LED driver, modules, controls, overvoltage protection

# Outdoor lighting Solutions

## Innovation, Safety, Efficiency

TRIDONIC

Outdoor

# Outdoor lighting Solutions

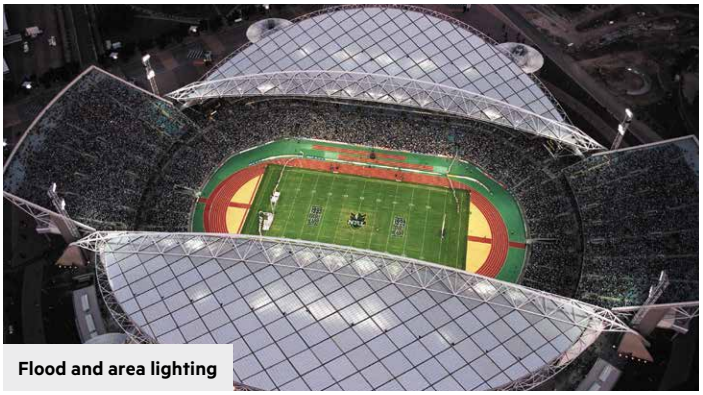
Squares and parks

Street & Road lighting

Public spaces

Building facades

Tunnel lighting



Flood and area lighting

**Tridonic knows the requirements**

**In towns, cities and in the country the lighting for roads, bridges and public spaces makes an important contribution to safety and quality of life. Lighting solutions from Tridonic offer highest quality components meeting the tough requirements of outdoor applications.**

From users perspective, the function of light is to provide optimum illumination of pavements, paths and pedestrian areas therefore offering safety and security. Appriopriate lighting levels encourage people to spend time outdoors. For the operator, however, the main focus is on energy efficiency and ease of maintenance, followed by maximum flexibility in configuring the street lighting. LED drivers from Tridonic provide the perfect basis for all these requirements.

Outdoor

# Outdoor lighting Solutions

## Tridonic offers the solution

**Product Portfolio – Overview**

| ESSENCE | ADVANCED | EXCITE | PREMIUM |
|---|---|---|---|
| **Cost-effective**<br>Fixed Output, IP67 | **Simplicity itself**<br>NFC** programming | **Flexible**<br>DALI connectivity, NFC** programming | **Convenient**<br>powered DALI, Sensor-ready, Data-logging, aux |

**Product Portfolio – Overview**

**Programmer ready-2mains & U6Me2**

on page 4

**Surge protection device (SPD)**

on page 8

**Driver Outdoor**

on page 9

**Driver Outdoor UNV**

on page 13

**Module Outdoor**

on page 15

**With Tridonic's smart and efficient LED lighting solutions for outdoor applications, local authorities receive highest quality, supreme reliability, efficiency and low maintenance – thus ensuring highest levels of safety and efficiency on motorways, streets and public places.**

Tridonic's smart lighting solutions for outdoor applications are robust, reliable and unaffected by environmental influences, such as weather, extreme temperatures, humidity and moisture. With innovative electronic and LED solutions, Tridonic offers today a comprehensive functionality required to meet the needs of even the most harsh environments.

**At a glance: Benefits from Tridonic products**

- Protection level thanks to increased dielectric strength (surge/burst) of 10 kV; conform with IEC 61000-4-5 and extended temperature range from –40 to +70°C
- Low operating costs thanks to high energy efficiency and long lifetime
- Simple configuration with the ready2mains & U6Me2 programmer or Tridonic companionSUITE
- Eco-friendly thanks to reduced $CO_2$ emissions and minimized light pollution (upward light output ration ULOR < 0.1 %)

**Verfügbar in Q4/2018

Outdoor

# Configuration via the mains

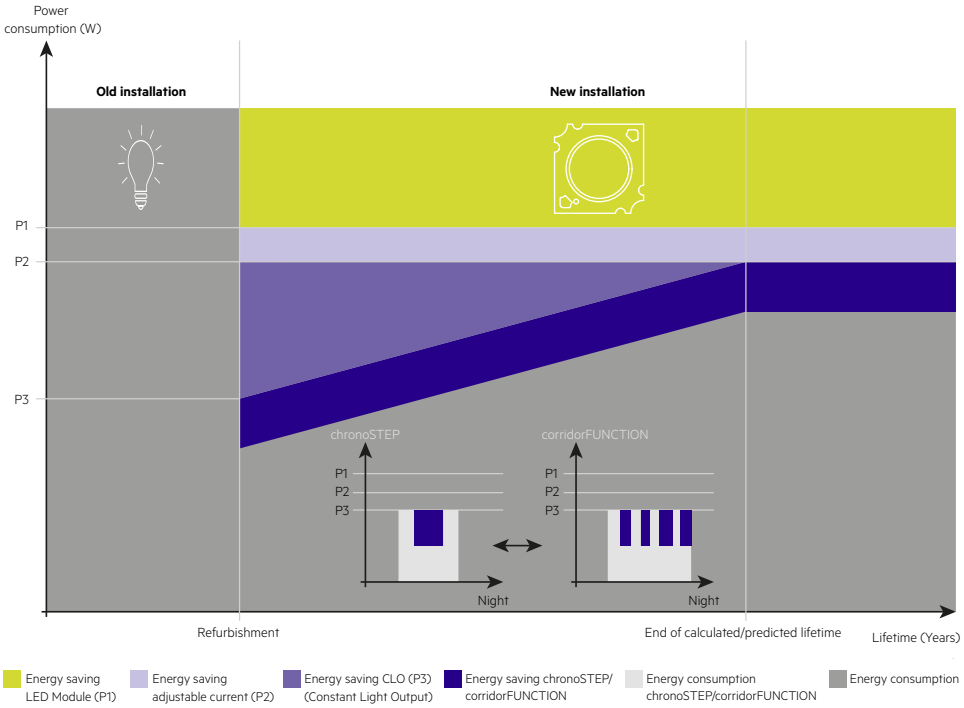
## The smart way to configure your luminaires

**You can easily configure your LED luminaires with the programmer ready2mains & U6Me2. There is no need for an additional interface as the existing mains interface is used.**

Thanks to ready2mains and the use of user-defined configuration scripts, the risk of configuration errors has been significantly reduced. Simple and flexible integration in the municipal infrastructure is also possible.

