

5-Series LED Driver

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

Features

- Continuous, flicker-free dimming from 100% to 5%¹.
- Guaranteed dimming performance when used with Lutron® controls.
- Compatible with Energi Savr Node™ with EcoSystem, GRAFIK Eye® QS with EcoSystem®, PowPak® dimming module with EcoSystem®, and Quantum® systems, allowing for integration into a planned or existing EcoSystem® lighting control solution.
- Protected from miswires of input power to EcoSystem® control inputs.
- A rated lifetime of 50,000 hours at 167 °F (75 °C) calibration point (t_c).
- UL® recognized for United States and Canada.
- FCC Part 15 compliant for commercial applications at 120–277 V \sim .
- 100% performance-tested at factory.
- RoHS compliant.
- Non-volatile memory restores all settings after power failure.
- Constant-current reduction dimming.
- For more information please visit: www.lutron.com/5-seriesled



5-Series LED Driver, Case type K

3.00 in (76 mm) W × 1.00 in (25 mm) H × 4.9 in (124 mm) L

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

Job Name:	Model Numbers:
Job Number:	

Specifications

Regulatory Approvals

- Lutron® Quality Systems registered to ISO 9001.2008.
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20.
- Meets ANSI C62.41 category A surge protection standards up to and including 4 kV.
- FCC Part 15 compliant for commercial applications at 120–277 V~.
- UL® 8750 recognized.
- Class 2 output.

Performance

- Dimming Range: 100% to 5%¹
- Dimming method: constant-current reduction, refer to Lutron® Application Note #360 for details.
- Operating Voltage: 120 V~ to 277 V~ at 50/60 Hz
- Lifetime: 50,000 hours @ $t_c = 167\text{ °F}$ (75 °C)²
- 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.
- Standby power consumption: <0.2 W at 120 V~ and <0.3 W typical at 277 V~.
- For Power Factor (PF) and Line current Total Harmonic Distortion (THD), see **Model Numbers** table.
- Open-circuit protected output.
- Short-circuit and overload-protected output.
- Device turn-on time: < 100 ms from electronic off and < 500 ms from power off.
- Class 2 output designed to withstand hot swap.

Environmental

- Sound rated: inaudible in 27 dBA ambient.
- Relative Humidity: maximum 90% non-condensing.
- Operating Ambient Temperature: $t_a = 32\text{ °F}$ to 122 °F (0 °C to 50 °C).³

Driver Wiring and Mounting

- Driver is grounded by a mounting screw to the grounded fixture or by terminal connection.
- Terminal blocks on the driver accept one solid wire per terminal from 18 AWG to 16 AWG (0.75 mm^2 to 1.5 mm^2).
- Fixture must be grounded in accordance with local and national electrical codes.
- Maximum driver-to-LED light engine wire length for:

Wire Gauge	Maximum Lead Length	
	200 mA to 700 mA	710 mA to 1.50 A
18 AWG (0.75 mm^2)	30 ft (9 m)	15 ft (4.5 m)
16 AWG (1.5 mm^2)	35 ft (10.5 m)	25 ft (7.5 m)
14 AWG (2.5 mm^2)*	50 ft (15 m)	40 ft (12 m)
12 AWG (4.0 mm^2)*	100 ft (30 m)	60 ft (18 m)

* Terminal blocks on the drivers accept only solid 18 AWG to 16 AWG (0.75 mm^2 to 1.5 mm^2) wire. To use wire gauges larger than the terminal blocks' rated gauge of 18 AWG to 16 AWG (0.75 mm^2 to 1.5 mm^2), refer to the **Terminal Wiring Gauges** diagram on Page 6. Connect up to 3 ft (0.9 m) of 18 AWG to 16 AWG (0.75 mm^2 to 1.5 mm^2) wire to the LED driver terminal blocks, then connect 14 AWG to 12 AWG (2.5 mm^2 to 4.0 mm^2) up to the length allowed in the above table.

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

² Installer is responsible for ensuring that the driver calibration point does not exceed the maximum rated temperature.

³ Where t_a is the temperature of the air directly surrounding the driver.

