Constant current fixtures are to be wired in SERIES and require a MINIMUM and MAXIMUM number of fixtures connected to a driver as indicated on the following page.

NOTE: Powering or testing less than the minimum number of fixtures per driver or connecting fixtures with the driver powered (live wired) or wiring them in parallel will IMMEDIATELY and PERMANENTLY DESTROY the fixtures and void the warranty.

Carefully read instructions prior to installation and testing.



Constant Current drivers

Wiring Key Points This product shall be installed by a qualified electrician. Make sure the main power supply to the driver is turned off when wiring either the LEDs or driver. LEDs shall be wired in series as shown in wiring diagram. CAUTION: parallel wiring will damage LEDs. Wire shall be 18 awg stranded minimum. Large gauge wire shall be used to limit voltage drop in order to maintain the proper operating voltage. Take every precaution to avoid interferance from other electrical circuits and equipment. Dimming circuits are more sensitive to voltage drop and electrical interference from other electrical sources. Isolating LED wiring by dedicated circuit for each control zone is recommended. Contractor shall verify the fixture quantities connected to the driver are compatible with the driver's specifications prior to energizing the circuit. All Class II power cable remote wiring and driver enclosures by others. LED's can be permanently damaged if these points are not followed



Please note: Dimming/control wiring not shown in the diagram above.

inter•lux

| Project: | Туре: | Date: |
|---------------|----------|-------|
| Manufacturer: | Fixture: | |

Hi-lume 1% 2-Wire LED Driver Forward-Phase Control Overview

The Hi-lume 1% 2-Wire LED Driver is a high-performance LED driver that provides smooth, continuous, flicker-free, 1% dimming for virtually any LED fixture, whether it requires constant-current or constant-voltage. Formerly part of the A-series family, it is the most versatile LED driver offered today due to its compatibility with a wide variety of LED arrays, multiple form factors, and numerous control options.

Features

- UL_® Listed Class P
- Continuous, flicker-free dimming from 100% to 1%.1
- Guaranteed compatibility with selected Maestro Wireless, RadioRA 2, HomeWorks QS, GRAFIK Eye QS, GRAFIK Systems, Quantum, and C•L dimmers. Please see Compatible Controls chart or contact Lutron for details regarding compatible controls.
- QwikFig compatible. For more information please refer to Lutron P/N 041473 at www.lutron.com (K and M case only).
- 100% performance tested at factory.
- A rated lifetime of 50,000 hours @ $t_c = 149$ °F (65 °C).
- Remote-mount options for United States and Canada.
- NOM certified option for Mexico.
- Type TL Rated.²
- FCC Part 15
 - Class A (case type K and M)
 - Class B (case type KL)
- Pulse width modulation (PWM) or constant-current reduction (CCR) dimming methods available. See Application Note #360 (048360) at www.lutron.com for details.
- RoHS Compliant.
- ENERGY STAR Luminaires V2.0 and California Title 24 JA8 compliant models available.
- SSL7A-2015 compatible, above 20 W or more of rated input power.
- For more information please go to: www.lutron.com/hilume1led

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

² Visit "Online Certificates Directory" at www.ul.com, enter file number "E322469" to determine the Type TL numbers specific to LTE model Lutron LED Driver.

LUTRON SPECIFICATION SUBMITTAL

Job Name: Model Numbers:



Case type K

3.00 in (76 mm) W x 1.00 in (25 mm) H x 4.90 in (124 mm) L



Case type M

1.18 in (30 mm) W x 1.00 in (25 mm) H x 14.25 in (362 mm) L



Case type KL

K-case mounted on a 4.00 in (102 mm) W x 1.50 in (38 mm) H x 4.00 in (102 mm) L junction box to provide wiring compartment

Specifications

Regulatory Approvals

- Meets ANSI C62.41 category A surge protection standards up to and including 4 kV.
- FCC Part 15
 - Class A (case type K and M)
 - Class B (case type KL)
- CAN ICES-005(A) (case type K and M)
- CAN ICES-005(B) (case type KL)
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20.
- Lutron Quality Systems registered to ISO 9001.2015.
- UL_® 8750 Class P Listed (K- and M- cases).
- UL® 8750 Listed, remote-mountable form factor (KL Case).
- Class 2 output available.
- "BLK" models (for use with Lutron QwikFig technology) along with LTEA4U1UKL-AV120 and LTEA4U1UKL-CV240 models are NOM certified and available for Mexico.
- LED drivers need to meet certain performance criteria in order for the completed luminaires to comply with the ENERGY STAR Luminaires V2.0 Specification. All models meet these performance criteria throughout their entire load compatibility regions. Refer to the load compatibility graph on each output range page. Consult Application Note #599, **ENERGY STAR Luminaires V2.0 and Lutron Drivers** at www.lutron.com for availability dates of compliant products.
- LED drivers need to meet certain performance criteria in order for the completed luminaires to comply with Title 24 requirements as detailed in CEC-400-2015-037-CMF. All models meet these performance criteria above a minimum output power in their compatibility regions. Refer to the load compatibility graph on each output range page for specific details. Consult CEC-400-2015-032-CMF Section 6.2.7 for important information on meeting start-up time requirements with fade-in lighting.

 $^{\scriptscriptstyle 1}$ $\,$ Where t_a is the temperature of the air directly surrounding the driver.

