

## EcoSystem® 5-Series LED Driver (220 - 240 V~, CE)

EcoSystem® 5-Series LED Drivers provide a high performance solution for any space in any application, while providing smooth, continuous dimming down to 5% of output current.



### EcoSystem® LED Driver

53,7 mm W x 30,8 mm H x 215,0 mm L

#### Features

- Continuous, flicker-free dimming from 100% to 5%<sup>1</sup>
- Guaranteed dimming performance when used with Lutron® controls
- Compatible with Energi Savr Node™, EcoSystem® and ESN DALI units, GRAFIK Eye® QS control units, PowPak® dimming module with EcoSystem®, Quantum® systems and HomeWorks® QS systems, allowing for integration into a planned or existing EcoSystem® lighting control solution
- Protected from miswires of input power to EcoSystem® control inputs
- CE compliant & ENEC certified
- Independent control gear with integral strain relief
- SELV output
- A rated lifetime of 50 000 hours at 40 °C ambient
- 100% performance tested at factory
- RoHS compliant
- Non-volatile memory restores all settings after power failure
- Constant-current reduction dimming
- For more information please go to: [www.lutron.com/5SeriesLED](http://www.lutron.com/5SeriesLED)

<sup>1</sup> Light output at 5% depends on the efficacy of the light engine used with the driver.

## Specifications


### Performance

- Dimming Range: 100% to 5%<sup>1</sup>
- Dimming method: constant-current reduction  
Refer to Lutron® application note #360 for details
- Operating Voltage: 220 - 240 V~ at 50/60 Hz
- Lifetime: 50 000 hours @  $t_a = 40\text{ }^\circ\text{C}$ <sup>2</sup>
- Patented thermal foldback protection
- LED lighting turns on to any dimmed level without flashing to full brightness
- Non-volatile memory restores all driver settings after power failure
- Power Factor:  $\lambda > 0.95$  at 25 W and 35 W maximum power  
 $\lambda > 0.93$  at 15 W maximum power
- Typical standby power consumption: 0.5 W
- Meets Harmonics requirements for IEC-6000-3-2
- Output open circuit protected
- Output short circuit and overload protected
- Turn-on time: < 100 ms typical from electronic off

### Environmental

- Sound rated: inaudible in 24 dB ambient
- Relative Humidity: maximum 90% non-condensing
- Operation Range:  $t_a = 0$  to  $50\text{ }^\circ\text{C}$ <sup>2</sup>

### Regulatory Approvals and Compliance

- CE compliant and ENEC certified
  - Safety: IEC/EN 61347-2-13
  - Emissions: CISPR15/EN55015, IEC 61000-3-2, 3-3
  - Immunity: IEC/EN 61547, IEC/EN 61000-4-2, -4-3, -4-4, -4-6, -4-11
  - Performance: IEC/EN 62384
- RoHS 2006 Compliant
- IEC 60529, IP20 Rating
-  DALI Compliant
- Compliant with IEC62386-207
- Lutron® Quality Systems registered to ISO 9001.2008
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20.

<sup>1</sup> Light output at 5% depends on the efficacy of the light engine used with the driver.

<sup>2</sup> Where  $t_a$  is the temperature of the air directly surrounding the driver

<sup>3</sup> Subject to wire size limitations. See **Power Wiring Diagrams** page for wiring diagrams.

