Advantages of Using Electronic Ballasts

Electronic ballasts for fluorescent lighting systems have fast become the standard in the industry and further advancements continue to increase the benefits of using electronic ballasts. Following is a summary of the many advantages of electronic ballast technology:

1. Greater Efficiency

- For T8 lamps, the overall lamp/ballast system efficacy can be as much as 15% to 20% higher than magnetic ballast systems.
- Electronic ballasts do not generate as much internal heat, thereby reducing losses within the ballast itself.
- In addition, the high frequency operation of the fluorescent lamp reduces the losses in straight tube fluorescent lamps.

2. Better Control and Design Flexibility.

- Electronic components allow for the light output/wattage consumption to be fine-tuned for specific needs when using T8 lamps.
    - Low light output ballasts (LLO) with a low ballast factor are available for reduced energy consumption where less illumination is sufficient.
    - High light output ballasts (HLO) with a high power factor are available to reduce the number of lamps required to provide adequate illumination.
    - Selector ballasts are available that have an adjustable ballast factor to operate lamps at three levels of light output.
- Electronic ballasts are available that provide continuous, flicker free dimming for most fluorescent lamps. Dimming ranges are typically 100% to 10%, 100% to 5% or 100% to 1%.
- Note that for electronic ballasts, there is a linear relationship between wattage and light output. Low wattage equates to lower light output and high wattage equates to higher light output.

3. Ability to Drive More Lamps

- A single ballast can drive up to 4 lamps (versus 2 lamps for a magnetic ballast).
- Eliminates need for tandem wiring.
- Reduces ballast cost due to need for fewer total numbers of ballasts.

4. Reduced Cooling Load

- Without the core and coil, I^2R losses (generated heat) are minimized and the air conditioning load is reduced.

5. Reduced Lamp Flicker

- The high frequency operation of the lamp cycles the lamp so rapidly that flicker is imperceptible.

6. Lighter in weight

- Electronic components are not as heavy as the core and coil construction used for magnetic ballasts.
- Lighting fixtures weigh less and can be more streamlined in design.

7. Quieter Operation

- Electronic components do not "hum" as the core and coil components of magnetic ballasts do.

8. End of Life Sensing

- Electronic ballasts for small diameter lamps (T5 or smaller) are available that detect the end of life of the lamp and shut it off before the lamp overheats enough to melt sockets and cause the lamp wall to crack and break.