

# LED Driver

## EUCO Pro

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### Highlights & Features

- Wide range constant current design
- Universal AC input voltage from 220-240Vac
- High efficiency up to 94%
- Wide operating temperature range -40°C to +55°C
- With IP66/IP67 protection from most outdoor applications
- Build-in Active PFC and conform to harmonic current IEC/EN 61000-3-2, Class C
- Adjustable constant current level through programmable tool
- Common mode 6kV and differential mode 6kV surge immunity
- Suitable for Dry / Damp / Wet location
- 0-10V dimming available

### Safety Standards



CB Certified for worldwide use

### Dimensions (L x W x H):

EUCO-150140GA	174 × 68 × 37 mm (6.85 × 2.68 × 1.46 inch)
EUCO-200140GA	220 × 68 × 37 mm (8.66 × 2.68 × 1.46 inch)
EUCO-250140GA	240 × 68 × 37 mm (9.45 × 2.68 × 1.46 inch)

### General Description

Delta LED drivers come in different series to suit different application needs. The EUCO Pro series features program output current level. All the models come in full corrosion resistance aluminum casing and major international safety certifications. EUCO Pro series offers the capability to achieve different level of LED brightness via built-in 0-10V dimming function to meet various application and energy optimization needs. The products are designed and rigorously tested to work with various outdoor LED lighting conditions. Featuring high surge immunity (CM: 6kV, DM: 6kV) and complying to IP66/IP67 make Delta EUCO Pro series an essential part of an energy efficient LED lighting power solution for both indoor and outdoor applications.

### Model Information

#### EUCO Pro LED Driver

Model Number	Input Voltage Range	Rated Output Voltage	Program Output Current Range	Constant Power Current Range
EUCO-150140GA	220-240Vac Typical	72-214Vdc	600 – 1400mA	700 – 1400mA
EUCO-200140GA	(176-305Vac) Range	75-190Vdc	600 – 1400mA	1050 – 1400mA
EUCO-250140GA		90-238Vdc	600 – 1400mA	1050 – 1400mA

### Model Numbering

EU	C	O	-	□□□	140	G	A
Safety Approval – ENEC, CE	Constant current	Outdoor		Output Power 150: 150W 200: 200W 250 :250W	Max Output Current 140 – 1400mA	Programmable output current + 12V/50mA	Variable A – Delta Standard

# LED Driver

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### Specifications

Model Number	EUCO-150140GC	EUCO-200140GA	EUCO-250140GA
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#### Input Ratings / Characteristics

Normal Input Voltage	220-240Vac			
Input Voltage Range	176-305Vac			
Normal Input Frequency	50-60Hz			
Input Frequency Range	47-63Hz			
Max. Input Current	220Vac	0.9A	1.1A	1.3A
Efficiency <sup>1)</sup>	230Vac	93% @ 0.7A	94% @ 1.05A	94% @ 1.05A
	230Vac	91% @ 1.4A	93% @ 1.4A	92% @ 1.4A
Inrush Current (Apk / 50% - $\mu$ S @ Cold Start)	230Vac	100A/250uS	110A/250uS	250A/150uS
Max. no. of LED Drivers circuit breaker at 230Vac	B16	6	5	2
	C16	9	8	4
Power Factor	100% Load: PF > 0.95 @ 230Vac, > 50% Load: PF > 0.9 @ 230Vac;			
Total Harmonic Distortion	THD < 20% with load $\geq$ 50% at 230Vac input			
Leakage Current	< 0.7mA peak @ 230Vac			
Standby Power	0.5W @ Dim to off, 230Vac			
Input Over-Voltage	Can survive input over-voltage stress of 320VAC for 48 hours and 350Vac for 2 hours			

1) 100% Load (typical) and tested after 30 minutes warm up.

