

DIMMABLE controlLED LITE

***Energy Saving,
Shatter Resistant,
Flicker Free
and Nontoxic***

Dimmable controlLED Lite

***...the Future of
Commercial
Lighting***



1. Environmentally Positive

Dimmable controlLED Lites are a replacement for fluorescent lamps. They use no mercury or lead, which plays a positive role in protecting the environment. By contrast, Fluorescent lamps are the largest source of mercury contamination in municipal landfills. After radioactive waste, Mercury is the second most toxic pollutant.

2. Saves Money

Lighting represents 26% of the energy consumed in a building and it has always been a target for reduction. Power consumption of the 4 foot *controlLED Lite* is only 13 Watts, 60% less than conventional T-12 fluorescent lamps at 40 Watts and less than newer T-8 lamps at 32 Watts. Replacement labor expense is reduced with *controlLED* tubes, as their expected lifetime is in excess of 50,000 hours and there are no ballasts to replace. Expected life of T12 and T-8's are only 10,000 and 20,000 hours respectively and at the end of their useful life disposal of their toxic remains is costly. There is no costly disposal associated with *controlLED Lites*.

3. Intelligent Control (allows dimming and other remote features)

Dimming will produce additional savings. *Dimmable controlLED Lites* (an ACT patent pending product) use an external LED Driver/Signal Conditioner mounted **in place of the ballasts** (same footprint and fits under the ballast cover). It accepts control signals and provides features like **local or remote dimming, dimming adjusted by ambient daylight or automatic ON/OFF from an occupancy sensor**. If you currently have a control system in place, our Signal Conditioner can be made to accept its signal. Many control methods are available depending on your specific needs.

4. Longer Lifetime

Typically LEDs have a minimum life time of 50,000 hours or more, while fluorescent lamps last 10,000-20,000 hours. This equates to a greater life for the *controlLED Lite* of two and one half to five times longer. This makes the *controlLED Lite* perfect for large office spaces that are difficult to re-lamp without disturbing personnel, and light fixtures in factories or warehouses that are difficult to access. *controlLED Lites* have an even longer life when dimmed or when used in low ambient temperatures.

5. Light Not Heat

Conventional fluorescent lamps and their ballasts generate heat, which places a burden on the air conditioning system of a building. *controlLED Lites* convert almost all of the electrical energy into light which saves money when trying to cool a building. Studies suggest that the additional savings from reduced air conditioning demand in **warmer** climates, could generate as much as an additional 50% of the savings achieved in operating *controlLED Lites* versus fluorescent lamps.

6. Quiet

The *controlLED Lite* **does not require the use of a ballast** and therefore makes no humming or buzzing noises. It is an excellent choice for maintaining quiet environments in libraries and offices.

7. No Flickering

Conventional fluorescent lamps utilize alternating current to operate. The electrical discharge through the low pressure gas/mercury mixture has a slightly perceptible flicker equivalent to twice the 60 cycles per second alternating current. This can cause a strobe effect, where something spinning at just the right speed may appear stationary. As a result, fluorescent lamps are unsuitable for workshops. Some people even find that this flickering can cause migraine headaches.

However, *controlLED Lites* change AC directly into DC and do not flicker. Therefore they protect the eyes and provide a safe work environment.

8. Does Not Attract Insects

Unlike fluorescent lamps, *controlLED Lites* do not emit ultraviolet rays which attract mosquitoes and other insects. *controlLED Lites* therefore, make a perfect outdoor light source.

9. Better Light Quality

Fluorescent lamps are most often used where light quality (color temperature) is not important, such as factories, offices and outdoors. When better light quality is needed the fluorescent lamps are often supplemented with halogen or incandescent spot lights. LEDs are available in almost any light quality. Therefore the replacement of fluorescent lamps with *controlLED Lites* of the desired color temperature can make the extra halogen and incandescent spot lights unnecessary. Using LED light sources, rather than fluorescent lamps, also minimizes the harmful effects of ultraviolet light on printed documents (in museums) and clothing (in retail stores).

10. Operates in a Broad Voltage Range: 109V to 304V

LED lamps will stay bright despite a broad voltage range in the power source. The conventional fluorescent lamp illuminates its phosphor coating by passing high voltage (with the help of a ballast) through the mercury/gas vapor inside the tube, and will not work without proper voltage present.

11. No Ignition Required

Unlike traditional fluorescent lamps, the *controlLED Lite* does not require the use of a starter or ballast since it does not need to heat electrodes before starting. *controlLED Lites* have an immediate turn-on, unlike the well known flickering start of traditional fluorescent lamps. Dimmable *controlLED Lites* require our external LED Driver/Signal Conditioner installed in place of the ballast (which uses the same footprint).