U6Me2 enables street (re)programming with a high degree of flexibility. Simple setting of „automatic midnight“ can therefore result in optimum energy savings.

The responsible use of light management functions such as adjustable output current, constant light output (CLO), midnight function (chronoSTEP) and reaction to movement (corridorFUNCTION) can provide additional potential energy savings without compromising safety.




**Example**

If we assume that a total of 90 luminaires each equipped with a 125 W high-intensity discharge lamp and with mast spacings of 50 m, 45 m and 40 m (30 luminaires each) are to be replaced the energy consumption figures will be as follows: With conventional lamping the lighting system will consume 55 MWh per year and produce 17.9 t of $CO_2$ emissions. Based on the usual illumination classes according to EN 13201 an LED luminaire rated at 52 W (P1) is recommended. In view of the required/assumed life of 100,000 hours and a cleaning interval of three years, the maintenance factor is defined as 0.8.
If the above-mentioned functions are used the annual savings are as follows:

| Measure | $CO_2$ saving | Energy saving |
|---|---|---|
| Refurbishment: LED luminaires | 12 t | 33 MWh |
| Adjustable current | 4 t | 11 MWh |
| CLO function | 1,7 t | 5 MWh |
| chronoSTEP | 4 t | 11 MWh |
| corridorFunction | 3,75 t | 10 MWh |

**Since the savings take effect simultaneously the table values cannot be added. Nevertheless there is an overall reduction in $CO_2$ of 15.7 t.**

### Adjustable current (P2)

A major benefit of modern outdoor luminaires with Tridonic LED Drivers is that they can be very easily adjusted and controlled. This is particularly useful if the light beams from multiple luminaires overlap one another, for example at road junctions and entrances. In such cases the lighting level of the luminaires can be reduced by adjusting the output current for individual luminaires.

### Constant Light Output (CLO P3)

The Constant Light Output function (CLO) supports efficient operation. It ensures a constant illumination level throughout the life of the luminaire. Initially the LED light sources will not be brighter than required because less current will be supplied to them and they will therefore consume less energy.

### corridorFUNCTION

The corridorFUNCTION ensures that high luminous flux is produced only when it is actually needed. As soon as the sensor detect movement the luminous intensity is increased. Once the sensor no longer detects movement the luminous flux can be automatically reduced after a predefined delay.

### chronoSTEP

The chronoSTEP function takes into account reduced traffic on roads at certain times during the night and enables the lighting to be programmed in eight individual dimming levels and times. Individual LED street lights can therefore be programmed with a high degree of flexibility, or entire street runs from a switching cabinet.

Outdoor

# Programmer ready2mains & U6Me2


Programmer ready2mains & U6Me2

**At a glance: Programmer ready2mains & U6Me2**

- Suitable for the use in streets and switching cabinets
- Up to 500 scripts can be stored (ready2mains, U6Me2 and DALI scripts)
- Supporting software for fast programming
- Integrated USB interface for programming via DALI, ready2mains and U6me2
- Current can be set in 1 mA steps (ready2mains and DALI)

| Designition | Size | Order No. |
|---|---|---|
| Programmer ready2mains U6Me2 | 173 x 87 x 47 mm | 28001206 |

**Paramters**

| Feature | ready2mains | U6Me2 |
|---|---|---|
| Distance | Short (~400 m) | Long (~1.5 km) |
| No. of devices programmable in parallel | 5 LED drivers (max 400 VA) | No limit |
| Programming options | Current, CLO, chronoSTEP*, corridorFUNCTION | chronoSTEP* only |
| Programming speed | Fast | Slow |
| Dimming | Yes | No |
| Best application | Flexible on-site and at the factory | Outdoors at the cabinet |

*Autonomous midnight-settings

**Energy saving made easy**

The fact that at night there are fewer people on the streets and also less traffic means that there is huge potential for energy savings. The successful “automatic midnight” function simply reduces the lighting level at this time, saving energy whilst still providing enough light for safety and security.
With the new additional adjustable midnight functionality (chronoSTEP), Tridonic brings energy efficiency and customization to a common denominator. Different light and time levels can be programmed on site at a central switching cabinet.