#### Output Ratings / Characteristics

Output Voltage Range	72-214Vdc	75-190Vdc	90-238Vdc
Max. No Load Output Voltage	250Vrms	230Vrms	250Vrms
Output Power Range	150W	200W	250W
Adjustable Output Current (AOC)	600-1400mA	600-1400mA	600-1400mA
	With steps of 1mA, configurable via software		
Minimum Output Current	100mA (Min dim level)		
Current Accuracy	$\pm$ 5% (@ Typical output current range)		
Line Regulation	$\pm$ 1% (@ 220-240Vac input)		
Load Regulation	$\pm$ 3% (@ Min-Max output voltage)		
Output Current LF Ripple	5% (ripple = peak-average/average) at full load, (<100Hz)		
Start-up Time	500ms max. @ 220-240Vac (full load)		
Hold-up Time	16ms typ. @ 220-240Vac (full load)		

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Model Number	EUCO-150140GA	EUCO-200140GA	EUCO-250140GA
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### Mechanical

Casing	Aluminum, Color : Natural		
Dimensions (L x W x H) [mm] [inch]	174*68*37 6.85*2.68*1.46	220 x 68 x 37 8.66 x 2.68 x 1.46	240 x 68 x 37 9.45 x 2.68 x 1.46
Unit Weight [kg] [lb]	0.85 1.87	1.1 2.43	1.3 2.87
Cooling System	Convection		
Input Cable	Line: Brown, Neural: Blue, PE: Yellow/Green, Cable Length 300mm		
Output Cable	Positive: Brown, Negative: Blue, NTC/PRG: Black, Cable Length 300mm		
Dimming Cable	Dim(+): Violet, Dim(-): Gray, +12V: Black/White, Cable Length 300mm		
Noise (30cm distance)	Sound Pressure Level (SPL) < 24dBA		

### Environment

Ambient Temperature	Operating	-40°C to +50°C	-40°C to +55°C	
	Storage	-40°C to +85°C		
Maximum Case Temperature		+85°C	+90°C	+90°C
Relative Humidity	Operating	10 to 90% RH (Non-Condensing)		
	Storage	5 to 95% RH (Non-Condensing)		

### Protections

Over Voltage	250Vrms	230Vrms	250Vrms
	Auto-Recovery when the fault is removed		
Overload / Overcurrent	Reduce output current. Auto-Recovery when the fault is removed		
Short Circuit	Auto-Recovery when the fault is removed		
Over Temperature	Reduce output current. Auto-Recovery when the fault is removed		
Ingress Protection Classification	IP66/IP67		
Suitable for Luminaires Class	Class I. Insulation Class according to IEC 60598		

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### Reliability Data

Lifetime	50,000 hours at case temp. tc & full load. Refer to "Lifetime VS Case Temperature"		
Lifetime @ tc	+80°C	+80°C	+80°C

### Safety Standards / Directives

Electrical Safety	IEC 61347-1, IEC 61347-2-13 (independent) EN 61347-1, EN 61347-2-13			
CE	In conformance with EMC Directive and Low Voltage Directive			
Material and Parts	RoHS Directive 2011/65/EU Compliant			
Galvanic Isolation	Mains (Input)	Earth (Case)	Output/PROG	DIM ± & +12V
Mains (Input)	N/A	1875V	3750V	3750V
Earth (Case)	1875V	N/A	1875V	1875V
Output/PROG	3750V	1875V	N/A	1875V
DIM ± & +12V	3750V	1875V	1875V	N/A

