

Understanding LED Lamp Options for Lutron Ballast Retrofit Kits

The purpose of this application note is to outline the different LED lamp styles that are available for LED retrofit kits as well as their respective applications and specifications. The lamps for these kits are provided by Light Efficient Design as part of the C-Flex family. The Lutron lamp model number is used to order replacement lamps for purchased retrofit kits. Lamps are not sold separately.

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LED Retrofit Model Number Builder

Lutron TLED Kit Case P/N

- The model numbers below are ordering codes for the LED retrofit kits from Lutron. The model numbers that are included in the kits are what would be found in regulatory approvals, such as UL® and DLC®.

Example: ELD4T8-2K35-12

Control Type	Retrofit Type	Lamp Size	Lamp Type	Number of Lamps	Driver Case and Mounting	Color Temperature	Case Quantity
E	LD	4	T8	2	K	35	12
E = EcoSystem	LD = TLED	4 = 4 ft (1.2 m) linear	T8	1 = 1 lamp	K = square with studs (K can)	30 = 3000K	1 kit per case
3 = 3-wire	BT = BMF + TLED	3 = 3 ft (0.9 m) linear	T8H = T8 High Output	2 = 2 lamps	C = square without studs (K can)	35 = 3500K	8 kits per case
		2 = 2 ft (0.6 m) linear	T5	3 = 3 lamps	M = linear (M can)	40 = 4000K	12 kits per case
		V = Compact vertical	T5H = T5 High Output			50 = 5000K	24 kits per case
		H = Compact horizontal	TT = Twin tube				
		R = Compact round	CF = Compact fluorescent				
		P = Compact round high-power	CA = Compact with adapter arm ²				
		- = for PLL lamps	CAH = Compact high-power with high lumen output and adapter arm ²				

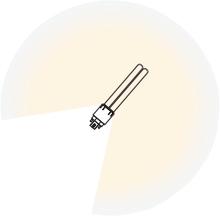
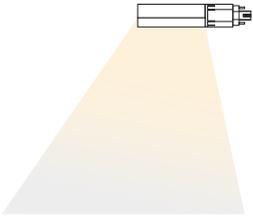
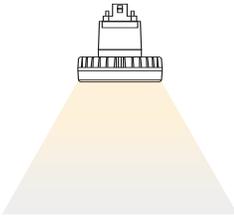
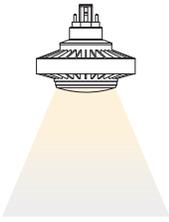
¹ Depending on the luminaire design, vertical downlights may benefit from having the lamp mounted lower in the luminaire. In those cases, a vertical socket extender is available. Order item number LED-7319. See **Extender Accessory** section on page 14 for additional details.

² Shipped with horizontal-to-vertical adapter LED-7317-ARM. May not fit in all 6 in (152.4 mm) cans; test for fit.

LED Retrofit Model Number Builder *(continued)*

Lutron TLED Kit Case P/N *(continued)*

- The “Lamp Size” and “Lamp Type” columns of the model number builder are referenced when defining the lamps that are used in the kit. For example, a model number of “ELDHCF-1K30-24” would utilize an “HCF” lamp style.

VCF	HCF	RCF	RCA	PCF	PCA or PCAH
					
Replaces up to 26W G24Q Base (Vertical)	Replaces up to 26W G24Q Base (Horizontal)	Replaces up to 32W G24Q Base (Vertical) ¹	Replaces up to 32W G24Q Base (Horizontal) ²	Replaces up to 42W G24Q Base (Vertical)	Replaces up to 42W G24Q Base (Horizontal) ²
					
NOTE: Images are for illustrative purposes only.					

General Lamp/Kit Specifications

- Driver input voltage: 120 - 277 V~
- Warranty provided by Light Efficient Design. See www.led-llc.com for details.
- 80+ CRI
- 50,000 hour rated life
- Not for use in fully enclosed fixtures
- Fixture designs vary by manufacturer. Always test-fit this solution before ordering for the entire project.
- Lumens listed are typical. See Light Efficient Design's website for detailed specifications.