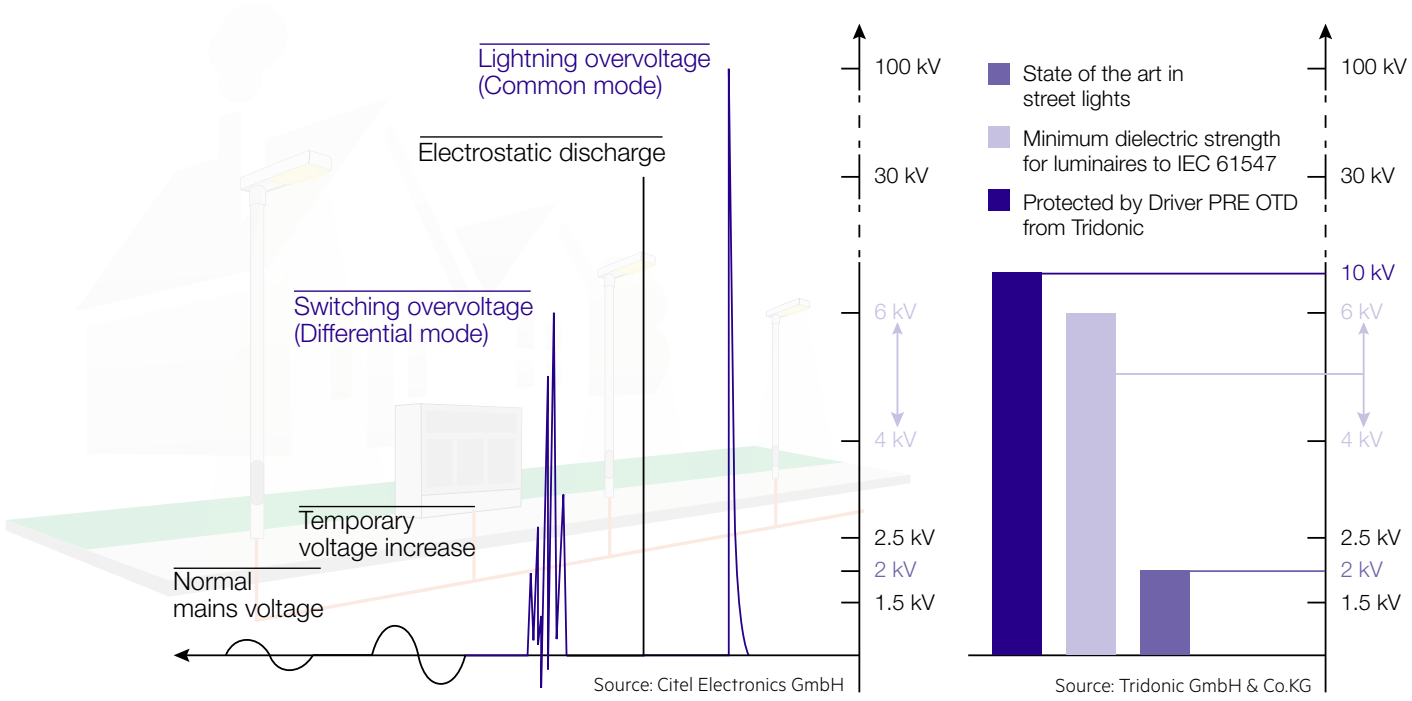
Outdoor

# Driver for Outdoor lighting

## Robust, reliable, energy efficient

**Outdoor lighting has to perform a wide range of tasks. The innovative LED lighting solutions in Tridonic's outdoor portfolio meet the highest demands, offer high protection and simplify the configuration of street lights.**

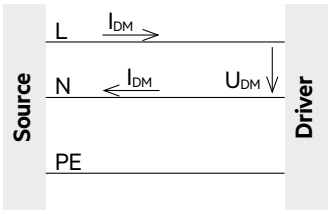
Watch video on YouTube




**Effects of potential overvoltage**
Small overvoltages lead to a partial damage of wear on the LED modules. Large overvoltages such as those caused by lightning strike, lead to the direct failure of the luminaire if no effective protection provided.

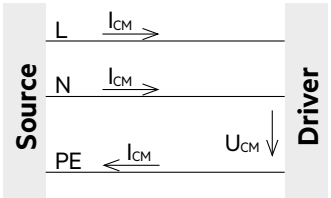
**Differential mode transient**
Differential mode surges generate a voltage offset between the L and N line. As a result, load changes and switching events occur on the mains lines e.g. caused by production equipment or capacitor banks for power factor correction in the mains network.

- Peak voltages can reach up to 4–6 kV
- Must be suppressed in the LED drivers input filter to avoid driver´s damage




**Common mode transient**
Common mode transients generate a voltage offset between the mains lines (L/N) and PE. In this case there will be no transient voltage between L and N. The transients are usually caused by environmental effects e.g. lightning strikes.

- Voltage can vary between few and several 10 kV
- Luminaire design needs special attention



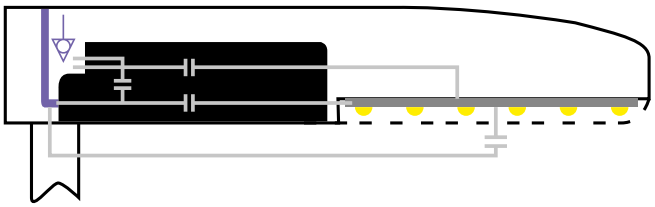

L = Current-carrying conductor
N = Neutral, ground
I = Current
U = Voltage
PE = Protective earth

# Driver for Outdoor lighting

## Overvoltage protection in the luminaire


**Application Class I**
Metal lamp head with protective earth

- All luminaire parts have a proper and defined connection to the protective earth (PE)
- The metal parts of the LED module create a parasitic capacitance to PE



**Application Class II**
Metal lamp head with equipotential connection

- Metal lamp head and metal core of the LED PCB are connected to the LED driver via equipotential connector

**Application Class II**
Lamp head with non-conductive materials or no equipotential connection

- All touchable parts of the system are either made of non-conductive materials or insulated according to safety class II

**Protection class I**
All electrically conductive and accessible parts of the luminaire housing are connected to the protective conductor system of the power supply. In the event of a fault, the circuit breaker (FI) or the automatic cutout will trip and prevent electric shock from live parts.

**Protection class II**
Luminaires in protection classes II must have double insulation so there are two safety barriers. This will prevent injury in the event of a fault.