### EMC Compliance

Emissions (CE & RE)	Compliance to EN 55015 Class B	
Immunity	Compliance to EN 61547	
Electrostatic Discharge	IEC 61000-4-2	Air Discharge: 8kV Contact Discharge: 4kV Criteria A <sup>1)</sup> or Criteria B <sup>2)</sup>
Radiated Field	IEC 61000-4-3	80MHz-1GHz, 3V/m with 1kHz Sine Wave / 80% Modulation Criteria A <sup>1)</sup>
Electrical Fast Transient / Burst	IEC 61000-4-4	1KV, Criteria A <sup>1)</sup> or Criteria B <sup>2)</sup>
Surge	IEC 61000-4-5	Common Mode <sup>3)</sup> : 6kV; Differential Mode <sup>4)</sup> : 6kV, Criteria A <sup>1)</sup> or Criteria B <sup>2)</sup> :
Conducted	IEC 61000-4-6	150kHz-80MHz, 3Vrms :Criteria A <sup>1)</sup>
Power Frequency Magnetic Fields	IEC 61000-4-8	3A/Meter : Criteria A <sup>1)</sup>
Voltage Dips	IEC 61000-4-11	100% dip; 0.5 cycle , Criteria A <sup>1)</sup> or Criteria B <sup>2)</sup> 30% dip; 10 cycle, Criteria A <sup>1)</sup> or Criteria B <sup>2)</sup>
Harmonic Current Emission	IEC 61000-3-2	Class C
Voltage Fluctuation & Flicker	IEC 61000-3-3	

1) Criteria A: Normal performance within the specification limits  
2) Criteria B: Temporary degradation or loss of function, which is self-recoverable

3) Asymmetrical: Common mode (Line to earth)  
4) Symmetrical: Differential mode (Line to line)

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### 0-10V Dimming Specification

Absolute Maximum Voltage	± 20V		
Source Current	120µA ± 10µA	200uA± 50µA	
Dimming Input Range	1) 0-10V, 1.2V (+/-0.1V) is 10% of lo_set or 100mA minimum, ≥8.5V is 100% of lo_set. (250W) 1.0V (+/-0.1V) is 10% of lo_set or 100mA minimum, ≥9.0V is 100% of lo_set. (100/150/200W) 2) Lower than 1.1V (+/-0.1V). 0.1V Hysteresis. (250W) Dim to off 0.5V (+/-0.15V), Dim to bright 0.7V (+/-0.15V), Hysteresis. (100/150/200W) 3) Short is 0% (dim to off) or min level. Programmable. 4) Open is 100% 5) See 0-10V Dimming Curve		
Dimming Current Tolerance	± 10% of maximum setting output current. Ex. lo_set: 1000mA, tolerance is ± 100mA.		

