



**Driver LCO 120W 700/1050/1400/2100mA 0-10V C ADV UNV**  
advanced outdoor series (US applications)

### Product description

- Constant current LED Driver
- Dimmable via 0 ... 10 V interface
- Dimming range 10 – 100 %
- Max. output power 120 W
- Up to 93 % efficiency
- UL Listed Class P
- FCC Part 15
- Only for US applications
- Dry and damp location
- Nominal life-time up to 100,000 h
- 5-year guarantee



### Housing properties

- Metal casing black
- Potted version
- Type of protection IP67

### Functions

- Over voltage protection
- Short-circuit protection
- No-load protection

### Typical applications

- For parking lot, high bay and street applications



Standards, page 3

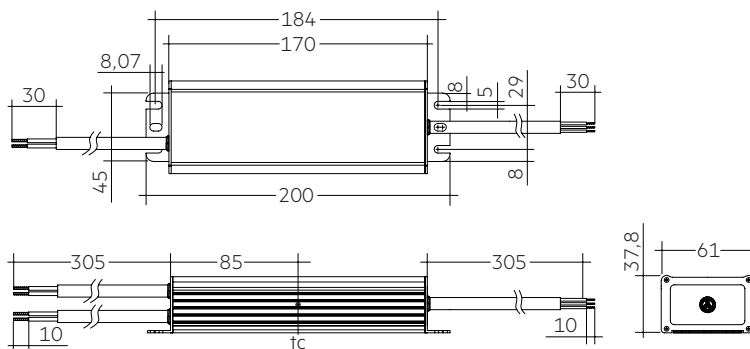




### Driver LCO 120W 700/1050/1400/2100mA 0-10V C ADV UNV advanced outdoor series (US applications)

#### Technical data

Rated supply voltage	100 – 277 V
AC voltage range	90 – 305 V
Mains frequency	50 / 60 Hz
Leakage current (at 120 V, 60 Hz, full load) <sup>①</sup>	< 400 µA
Leakage current (at 277 V, 60 Hz, full load) <sup>①</sup>	< 750 µA
Max. input power (at 120 V, 60 Hz, full load)	133 W
Max. input power (at 277 V, 60 Hz, full load)	132 W
λ (at 120 V, 60 Hz, full load) <sup>①</sup>	0.95
λ (at 277 V, 60 Hz, full load) <sup>①</sup>	0.94C
Typ. input current in no-load operation (at 120 V, 60 Hz, full load)	50 mA
Typ. input current in no-load operation (at 277 V, 60 Hz, full load)	70 mA
Typ. input power in no-load operation (at 120 V, 60 Hz, full load)	3 W
Typ. input power in no-load operation (at 277 V, 60 Hz, full load)	4 W
Max. in-rush current (peak / duration at 120 V) full load	50 A / 4 µs
Max. in-rush current (peak / duration at 277 V) full load	95 A / 5 µs
THD (at 120 V, 60 Hz, full load) <sup>①</sup>	< 8 %
THD (at 277 V, 60 Hz, full load) <sup>①</sup>	< 15 %
Starting time (full load) <sup>②</sup>	≤ 500 ms
Turn off time (full load)	< 200 ms
Output current tolerance <sup>③</sup>	± 5 %
Max. output current peak (non-repetitive)	≤ output current + 35 %
Output LF current ripple (< 120 Hz)	< 5 %
Dimming range	10 – 100 %
Mains surge capability (between L - N)	2 kV
Mains surge capability (between L/N - PE)	4 kV
Dimensions L x W x H	184.0 x 61.0 x 37.8 mm



Dimensions in mm

#### Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
<b>LCO 120/700/171 0-10V C ADV UNV</b>	<b>28002165</b>	10 pc(s).	380 pc(s).	0.74 kg
<b>LCO 120/1050/114 0-10V C ADV UNV</b>	<b>28002166</b>	10 pc(s).	380 pc(s).	0.74 kg
<b>LCO 120/1400/86 0-10V C ADV UNV</b>	<b>28002167</b>	10 pc(s).	380 pc(s).	0.74 kg
<b>LCO 120/2100/57 0-10V C ADV UNV</b>	<b>28002168</b>	10 pc(s).	380 pc(s).	0.74 kg