Outdoor

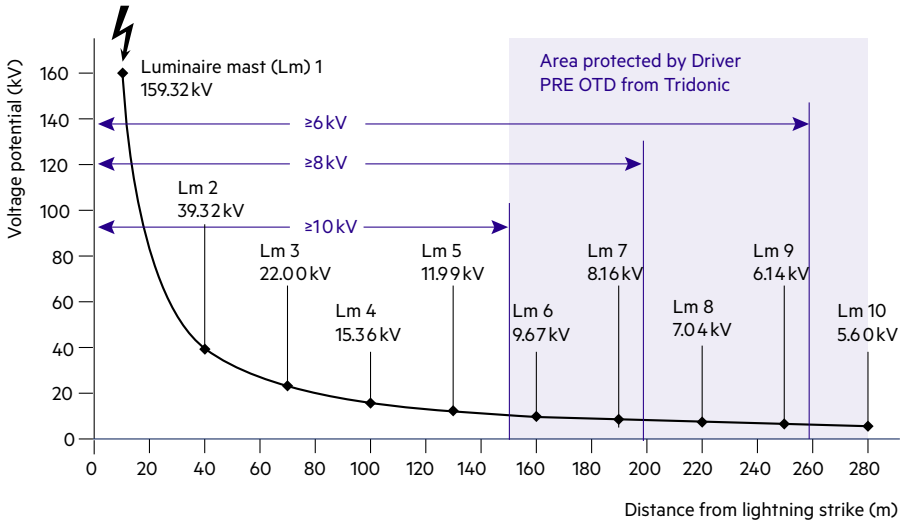
# Driver for Outdoor lighting

## Protection against overvoltage

**Driver PREMIUM Outdoor drivers from Tridonic provide 10 kV overvoltage protection and comply with protection classes I and II according to the IEC 61000-4-5 standard.**

When it comes to overvoltage protection, it is crucial to know the connections between which the overvoltage occurs. Lightning causes an overvoltage between the current-carrying cables and the ground.

The LED drivers from Tridonic offer protection levels of 10 kV, which means that both the LED module and the LED driver are protected. Lightning can strike up to a distance of about 150 m from the luminaire mast without damaging the module. Driver PREMIUM Outdoor from Tridonic protects 5 of 10 luminaires in case of lighting strike. This saves maintenance costs because compared to protection with 6 kV (only 1 of 10 luminaires protected) fewer luminaires need to be maintained or completely exchange.




Source: TU-Graz in cooperation with the LTG, Robert Mark, Christian Niederauer

**Aditional protection against overvoltage thanks Surge protection Device**


Fitted to the LED driver or in the housing, the surge protection device prevents a luminaire being damaged at an overvoltage above 10 kV. In the event of a lightning strike, for example, the surge protection device (SPD) may be damaged itself, but the lighting remains functional.

**At a glance: Surge protection device (SPD) SNC EU***

- Universal use for street, tunnel or object lighting
- Flexible installation, Fixed via integrated elongated holes
- Compact design
- Optical status indicator
- Double or reinforced insulation
- 5-year guarantee
- Type of protection IP20

**Auf einen Blick: Surge protection device (SPD) UNV SNC US**

- Flexible installation (on plate)
- Linear design
- UL 1449 type 5 (safety standard)
- IEEE C62.41.2 2002 (performance standard)
- Type of protection IP67
- 5-year guarantee

| NEW | Designation | Size | Order No. |
|---|---|---|---|
| | SPD 10kV CE SNC* | 56 x 36.5 x 34 mm | 28002383 |
| | SPD 10kV UNV SNC | 90 x 26 x 17 mm | 28002169 |

*Coming in Q3

Outdoor

# Driver PREMIUM



**At a glance: Driver PREMIUM**

- Dimmable constant-current LED driver for luminaire installation
- Application-oriented operating window for maximum compatibility
- Flexible configuration of all operating parameters via DALI, ready-2mains, U6Me2 and I-SELECT 2 (PLUG)
- Programming in the street is possible even after installation (U6Me2)
- Increased dielectric strength (surge/burst) of 10 kV; conform with IEC 61000-4-5
- Increased temperature range –40 … +70°C
- For luminaires of protection classes I and II
- Fully encapsulated
- Lifetime of 100,000 hours and 5-year guarantee

| Designition | Output current (mA) | Output power (W) | Output voltage range* (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|
| LCA 30W 250-700mA one4all C PRE OTD | 250–700 | 30 | 25–75 | 220~240 | 133 x 77 x 40 | 87500662 |
| LCA 60W 350-1050mA one4all C PRE OTD | 350–1,050 | 60 | 30–85 | 220~240 | 133 x 77 x 40 | 87500663 |
| LCA 75W 250-750mA one4all C PRE OTD | 250–750 | 75 | 45–130 | 220~240 | 133 x 77 x 40 | 87500664 |
| LCA 120W 350-1050mA one4all C PRE OTD | 350–1,050 | 120 | 75–230 | 220~240 | 150 x 90 x 40 | 87500657 |
| LCA 160W 350-1050mA one4all C PRE OTD | 350–1,050 | 160 | 105–320 | 220~240 | 170 x 100 x 40 | 87500658 |

*Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Driver EXCITE

Driver 14/24/40/60 W EXC

Driver 200 W EXC

**At a glance: Driver EXCITE**

- Dimmable built-in constant current LED Driver
- Output current adjustable between 100–1,050 mA
- Flexible configuration via DALI, ready2mains™, U6Me2 and NFC**
- High overvoltage protection: 10 kV
- Dimming range 5–100 %
- Dimming through mains voltage (inputDIM)
- Safety: input voltage regulation
- For luminaires of protection class I and II
- Suitable for emergency escape lighting systems
- In-field programming possible after installation with ready2mains and NFC** interface
- Lifetime of up to 100,000 hours and 8-year guarantee

| NEW | Designition | Output current (mA) | Output power[1] (W) | Output voltage range[1] (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|---|
| | LCO 14/100-500/38 o4a NF C EXC3* | 100–500 | 3.8–14 | 12–38 | 220~240 | 105 x 70 x 31 | 87500707 |
| | LCO 24/200–1050/38 one4all NF C EXC3* | 200–1,050 | 7.8–24 | 19–39 | 220~240 | 123 x 77 x 31 | 87500708 |
| | LCO 40/200–1050/64 one4all NF C EXC3* | 200–1,050 | 12.8–40 | 30–64 | 220~240 | 123 x 77 x 31 | 87500709 |
| | LCO 60/200–1050/100 one4all NF C EXC3* | 200–1,050 | 20–60 | 47–100 | 220~240 | 133 x 77 x 31 | 87500710 |
| | LCO 200/200–1050/355 one4all NF C EXC3* | 200–1,050 | 71–200 | 169–355 | 220~240 | 170 x 100 x 40 | 87500711 |