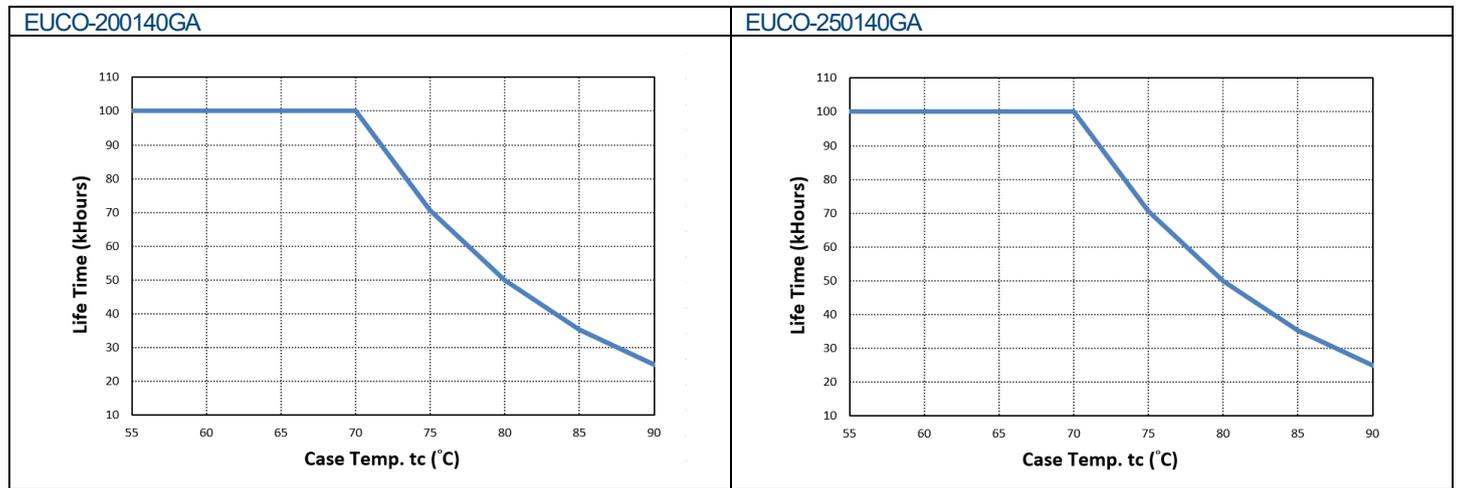
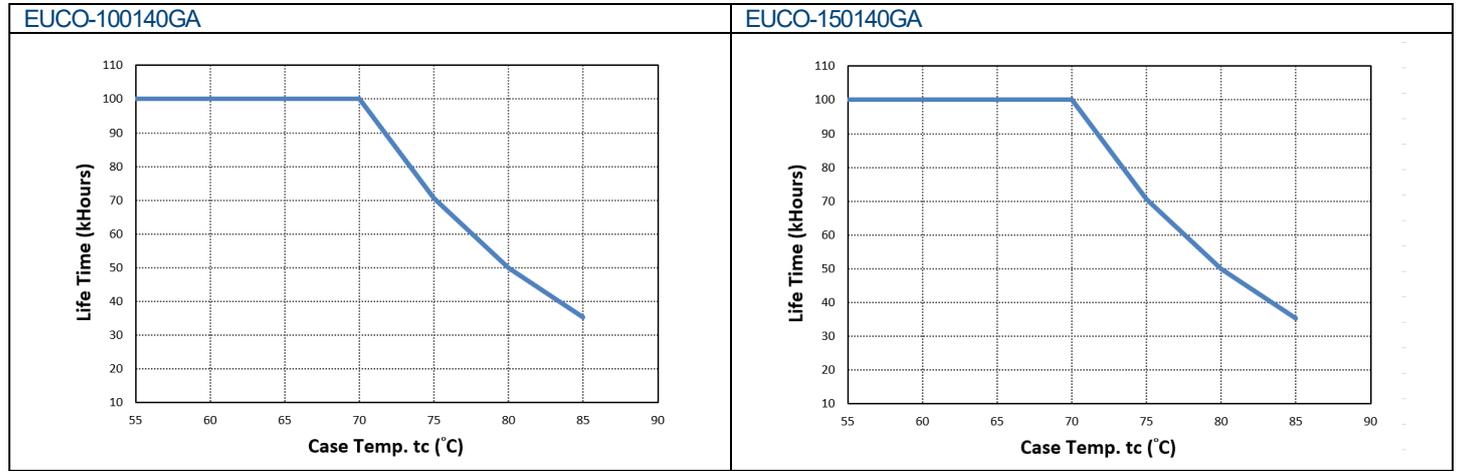
### Default Settings of the Driver (can be changed with programmable tools)

Adjustable Output Current (AOC)	700mA	1050mA	1050mA
0-10V DIM	Enabled (DIM to OFF). Selectable for Min. Dim Level and Min. & Max. Dim Voltage though tools		
Smart Timer DIM	Disabled (Only one function will be enabled between 0-10V & Smart Time Dim)		
Module Temperature Protection (MTP)	Disabled. Settable though programmable tools		
Constant Lumen Output (CLO)	Disabled. Settable though programmable tools.		
End of Life indication (EOL)	Disabled. Settable though programmable tools		
Auxiliary Output Voltage	+12V Output Range	+12Vdc (10.8 – 13.2Vdc)	
	+12V Output Current	50mA	
	Maximum Output Power	0.6W	