UL® 8750 Listed, Remote-Mountable Option

- cULus for United States and Canada available for certain operating regions.
- Pre-wired and installation ready.
- See **KL Case: Case Dimensions** page for more specific details regarding UL listed option.
- Integral junction box to save time.
- For maximum driver-to-LED light engine wire length, see **Driver Leads** section near the end of this document.

Environmental

- Sound Rating: Inaudible in 27 dB ambient.
- Relative Humidity: Maximum 90% non-condensing.
- Minimum operating ambient temperature $t_a = 32 \text{ °F} (0 \text{ °C}).^1$

| UTRON | SPECIFICATION | SUBMITTAL |
|--------------|---------------|-------------|
| | | OOD MITTINE |

| Comon Specification Submittal | | | | | |
|-------------------------------|----------------|--|--|--|--|
| Job Name [.] | Model Numbers: | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Job Number: | | | | | |
| | | | | | |

Specifications (continued)

Performance

- Dimming Range: 100% to 1%.
- Operating Voltage: 120 V \sim at 50/60 Hz
- Requires Forward Phase Control; please see **Compatible Controls** chart.
- A rated lifetime of 50,000 hours @ t_c = 149 °F (65 °C).
 For rated warranty, t_c not to exceed the maximum rated temperatures.¹
- Patented thermal foldback protection.
- At turn-on, lighting will fade smoothly to the desired light level without decreasing or flashing to full brightness.
- Non-volatile memory restores all driver settings after power failure.
- Inrush Current: < 2 A.
- Inrush Current Limiting Circuitry: eliminates circuit breaker tripping, switch arcing and relay failure.
- Open circuit protected.
- Short circuit protected.
- Turn-on time: ≤ 0.5 seconds to first light.
- PWM Dimming Frequency: 550 Hz.²

Driver Wiring & Mounting

- Driver is grounded by a mounting screw to the grounded fixture (or by terminal connection on the K case).
- Terminal blocks on the driver accept one solid wire per terminal from 18 AWG to 16 AWG (0.75 mm² to 1.5 mm²).
- Fixture must be grounded in accordance with local and national electrical codes.
- For maximum driver-to-LED light engine wire length, see charts in **Driver Leads** section at the end of the document.

¹ Installer is responsible for ensuring that the driver case temperature does not exceed the maximum rated temperature.

² Does not apply to CCR dimming method drivers.

| LUTRON SPECIFICATION SUBMIT | TAL |
|------------------------------------|-----|
|------------------------------------|-----|

| Job Name: | Model Numbers: | | | | |
|-------------|----------------|--|--|--|--|
| Job Number: | | | | | |

369543g 3 02.28.19

369543a 4 02.28.19

How to Select the Correct LED Driver for Your Load

Note: Try our LED Driver Selection Tool online at www.lutron.com/leddrivertool

- 1. Review the specifications of the LED load.
 - a. Identify if the LED load requires a "constant current" or a "constant voltage" driver. Contact the LED load manufacturer for information on the type of load.
 - b. Identify the minimum and maximum operating voltage of the LED load at the desired operating current. This "current" will be the rated output current of the LED driver. Consult the LED load manufacturer for any questions.

The examples below are for a Class 2 constant current application:

- Example 1: A Class 2 LED load that is rated at 1 A and 38 V=== nominally, and has an output voltage range of 36–40 V=== (at 1 A) due to unit-to-unit variation, temperature, etc.
- Example 2: A Class 2 LED load that is rated at 1 A and 40 V== nominally, and has an output voltage range of 38–42 V== (at 1 A) due to unit-to-unit variation, temperature, etc.
- 2. Determine the proper operating range of the LED driver.
 - a. Identify the output current range(s) of the driver family that includes the desired current.

Examples 1 & 2: Only "F", "I", "J", and "Z" models meet the current range of the selected load (1 A).

| LED Load Output Range (see the following pages for more detail): | | | | | |
|------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|--|--|--|
| Class 2 Constant-Voltage | Class 2 Constant-Current | Isolated Non-Class 2 | | | |
| A = 10.0 V-12.0 V* | E = 0.20 A-0.50 A 30 V-54 V | Constant-Current | | | |
| B = 12.5 V-20.0 V*,† | F = 0.51 A-1.00 A 30 V-54 V [†] | Y = 0.20 A-0.50 A 30 V-60 V | | | |
| C = 20.5 V-24.0 V [†] | G = 0.20 A-0.70 A 8 V-20 V | Z = 0.51 A-1.00 A 30 V-60 V [†] | | | |
| D = 24.5 V-38.0 V ⁺ | H = 0.20 A-0.70 A 15 V-38 V | | | | |
| | I = 0.71 A–1.05 A 8 V–20 V | | | | |
| Isolated Non-Class 2 | J = 0.71 A–1.05 A 15 V–38 V | * Available in K-case only. | | | |
| Constant-Voltage | K = 1.06 A–1.50 A 8 V–20 V | Output parameter is power-limited for these output ranges. Consult detailed | | | |
| $X = 38.5 V - 60.0 V^{+}$ | L = 1.06 A-1.50 A 15 V-38 V [†] | specifications on the following pages for | | | |
| | M = 1.51 A-2.10 A 8V - 19.9V [†] | each range. | | | |

b. Identify output voltage range(s) of the driver that includes the desired voltage range.