Job Name:	Model Numbers:
Job Number:	

Model Numbers

Model Number	Output Power Range	Rated Output Current	Compatible Load Voltage Range at Rated Output Current	Typical Maximum Power		
				Efficiency	PF	THD
LDE53U1UKx-LA140	18–35 W	1.40 A	12.9–25.0 V $\overline{=}$	87%	>0.95	<20%
LDE53U1UKx-JA105	20–35 W	1.05 A	18.8–33.3 V $\overline{=}$	85%	>0.95	<20%
LDE53U1UKx-RA070	20–35 W	0.70 A	27.7–50.0 V $\overline{=}$	87%	>0.95	<20%
LDE52U1UKx-KA140	13–25 W	1.40 A	9.3–17.9 V $\overline{=}$	83%	>0.95	<20%
LDE52U1UKx-MA105	12–25 W	1.05 A	11.0–23.8 V $\overline{=}$	84%	>0.95	<20%
LDE52U1UKx-MA093	11–22.1 W	0.93 A	11.0–23.8 V $\overline{=}$	84%	>0.95	<20%
LDE52U1UKx-MA089	10–21.2 W	0.89 A	11.0–23.8 V $\overline{=}$	84%	>0.95	<20%
LDE52U1UKx-MA085	10–20.2 W	0.85 A	11.0–23.8 V $\overline{=}$	84%	>0.95	<20%
LDE52U1UKx-FA070	12–25 W	0.70 A	16.4–35.7 V $\overline{=}$	85%	>0.95	<20%
LDE52U1UKx-FA066	11–23.6 W	0.66 A	16.4–35.7 V $\overline{=}$	79%	>0.90	<21%
LDE52U1UKx-FA063	11–22.5 W	0.63 A	16.4–35.7 V $\overline{=}$	78%	>0.90	<21%
LDE52U1UKx-FA060	10–21.4 W	0.60 A	16.4–35.7 V $\overline{=}$	78%	>0.90	<21%
LDE52U1UKx-PA050	12–25 W	0.50 A	24.0–50.0 V $\overline{=}$	85%	>0.95	<20%
LDE51U1UKx-QA070	7–15 W	0.70 A	10.0–21.4 V $\overline{=}$	80%	>0.90	<20%
LDE51U1UKx-NA050	8–15 W	0.50 A	15.0–30.0 V $\overline{=}$	80%	>0.90	<20%
LDE51U1UKx-NA046	7–13.8 W	0.46 A	15.0–30.0 V $\overline{=}$	76%	>0.88	<21%
LDE51U1UKx-NA044	7–13.2 W	0.44 A	15.0–30.0 V $\overline{=}$	76%	>0.88	<21%
LDE51U1UKx-NA042	7–12.6 W	0.42 A	15.0–30.0 V $\overline{=}$	75%	>0.88	<21%
LDE51U1UKx-GA035	8–17.5 W	0.35 A	22.2–50.0 V $\overline{=}$	83%	>0.90	<20%