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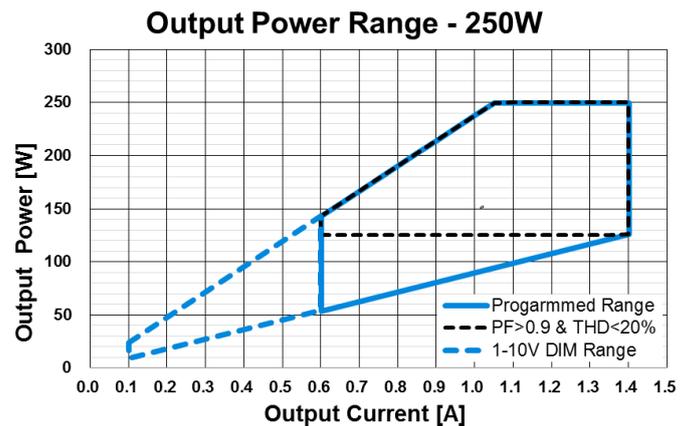
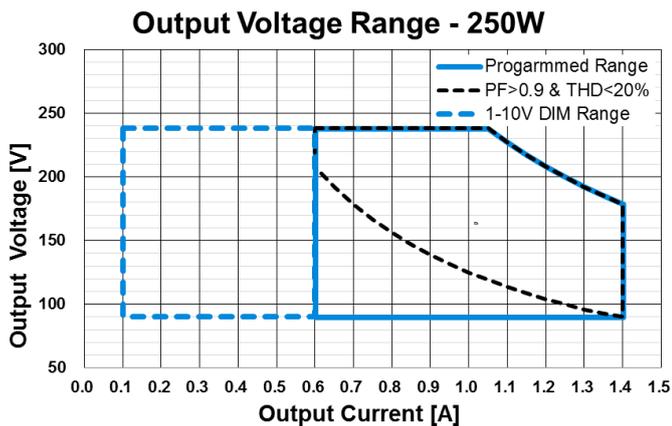
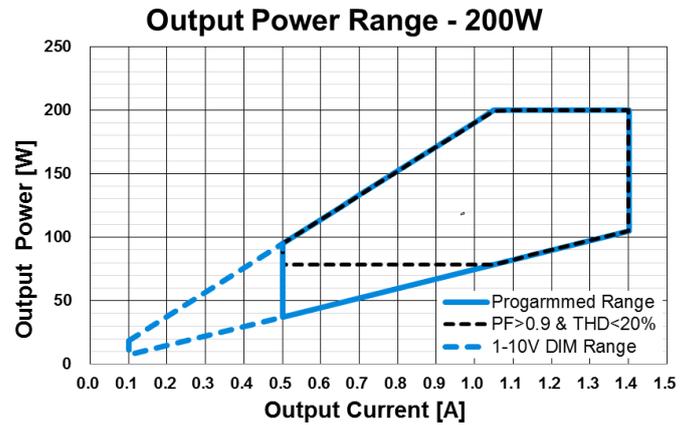
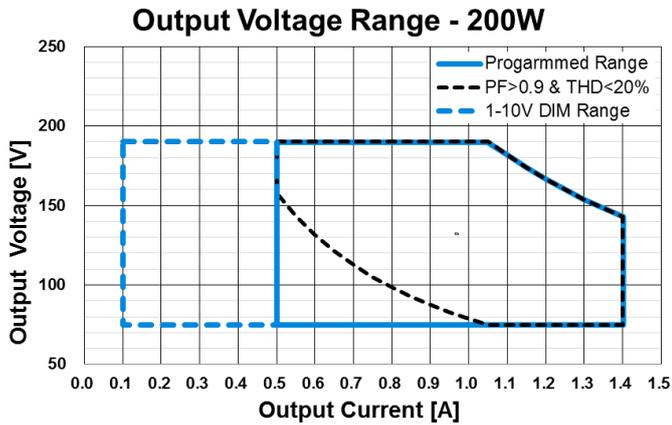
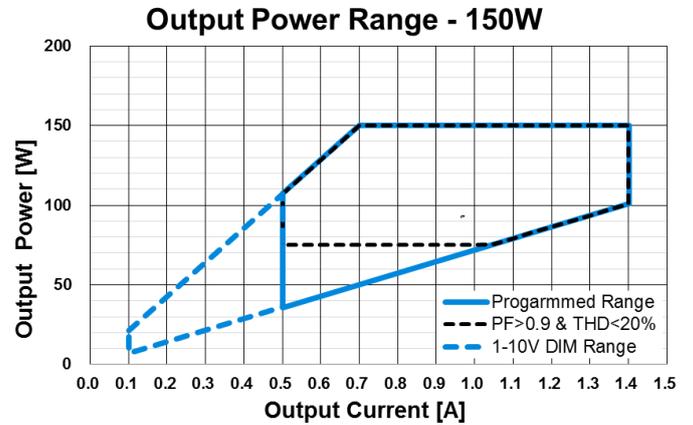
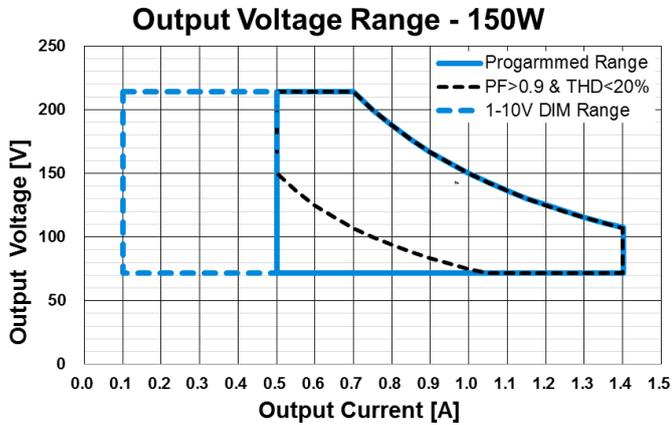
### Lifetime VS Case Temperature