Examples 1 & 2: Out of the 3 models indicated in step 2a,, only "F" and "Z" models meet the voltage requirement for the selected loads.

LED Load Output Range (see the following pages for more detail):

| Class 2 Constant-Voltage | Class 2 Constant-Current | Isolated Non-Class 2 |
|--------------------------------|---------------------------------------------|--------------------------------------------------------------------------------|
| A = 10.0 V-12.0 V* | E = 0.20 A-0.50 A 30 V-54 V | Constant-Current |
| B = 12.5 V-20.0 V*,† | F = 0.51 A-1.00 A 30 V-54 V [†] | Y = 0.20 A-0.50 A 30 V-60 V |
| C = 20.5 V-24.0 V [†] | G = 0.20 A-0.70 A 8 V-20 V | Z = 0.51 A-1.00 A 30 V-60 V [†] |
| D = 24.5 V-38.0 V ⁺ | H = 0.20 A-0.70 A 15 V-38 V | |
| | I = 0.71 A-1.05 A 8 V-20 V | |
| Isolated Non-Class 2 | J = 0.71 A-1.05 A 15 V-38 V | * Available in K-case only. |
| Constant-Voltage | K = 1.06 A-1.50 A 8 V-20 V | Output parameter is power-limited for these output ranges. Consult detailed |
| X = 38.5 V-60.0 V ⁺ | L = 1.06 A-1.50 A 15 V-38 V [†] | specifications on the following pages for |
| | M = 1.51 A-2.10 A 8 V - 19.9 V [†] | each range. |

Continued on next page

| Job Name: | Model Numbers: | | | | | |
|-------------|----------------|--|--|--|--|--|
| | | | | | | |
| Job Number: | | | | | | |

How to Select the Correct LED Driver for Your Load (continued)

- 3. Identify if the driver needs to be Class 2. Examples 1 & 2: Out of the "F" and "Z" models, only the "F" model is Class 2
 - a. Examine the Load Compatibility graphs below for each output range to ensure that the voltage range of the LED load is within the safe operating area.

Example 1: The LED voltage range of 36 V=== to 40 V=== falls entirely within the operating area of output range F, so this is a compatible output range



Example 2: The LED voltage range of 38 V=== to 42 V=== does not fall entirely within the operating area of output range F, so this is not a compatible output range.



| Job Name: | Model Numbers: |
|-------------|----------------|
| Job Number: | |

Architectural Dimming

369543q 6 02.28.19

How to Build a Model Number: Hi-lume 1% 2-Wire LED Driver



LED Load Output Range (see the following pages for more detail):

| Class 2 Constant-Voltage | Class 2 Constant-Current | Isolated Non-Class 2 |
|--------------------------------|---------------------------------------------|-------------------------------------------------------|
| A = 10.0 V-12.0 V* | E = 0.20 A-0.50 A 30 V-54 V | Constant-Current |
| B = 12.5 V-20.0 V*,† | F = 0.51 A-1.00 A 30 V-54 V [†] | Y = 0.20 A-0.50 A 30 V-60 V |
| C = 20.5 V-24.0 V ⁺ | G = 0.20 A-0.70 A 8 V-20 V | Z = 0.51 A-1.00 A 30 V-60 V ⁺ |
| D = 24.5 V-38.0 V ⁺ | H = 0.20 A-0.70 A 15 V-38 V | |
| | I = 0.71 A-1.05 A 8 V-20 V | |
| Isolated Non-Class 2 | J = 0.71 A-1.05 A 15 V-38 V | * Available in K-case only. |
| Constant-Voltage | K = 1.06 A-1.50 A 8 V-20 V | these output ranges. Consult detailed |
| X = 38.5 V-60.0 V ⁺ | L = 1.06 A-1.50 A 15 V-38 V [†] | specifications on the following pages for each range. |
| | M = 1.51 A-2.10 A 8 V - 19.9 V [†] | |

| Job Name: | Model Numbers: | | | | |
|-------------|----------------|--|--|--|--|
| | | | | | |
| | | | | | |
| Job Number: | | | | | |

Architectural Dimming

369543q 12 02.28.19

"E" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|--------------------------------------|-------------------------------------|-------------------|-------------------|-----------------|---------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| Constant-Current Driver (Class 2) | Constant-Current Reduction (CCR) | 30–54 V=== | 0.20–0.50 A | 6–27 W | CULUS LISTED CLASS P E322469 | Yes | |

Efficiency at Pmax (%)

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments: K-case - LTEA4U1UKx-3ABLK*; M-case - LTEA4U1UMN-3ABLK

x = studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions |
|-------------------|--------|-------------------------------|
| Input Current | 280 mA | t _a = 25 °C, |
| Power Factor | 0.99 | 0.50 A 27 W load, |
| THD | 11% | K case |
| Driver Efficiency | 80% | 120 V \sim without a dimmer |



Key: Green area shows California Title 24



Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: | | | | | |
|-------------|----------------|--|--|--|--|--|
| oob Name. | Model Numbers. | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Job Number: | | | | | | |
| | | | | | | |

Architectural Dimming

369543q 13 02.28.19

"F" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|--------------------------------------|-------------------------------------|-------------------|-------------------|-----------------|---------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| Constant-Current Driver (Class 2) | Constant-Current Reduction (CCR) | 30–54 V=== | 0.51–1.00 A | 15–40 W | CULUS LISTED CLASS P E322469 | Yes | c Us LISTED |