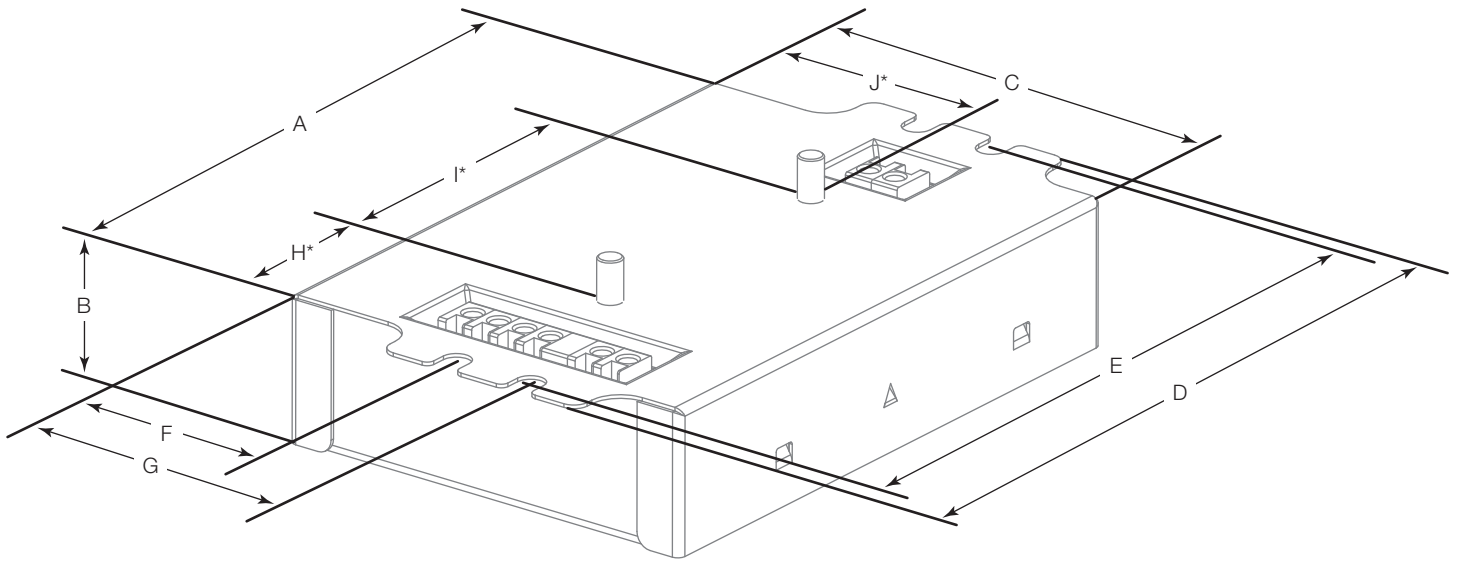
Notes

x = N (Non-studded) or S (Studded)

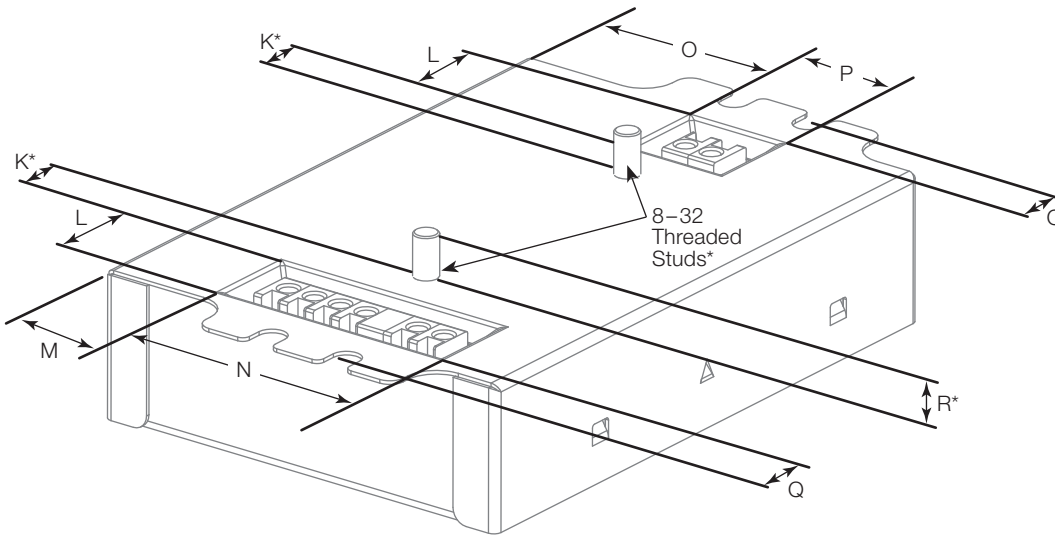
Attention: Model numbers may appear similar to Lutron® Hi-lume® 1% EcoSystem™, Hi-lume® 1% 3-wire or Hi-lume® 1% 2-wire drivers, but 5-Series drivers are not direct model-for-model replacements. Please note the driver's output rating and the load ratings to select the correct product for your fixture.