Application Guidance

- Kits driven by an EcoSystem control must be addressed. Contact Lutron or your local Lutron representative for service options.
- The shape and direction of the LED replacement lamps may not exactly match the shape and direction of the installed fluorescent lamps.
- General purpose LED retrofit kits may not always be well-suited for decorative lighting applications due to differences in lamp shape and light distribution, which can affect the fixture's appearance (e.g., chandeliers). For example, a horizontal lamp may work in a sconce fixture by appropriately directing light, but it could alter the overall aesthetic in decorative settings and make the final appearance less appealing.
- Lutron recommends confirming that the suggested replacement kit suits the needs of the application by ordering a single kit to mockup the retrofit application and evaluate the performance before beginning any retrofit project.
- When replacing aging fluorescent lamps, it is essential to verify the correct color temperature that is needed before ordering LED replacements. Over time, fluorescent bulbs can yellow, meaning that even if the old lamp is labeled as 3000K, its actual output may appear to be warmer than what it was originally. If you select a 3000K LED based on the printed temperature, the new light may seem cooler and brighter than expected. Properly matching the desired color temperature will ensure a smooth transition and consistent lighting quality.

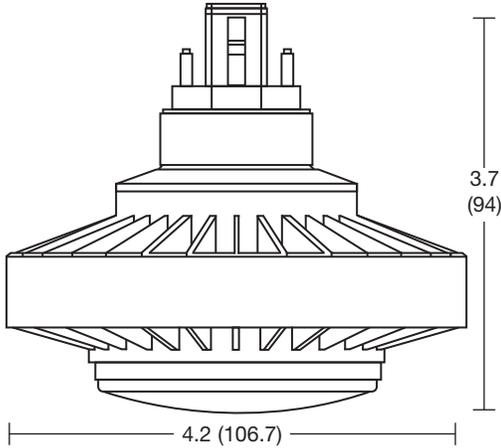
Typical Lamp Orientation	Horizontal	Vertical	Horizontal	Vertical
CFL lamp (up to 26 W)	 <ul style="list-style-type: none"> • 1-lamp and 2-lamp kits are available • Used in HCF kit models 	 <ul style="list-style-type: none"> • Used in VCF kit models • 1-lamp and 2-lamp kits are available 	 <ul style="list-style-type: none"> • Used in VCF kit models 	 <ul style="list-style-type: none"> • Used in HCF kit models
CFL lamp (up to 32 W)	 <ul style="list-style-type: none"> • Used in RCA kit models • 1-lamp kits are available • In some 2-lamp applications, only the 1-lamp LED kit will be used after verifying lumen output 	 <ul style="list-style-type: none"> • Used in RCF kit models • 1-lamp kits are available 	Dependent upon application	Dependent upon application
CFL lamp (up to 32 W)	 <ul style="list-style-type: none"> • Used in PCA and PCAH kit models • 1-lamp kits are available • In some 2-lamp applications, only the 1-lamp LED kit will be used after verifying lumen output 	 <ul style="list-style-type: none"> • Used in PCF kit models • 1-lamp kits are available 	Dependent upon application	Dependent upon application

Compact Round High-Power Lamps

Used in “PCF”, “PCAH”, and “PCA” kit models

All dimensions shown as: in (mm)

Vertical: PCF



**Horizontal (vertical lamp with adapter):
PCAH, PCA**



See full details of the adapter arm in the **Horizontal-to-Vertical Adapter** section on page 15.

- Vertical lamps can be extended using the extender accessory (LED-7319), which is sold separately through Lutron. Do not plug an extender accessory into the horizontal-to-vertical adapter.
- Only 1-lamp kits are available. In some applications, the 1-lamp LED kit will be used to replace two existing lamps.

