Driver LC 40W 500-1050mA o4a NFC T EXC3

excite NFC in-track series

Product description

- Dimmable constant current / in-track LED driver
- Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
- Compatible with Global Trac PULSE from Nordic Aluminum and OneTrack from Stucchi, see data sheet chapter 3.8
- Dimming range 1 to 100 % (min. 5 mA)
- For luminaires of protection class II
- Temperature protection as per EN 61347-2-13 C5e
- Adjustable output current between 500 and 1,050 mA via near field communication (NFC) or DALI
- Max. output power 40 W
- Up to 85 % efficiency
- Power input on stand-by < 0.5 W
- Nominal lifetime up to 100,000 h
- 5 years guarantee (conditions at www.tridonic.com)

Housing properties

- Casing: polycarbonat, black, white or grey
- Type of protection IP20

Interfaces

- Near field communication (NFC)
- one4all (DALI-2, switchDIM, corridorFUNCTION)

Functions

- Adjustable output current in 1-mA-steps (NFC, DALI-2)
- Overtemperature protection
- Overload protection
- Short-circuit protection
- No-load protection
- Burst protection voltage 2 kV
- Surge protection voltage 1 kV (L to N)

Benefits

- Flexible configuration via companionSUITE (NFC, DALI-2)
- Support NFC multiple programming (full carton box)

Typical applications

- For spot light in retail and hospitality application

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Standards, page 4

Wiring diagrams and installation examples, page 4

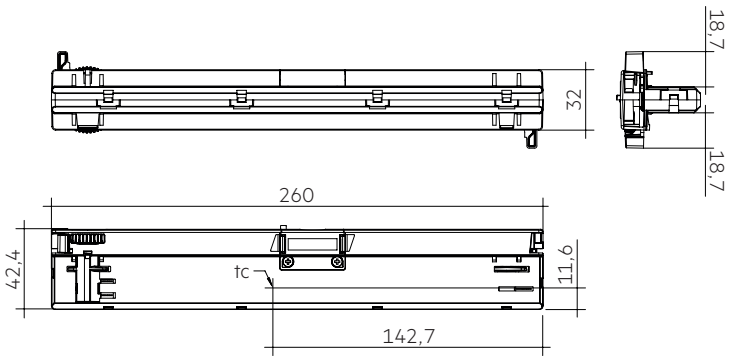
NFC DALI IP20 SELV RoHS

Driver LC 40W 500-1050mA o4a NFC T EXC3

excite NFC in-track series

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.23 A
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Max. input power	49 W
Typ. efficiency (at 230 V / 50 Hz / full load)[1]	85 %
λ (at 230 V, 50 Hz, full load)[1]	0.95
Typ. power consumption (at 230 V, 50 Hz, full load)[1]	46.6 W
Min. output power	0.07 W
Max. output power	40 W
Typ. power consumption on stand-by[5]	< 0.5 W
THD (at 230 V, 50 Hz, full load)[1]	< 10 %
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Output current tolerance[2]	± 5 %
Max. output current peak[3]	≤ output current + 20 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_{st}^{LM} (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Max. output voltage (U-OUT)	60 V
Dimming range	1 – 100 % (min. 5 mA)
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 years
Dimensions L x W x H	260 x 32 x 42.4 mm



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 40/500-1050/42 o4a NF T-B EXC3	**87500899**	Black	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg
LC 40/500-1050/42 o4a NF T-W EXC3	**87500900**	White	10 pc(s).	130 pc(s).	1,170 pc(s).	0.167 kg
LC 40/500-1050/42 o4a NF T-G EXC3	**87500901**	Grey	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg

Specific technical data

Type	Output current[2]	Min. forward voltage[4]	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.
LC 40/500-1050/42 o4a NF T EXC3	500 mA	14,0 V	42.0 V	21.0 W	25.0 W	99 mA	90 °C	-20 … +35 °C
	600 mA	14,0 V	42.0 V	25.2 W	30.0 W	117 mA	90 °C	-20 … +35 °C
	700 mA	14,0 V	42.0 V	29.4 W	34.6 W	134 mA	90 °C	-20 … +35 °C
	800 mA	14,0 V	42.0 V	33.6 W	38.9 W	150 mA	90 °C	-20 … +35 °C
	900 mA	14,0 V	42.0 V	37.8 W	43.5 W	167 mA	90 °C	-20 … +35 °C
	1,050 mA	14,0 V	38.1 V	40.0 W	46.6 W	179 mA	90 °C	-20 … +35 °C

[1] Test result at 1,050 mA.