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments: K-case - LTEA4U1UKX-3ABLK*: M-case - LTEA4U1UMN-3ABLK

x = studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions | |
|-------------------|--------|-------------------------------|--|
| Input Current | 430 mA | t _a = 25 °C, | |
| Power Factor | 0.98 | 1.00 A 40 W load, | |
| THD | 11% | K case | |
| Driver Efficiency | 80% | 120 V \sim without a dimmer | |



Key: Green area shows California Title 24 and Energy Star 2.0 Compliance 40 W limited



Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: | | | | | |
|-------------|----------------|--|--|--|--|--|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Job Number: | | | | | | |
| Job Number: | | | | | | |

Architectural Dimming

369543q 14 02.28.19

"G" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|------------------|-------------------------------------|-------------------|-------------------|-----------------|--------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| Constant-Current | Pulse Width Modulation (PWM) | 8–20 V PWM | 0.00.0.70.4 | 0.14.14/ | | Vac | |
| Driver (Class 2) | Constant-Current Reduction (CCR) | 8–20 V== | 0.20-0.70 A | 2-14 VV | CLASS P E322469 | res | LISTED |

Efficiency at Pmax (%)

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments: K-case - LTEA4U1UKX-2GBLK*; M-case - LTEA4U1UMN-2CBLK

x =studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions | |
|-------------------|--------|-------------------------------|--|
| Input Current | 170 mA | t _a = 25 °C, | |
| Power Factor | 0.97 | 0.70 A 14 W load, | |
| THD | 23% | K case | |
| Driver Efficiency | 72% | 120 V \sim without a dimmer | |



Key:

Green area shows California Title 24



Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: | | | | | | |
|-------------|----------------|--|--|--|--|--|--|
| | | | | | | | |
| | | | | | | | |
| Job Number: | | | | | | | |

Architectural Dimming

369543q 15 02.28.19

"H" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|------------------|-------------------------------------|-------------------|-------------------|-----------------|--------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| Constant-Current | Pulse Width Modulation (PWM) | 15-38 V PWM | 0.00.0.70.4 | 0.00.0.14 | | | |
| Driver (Class 2) | Constant-Current Reduction (CCR) | 15–38 V=== | 0.20–0.70 A | 3-26.6 W | CLASS P E322469 | Yes | |

Efficiency at Pmax (%)

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments: K-case - LTEA4U1UKX-2HBLK*; M-case - LTEA4U1UMN-2BBLK

x = studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions |
|-------------------|--------|-------------------------------|
| Input Current | 280 mA | t _a = 25 °C, |
| Power Factor | 0.99 | 0.70 A 26 W load, |
| THD | 10% | K case |
| Driver Efficiency | 79% | 120 V \sim without a dimmer |



Key:

Green area shows California Title 24



Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: | | | | | |
|-------------|----------------|--|--|--|--|--|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Job Number: | | | | | | |
| | | | | | | |

Architectural Dimming

369543q 16 02.28.19

"I" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|------------------|-------------------------------------|-------------------|-------------------|-----------------|--------------------------|--------------------------------------------------------|--------------------------------------------------------------------|
| Constant-Current | Pulse Width Modulation (PWM) | 8–20 V PWM | 0.71 1.05 4 | C 01 W | | Vac | c (U) us |
| Driver (Class 2) | Constant-Current Reduction (CCR) | 8–20 V=== | 0.71-1.05 A | 0-21 00 | CLASS P E322469 | res | LISTED |

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments:

K-case - LTEA4U1UKx-2RBLK*; M-case - LTEA4U1UMN-2CBLK

x = studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions |
|-------------------|--------|-------------------------------------------|
| Input Current | 240 mA | t _a = 25 °C, |
| Power Factor | 0.97 | 1.05 A 21 W load, Maximum Light Output |
| THD | 20% | K case |
| Driver Efficiency | 76% | 120 V \sim without a dimmer |



Key:

Green area shows California Title 24



Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| Job Number: | |

Architectural Dimming

369543q 17 02.28.19

"J" Output Range, Current Driver Models

| Driver Type | Output Dimming Method | Output Voltage | Output Current | Output Power | Standards Recognition | UL _® Listed, Remote- Mountable Available | Standards Recognition for UL _® Listed, Remote-Mountable |
|------------------|-------------------------------------|-------------------|-------------------|-----------------|--------------------------|--------------------------------------------------------|-----------------------------------------------------------------------|
| Constant-Current | Pulse Width Modulation (PWM) | 15–38 V PWM | 0.71.1.05.4 | 11 40 10/ | | Ves | |
| Driver (Class 2) | Constant-Current Reduction (CCR) | 15–38 V= | 0.71-1.05 A | 11–40 VV | CLASS P E322469 | Yes | |

When using QwikFig technology, these models can be built from the following bulk units in 10 mA increments: K-case - LTEA4U1UKx-2SBLK*; M-case - LTEA4U1UMN-2BBLK

x = studded (S) or non-studded (N)

Typical Performance Specifications:

| Parameter | Value | Test Conditions |
|-------------------|--------|-------------------------------|
| Input Current | 410 mA | t _a = 25 °C, |
| Power Factor | 0.99 | 1.05 A 40 W load, |
| THD | 7% | K case |
| Driver Efficiency | 81% | 120 V \sim without a dimmer |







Output Power (W)



Output Current (A)



Output Power (W)

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| | |
| Job Number: | |
| | |

369543q 34 02.28.19

UL_® Listed, Remote-Mountable: Case Dimensions



- 4.89 in (124 mm) А
- В 2.62 in (66 mm)
- С 4.00 in (102 mm)
- D 1.62 in (41 mm)
- Е 4.00 in (102 mm)

KL case includes a 4 in (102 mm) square junction box which complies with NEMA OS 1-2008 Figure 112.