PCA

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-G24QCE-830	42W 4-pin CFL	21	2000	3000	G24Q
LED-G24QCE-835	42W 4-pin CFL	21	2000	3500	G24Q
LED-G24QCE-840	42W 4-pin CFL	21	2000	4000	G24Q

PCF/PCAH

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-G24QCE-830	42W 4-pin CFL	28	2700	3000	G24Q
LED-G24QCE-835	42W 4-pin CFL	28	2700	3500	G24Q
LED-G24QCE-840	42W 4-pin CFL	28	2700	4000	G24Q

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

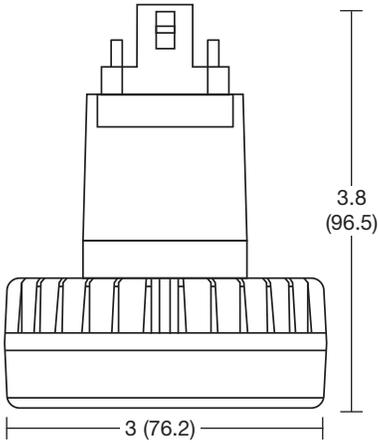
** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

Compact Round Lamps

Used in “RCF” and “RCA” kit models

All dimensions shown as: in (mm)

Vertical: RCF



Horizontal: RCA



See full details of the adapter arm in the **Horizontal-to-Vertical Adapter** section on page 15.

- Vertical lamps can be extended using the extender accessory (LED-7319), which is sold separately through Lutron. Do not plug an extender accessory into the horizontal-to-vertical adapter.
- Only 1-lamp kits are available. In some applications, 1-lamp LED kit will be used to replace two existing lamps.

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-G24QCC-830	26W 4-pin CFL	14	1200	3000	G24Q
LED-G24QCC-835	26W 4-pin CFL	14	1200	3500	G24Q
LED-G24QCC-840	26W 4-pin CFL	14	1200	4000	G24Q

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

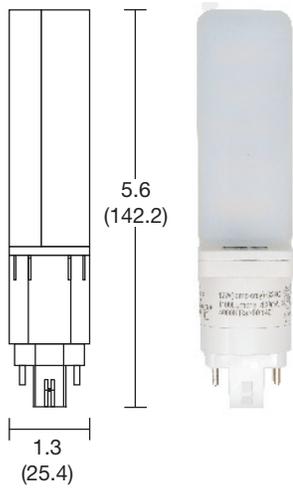
** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

Compact Horizontal Lamps

Used in “HCF” kit models

All dimensions shown as: in (mm)

HCF



- Base rotates 270 degrees for optimal light output.
- 1-lamp and 2-lamp retrofit kits are available.
- Intended for horizontal mounting or specialty use (e.g., sconces), but can be mounted in vertical applications.

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-G24QCB-830	32W 4-pin CFL	13	1000	3000	G24Q
LED-G24QCB-835	32W 4-pin CFL	13	1000	3500	G24Q
LED-G24QCB-840	32W 4-pin CFL	13	1000	4000	G24Q

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

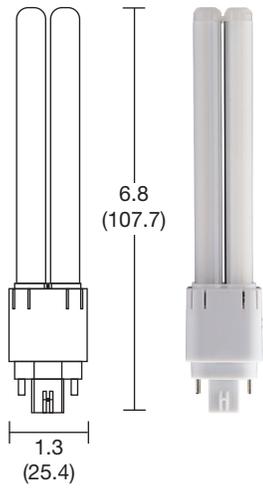
** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

Compact Vertical Lamps

Used in “VCF” kit models

All dimensions shown as: in (mm)

VCF



- Omnidirectional.
- 1-lamp and 2-lamp retrofit kits are available.
- Can be mounted in vertical or horizontal applications.