* Preliminary data, coming in Q3; ** Coming in Q4/18 [1]Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Driver ADVANCED

Driver 14/24/40/60 W ADV

Driver 200 W ADV

**At a glance: Driver ADVANCED**

- Dimmable built-in constant current LED Driver
- Output current adjustable between 100–1,050 mA
- Flexible configuration via ready2mains™, U6Me2 and NFC**
- High overvoltage protection: 10 kV
- Dimming range 5–100 %
- Dimming through mains voltage (inputDIM)
- Safety: input voltage regulation
- For luminaires of protection class I and II
- Suitable for emergency escape lighting systems
- In-field programming possible after installation with ready2mains and NFC** interface
- Lifetime of up to 100,000 hours and 8-year guarantee

| NEW | Designition | Output current (mA) | Output power[1] (W) | Output voltage range[1] (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|---|
| | LCO 14/100-500/38 NF C ADV3* | 100–500 | 3.8–14 | 12–38 | 220~240 | 105 x 70 x 31 | 87500707 |
| | LCO 24/200-1050/39 NF C ADV3* | 200–1,050 | 7.8–24 | 19–39 | 220~240 | 123 x 77 x 31 | 87500708 |
| | LCO 40/200-1050/64 NF C ADV3* | 200–1,050 | 12.8–40 | 30–64 | 220~240 | 123 x 77 x 31 | 87500709 |
| | LCO 60/200-1050/100 NF C ADV3* | 200–1,050 | 20–60 | 47–100 | 220~240 | 133 x 77 x 31 | 87500710 |
| | LCO 200/200-1050/355 NF C ADV3* | 200–1,050 | 71–200 | 169–355 | 220~240 | 170 x 100 x 40 | 87500711 |

* Preliminary data, coming in Q4/2018; ** Coming in Q4/18 [1]Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Driver ESSENCE


Treiber ESSENCE

**At a glance: Driver ESSENCE**

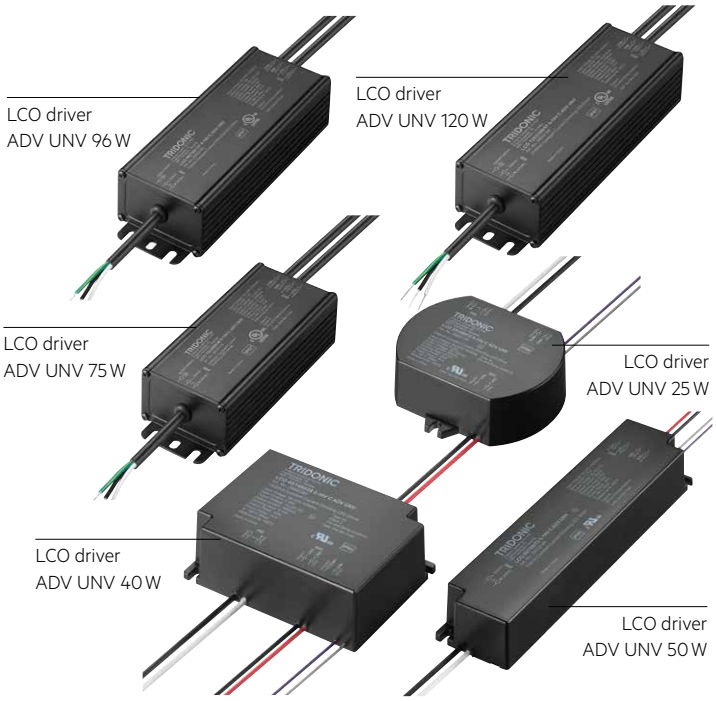
- Separate fixed output LED Driver
- Increased dielectric strength (Surge/Burst) of 6 kV
- Increased temperature range –30 … +60°C
- For luminaires of protection classes I
- Type of protection IP67
- Lifetime of 50,000 hours and 5-year guarantee

