High-Performance T8 Systems

The Consortium for Energy Efficiency (CEE) Initiative for High-Performance Commercial Lighting Systems has been instrumental in defining efficient, high-performance T8 lighting products, setting performance standards and maintaining lists of qualified lamps and ballasts and their performance characteristics.

High-Performance Lamps

Improvements in lamp technology have made lamp selection an increasingly important part of luminaire specification. Lamps are not just more efficient, but performance enhancements include higher initial and maintained lumen output, better color and longer life.

	Standard T8	CEE High Performance T8	ES8P High Performance T8
Initial lumen output	2800 lumens	3100 lumens	3100 lumens
Mean lumen output	2520 lumens (90%)	2925 lumens (94%)	2945 lumens (95%)
Color Rendering	71-75 CRI	>81 CRI	85 CRI
Rated Lamp Life*	20,000 hours	>24,000 hours	30,000 hours**

*Industry standard rapid start lamp life test at 3 hours per start

** Industry standard instant start lamp life test at 3 hours per start yields 24,000 hours.

High-Performance Ballasts

Efficiency, based on Ballast Efficacy Factor (BEF), is CEE's primary measure of ballast performance. Qualified ballasts are also listed by instant or programmed rapid start types, number of lamps as well as by low, normal and high ballast factors with the BEF effectively comparing energy efficiency across these various characteristics.

In general, CEE qualified ballasts operate 6-8% more efficiently than standard electronic ballasts. That, paired with high-performance lamps, provides more light output at lower input wattage resulting in a CEE qualified T8 lamp and ballast system producing greater than 90 mean lumens per watt.

The ES8P 2x4 lamp and ballast combinations exceed CEE standards, producing over 94 mean lumens per watt.

	Standard Performance Ballasts	CEE High Performance T8 Ballasts	ES8P High Performance T8 Ballasts
BEF – low ballast factor	1.47	≥1.60	≥1.63
BEF – normal ballast factor	1.47	≥1.58	≥1.60
BEF – high ballast factor	1.54	≥1.55	≥1.62
Operating frequency	20 – 33, or ≥40 khz	20 – 33, or ≥40 khz	≥ 40 khz
Power Factor	≥90%	≥90%	≥98%
Total Harmonic Distortion	≤20%	≤20%	≤10%

BEF = [Ballast Factor x 100] / Ballast Input Watts