## Driver Wiring & Mounting

- Wiring Method: daisy chain capable terminals for input
- Torque range on terminal screws: 0.45 to 0.50 N•m
- Torque range on strain relief screws: 0.50 to 0.80 N•m
- **Power Input Terminals:**
  - Daisy chain capable wire size: 0,75 – 2,50 mm<sup>2</sup>
  - Daisy chain, Line, and Neutral Maximum: 20 units<sup>3</sup>
  - Second pair of terminals provided to daisy chain Line and Neutral
  - When placing multiple wires in the same strain relief, all wire diameters must be the same
- **EcoSystem® Terminals:**
  - Daisy chain capable (2 cable per terminal) wire size: 0,75 – 1,50 mm<sup>2</sup>
  - Not daisy chain capable (1 cable per terminal) wire size: 1,75 – 2,50 mm<sup>2</sup>
  - When placing multiple wires in the same strain relief, all wire diameters must be the same
- **Output Terminals:**
  - Wire size: 0,75 – 1,50 mm<sup>2</sup>
- Maximum lamp-to-driver wire length is 15 m using 0,75 - 1,50 mm<sup>2</sup> wire.
- **Maximum Number of Drivers on Miniature Circuit Breaker:**
  - 16 A Type B: 20 drivers
  - 16 A Type C: 34 drivers
- Provide adequate space to ensure convective cooling of LED driver. Remove any insulation or heat generating equipment or obstruction within 150 mm of LED driver.

**Note:** Ground termination not provided. Terminate ground in compliance with local electric codes.

### OEM Notes

- For best dimming performance, Lutron recommends electrical insulation with 50/60Hz impedance of at least 12 MΩ and minimum breakdown voltage of at least 1500 V<sub>~</sub> between LEDs and fixture chassis.

**Model Numbers:**

Model Number	Maximum Power	Rated Output Current	Compatible Load Voltage Range at Rated Output Current	Typical Efficiency at Maximum Power
LDE53E1CRN-RA070	20 to 35 W	0,700 A	27,7 to 50,0 V	87%
LDE53E1CRN-JA105	20 to 35 W	1,050 A	18,8 to 33,3 V	86%
LDE53E1CRN-LA140	18 to 35 W	1,400 A	12,9 to 25,0 V	86%
LDE52E1CRN-PA050	12 to 25 W	0,500 A	24,0 to 50,0 V	85%
LDE52E1CRN-FA070	12 to 25 W	0,700 A	16,4 to 35,7 V	84%
LDE52E1CRN-MA105	12 to 25 W	1,050 A	11,0 to 23,8 V	84%
LDE52E1CRN-KA140	13 to 25 W	1,400 A	9,3 to 17,9 V	84%
LDE51E1CRN-GA035	8 to 18 W	0,350 A	22,2 to 51,4 V	83%
LDE51E1CRN-NA050	8 to 15 W	0,500 A	15,0 to 30,0 V	80%
LDE51E1CRN-QA070	7 to 15 W	0,700 A	10,0 to 21,4 V	80%

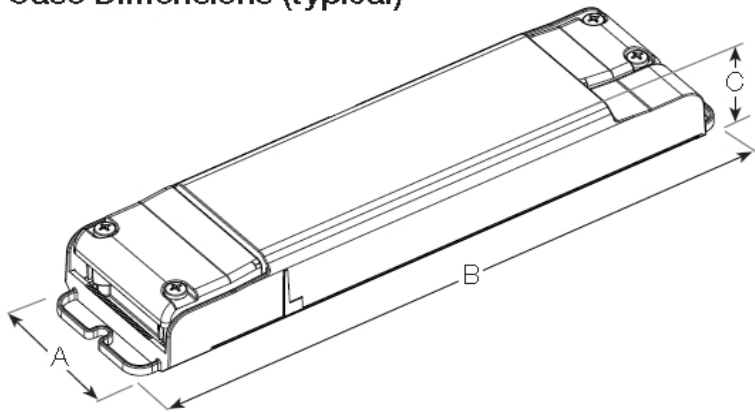
**Parkwell Lighting International Limited**