| NEW | Designition | Output current (mA) | Output power (W) | Output voltage range[1] (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|---|
| | LCO 75/500/150 fixC L SNC2* | 500 | 75 | 45–150 | 220~240 | 158 x 61 x 37.8 | 28002297 |
| | LCO 75/700/108 fixC L SNC2* | 700 | 75 | 32–108 | 220~240 | 158 x 61 x 37.8 | 28002298 |
| | LCO 75/1050/72 fixC L SNC2* | 1,050 | 75 | 22–72 | 220~240 | 158 x 61 x 37.8 | 28002299 |
| | LCO 75/1400/53 fixC L SNC2* | 1,400 | 75 | 16–53 | 220~240 | 158 x 61 x 37.8 | 28002300 |
| | LCO 100/500/200 fixC L SNC2* | 500 | 100 | 60–200 | 220~240 | 181 x 61 x 37.8 | 28002301 |
| | LCO 100/700/143 fixC L SNC2* | 700 | 100 | 43–143 | 220~240 | 181 x 61 x 37.8 | 28002302 |
| | LCO 100/1050/95 fixC L SNC2* | 1,050 | 100 | 29–95 | 220~240 | 181 x 61 x 37.8 | 28002303 |
| | LCO 100/1400/71 fixC L SNC2* | 1,400 | 100 | 21–71 | 220~240 | 181 x 61 x 37.8 | 28002304 |
| | LCO 150/500/300 fixC L SNC2* | 500 | 150 | 90–300 | 220~240 | 200 x 61 x 37.8 | 28002305 |
| | LCO 150/700/214 fixC L SNC2* | 700 | 150 | 64–214 | 220~240 | 200 x 61 x 37.8 | 28002306 |
| | LCO 150/1050/142 fixC L SNC2* | 1,050 | 150 | 43–142 | 220~240 | 200 x 61 x 37.8 | 28002307 |
| | LCO 150/1400/107 fixC L SNC2* | 1,400 | 150 | 32–107 | 220~240 | 200 x 61 x 37.8 | 28002308 |
| | LCO 200/500/400 fixC L SNC2* | 500 | 200 | 133–400 | 220~240 | 246 x 61 x 37.8 | 28002309 |
| | LCO 200/700/285 fixC L SNC2* | 700 | 200 | 95–285 | 220~240 | 246 x 61 x 37.8 | 28002310 |
| | LCO 200/1050/190 fixC L SNC2* | 1,050 | 200 | 63–190 | 220~240 | 246 x 61 x 37.8 | 28002311 |
| | LCO 200/1400/142 fixC L SNC2* | 1,400 | 200 | 47–142 | 220~240 | 246 x 61 x 37.8 | 28002312 |

* Preliminary data, coming in Q3; [1]Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Driver Universal Voltage ADVANCED




**At a glance: Driver Universal input Voltage ADVANCED**

- Constant current LED Driver
- Dimmable via 0 … 10 V interface
- Dimming range 10 – 100 %
- Up to 92 % efficiency
- Dry and damp location
- Type of protection IP67
- 5-year guarantee

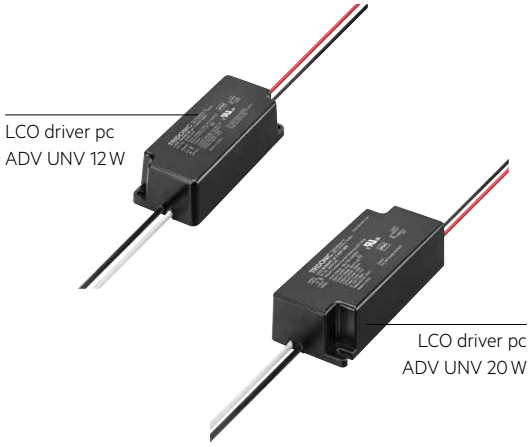
| NEW | Designition | Output current (mA) | Output power (W) | Output voltage range[1] (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|---|
| | LCO 12/350/36 0-10V C ADV UNV | 350 | 12 | 18–40 | 100–277 | 76 x 31 x 24 | 28002252 |
| | LCO 12/500/24 0-10V C ADV UNV | 500 | 12 | 12–30 | 100–277 | 76 x 31 x 24 | 28002247 |
| | LCO 20/350/57 0-10V C ADV UNV | 350 | 20 | 29–70 | 100–277 | 95.5 x 40 x 25 | 28002253 |
| | LCO 20/500/40 0-10V C ADV UNV | 500 | 20 | 20–50 | 100–277 | 95.5 x 40 x 25 | 28002254 |
| | LCO 20/700/28 0-10V C ADV UNV | 700 | 20 | 14–40 | 100–277 | 95.5 x 40 x 25 | 28002255 |
| | LCO 25/350/72 0-10V C ADV UNV | 350 | 25 | 36–72 | 100–277 | 96 x 71 x 25.2 | 28002130 |
| | LCO 25/500/48 0-10V C ADV UNV | 500 | 25 | 24–48 | 100–277 | 96 x 71 x 25.2 | 28002131 |
| | LCO 25/700/36 0-10V C ADV UNV | 700 | 25 | 13–36 | 100–277 | 96 x 71 x 25.2 | 28002132 |
| | LCO 25/1050/24 0-10V C ADV UNV | 1,050 | 25 | 12–24 | 100–277 | 96 x 71 x 25,2 | 28002142 |
| | LCO 25/1400/18 0-10V C ADV UNV | 1,400 | 25 | 09–18 | 100–277 | 96 x 71 x 25.2 | 28002143 |
| | LCO 40/700/57 0-10V C ADV UNV | 700 | 40 | 28–57 | 100–277 | 96 x 71 x 32 | 28002226 |
| | LCO 40/1000/40 0-10V C ADV UNV | 1,000 | 40 | 20–40 | 100–277 | 96 x 71 x 32 | 28002229 |
| | LCO 40/1400/28 0-10V C ADV UNV | 1,400 | 40 | 14–28 | 100–277 | 96 x 71 x 32 | 28002263 |
| | LCO 50/700/72 0-10V C ADV UNV | 700 | 50 | 36–72 | 100–277 | 194.3 x 45.3 x 28 | 28002149 |
| | LCO 50/1050/48 0-10V C ADV UNV | 1,050 | 50 | 24–48 | 100–277 | 194.3 x 45.3 x 28 | 28002150 |
| | LCO 50/1250/42 0-10V C ADV UNV | 1,250 | 50 | 21–42 | 100–277 | 194.3 x 45.3 x 28 | 28002151 |
| | LCO 50/1400/36 0-10V C ADV UNV | 1,400 | 50 | 13–36 | 100–277 | 194.3 x 45.3 x 28 | 28002152 |
| | LCO 50/2100/24 0-10V C ADV UNV | 2,100 | 50 | 12–24 | 100–277 | 194.3 x 45.3 x 28 | 28002153 |
| | LCO 75/350/214 0-10V C ADV UNV | 350 | 75 | 64–214 | 100–277 | 150 x 59 x 37 | 28002154 |
| | LCO 75/700/108 0-10V C ADV UNV | 700 | 75 | 32–108 | 100–277 | 150 x 59 x 37 | 28002155 |
| | LCO 75/1050/72 0-10V C ADV UNV | 1,050 | 75 | 22–72 | 100–277 | 150 x 59 x 37 | 28002156 |
| | LCO 75/1560/48 0-10V C ADV UNV | 1,560 | 75 | 14–48 | 100–277 | 150 x 59 x 37 | 28002157 |
| | LCO 75/1790/42 0-10V C ADV UNV | 1,790 | 75 | 13–42 | 100–277 | 150 x 59 x 37 | 28002158 |
| | LCO 75/2080/36 0-10V C ADV UNV | 2,080 | 75 | 11–36 | 100–277 | 150 x 59 x 37 | 28002159 |
| | LCO 96/700/137 0-10V C ADV UNV | 700 | 96 | 46–137 | 100–277 | 172 x 59 x 37 | 28002160 |
| | LCO 96/1050/91 0-10V C ADV UNV | 1,050 | 96 | 30–91 | 100–277 | 172 x 59 x 37 | 28002161 |
| | LCO 96/1400/68 0-10V C ADV UNV | 1,400 | 96 | 23–68 | 100–277 | 172 x 59 x 37 | 28002162 |
| | LCO 96/2000/48 0-10V C ADV UNV | 2,000 | 96 | 16–48 | 100–277 | 172 x 59 x 37 | 28002163 |
| | LCO 96/2670/36 0-10V C ADV UNV | 2,670 | 96 | 12–36 | 100–277 | 172 x 59 x 37 | 28002164 |
| | LCO 120/700/171 0-10V C ADV UNV | 700 | 120 | 86–171 | 100–277 | 193 x 59 x 37 | 28002165 |
| | LCO 120/1050/114 0-10V C ADV UNV | 1,050 | 120 | 57–114 | 100–277 | 193 x 59 x 37 | 28002166 |
| | LCO 120/1400/86 0-10V C ADV UNV | 1,400 | 120 | 43–86 | 100–277 | 193 x 59 x 37 | 28002167 |
| | LCO 120/2100/57 0-10V C ADV UNV | 2,100 | 120 | 29–57 | 100–277 | 193 x 59 x 37 | 28002168 |