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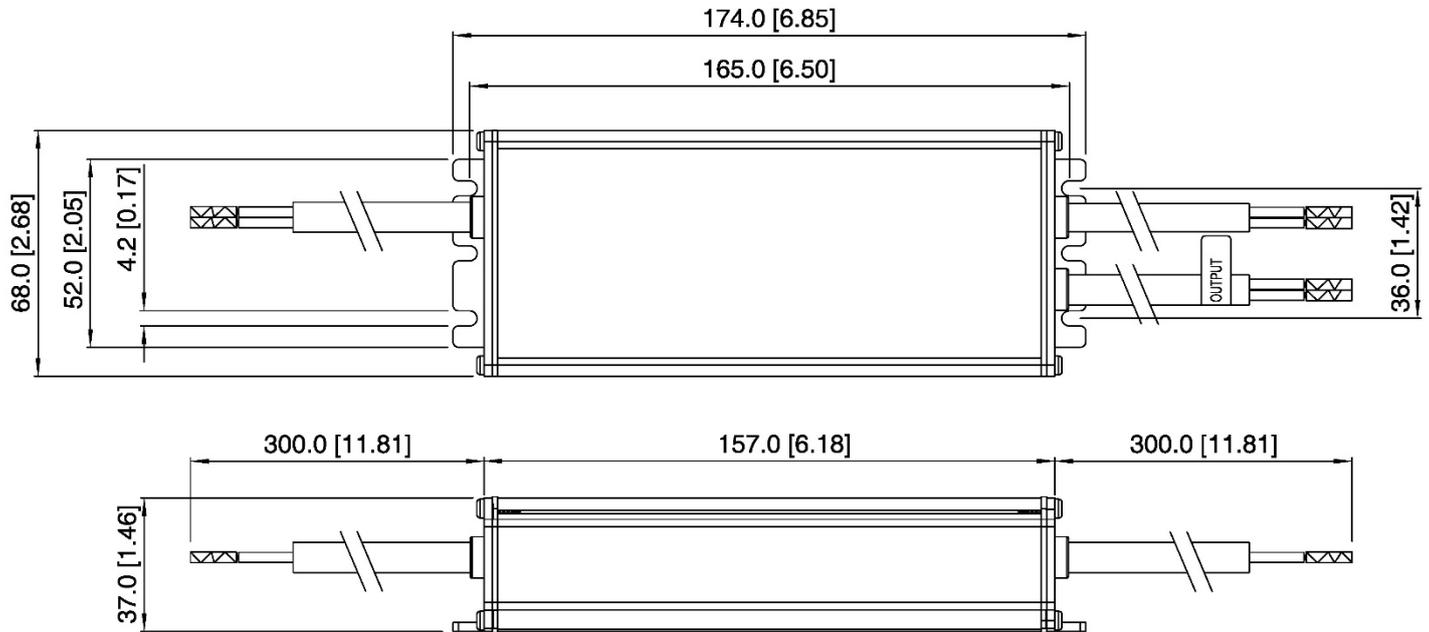
### Operation Window