#### Specific technical data

Type	Output current <sup>②</sup>	Min. forward voltage	Max. forward voltage	Max. output voltage	Max. output power (at 120 V, 60 Hz, full load)	Typ. power consumption (at 120 V, 60 Hz, full load)	Typ. current consumption (at 120 V, 60 Hz, full load)	Typ. efficiency (at 120 V, 60 Hz, full load)	Max. output power (at 277 V, 60 Hz, full load)	Typ. power consumption (at 277 V, 60 Hz, full load)	Typ. current consumption (at 277 V, 60 Hz, full load)	Typ. efficiency (at 277 V, 60 Hz, full load)	t <sub>c</sub> <sup>③</sup>	Ambient temperature t <sub>a</sub>
<b>LCO 120/700/171 0-10V C ADV UNV</b>	700 mA	86 V	171 V	180 V	120.0 W	132.0 W	1,100 mA	91.5 %	123.0 W	132.0 W	490 mA	93 %	85 °C	-30 ... +60 °C
<b>LCO 120/1050/114 0-10V C ADV UNV</b>	1,050 mA	57 V	114 V	120 V	120.0 W	132.0 W	1,100 mA	90.5 %	120.0 W	130.0 W	490 mA	92 %	90 °C	-30 ... +60 °C
<b>LCO 120/1400/86 0-10V C ADV UNV</b>	1,400 mA	43 V	86 V	90 V	120.4 W	131.0 W	1,100 mA	91.5 %	120.5 W	130.0 W	490 mA	92 %	85 °C	-30 ... +60 °C
<b>LCO 120/2100/57 0-10V C ADV UNV</b>	2,100 mA	29 V	57 V	60 V	120.0 W	132.5 W	1,100 mA	90.5 %	120.0 W	130.5 W	500 mA	91 %	85 °C	-30 ... +60 °C

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

<sup>②</sup> Output current is mean value.

<sup>③</sup> 5-year guarantee.

## 1. Standards

UL 8750  
FCC Part 15, Class B  
ANSI C62.41  
ANSI C63.4  
UL 1012  
NEMA 4  
CSA C22.2

Product not designed for European Economic Area.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

## 2. Thermal details and life-time

### 2.1 Expected life-time

#### Expected life-time 120 V

Type	ta	50 °C / 122 °F	55 °C / 131 °F	60 °C / 140 °F
<b>LCO 120/700/171 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	50,000 h	35,000 h	25,000 h
<b>LCO 120/1050/114 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	60,000 h	40,000 h	30,000 h
<b>LCO 120/1400/86 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	50,000 h	35,000 h	25,000 h
<b>LCO 120/2100/57 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	50,000 h	35,000 h	25,000 h

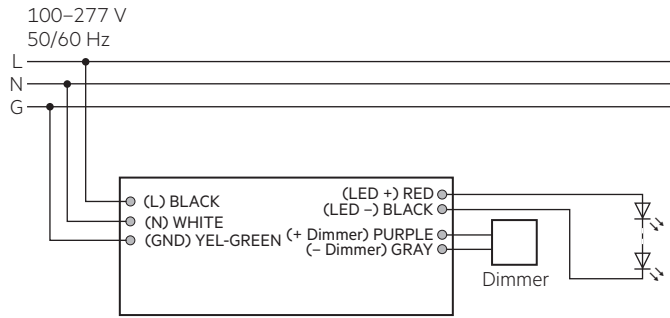
#### Expected life-time 277 V

Type	ta	50 °C / 122 °F	55 °C / 131 °F	60 °C / 140 °F
<b>LCO 120/700/171 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	80,000 h	50,000 h	35,000 h
<b>LCO 120/1050/114 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	70,000 h	50,000 h	35,000 h
<b>LCO 120/1400/86 0-10V C ADV UNV</b>	tc	80 °C / 176 °F	85 °C / 185 °F	90 °C / 194 °F
	Life-time	55,000 h	40,000 h	25,000 h
<b>LCO 120/2100/57 0-10V C ADV UNV</b>	tc	75 °C / 167 °F	80 °C / 176 °F	85 °C / 185 °F
	Life-time	50,000 h	35,000 h	25,000 h

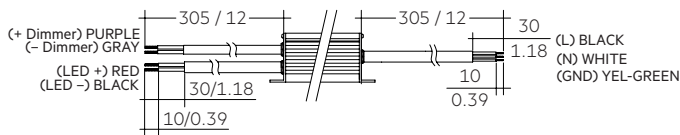
The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