[1]Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Driver Universal Voltage ADVANCED

## Phase-cut




**At a glance: Driver Universal input Voltage ADVANCED phase-cut**

- Constant current LED Driver
- Dimmable via leading edge and trailing edge phase dimmers
- Dimming range 10 – 100 %
- Up to 86 % efficiency
- Dry and damp location
- Type of protection IP66
- 5-year guarantee

| NEW | Designition | Output current (mA) | Output power (W) | Output voltage range[1] (V) | Input voltage (V) | Size (mm) | Order No. |
|---|---|---|---|---|---|---|---|
| | LCO 12/350/36 pc C ADV UNV | 350 | 12 | 22–70 | 120 | 85.6 x 35.5 x 23 | 28002246 |
| | LCO 12/700/17 pc C ADV UNV | 700 | 12 | 10–50 | 120 | 85.6 x 35.5 x 23 | 28002248 |
| | LCO 20/350/57 pc C ADV UNV | 350 | 20 | 34–70 | 120 | 95.5 x 40 x 25 | 28002249 |
| | LCO 20/500/40 pc C ADV UNV | 500 | 20 | 24–50 | 120 | 95.5 x 40 x 25 | 28002250 |
| | LCO 20/700/28 pc C ADV UNV | 700 | 20 | 17–40 | 120 | 95.5 x 40 x 25 | 28002251 |

[1]Depending on the selected output current. Further details can be found in datasheet.

Outdoor

# Module RLE OTD EXCITE


**At a glance: Module RLE OTD EXC**

- M3 version, installation of the module together with lens in the luminaire by means of an M3 screw
- M4 version, installation of the module in the luminaire by means of an M4 screw
- Standard lenses can be used
- Increased temperature range –40 … +105°C
- Salt spray test IEC 60068-2-52
- Pollutant test GR-1217-CORE
- For luminaires of protection classes I and II
- Lifetime of 100,000 hours and 5-year guarantee

**Typical applications**

- Street lighting
- Flood and area lighting
- Tunnel lighting
- High-bay lighting

**The new Module RLE OTD EXC from Tridonic offer an exceptional lighting system for outdoor and industrial applications. The entire outdoor module portfolio has been developed for a modular luminaire design. Different LED modules with different control currents can be combined to achieve the same lumen packages.**

Module RLE OTD EXC have been designed so they can be used with standard lenses which are available with different emission characteristics. This means that the requirements for most outdoor lighting projects, floodlight applications and lighting applications in rooms with high ceilings can be met without any difficulty.

The special design of the modules provides effective protection against mechanical and thermal stresses to which a lens-based light module is exposed during manufacture of the luminaire and in practical use. When combined with a tdriver outdoor from Tridonic the result is an ideal LED system for outdoor lighting.