Job Name:	Model Numbers:
Job Number:	

K Case: Case Dimensions (Studded and Non-Studded)



K Case: Connector Location Dimensions (Studded and Non-Studded)

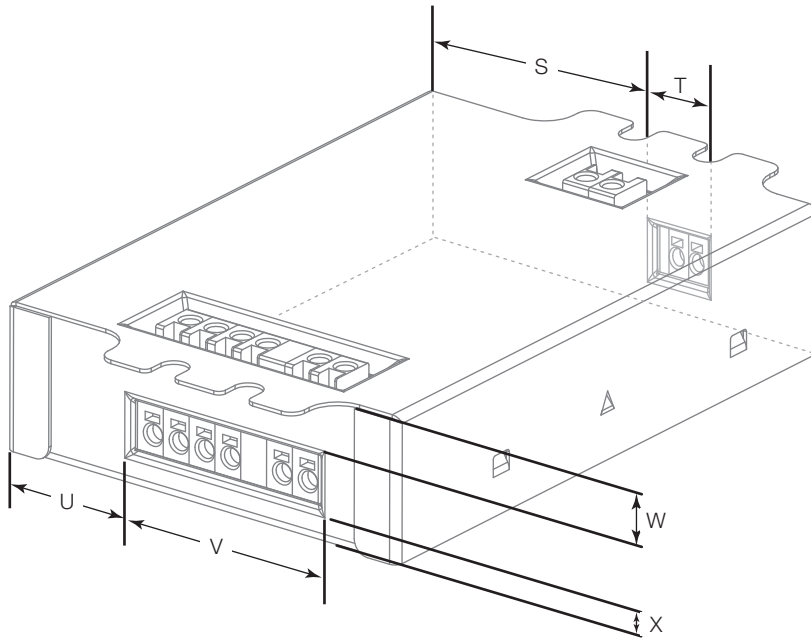


A 4.20 in (107 mm)	F 1.42 in (36 mm)	K* 0.33 in (8.3 mm)	P 0.74 in (19 mm)
B 1.00 in (25 mm)	G 1.99 in (51 mm)	L 0.65 in (16.5 mm)	Q 0.32 in (8 mm)
C 3.00 in (76 mm)	H* 1.11 in (28 mm)	M 0.75 in (19 mm)	R* 0.29 in (7 mm)
D 4.90 in (124 mm)	I* 2.00 in (51 mm)	N 1.73 in (44 mm)	
E 4.60 in (117 mm) (mounting center)	J* 1.60 in (41 mm)	O 1.33 in (34 mm)	

* Applies to studded K case only.

Job Name:	Model Numbers:
Job Number:	

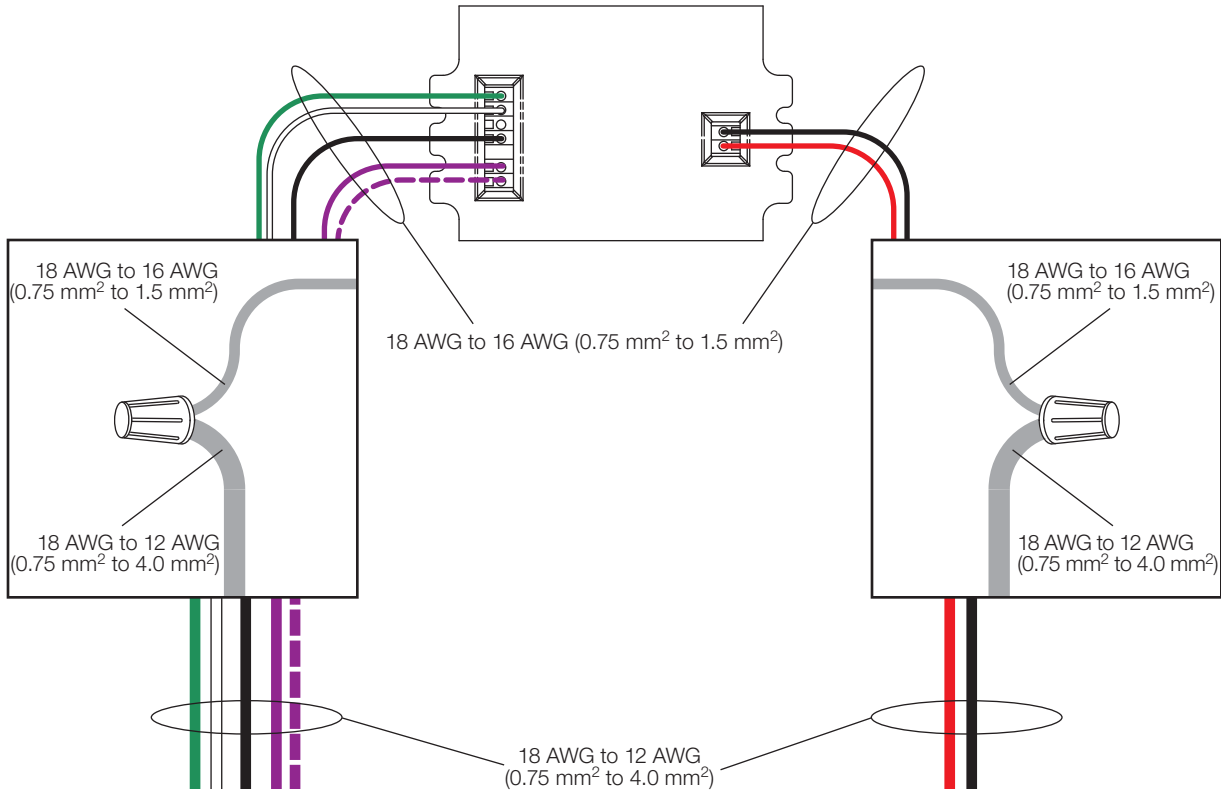
K Case: Side Entry Connector Location Dimensions (Non-Studded)