Knockouts

• Sides

- 8 locations: 0.5 in (13 mm)
- 4 locations: 0.5/0.75 in (13/19 mm)
- Bottom
 - 2 locations: 0.5 in (13 mm)
 - 2 locations: 0.5/0.75 in (13/19 mm)

Driver Wiring and Mounting

- Driver is grounded by the green ground wire connection on the enclosure or by the ground lug terminal in the junction box
- Driver and junction box must be grounded in accordance with local and national electrical codes
- All wire connections must be made in the junction box to maintain UL® listing
- 4 in (102 mm) square junction box is 1.5 in (38 mm) deep with 22.0 in³ (360.5 cm³) capacity and complies with NEMA OS 1-2008 Figure 112
- Driver is pre-wired with 6 in (152 mm), 18 AWG (0.75 mm²) solid copper leads in all terminal blocks

| LUTRON SPECIFICATIO | N SUBMITTAL |
|----------------------------|----------------|
| Job Name: | Model Numbers: |
| | |
| Job Number: | |

369543q 35 02.28.19

UL® Marking and Compatibility



CRU Drivers marked as UL® recognized are ONLY compatible with those controls marked with an asterisk (*) on the following pages.

CLASS P E322469 Drivers marked as UL® Listed Class P are compatible with all controls referenced on the following pages.



Drivers marked as UL_® 8750 Listed and manufactured before November 20, 2017, are ONLY compatible with those controls marked with an asterisk (*) on the following pages. Date code on the driver is in international date format, DD/MM/YYYY.

Note: If the fixture or driver is not accessible and the standards marking is unknown, use controls marked with an asterisk (*).

Wiring

Controls Requiring Neutral

Note: Colors shown correspond to terminals on driver.

Wiring Diagram



¹Ground wire connection available on K case models only. Fixture and driver case must be grounded in accordance with local and national electrical codes. ²For maximum driver-to-LED light engine wire length, see charts in **Driver Leads** section at the end of the document.

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| Job Number: | |

Architectural Dimming

C

R

369543q 36 02.28.19

Wiring (continued)

Controls Requiring Neutral (continued)

Compatible Controls: Lutron Neutral-wire Dimmers

Guaranteed performance specifications with the controls listed in the chart below.

For assistance selecting controls, contact our LED Center of Excellence at 1.877.DIM.LED8 or LEDs@lutron.com

| Dreduct | Dout Number | Low-End Setting/ | | Drivers per Contro | r Control | |
|--------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------|-----------------|--------------------|-------------------|--|
| Product | Part Number | Load-Type Setting ¹ | A: Not Ganged | B: End of Gang | C: Middle of Gang | |
| RadioRA 2 adaptive dimmer* | RRD-6NA- | Hi-lume 1% 2-Wire LTE LED ² | 1–10, 400 W max | 1–10, 400 W max | 1-10, 400 W max | |
| RA2 Select/RadioRA 2 600 W dimmer | RRD-6ND | Hi-lume 1% 2-Wire LTE LED ² | 1–8, 350 W max | 1–8, 350 W max | 1-8, 350 W max | |
| RadioRA 2 1000 W dimmer* | RRD-10ND- | Set Device type to "INC/MLV Neutral Dimmer"; Set High-End Trim to 99%; Set Low-End Trim to 35% | 1–13 | 1–13 | 1–13 | |
| RadioRA 2 Architectural RF GRAFIK T phase selectable dimmer ³ | RRT-G5NEW-3 | Trim low-end per APM App Note (Lutron P/N 048534) | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| RadioRA 2 Architectural RF GRAFIK T dimmer | RRT-G25LW- | Trim low-end per APM App Note (Lutron P/N 048534) | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| RadioRA 2 C•L hybrid seeTouch keypad | RRD-HN | Hi-lume 1% 2-Wire LTE LED | 1–10, 200 W max | 1–10, 200 W max | 1–10, 200 W max | |
| RadioRA 2 GRAFIK T C•L hybrid keypad | RRT-GH | Hi-lume 1% 2-Wire LTE LED | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| HomeWorks QS adaptive dimmer* | HQRD-6NA- | Hi-lume 1% 2-Wire LTE LED ² | 1–10, 400 W max | 1–10, 400 W max | 1-10, 400 W max | |
| HomeWorks QS 600 W dimmer* | HQRD-6ND- | Hi-lume 1% 2-Wire LTE LED ² | 1–8, 350 W max | 1–8, 350 W max | 1–8, 350 W max | |
| HomeWorks QS 1000 W dimmer* | HQRD-10ND- | Hi-lume 1% 2-Wire LTE LED ² | 1–13 | 1–13 | 1–13 | |
| Maestro Wireless 600 W dimmer* | MRF2-6ND-120- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–8, 350 W max | 1–8, 350 W max | 1–8, 350 W max | |
| Vive Maestro Wireless 600 W dimmer* | MRF2S-6ND-120- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–8, 350 W max | 1–8, 350 W max | 1-8, 350 W max | |
| HomeWorks QS GRAFIK T hybrid keypad | HQRT-GH | Hi-lume 1% 2-Wire LTE LED | 1–10, 400 W max | 1–10, 400 W max | 1-10, 400 W max | |
| HomeWorks QS Architectural GRAFIK T dimmer | HQRT-G25LW- | Hi-lume 1% 2-Wire LTE LED | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| HomeWorks QS Architectural GRAFIK T phase selectable dimmer ³ | HQRT-G5NEW- ³ | Hi-lume 1% 2-Wire LTE LED | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| HomeWorks QS designer C•L hybrid seeTouch keypad | HQRD-HN | Hi-lume 1% 2-Wire LTE LED | 1–10, 200 W max | 1–10, 200 W max | 1–10, 200 W max | |
| GRAFIK T C•L 250 W dimmer* | GT-250M-, GTJ-250M- | Set low-end trim per dimmer installation instructions | 1–10, 400 W max | 1–10, 400 W max | 1-10, 400 W max | |
| Caséta Wireless Pro 1000 W dimmer* | PD-10NXD- | Trim low-end per instructions at www.casetawireless.com/lowend | 1-13 | 1–13 | 1-13 | |
| Caséta Wireless phase selectable dimmer ³ | PD-5NE-3 | Trim low-end per instructions at www.casetawireless.com/lowend | 1–20, 400 W max | 1–20, 400 W max | 1–20, 400 W max | |
| Maestro PRO phase selectable dimmer | MA-PRO ³ | Trim low-end per APM App Note (Lutron P/N 048703) | 1–20, 400 W max | 1–20, 400 W max | 1–20, 400 W max | |