12. Vibration Resistant and Safe

controlLED Lites use a Polycarbonate housing unlike the glass of fluorescent lamps. In handling and operation, users can feel secure about the safety built into these lamps.

13. Less Waste

Presently over 500 million fluorescent lamps are discarded annually in the U.S.

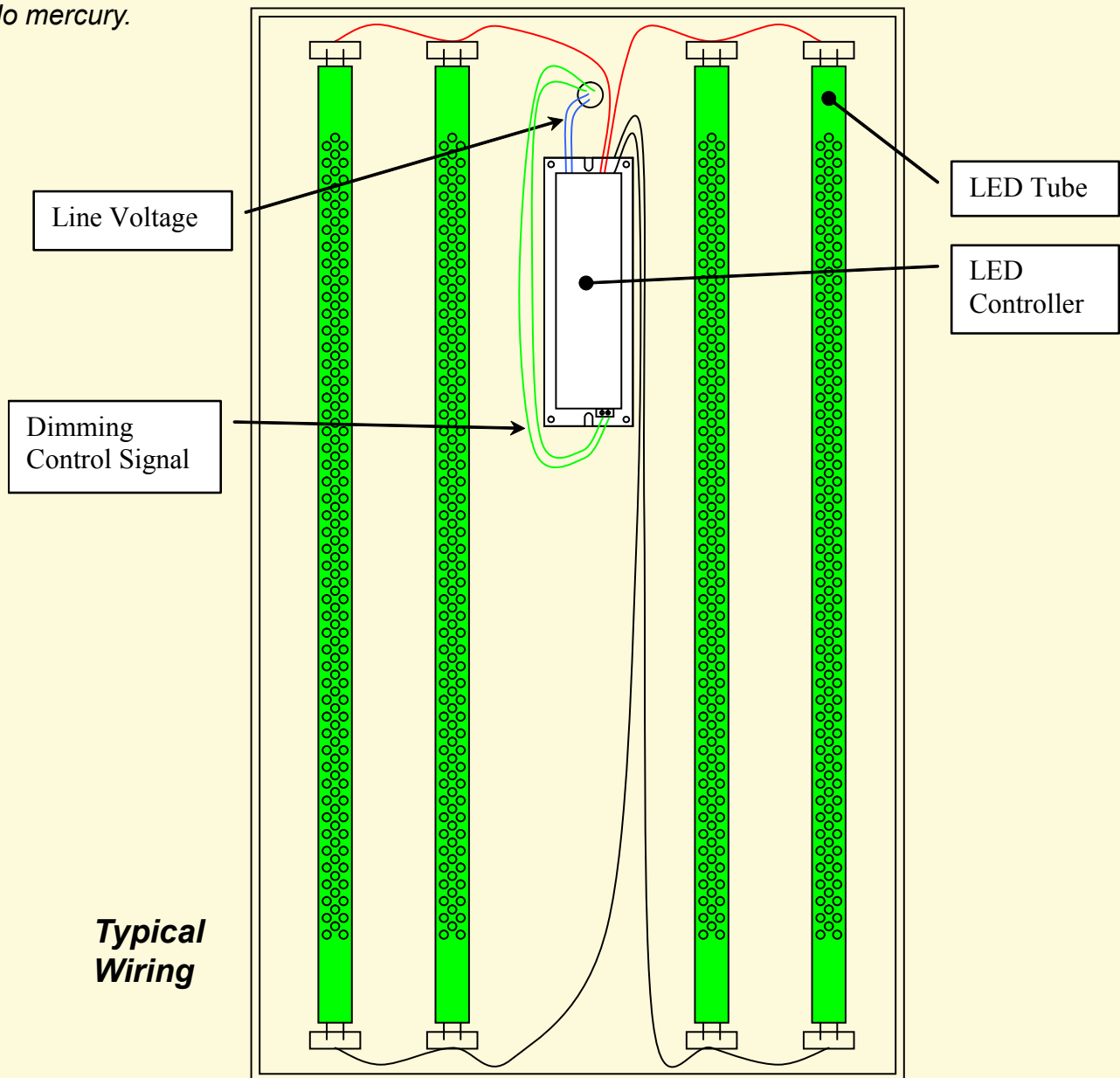
The *controlLED Lite* is constructed like other electronic devices; therefore the tube and LED core could be disassembled and recycled. Since the *controlLED Lite* has a lifetime at least five (5) times longer than most fluorescent tubes, they generate 1/5 of the waste in replacement tubes.