### 3. Installation / wiring

#### 3.1 Circuit diagram



Primary cable			Secondary cable		Dimmer cable	
N	L	GND	-	+	-	+
white	black	yellow-green	black	red	gray	purple



#### 3.2 Wiring type and cross section

The max. wiring specification section for the AC input wire.  
Recommended max. wiring distance at full load:

AWG	#20	#19	#18	#17	#16
Distance (m)	14	18	22	28	36
Distance (ft)	45.9	59	72.2	91.9	118.1

For the output wire diameter should be a minimum of 20AWG.  
The max. cable length should use for the dimming wire:

- 300 inch (7.62 m) for a cable size 18AWG
- 400 inch (10.16 m) for a cable size 16AWG

#### 3.3 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Mains leads should be kept apart from LED Driver and other leads (ideally 5 – 10 cm / 1.97 – 3.94 inch distance)
- Max. length of output wires is 2 m / 6.56 feet.
- Secondary switching is not permitted.
- Incorrect wiring can damage 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.).

#### 3.4 Hot plug-in

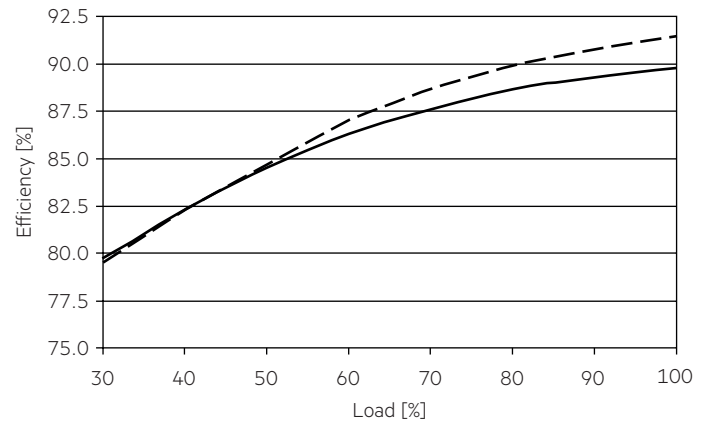
Hot plug-in or secondary switching of LED's is not permitted and may cause a very high LED output current.

#### 3.5 Replace LED module

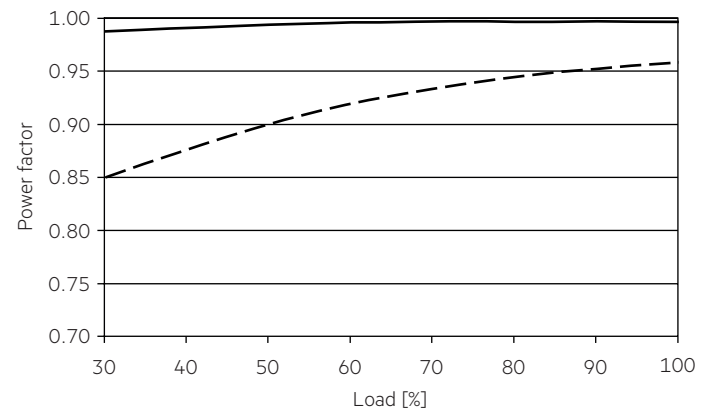
1. Mains off
2. Remove LED module
3. Wait for 20 seconds
4. Connect LED module again

