






# KNOW BEFORE YOU BUY: TLED BASICS

LINEAR TUBE LEDS SAVE ENERGY, COST LESS

## Find the TLED That's Right for You

Three different categories, plus hybrid options, of linear tube LED options are on the market. Each comes with its own features and benefits that influence its suitability for your project. Energy Trust can help you decide if a TLED product, or another energy-efficient solution, will meet your energy savings and performance goals.

Type	Factors to consider
<b>A</b> Works off existing or new fluorescent ballast 	<ul style="list-style-type: none"> <li>Easily installed; electrician not typically required</li> <li>Rarely dimmable</li> <li>Lifetime reliant on the LED tube and the linear fluorescent ballast</li> <li>Compatibility with linear fluorescent ballasts may vary</li> <li>Efficiency and wattage affected by ballast factor</li> <li>Future ballast maintenance possible</li> </ul>
<b>B (original)</b> Line voltage to the sockets with no external ballast or driver 	<ul style="list-style-type: none"> <li>No future ballast or driver maintenance required</li> <li>Narrow dimming and control capabilities</li> <li>Current not regulated to the lamp holders</li> <li>Requires sockets dedicated to the technology</li> <li>High-voltage wiring affects installation time and cost</li> <li>Installation may require electrician</li> </ul>
<b>C</b> New external driver and TLEDs 	<ul style="list-style-type: none"> <li>Efficient performer</li> <li>Dedicated driver replaces fluorescent ballast</li> <li>Takes multiple lamps on one driver</li> <li>Options available with 0-10V dimming</li> <li>Some compatible with advanced controls</li> <li>Installation may require electrician</li> <li>Future driver and TLED maintenance</li> </ul>

Type A/B and Type A/B/C combinations are also on the market and may be an option for your project.

## TLED Advantages

- **Cost.** With more products on the market, unit prices are budget-friendly
- **Flexibility.** Most types are adaptable to work with current fixture housing
- **Installation.** May be easier to install than a new fixture
- **Energy efficient.** Offer improved energy savings over linear fluorescent lamps

## Innovations Increase Options and Decisions

When you plan a lighting retrofit, you want to get the best light quality for the best price, and save the most energy. For some facilities, TLEDs are a quick, easy and inexpensive solution, but may be less effective in others depending on your system and long-term goals. Here are five considerations to discuss with your lighting professional:

1. **Safety.** Both line voltage and hybrid TLED types operate on sockets that have been rewired to use line voltage. Working with an experienced installer may mitigate safety concerns.
2. **Controllability.** Advanced lighting controls extend energy savings and help control costs further. Not all TLEDs are compatible with controls, leaving future energy savings on the table.
3. **Heat.** Heat affects the performance of TLEDs; knowing how each TLED type is cooled will help determine the right application.
4. **Distribution.** TLEDs are not universally omni-directional, which can affect proper illumination. If used in the wrong retrofit, TLEDs may cause dark spots to appear affecting coverage and aesthetics.
5. **Long-Term Savings.** Today's TLEDs will be energy-efficient but may not match potential savings from a more comprehensive system that relies on highly-efficient and advanced technology.

## Match Your Lighting Goals with the Right Technology

Discuss your energy saving and performance goals with your lighting professional to find the technology that's right for you. Research each individual product to make an informed recommendation, and consider the trade-offs between cost and performance, energy savings and appearance, and color and efficacy. By working with your lighting professional to understand all your options, you'll select the best solution for your facility.



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### ASK YOUR LIGHTING PROFESSIONAL TO:

- Recommend which TLED type fits your current system
- Identify the product that meets your goals
- Use mock-ups to verify expected performance
- Determine if TLED is the right choice for your energy plan