Note: All wattages are in terms of input wattage to the LED driver. * See note on page 35 for control compatibility. 1 Setting the low-end trim and load type is necessary to ensure optimal performance and 1% dimming capability. Note: For information about Legacy Product use in existing control application, contact LEDs@lutron.com 2 Also listed as "LED Lutron A-Series 2-Wire" or "Hi-lume A-Series LTE LED Driver 2-Wire" in previous software releases. 3 Not compatible in default mode (reverse-phase). Dimmer must be changed to forward-phase.

LUTRON SPECIFICATION SUBMITTAL

Model Numbers:

Job Number:

Job Name:

369543q 37 02.28.19

Wiring (continued)

Controls Requiring Neutral (continued)

Note: Colors shown correspond to terminals on driver.

Wiring Diagram



¹Ground wire connection available on K case models only. Fixture and driver case must be grounded in accordance with local and national electrical codes. ²For maximum driver-to-LED light engine wire length, see charts in **Driver Leads** section at the end of the document.

Compatible Controls: Lutron Dimming Modules/Panels

Guaranteed performance specifications with the controls listed in the chart below.

For assistance selecting controls, contact our LED Center of Excellence at 1.877.DIM.LED8 or LEDs@lutron.com

| Product | Part Number | Drivers per Control | Low-End Setting/Load-Type Setting ¹ |
|-----------------------------------------------------------|----------------------------|----------------------------------------------------------|------------------------------------------------|
| myRoom DIN power module* | MQSE-4A1-D | 1–6 (per output); 1 A maximum driver input current | Hi-lume 1% 2-Wire LTE LED ² |
| HomeWorks QS DIN power module* | LQSE-4A1-D | 1–6 (per output); 1 A maximum driver input current | Hi-lume 1% 2-Wire LTE LED ² |
| HomeWorks QS Phase Adaptive DIN power module ³ | LQSE-4A-120-D ³ | 1–6 (per output); 2 A maximum driver input current | Hi-lume 1% 2-Wire LTE LED ² |
| HomeWorks QS wallbox power module* | HQRJ-WPM-6D-120 | 1–10 (per output); 26 total per module | Hi-lume 1% 2-Wire LTE LED ² |
| HomeWorks wallbox power module* | HWI-WPM-6D-120 | 1–10 (per output); 26 total per module | Set load type to "GRX-FDBI" or "GRX-TVI" |
| GRAFIK Eye QS control unit* | QSGR-, QSGRJ- | 1–10 (per output); 26 total per unit | Set load type to "Fluorescent Module" |
| GRAFIK Eye 3000 control unit* | GRX-3100-, GRX-3500- | 1–10 (per output); 26 total per module | Set load type to "GRX-FDBI" or "GRX-TVI" |
| RPM-4U module (LCP, HomeWorks QS, | HW-RPM-4U-120, | 1–26 (per output); 26 | Hi-lume 1% 2-Wire LTE LED ² |
| GRAFIK Systems, Quantum)* | LP-RPM-4U-120 | total per module | Set load type to "2-1" |
| RPM-4A module (LCP, HomeWorks QS, | HW-RPM-4A-120, | 1–13 (per output); 26 | Hi-lume 1% 2-Wire LTE LED ² |
| GRAFIK Systems, Quantum)* | LP-RPM-4A-120 | total per module | Set load type to "2-1" |
| GP dimming panels* | Various | 1-26 | Set load type to "2-1" |

* See note on page 35 for control compatibility.