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-G24QCA-830	26W 4-pin CFL	12	900	3000	G24Q
LED-G24QCA-835	26W 4-pin CFL	12	900	3500	G24Q
LED-G24QCA-840	26W 4-pin CFL	12	900	4000	G24Q

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

T8 Linear Tubular LED (TLED) Lamps

4 ft (1.2 m), used in “4T8” and “4T8H” models



Dimensions: Shown as in (mm)		
	A	47.2 (1199)
	B	47.5 (1206)
	C	47.8 (1214)
	D	1 (26)

T8 4 ft (1.2 m) Linear Lamps

Lutron Lamp Model*	Replaces*** (BF = Ballast Factor)	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T8CHO4FT-830	32 W T8 linear (\leq 1.0 BF)	18	2182	3000	G13
	32 W T8 linear ($>$ 1.0 BF)	28	3220		
LED-T8CHO4FT-835	32 W T8 linear (\leq 1.0 BF)	18	2182	3500	G13
	32 W T8 linear ($>$ 1.0 BF)	28	3220		
LED-T8CHO4FT-840	32 W T8 linear (\leq 1.0 BF)	18	2182	4000	G13
	32 W T8 linear ($>$ 1.0 BF)	28	3220		
LED-T8CHO4FT-850	32 W T8 linear (\leq 1.0 BF)	18	2182	5000	G13
	32 W T8 linear ($>$ 1.0 BF)	28	3220		

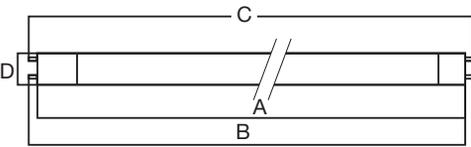
NOTE: The ballast factor (BF) is a measurement of the output of each lamp. Check the ballast specifications for the current BF. Most ballasts have a 1.0 BF.

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

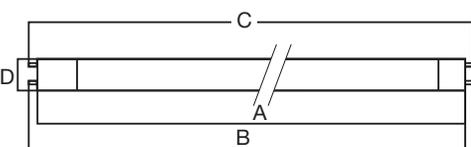
*** Higher numbers are achieved by using the T8H (high output) kits.

T8 Linear Tubular LED (TLED) Lamps *(continued)***3 ft (0.9 m) and 2 ft (0.6 m), used in “3T8” and “2T8” models****T8 3 ft (0.9 m) Linear Lamps**

Dimensions: Shown as in (mm)		
	A	35.2 (894)
	B	35.5 (902)
	C	35.8 (909)
	D	1 (25)

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T8C3FT830	25 W T8 linear	12	1496	3000	G13
LED-T8C3FT835	25 W T8 linear	12	1496	3500	G13
LED-T8C3FT840	25 W T8 linear	12	1496	4000	G13
LED-T8C3FT850	25 W T8 linear	12	1496	5000	G13

T8 2 ft (0.6 m) Linear Lamps

Dimensions: Shown as in (mm)		
	A	23.2 (590)
	B	23.5 (597)
	C	23.8 (604)
	D	1 (25)

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T8C2FT-830	18 W T8 linear	12	1496	3000	G13
LED-T8C2FT-835	18 W T8 linear	12	1496	3500	G13
LED-T8C2FT-840	18 W T8 linear	12	1496	4000	G13
LED-T8C2FT850	18 W T8 linear	12	1496	5000	G13

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

T5 Linear Tubular LED (TLED) Lamps

4 ft (1.2 m) used in “4T5” and “4T5H” models



Dimensions: Shown as in (mm)		
	A	45.2 (1149)
	B	45.5 (1156)
	C	45.8 (1163)
	D	0.7 (17)

T5 4 ft (1.2 m) Linear Lamps

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T5C4FT-830	28 W T5 linear	19	2252	3000	G5
LED-T5C4FT-835	28 W T5 linear	19	2252	3500	G5
LED-T5C4FT-840	28 W T5 linear	19	2252	4000	G5
LED-T5C4FT-850	28 W T5 linear	19	2252	5000	G5