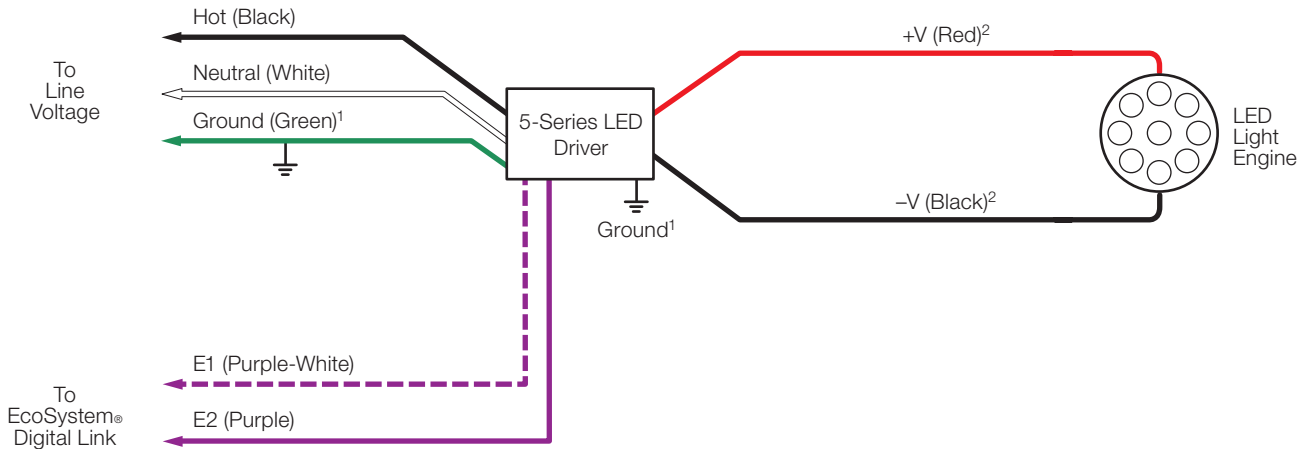
- S 1.38 in (35 mm)
- T 0.64 in (16 mm)
- U 0.88 in (22 mm)
- V 1.53 in (39 mm)
- W 0.406 in (10.3 mm)
- X 0.235 in (6 mm)

Job Name:	Model Numbers:
Job Number:	

Terminal Wiring Gauges



Wiring Diagram for EcoSystem® Digital Control



¹ Fixture and driver case must be grounded in accordance with local and national electrical codes; ground connection to driver case can be accomplished through ground terminal, and/or grounding the case.

² For maximum driver-to-LED light engine wire length, see charts in the **Driver Wiring and Mounting** section.

Note: Colors shown correspond to terminal blocks on driver.

