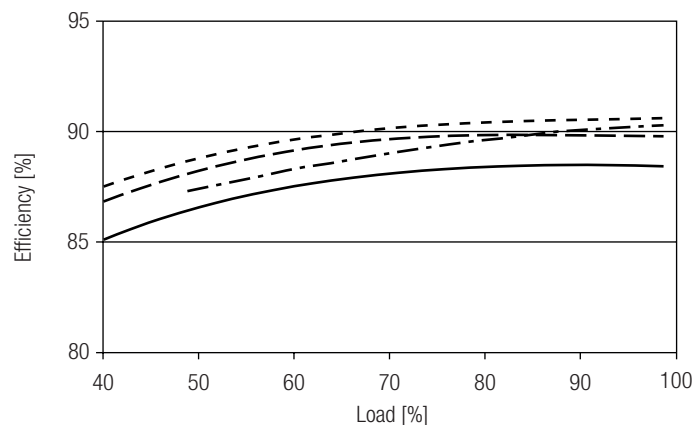
4.3 Power factor vs load

4.4 THD vs load

—————— 900 mA
— — — 1200 mA
- - - - 1500 mA
—·—·— 1800 mA
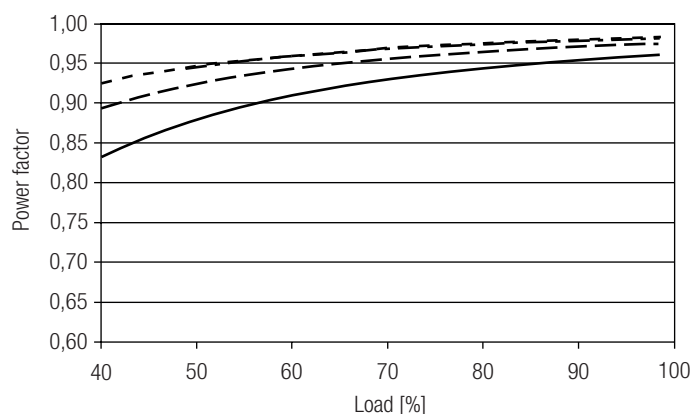
100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
LCA 75W 900-1800mA one4all lp PRE	12	16	20	24	6	8	10	12	31,9 A	230 µs

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

	THD	3.	5.	7.	9.	11.
LCA 75W 900-1800mA one4all lp PRE	< 8	< 7	< 3	< 3	< 2	< 2

4.7 Dimming

Dimming range 1 % to 100 %
Digital control with:
- DSI signal: 8 bit Manchester Code
  Speed 1 % to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code
  Speed 1 % to 100 % in 0.2 s
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 1 %
  Programmable range 1 % ≤ MIN ≤ 100 %
  Default maximum = 100 %
  Programmable range 100 % ≥ MAX ≥ 1 %

Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

4.8 Dimming characteristics
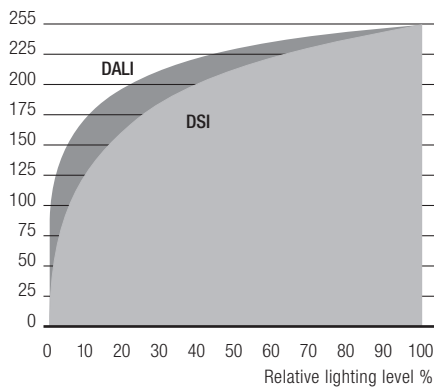
Dimming characteristics as seen by the human eye

5. Interfaces / communication

5.1 Control input (DA/N, DA/L)

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

The control input is non-polar for digital control signals (DALI, DSI). 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.

5.2 Control input ready2mains (L, N)

The digital ready2mains protocol is modulated onto the mains signal which is wired to the mains terminal (L and N).

5.3 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimm level is saved at power-down and restored at power-up.
When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

6. Functions

6.1 Function: adjustable current

The output current of the LED Driver can be adjusted in a certain range. For adjustment there are three options available.

Option 1: DALI
Adjustment is done by masterCONFIGURATOR (see masterCONFIGURATOR documentation).

Option 2: I-select 2
By inserting a suitable resistor into the I-select 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

⚠ Please note that the resistor values for I-select 2 are not compatible with I-select (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

Option 3: ready2mains
Adjustment is done by the ready2mains programmer and the corresponding configuration software (see ready2mains documentation).

The priority for current adjustment methods is DALI (highest priority), I-select 2, ready2mains (lowest priority).

6.2 ready2mains – configuration

The ready2mains interface can be used to configure the main parameters of LED Drivers via the mains wiring, such as LED output current, CLO and DC level. These parameters can be adjusted either via ready2mains-capable configuration software or directly via the ready2mains programmer (output current only).

6.3 ready2mains – dimming

ready2mains allows for mains-based group dimming, controlled via the ready2mains protocol and appropriate dimming interfaces.

For details on the operation of ready2mains and its components see the relevant technical information.

6.4 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI, DSI, switchDIM, ready2mains).

6.5 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

6.6 Overload protection

If the output voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.
The restart can either be done via mains reset or via interface (DALI, DSI, switchDIM, ready2mains).

6.7 Overtemperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded the output current of the LED module(s) is reduced. The temperature protection is activated approx. +5 °C above tc max (see page 2). On DC operation this function is deactivated to fulfill emergency requirements.

6.8 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 230 V has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

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 gears with conventional pushbuttons 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.

6.9 Constant light output (CLO)

The luminous flux of an LED decreases constantly over the life-time. The CLO function ensures that the emitted luminous flux remains stable. For that purpose the LED current will increase continuously over the LED life-time.
In masterCONFIGURATOR it is possible to select a start value (in percent) and an expected life-time. The LED Driver adjusts the current afterwards automatically.

6.10 Power-up/-down fading

The power-up/-down function offers the opportunity to modify the on-/off behavior. The time for fading on or off can be adjusted in a range of 0.2 to 16 seconds. According to this value, the device dims either from 0 % up to the power-on level or from the current set dim level down to 0 %. This feature applies while operating via switchDIM, ready2mains and when switching the mains voltage on or off. By factory default no fading time is set (= 0 seconds).

6.11 Light level in DC operation

The LED Driver is designed for operation on DC voltage and pulsed DC voltage.

Light output level in DC operation: programmable 1 – 100 % (EOFx = 0.13).
Programming by DALI or ready2mains.
In DC operation dimming mode can be activated.

The voltage-dependent input current of Driver incl. LED module is depending on the used load.

The voltage-dependent no-load current of Driver (without or defect LED module) is for:
AC: < 32.7 mA
DC: < 2.8 mA

6.12 Software / programming

With appropriate software and a interface different functions can be activated and various parameters can be configured in the LED Driver.
To do so, a DALI-USB or ready2mains programmer and the software (masterCONFIGURATOR) are required.

6.13 masterCONFIGURATOR

From version 2.8:
For programming functions (CLO, I-select 2, power-up fading, corridorFUNCTION) and device settings (fade time, ePowerOnLevel, DC level, etc.). For further information see masterCONFIGURATOR manual.

7. Miscellaneous

7.1 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$_{DC}$ 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$_{AC}$ (or 1.414 x 1500 V$_{DC}$). To avoid damage to the electronic devices this
test must not be conducted.

7.2 Conditions of use and storage

Enviromental conditions: 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 acclimatised to the specified temperature range (ta)
before they can be operated.

7.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.