Outdoor

# Module RLE OTD EXCITE

## Module RLE OTD EXCITE

| Designition | Colour temperature (K) | Mac Adam | Typ. luminous flux[1] (lm) | CRI | Typ. power consumption[1] (W) | Module efficacy[1] tp = 75°C (lm/W) | Size (mm) | Order No. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | PL0* | PL1* |
| RLE G1 49x121mm 2000lm 730 PL0/1 EXC OTD | 3,000 | SDCM 4 | 2,100 | 70 | 16 | up to 131 | 121x49 | 89602500 | 89602501 |
| RLE G1 49x121mm 2000lm 830 PL0/1 EXC OTD | | | 1,860 | 80 | | up to 116 | | 89602550 | 89602551 |
| RLE G1 49x133mm 2000lm 730 PL0/1 EXC OTD | | | 2,100 | 70 | | up to 131 | 133x49 | 89602504 | 89602505 |
| RLE G1 49x133mm 2000lm 830 PL0/1 EXC OTD | | | 1,860 | 80 | | up to 116 | | 89602554 | 89602555 |
| RLE G1 49x121mm 2000lm 740 PL0/1 EXC OTD | 4,000 | SDCM 4 | 2,270 | 70 | 16 | up to 142 | 121x49 | 89602502 | 89602503 |
| RLE G1 49x121mm 2000lm 840 PL0/1 EXC OTD | | | 1,970 | 80 | | up to 123 | | 89602552 | 89602553 |
| RLE G1 49x133mm 2000lm 740 PL0/1 EXC OTD | | | 2,270 | 70 | | up to 142 | 133x49 | 89602506 | 89602507 |
| RLE G1 49x133mm 2000lm 840 PL0/1 EXC OTD | | | 1,970 | 80 | | up to 123 | | 89602556 | 89602557 |
| RLE G1 49x223mm 4000lm 730 PL0/1 EXC OTD | 3,000 | SDCM 4 | 4,190 | 70 | 32 | up to 131 | 223x49 | 89602508 | 89602509 |
| RLE G1 49x223mm 4000lm 830 PL0/1 EXC OTD | | | 3,710 | 80 | | up to 116 | | 89602558 | 89602559 |
| RLE G1 49x245mm 4000lm 730 PL0/1 EXC OTD | | | 4,190 | 70 | | up to 131 | 245x49 | 89602512 | 89602513 |
| RLE G1 49x245mm 4000lm 830 PL0/1 EXC OTD | | | 3,710 | 80 | | up to 116 | | 89602562 | 89602563 |
| RLE G1 49x223mm 4000lm 740 PL0/1 EXC OTD | 4,000 | SDCM 4 | 4,540 | 70 | 32 | up to 142 | 223x49 | 89602510 | 89602511 |
| RLE G1 49x223mm 4000lm 840 PL0/1 EXC OTD | | | 3,940 | 80 | | up to 123 | | 89602560 | 89602561 |
| RLE G1 49x245mm 4000lm 740 PL0/1 EXC OTD | | | 4,540 | 70 | | up to 142 | 245x49 | 89602514 | 89602515 |
| RLE G1 49x245mm 4000lm 840 PL0/1 EXC OTD | | | 3,940 | 80 | | up to 123 | | 89602564 | 89602565 |
| RLE G1 49x223mm 4000lm 750 PL1 EXC OTD | 5,000 | SDCM 4 | 4,870 | 70 | 32 | up to 154 | 223x49 | – | 89602517 |
| RLE G1 49x245mm 4000lm 850 PL1 EXC OTD | | | 4,250 | 80 | | up to 132 | 245x49 | – | 89602566 |
| RLE G1 49x245mm 4000lm 765 PL1 EXC OTD | 6,500 | SDCM 4 | 4,540 | 70 | | up to 141 | | – | 89602516 |

[1]Tolerance range for electrical and optical data: ±10 %, Operation mode of 700 mA, *2 protection levels: PL0 NTC and polarity reversal protection; PL1 NTC, polarity reversal protection and shunts

## Matching Driver

| Driver ADVANCED | LCA 30 W ADV Art. -Nr. 87500388 | | | LCA 60 W ADV Art. -Nr. 87500389 | | | | LCA 120W ADV Art. -Nr. 87500391 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Output current mA | 70 | 350 | 500 | 70 | 350 | 500 | 700 | 70 | 350 | 500 | 700 |
| Module 2x4 (121x49 mm, 133x49 mm) | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 2-4 | 2-4 | 2-4 | 2-4 |
| Module 2x8 (223x49 mm, 245x49 mm) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1-2 | 1-2 | 1-2 | 1-2 |

Detail: Numbers of possible modules per LED Driver

| Driver PREMIUM | LCA 30 W PRE Art. -Nr. 28001070 | | | | LCA 60 W PRE Art. -Nr. 28001071 | | | | LCA 75W PRE Art. -Nr. 28001072 | | | | LCA 120W PRE Art. -Nr. 28001073 | | | | LCA 160W PRE Art. -Nr. 28001074 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output current mA | 70 | 350 | 500 | 700 | 70 | 350 | 500 | 700 | 70 | 350 | 500 | 700 | 70 | 350 | 500 | 700 | 70 | 350 | 500 | 700 |
| Module 2x4 (121x49 mm, 133x49 mm) | 2-3 | 2 | 2 | - | 2-3 | 2-3 | 2-3 | 2-3 | 3-5 | 3-5 | 3-5 | 3-4 | 4-9 | 4-9 | 4-8 | 4-6 | 6-12 | 6-12 | 5-12 | 5-8 |
| Module 2x8 (223x49 mm, 245x49 mm) | 1 | 1 | 1 | - | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2-4 | 2-4 | 2-3 | 2-3 | 3-6 | 3-6 | 3-6 | 3-4 |

Detail: Numbers of possible modules per LED Driver

# **Support and advice**
## From a single source

Engine RLE
Outdoor

Engine LLE
Industry

Engine CLE
Industry

Engine QLE
Industry

We will help you to create lighting solutions that are unbeatable in terms of economyand functionality, according to the slogan:
We devote all our energy to your light.

**As an international company, Tridonic is represented worldwide by 30 branch offices and partners in 73 countries.**

**Headquarters**
Tridonic GmbH & Co KG
Färbergasse 15 | 6851 Dornbirn, Austria
T +43 5572 395-0 | F +43 5572 20176
www.tridonic.com | sales@tridonic.com

**Light you want to follow.**