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## Dimensions

EUCO-150140GA

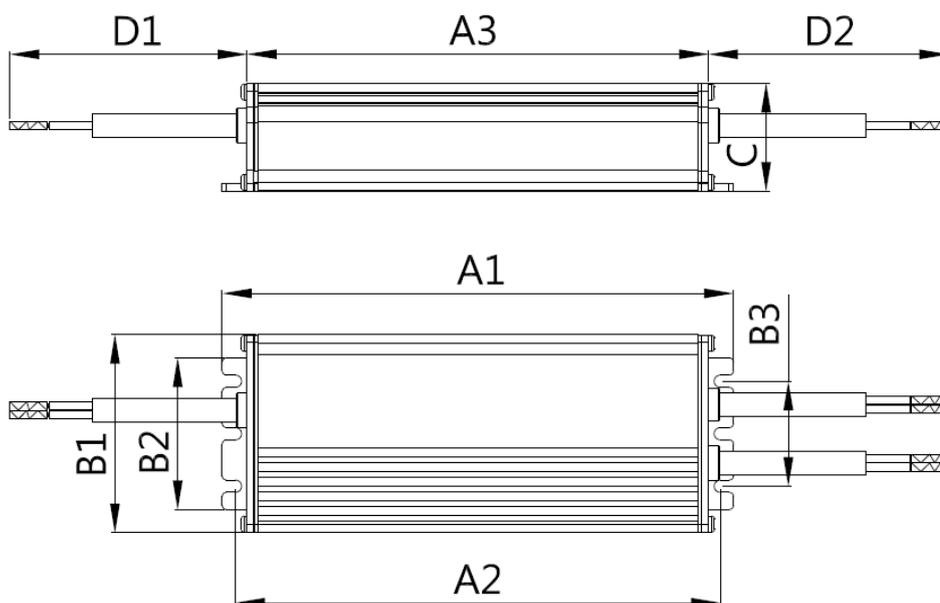


EUCO-200140GA

L x W x H: 220 x 68 x 37 mm (8.66 x 2.68 x 1.46 inch)

EUCO-250140GA

L x W x H: 240 x 68 x 37 mm (9.45 x 2.68 x 1.46 inch)



**Length (A1):**  
240mm (250W);  
220mm (200W);  
174mm (150W/100W)

**Width (B1):** 68mm

**Height (C):** 37mm

**Fixing hole distance (A2):**  
231mm (250W);  
211mm (200W);  
165mm (150W/100W)

**Fixing hole distance (B2):** 52mm

**Fixing hole distance (B3):** 36mm

**Body length (A3):**  
223mm (250W);  
203mm (200W);  
157mm (150W/100W)

**Input cable (D1):** 300mm

**Output cable (D2):** 300mm

**Dimming cable (D2):** 300mm