T5H 4 ft (1.2 m) Linear Lamps

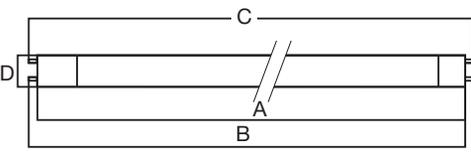
Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T5CHO4FT-830	54 W T5HO linear	29	3539	3000	G5
LED-T5CHO4FT-835	54 W T5HO linear	29	3539	3500	G5
LED-T5CHO4FT-840	54 W T5HO linear	29	3539	4000	G5
LED-T5CHO4FT-850	54 W T5HO linear	29	3539	5000	G5

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

T5 Linear Tubular LED (TLED) Lamps *(continued)***3 ft (0.9 m) and 2 ft (0.6 m), used in “3T8” and “2T8” models****T5 3 ft (0.9 m) Linear Lamps**

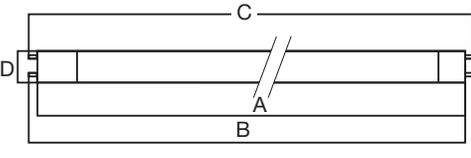
Dimensions: Shown as in (mm)

	A	33.4 (849)
	B	33.7 (856)
	C	34.0 (863)
	D	0.7 (17)

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T5C3FT830	21 W T5 linear	13	1544	3000	G5
LED-T5C3FT835	21 W T5 linear	13	1544	3500	G5
LED-T5C3FT840	21 W T5 linear	13	1544	4000	G5
LED-T5C3FT850	21 W T5 linear	13	1544	5000	G5

T5 2 ft (0.6 m) Linear Lamps

Dimensions: Shown as in (mm)

	A	21.6 (549)
	B	21.9 (556)
	C	22.2 (563)
	D	0.7 (17)

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-T5C2FT-830	14 W T5 linear	15	1802	3000	G5
LED-T5C2FT-835	14 W T5 linear	15	1802	3500	G5
LED-T5C2FT-840	14 W T5 linear	15	1802	4000	G5
LED-T5C2FT-850	14 W T5 linear	15	1802	5000	G5

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

PLL/Biax Lamps

Used in “TT” kit models

All dimensions shown as: in (mm)



22.4 (569) L x 1.38 (35) W x 1.05 (26.7) H

Lutron Lamp Model*	Replaces	Wattage (W)**	Lumens (lm)**	Color (K)	Base
LED-PLL22IN-830	T5 twin tube lamp	25	2500	3000	2G11
LED-PLL22IN-835	T5 twin tube lamp	25	2500	3500	2G11
LED-PLL22IN-840	T5 twin tube lamp	25	2500	4000	2G11
LED-PLL22IN-850	T5 twin tube lamp	25	2500	5000	2G11

* Lutron lamp model numbers can be ordered only for replacement of existing lamps provided with Lutron LED retrofit kits.

** Actual lumens and wattage may vary depending on the driver and lamp color. Wattage is based on the amount of power being drawn by the driver.

Extender Accessory

Lutron P/N LED-7319 (sold separately)

All dimensions shown as: in (mm)

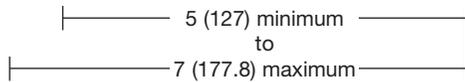
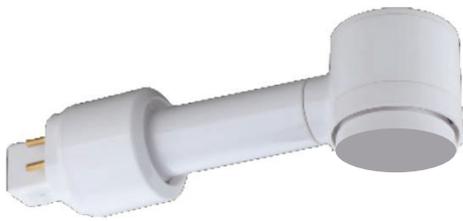


- Can be purchased separately from Lutron.
- Extends vertically-mounted lamps by 1.5 in (38.1 mm).
- Used to position lamp further down in deep-recessed fixtures.
- Only works with PCF and RCF lamps.

Horizontal-to-Vertical Adapter

Lutron P/N LED-7317-ARM

All dimensions shown as: in (mm)



- Included in horizontal kit SKUs (excludes the “HCF” kit models).
- Can be purchased separately through Lutron.
- There are three lamp positioning features designed to help center the lamp in the fixture:
 - Adjustable extension length of 5 in (127 mm) to 7 in (177.8 mm)
 - Pivots left and right
 - The adapter base rotates 350 degrees

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