¹ Setting the low-end trim and load type is necessary to ensure optimal performance and 1% dimming capability.

² Also listed as "LED Lutron A-Series 2-Wire" or "Hi-lume A-Series LTE LED Driver 2-Wire" in previous software releases.

³ Not compatible in default mode (reverse-phase). Additional configuration is necessary in forward-phase.

| Job Name | Model Numbers: | | | | |
|-------------|----------------|--|--|--|--|
| | | | | | |
| | | | | | |
| | | | | | |
| leh Number | | | | | |
| JOD NUMBER: | | | | | |

Wiring (continued)

Controls Not Requiring Neutral

Note: Colors shown correspond to terminals on driver.

Wiring Diagram



¹Ground wire connection available on K case models only. Fixture and driver case must be grounded in accordance with local and national electrical codes.

² For maximum driver-to-LED light engine wire length, see charts in **Driver Leads** section at the end of the document.

Compatible Controls: Lutron Non-Neutral Dimmers

Guaranteed performance specifications with the controls listed in the chart below.

For assistance selecting controls, contact our LED Center of Excellence at 1.877.DIM.LED8 or LEDs@lutron.com



| L | | | 0 |
|---|---|---|---|
| | | | B |
| | 0 | 0 | 0 |

| Dreduct | Dout Number | Low End Catting/Load Type Catting1 | Drivers per Control | | | |
|------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------|-------------------|--|
| Product | Part Number | Low-End Setting/Load-Type Setting | A: Not Ganged | B: End of Gang | C: Middle of Gang | |
| Ariadni C∙L 250 W dimmer* | AYCL-253P- | Set low-end trim dial to 1 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–8, 350 W max | 1–8, 350 W max | 1–8, 350 W max | |
| Ariadni C•L 150 W dimmer | TGCL-153P-, AYCL-153P- | Set low-end trim dial to 1 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max | |
| Diva C•L 250 W dimmer* | DVCL-253P- DVSCCL-253P- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–8, 350 W max | 1-8, 350 W max | 1–8, 350 W max | |
| Diva C∙L 150 W dimmer | DVCL-153P-, DVSCCL-153P- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max | |
| Nova T☆ C∙L 250 W dimmer* | NTCL-250- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max | |
| Lumea C•L 150 W dimmer | LECL-153P- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max | |
| Skylark C•L 150 W dimmer | SCL-153P- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max | |
| Contour C•L 150 W dimmer | CTCL-153P- | Set low-end trim dial to 10 o'clock. Adjust slightly if needed. See dimmer installation instructions on how to adjust low-end trim. | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max | |

Note: All wattages are in terms of input wattage to the LED driver.

* See note on page 35 for control compatibility.

Setting the low-end trim and load type is necessary to ensure optimal performance and 1% dimming capability. **Note:** For information about Legacy Product use in existing control application, contact LEDs@lutron.com

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| Job Number: | |

В

369543q 39 02.28.19

Wiring (continued)

Controls Not Requiring Neutral (continued)

Compatible Controls: Lutron Non-Neutral Dimmers

Guaranteed performance specifications with the controls listed in the chart below.

For assistance selecting controls, contact our LED Center of Excellence at 1.877.DIM.LED8 or LEDs@lutron.com

| Product Part Number Low End Setting/Load Type Setting1 | | Drivers per Control | | | |
|---------------------------------------------------------------|-------------------------------|----------------------------------------------------------------|-----------------|-----------------|-------------------|
| FIOUUCI | Fait Number | Low-End Setting/Load-Type Setting | A: Not Ganged | B: End of Gang | C: Middle of Gang |
| Maestro C•L 150 W dimmer | MACL-153M- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| Maestro C•L 150 W sensor | MSCL-OP153M-, MSCL-VP153M- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| Vive Maestro C•L 150 W dimmer | MRF2S-6CL- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| GRAFIK T C•L 150 W dimmer | GTJ-150- | Set low-end trim per dimmer installation instructions | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| Maestro Wireless C•L 150 W dimmer | MRF2-6CL- | Trim low-end per APM App Note (Lutron P/N 048370) | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| RadioRA 2 C•L 150 W dimmer | RRD-6CL- | Set low-end trim per dimmer installation instructions | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| HomeWorks QS Designer C•L 150 W dimmer | HQRD-6CL- | Hi-lume 1% 2-Wire LTE LED | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| Caséta Wireless C•L Dimmer | PD-6WCL- | Trim low-end per instructions at www.casetawireless.com/lowend | 1–6, 250 W max | 1–6, 250 W max | 1–6, 250 W max |
| RadioRA 2 Architectural RF GRAFIK T dimmer ² | RRT-G25LW- | Trim low-end per APM App Note (Lutron P/N 048534) | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max |
| HomeWorks QS Architectural GRAFIK T dimmer ² | HQRT-G25LW- | Hi-lume 1% 2-Wire LTE LED | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max |
| GRAFIK T C•L 250 W dimmer ^{*, 2} | GT-250M-, GTJ-250M- | Set low-end trim per dimmer installation instructions | 1–10, 400 W max | 1–10, 400 W max | 1–10, 400 W max |

Note: All wattages are in terms of input wattage to the LED driver.

* See note on page 35 for control compatibility.

¹ Setting the low-end trim and load type is necessary to ensure optimal performance and 1% dimming capability.