Job Name:	Model Numbers:
Job Number:	

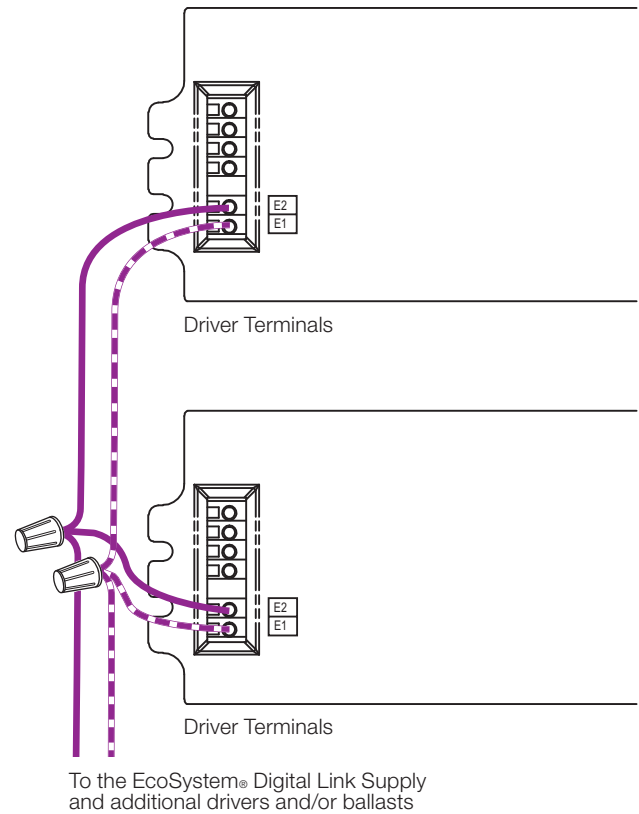
EcoSystem® Wiring Diagrams

EcoSystem® Digital Link Overview

- The EcoSystem® Digital Link wiring (E1 and E2) connects the digital ballasts and drivers together to form a lighting control system.
- Sensors do not connect directly to 5-Series LED drivers. Sensors are integrated through the EcoSystem® controller.
- E1 and E2 (EcoSystem® digital link wires) are polarity-insensitive and can be wired in any topology.
- Power is supplied to the EcoSystem® Digital Link from the control system.

EcoSystem® Digital Link Wiring

- EcoSystem® Digital Link terminals accept only one 18 AWG to 16 AWG (0.75 mm² to 1.5 mm²) solid copper wire per terminal.
- Make sure that the supply breaker to the drivers and EcoSystem® Digital Link Supply is OFF when wiring.
- Connect the two conductors to the two driver terminals E1 and E2 as shown.
- Using two different colors for E1 and E2 will reduce confusion when wiring several drivers together.
- The EcoSystem® Digital Link may be wired Class 1 or Class 2. Consult applicable electrical codes for proper wiring practices.
- For emergency wiring, please refer to Lutron® Application Note #106.



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 Gauge	Digital Link Length (max)
12 AWG*	2200 ft
14 AWG*	1400 ft
16 AWG	900 ft
18 AWG	550 ft

Wire Size	Digital Link Length (max)
4.0 mm ² *	828 m
2.5 mm ² *	517 m
1.5 mm ²	310 m
1.0 mm ²	207 m
0.75 mm ²	155 m

* Terminal blocks on the drivers accept only solid 18 or 16 AWG (0.75 mm² to 1.5 mm²) wire. To use wire gauges larger than the terminal blocks' rated gauge of 18 AWG to 16 AWG (0.75 mm² to 1.5 mm²), refer to the **Terminal Wiring Gauges** diagram on Page 6. Connect up to 3 ft (0.9 m) of 18 AWG to 16 AWG (0.75 mm² to 1.5 mm²) wire to the LED driver terminal blocks, then connect 14 AWG to 12 AWG (2.5 mm² to 4.0 mm²) up to the length allowed in the above table.

Job Name:

Model Numbers:

Job Number:

EMC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Service

Warranty

For warranty information, please visit www.lutron.com/driverwarranty

Replacement Parts

When ordering Lutron® replacement parts, please provide the full model number. Consult Lutron if you have any questions.

Further Information

For further information, please visit us at www.lutron.com/5-seriesled or contact our LED Control Center of Excellence at 1.877.346.5338 or LEDs@lutron.com

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