[2] Output current is mean value.

[3] Test result at 25 °C.

[4] Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

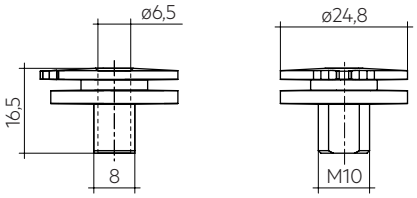
[5] Depending on the DALI traffic at the interface.

ACCES-SORIES

ACU ALU NIPPLE M10x1

Product description

- Optional threaded sleeve for luminaire mounting
- Suitable for S-9009/D-M10 threaded nut
- Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

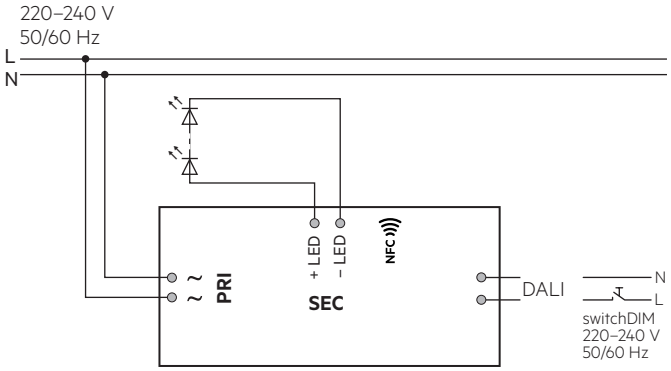
Type	ta	25 °C	35 °C
LC 40/500-1050/42 o4a NF T EXC3	Lifetime	100,000 h	50,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

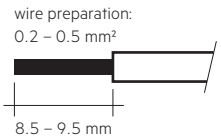
3. Installation / wiring

3.1 Circuit diagram



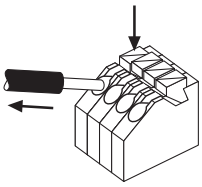
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2–0.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSC 6xxx	3P + DALI	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSCF 6xxx	3P + DALI	Black, white, grey
Stucchi	One track	3P + DALI	Black, white, grey
Powergear	PRO-0610	3P + DALI	Black, white, grey
Unipro	TC32W	3P + DALI	Black, white, grey
Unipro	TC32FW	3P + DALI	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.
Please check compatibility of track system with switchDIM or corridorFUNCTION in advance.

3.9 Insulation between terminals

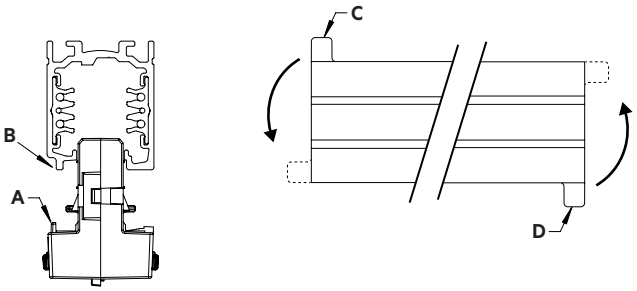
Insulation	Mains	–LED / +LED	one4all
Mains	–	double	basic
–LED / +LED	double	–	double
one4all	basic	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

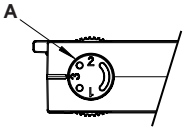
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C = mains and D = DALI-2) until it reachs the locking position.
To open rotate the lever the opposite direction.