Note: For information about Legacy Product use in existing control application, contact LEDs@lutron.com

² Minimum number of drivers for GRAFIK T will vary based on the number of companion dimmers (model number GT-AD) connected. Refer to the GRAFIK T Spec Submittal, Lutron P/N 369826, at www.lutron.com This only applies when neutral is not connected.

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| Job Number: | |

Terminal Wiring Gauges

369543q 40 02.28.19



Note: Colors shown correspond to terminal blocks on driver.

Electricians and Contractors

Driver Leads

Maximum driver-to-LED light engine wire length for **Constant-Current Drivers:**

| | Maximum Lead Length | | |
|--------------------------------|---------------------|---------------------|---------------------|
| Wire Gauge* | 200 mA to 700 mA | 710 mA to 1.50 A | 1.51 A to 2.10 A |
| 24 AWG (0.2 mm²) | 8 ft (2.5 m) | 4 ft (1.2 m) | 2.75 ft (0.8 m) |
| 22 AWG (0.34 mm ²) | 13 ft (4 m) | 6 ft (1.8 m) | 4.5 ft (1.5 m) |
| 20 AWG (0.5 mm²) | 20 ft (6 m) | 10 ft (3 m) | 7 ft (2 m) |
| 18 AWG (0.75 mm²) | 30 ft (9 m) | 15 ft (4.5 m) | 10 ft (3 m) |
| 16 AWG (1.5 mm²) | 35 ft (10.5 m) | 25 ft (7.5 m) | 15 ft (4.5 m) |
| 14 AWG (2.5 mm²) | 50 ft (15 m) | 40 ft (12 m) | 25 ft (7.5 m) |
| 12 AWG (4.0 mm²) | 100 ft (30 m) | 60 ft (18 m) | 40 ft (12 m) |

Maximum driver-to-LED light engine wire length for **Constant-Voltage Drivers:**

| | Maximum Lead Length | | |
|-------------------------------|---------------------|-------------------|----------------|
| Wire Gauge* | 10 V to 20 V | 20.5 V to 40 V | 40.5 V to 60 V |
| 24 AWG (0.2 mm²) | 2.5 ft (0.8 m) | 4 ft (1.2 m) | 8 ft (2.5 m) |
| 22 AWG (0.34 mm²) | 4 ft (1.2 m) | 6 ft (1.8 m) | 12 ft (3.7 m) |
| 20 AWG (0.5 mm²) | 6 ft (1.8 m) | 10 ft (3 m) | 20 ft (6 m) |
| 18 AWG (0.75 mm²) | 10 ft (3 m) | 15 ft (4.5 m) | 30 ft (9 m) |
| 16 AWG (1.5 mm²) | 15 ft (4.5 m) | 25 ft (7.5 m) | 50 ft (15 m) |
| 14 AWG (2.5 mm²) | 25 ft (7.5 m) | 40 ft (12 m) | 75 ft (22.5 m) |
| 12 AWG (4.0 mm ²) | 40 ft (12 m) | 60 ft (18 m) | 100 ft (30 m) |

Terminal blocks on the drivers accept only solid 18 AWG or 16 AWG (0.75 mm² or 1.5 mm²) wire. To use wire gauges larger or smaller than this terminal blocks' rated gauge of 18 AWG or 16 AWG (0.75 mm² or 1.5 mm²) refer to the **Terminal Wiring Gauges** diagram on the previous page. Connect up to 3 ft (0.9 m) of 18 AWG or 16 AWG (0.75 mm² or 1.5 mm²) wire to the LED driver terminal blocks, then connect 14 AWG to 12 AWG (2.5 to 4.0 mm²) or 24 AWG to 20 AWG (0.20 mm² to 0.50 mm²) up to the length allowed in the above table.

Wiring and Grounding

Driver and lighting fixture must be grounded. Drivers must be installed per national and local electrical codes.

LED Load Replacement

For Class 2 rated drivers, the LED load can be changed while the driver is installed and powered.

Maximum Driver Operating Temperature

Driver case temperature (t_c) must not exceed UL conditions of acceptability in end product.

For 50,000 hour lifetime, driver case temperature (t_c) must not exceed 65 $^{\circ}\text{C}.$

| Job Name: | Model Numbers: |
|-------------|----------------|
| Job Number: | |

Facilities Managers

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 Customer Assistance at 1.844.LUTRON1 if you have any questions.

Further Information

For further information, please visit us at www.lutron.com/hilume1led or contact our LED Control Center of Excellence at 1.877.DIM.LED8 or LEDs@lutron.com

FOR CASE TYPE KL, REMOTE-MOUNTABLE MODELS:

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 B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Lutron, Stutron, Hi-lume, C•L, Caséta, GRAFIK Eye, PowPak, Quantum, Lumea, Nova T*, Nova, Skylark, seeTouch, Diva, Ariadni, Maestro, Maestro Wireless, RadioRA, and HomeWorks are trademarks of Lutron Electronics Co., Inc., registered in the U.S. and other countries. Energi Savr Node, QwikFig, GRAFIK, GRAFIK Systems, GRAFIK T, myRoom, Vive, and RadioRA 2 are trademarks of Lutron Electronics Co., Inc.

UL and the UL logo are trademarks of UL LLC.

| Job Name: | Model Numbers: |
|-------------|----------------|
| | |
| Job Number: | |