14. Environmentally Conscious

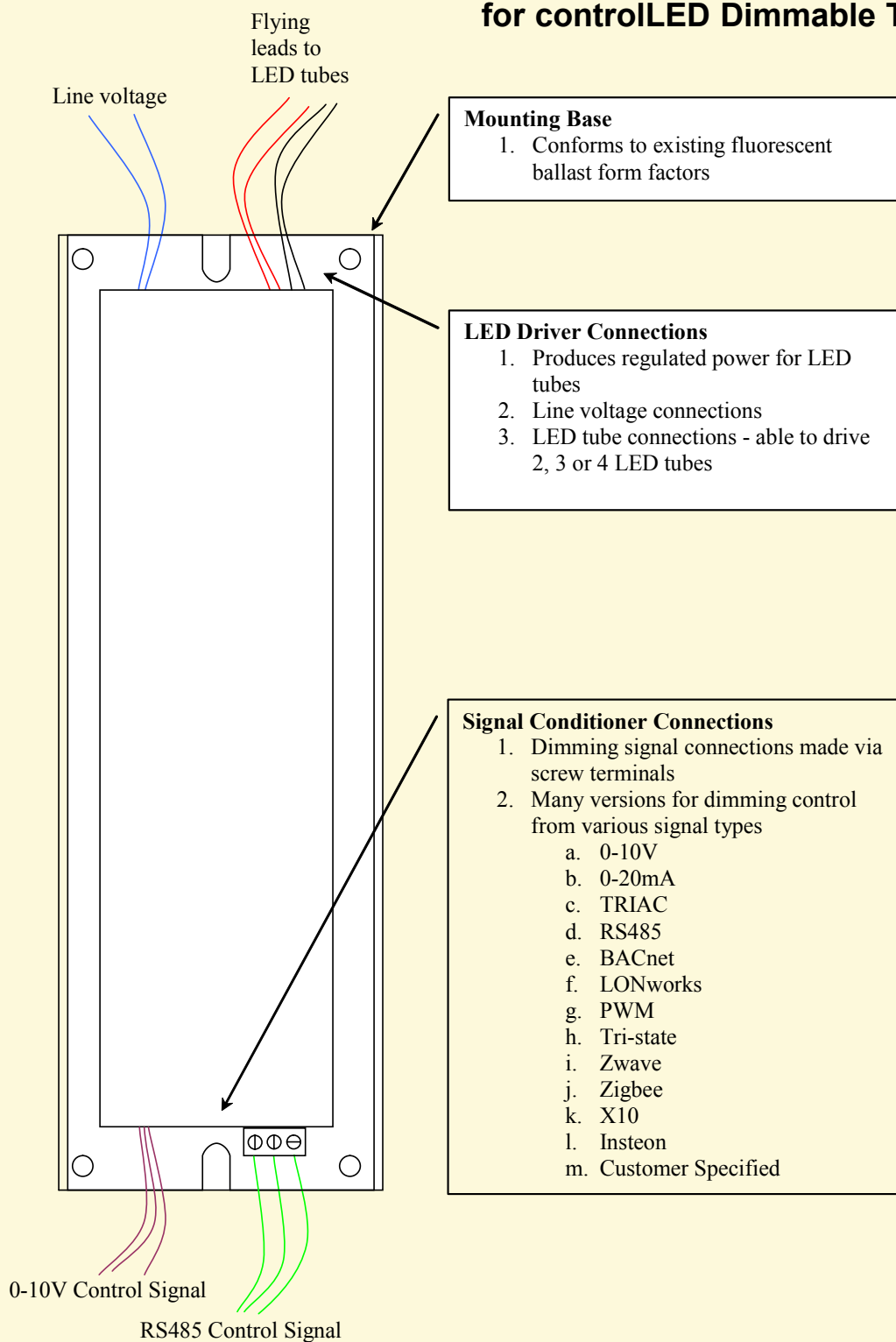
Replacing fluorescent lamps with LED lights may qualify for LEED points. Contact your engineer or LEED consultant for more information.

Dimmable controlLED Lite

- **ControlLED Lites** fit standard fluorescent fixtures and their tombstone connectors..
- LED Driver and Signal Conditioner fits standard fluorescent ballast footprint.
- Reduced power consumption per fixture - (total - 4 each 4 foot tubes). Only 52W LED + 6W for Driver vs. 136W Fluorescent + 18 for ballast.
- Cost effective dimming...saves additional dollars every time you do it.
- One LED Driver will power up to four controlLED Lites. If multiple light fixtures are to be controlled within an area, only the first light fixture needs a Signal Conditioner (one Signal Conditioner will control up to 12 LED Drivers via a twisted pair of wires).
- Dimmable **ControlLED Lites** are available in Warm White, White and Cool White.
- Shatter Resistant.
- No mercury.



Typical Wiring using External LED Driver and Signal Conditioner for controlled LED Dimmable Tubes



Energy ETC, Inc.
 3229 Whipple Rd. Union City, CA 94587
 (510) 487-1876 or (866) 580-3579
 www.energyetc.com

091609