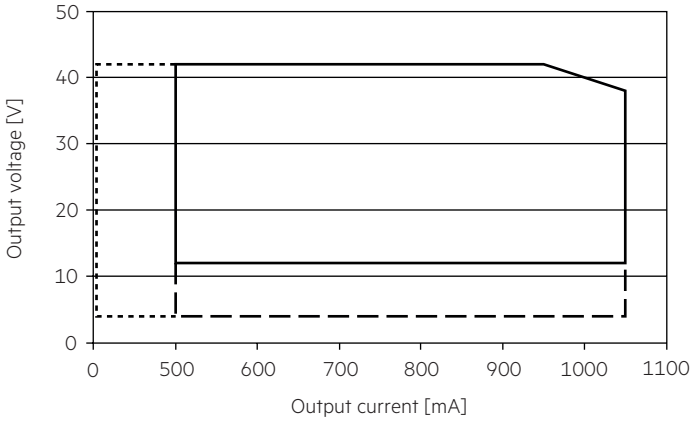
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

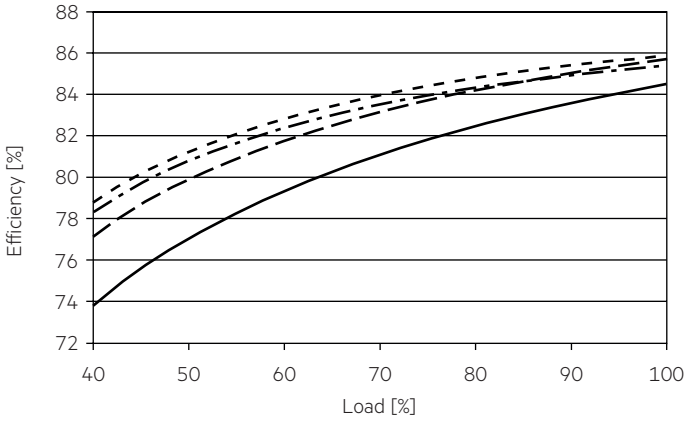
4.1 Operating window



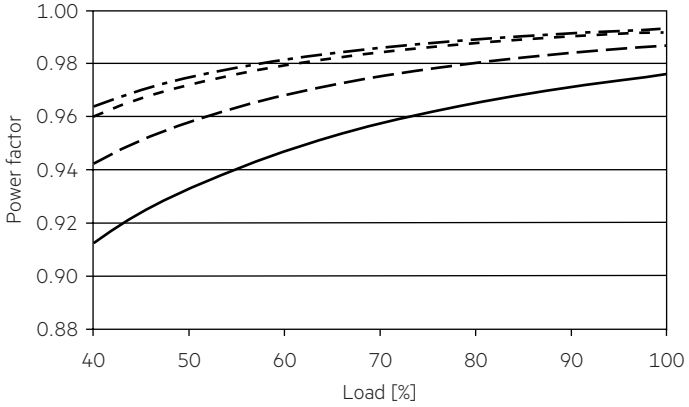
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