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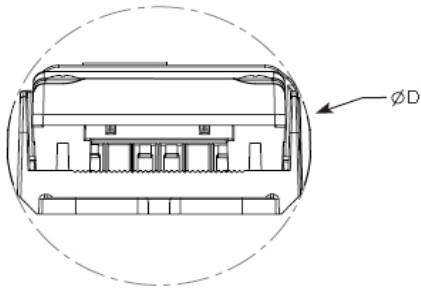
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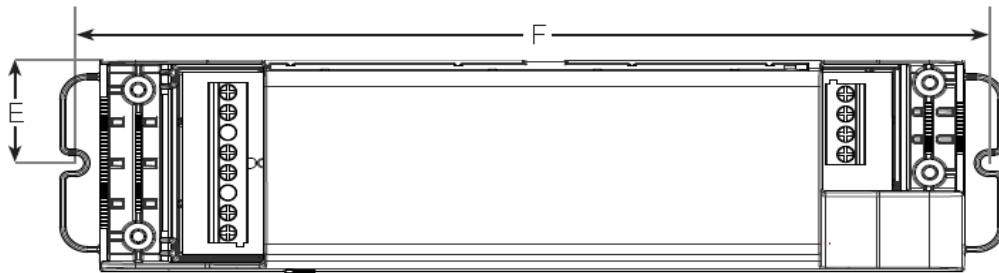
Email: [info@parkwell-lighting.com](mailto:info@parkwell-lighting.com)

**Case Dimensions (typical)**

A	53,7 mm
B	215,0 mm
C	30,8 mm
D	60,0 mm
E	26,8 mm
F	208,1 mm

**Mounting Centers**

- Recommended mounting screw: M3,5

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## EcoSystem® LED Driver Wiring Diagrams

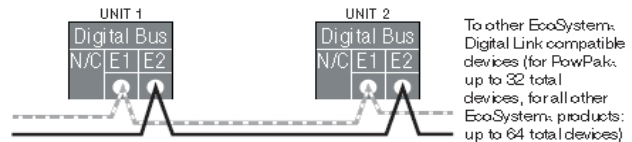
### EcoSystem® Digital Link Overview

- The EcoSystem® Digital Link wiring (E1 and E2) connects the drivers together to form a lighting control system.
- For EcoSystem® link limits, refer to EcoSystem® control specifications.
- E1 and E2 (EcoSystem® digital link wires) are polarity insensitive and can be wired in any topology.
- An Energi Savr Node™ with EcoSystem® unit, GRAFIK Eye® QS control unit with EcoSystem®, PowPak® dimming module with EcoSystem®, Quantum® system or HomeWorks® QS system provides power for the EcoSystem® Digital Link and supports system programming.
- All EcoSystem® Digital Link programming is completed by using the Energi Savr App for *Apple iPad*, *iPod Touch* or *iPhone* mobile digital devices, GRAFIK Eye® QS with EcoSystem®, PowPak® dimming module with EcoSystem®, Quantum® System or HomeWorks® QS system.

### EcoSystem® Digital Link Wiring

- Driver EcoSystem® Digital Link terminals may either accept one 0,75 to 2,50 mm<sup>2</sup> solid or stranded copper wire per terminal or two 0,75 to 1,50 mm<sup>2</sup> solid or stranded copper wires per terminal.
- Make sure that the mains breaker to the Driver and EcoSystem® Digital Link Supply is OFF when wiring.
- Connect the two conductors to the two Driver terminals E1 and E2 as shown.
- To avoid confusion and shorting the link when daisy chaining several drivers, the use of different color wires is recommended.
- Consult applicable electrical codes for proper wiring practices.

### EcoSystem® Daisy Chain Wiring



### Notes

- The EcoSystem® Digital Link Supply does not have to be located at the end of the Digital Link.
- EcoSystem® Digital Link length is limited by the wire gauge used for E1 and E2 as follows:

Wire Size	Digital Link Length (maximum)
2,50 mm <sup>2</sup>	500 m
1,50 mm <sup>2</sup>	300 m
1,00 mm <sup>2</sup>	200 m
0,75 mm <sup>2</sup>	150 m