### 4. Electrical values

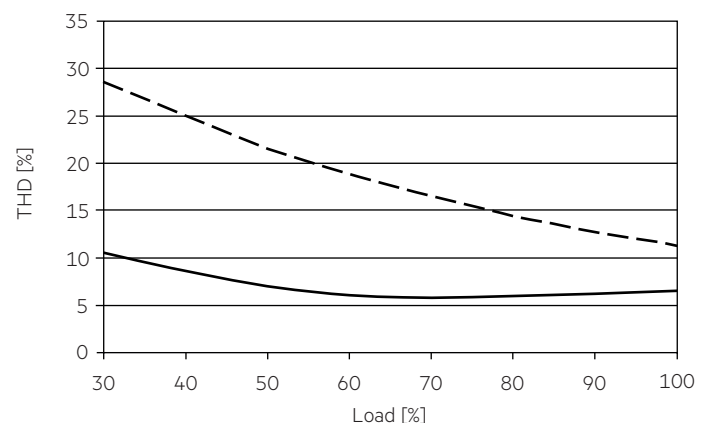
#### 4.1 Efficiency vs load



#### 4.3 Power factor vs load



#### 4.4 THD vs load



— 120 V  
- - - 277 V

#### 4.5 Harmonic distortion in the mains supply in %

120 V, 60 Hz:

	THD	3.	5.	7.	9.	11.
LCO 120/700/171 0-10V C ADV UNV	< 8	< 5	< 3	< 3	< 2	< 2
LCO 120/1050/114 0-10V C ADV UNV	< 8	< 5	< 3	< 3	< 2	< 2
LCO 120/1400/86 0-10V C ADV UNV	< 8	< 5	< 3	< 3	< 2	< 2
LCO 120/2100/57 0-10V C ADV UNV	< 8	< 5	< 3	< 3	< 2	< 2

277 V, 60 Hz:

	THD	3.	5.	7.	9.	11.
LCO 120/700/171 0-10V C ADV UNV	< 15	< 9	< 8	< 6	< 5	< 3
LCO 120/1050/114 0-10V C ADV UNV	< 15	< 9	< 8	< 6	< 5	< 3
LCO 120/1400/86 0-10V C ADV UNV	< 15	< 9	< 8	< 6	< 5	< 3
LCO 120/2100/57 0-10V C ADV UNV	< 15	< 9	< 8	< 6	< 5	< 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.

#### 4.6 Dimming

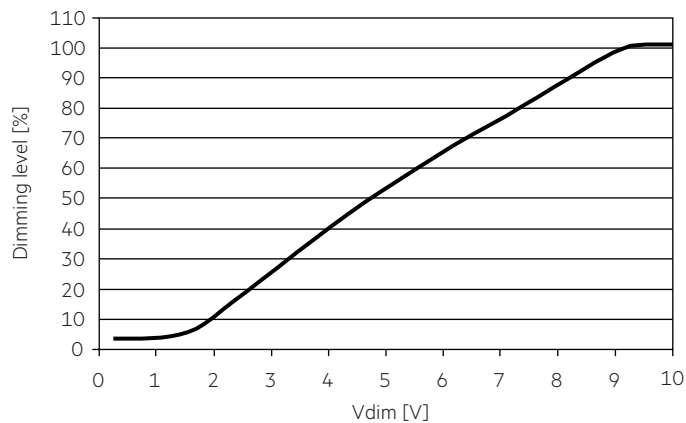
Dimming range is 10 to 100%.

#### 4.7 Dimming curve is linearised

##### Control input (0 – 10 V)

Control input open	max. dimming level
Control input short-circuited	min. dimming level
Max. output source current	2 mA
Max. permitted input voltage	-2 ... +15 V
Voltage range dimming	0 – 10 V <sup>Ⓣ</sup>
Input voltage < 1 V	min. dimming level <sup>Ⓣ</sup>
Input voltage > 10 V	max. dimming level <sup>Ⓣ</sup>

<sup>Ⓣ</sup> See graph below (at full load):



## 5. Functions

### 5.1 Short-circuit behaviour

The Driver will go to hic-cup mode when the output is short, after elimination of the short circuit fault the LED Driver will recover automatically.

### 5.2 No-load operation

LED Driver works in standby mode when the output is open, the Driver will not damage and the output voltage will have the constant voltage.

### 5.3 Overload protection

If the output voltage range is exceeded, LED Driver will work in hic-cup working mode, after elimination of the overload the nominal operation will recover automatically.

## 6. Miscellaneous

### 6.1 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 UL 8750 (informative only!) each luminaire should be submitted to an isolation test with 500 V<sub>DC</sub>. The dielectric withstand test equipment shall employ a transformer of 500-VA or larger capacity and have a variable output voltage that is essentially sinusoidal or continuous direct current. The applied potential is to be increased from zero at a substantially uniform rate until the required test level is reached, and is to be held at that level for 1 minute.

As an alternative, UL8750 (informative only!) describes a test of the electrical strength with 2V AC + 1000V (or 1.414 x V DC). To avoid damage to the electronic devices this test must not be conducted.

### 6.2 Conditions of use and storage

Humidity: 5% up to max. 95%,  
not condensed  
(max. 56 days/year at 95%)

Storage temperature: -40 °C / -40 °F up to max. +80 °C / +176 °F

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

### 6.3 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

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