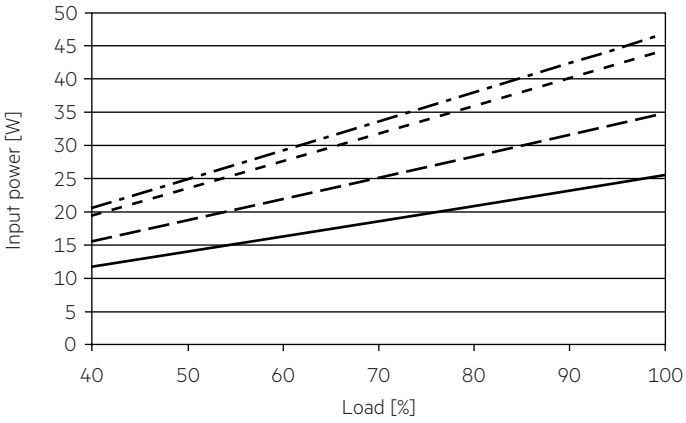
4.2 Efficiency vs load



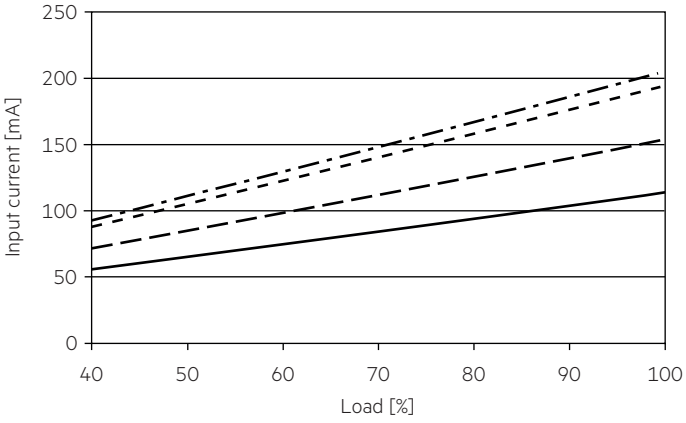
4.3 Power factor vs load



4.4 Input power vs load

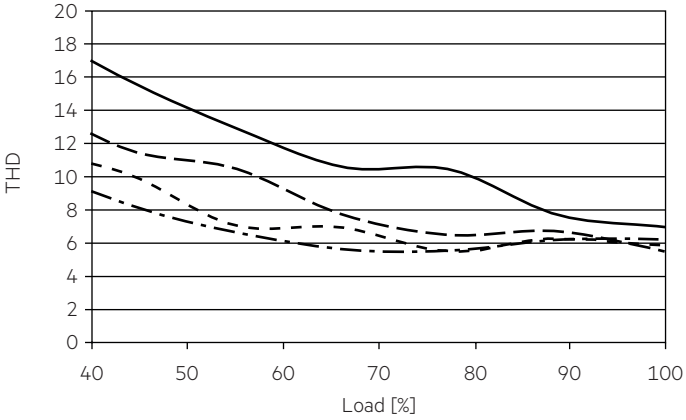


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



500 mA
700 mA
900 mA
1050 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 40/500-1050/42 o4a NF T EXC3	40	52	64	80	40	52	64	80	9.6 A	32 µs

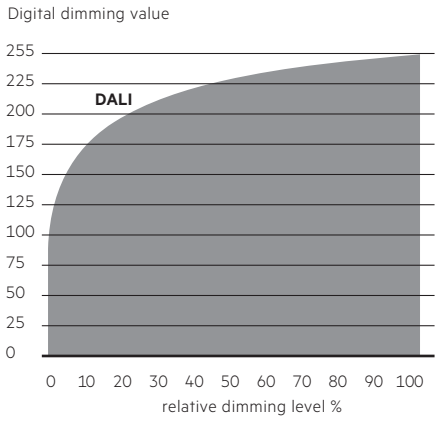
These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

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

	THD	3.	5.	7.	9.	11.
LC 40/500-1050/42 o4a NF T EXC3	< 11	< 9	< 3	< 3	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



Dimming characteristics as seen by the human eye.

Dimming is realized by amplitude dimming.

5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

Interfaces for data transfer:
- NFC

5.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.
A correct communication between the LED driver and the NFC antenna can only be guaranteed if the antenna is placed directly on the Driver.
Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality.
After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.
We recommend the use of following NFC antenna:
www.tridonic.com/nfc-readers

NFC is complied with ISO/IEC 15963 standard.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC	DALI-2
	OEM Identification	⊙	⊙
	OEM GTIN	⊙	⊙
	LED current	⊙	⊙
	Device operating mode	⊙	⊙
	corridorFUNCTION	⊙	⊙
	Constant light output (CLO)	⊙	⊙
	Enhanced power on level (ePOL)	⊙	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 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.

6.3 corridorFUNCTION

A motion detector (corridorFUNCTION) can be wired on the DALI track.
With the corridorFUNCTION and a commercially available motion detector, it is easy to adapt the lighting in one area to its use.
That is, when the area is entered by a person, the lighting dims instantly to a certain brightness and is available in desired strength.
After the area is left by the person, the brightness dims slowly to a smaller value or switches off completely.
The individual parameters of the desired profile, such as brightness values or delay times, can be adjusted flexibly and individually.

To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DALI track.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool 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 corridorFUNCTION.

Note:
By using corridorFUNCTION programming and monitoring via DALI is always possible.

6.4 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

6.5 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
Detailed description for ePOL see product manual.

7. Protective features

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

8. Miscellaneous

8.1 Insulation 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 insulation 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 insulation 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.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

8.2 Conditions of use and storage

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

8.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.4 Additional information

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

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.