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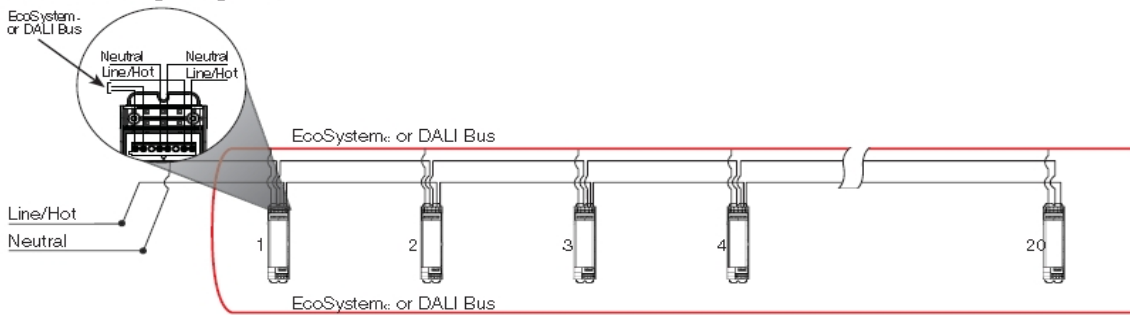
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## Power Wiring Diagrams

### Power Wiring Diagram +



Up to 64 total devices on the EcoSystem or DALI Link  
 Up to 32 total devices per EcoSystem Link on the PowPak dimming module with EcoSystem.

Up to 20 EcoSystem Drivers can have their power input terminals chained together, while 64 digital terminals can be chained

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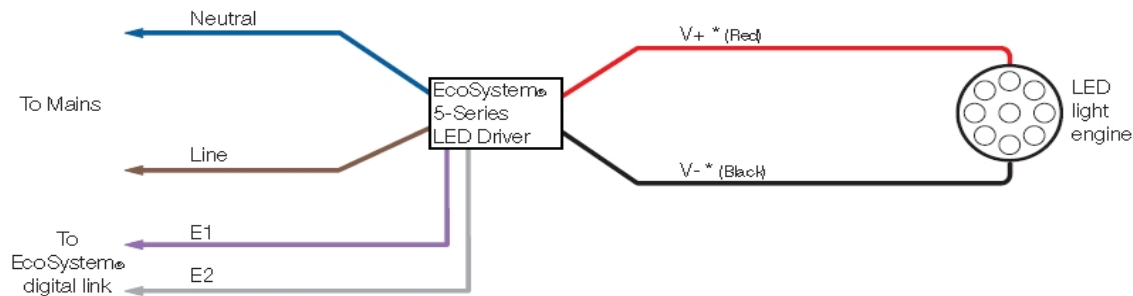
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## Wiring Diagram for EcoSystem® Digital Control



\* Maximum lamp-to-driver wire length is 15 m using 0,75 - 1,50 mm<sup>2</sup> wire.

### ATTENTION ELECTRICIANS AND CONTRACTORS

#### Driver Leads

Lead lengths from driver to LED light engine must not exceed 15 m.

Model Number	Driver Rating (A)	Wire Size (mm <sup>2</sup> )					Maximum Wire Length (m)
		0.5	0.75	1	1.5	2.5	
LDE53E1CRN-LA140 LDE52E1CRN-KA140	1.40	4	6	8	11	16	15
LDE53E1CRN-JA105 LDE52E1CRN-MA105	1.05	7	10	13	16	16	
LDE53E1CRN-RA070 LDE52E1CRN-FA070 LDE51E1CRN-QA070	0.70	16	16	16	16	16	
LDE52E1CRN-PA060 LDE51E1CRN-NA060	0.60	16	16	16	16	16	
LDE51E1CRN-GA035	0.35	16	16	16	16	16	

#### Wiring

Drivers must be installed per national and local electrical codes.

Provide adequate space to ensure convective cooling of LED driver. Remove any insulation or heat generating equipment or obstruction within 150 mm of LED driver.

### ATTENTION FACILITIES MANAGERS

#### SERVICE

#### Warranty

For warranty information, please see <http://www.lutron.com/TechnicalDocumentLibrary/Ballast%20and%20Driver%20Warranty.pdf>

#### Replacement Parts

Use replacement parts with exact Lutron® model numbers. Consult Lutron® if you have any questions.

#### Contact Information

For further information, please visit us at <http://www.lutron.com/europe> or contact Lutron® Technical Support at  
+44.(0)20.7680.4481 (Europe)  
1.610.282.3800 (USA Headquarters)

Please provide exact model number when calling.

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