

High-performance T8 & reduced-wattage T8 systems

HIGH-PERFORMANCE T8 SYSTEMS SHINE

High-performance T8 (HPT8) lighting systems are made up of two components: a high-lumen, long-life T8 lamp and a qualified high-efficiency, low-watt electronic ballast. HPT8 systems produce the same or more total light output as standard T12 or T8 systems, but with better-quality light while using less energy.

SAME LIGHT OUTPUT, LESS ENERGY

High-lumen, long-life lamps produce approximately 10 percent more light than standard T8 lamps and 16 percent more light than 34-watt T12s. HPT8 lamps are rated to last a minimum of 24,000 hours when operated with instant-start ballasts, and some will last up to 42,000 hours when paired with programmed-start HPT8 ballasts. Using a low-ballast factor ballast slightly under-drives the high-lumen lamp, resulting in the same light output as a standard T8 or T12, but using less energy.

Ballast factor (BF) describes the percentage of rated light output that a specific ballast/lamp system will deliver and can be used to fine tune the amount of light in a space. For example, a 0.77 BF ballast will drive a HPT8 lamp to produce 77 percent of the rated light output and will use proportionately less energy than 32 watts per lamp.

Most standard ballasts fall into the normal BF range—typically between 0.85 and 0.92. Normal BF ballasts should only be used with HPT8 lamps when more light is needed, or if fewer lamps per fixture will be used. This would be considered de-lamping.

Focus on Energy acknowledges low- and normal-BF ballasts that are listed by the Consortium for Energy Efficiency (CEE) for use in HPT8 systems, because these ballasts have a higher efficiency than standard



electronic ballasts. You can view specification information and a list of qualified lamps and ballasts at focusonenergy.com/businesslighting.

REDUCED-WATTAGE T8 SYSTEMS

Reduced-wattage T8 (RWT8) lighting systems are also made up of two components: a four-foot straight or U-shaped 25-watt or 28-watt lamp and a qualified high-efficiency, electronic ballast. This combination can result in substantial energy savings, especially when replacing T12 or standard T8 systems if a lower light level is acceptable. Lumen output and rated life varies, so be sure to check with your lighting supplier to verify that the system you purchase will deliver enough light.

WHAT BALLASTS WORK WITH RWT8?

RWT8 lamps can provide energy savings when used with either a low-ballast factor (LBF) or normal-ballast factor (NBF) ballast, but will provide different light outputs. For example, a ballast with a BF of 0.89 (typical for NBF ballasts) will drive a 25-watt lamp to produce 89 percent of the lamp's rated light output and will use proportionately less energy than 25 watts per lamp. Normal BF ballasts should be used with 25-watt RWT8 lamps, unless the space is overlit with the existing lighting. Normal or Low BF ballasts may be used with 28-watt lamps depending on the light level needed.

For more information,
call 800.762.7077 or visit focusonenergy.com.

High-performance T8 & reduced-wattage T8 systems

Focus on Energy acknowledges ballasts that are listed by the Consortium for Energy Efficiency (CEE) because these ballasts are rated to be compatible with RWT8 lamps, and have a higher efficiency and better performance than standard electronic ballasts. Look for a ballast that is designed for use with RWT8s, and has anti-striation circuitry for best performance. Because RWT8 lamps produce equal or less light than standard T8s, products should be selected carefully to ensure that adequate light levels will be met.

Reduced-wattage four-foot or eight-foot T8 lamps can also be used to replace standard T8 lamps, and will typically save energy, but it is important to verify that the existing T8 ballast is compatible with the reduced-wattage lamp.

RWT8 LAMPS DIFFER FROM HPT8 LAMPS?

RWT8 lamps are manufactured using a different gas fill that can be temperature sensitive. These lamps should only be used in areas where the ambient temperature is at least 60 degrees Fahrenheit, unless recommended by the manufacturer.

HOW ARE HPT8 AND RWT8 SYSTEMS BETTER THAN STANDARD SYSTEMS?

HPT8 and RWT8 lamps generate more lumens per watt (lpW) than T12s or standard T8s which means more light is produced while less energy is used. HPT8 and RWT8 systems produce up to 97 lpW compared to only 75 lpW for standard T8 systems and 56 lpW for 34-watt T12 systems. HPT8 lamps are also extended-life

lamps, typically rated more for more than 4,000 hours longer than standard T8 or T12 lamps. That could mean up to two years of extra life in a normal office setting! HPT8 and RWT8 lamps also maintain their full light output longer than T12 lamps and provide better-quality light than T12 lamps. In fact, they have a minimum color rendering index (CRI) of 82 compared to just 60 for the typical T12 (based on a scale of 1 to 100).

HOW MUCH ENERGY CAN HPT8 or RWT8 SYSTEMS SAVE?

HPT8 and RWT8 systems can save 20 percent more than a standard T8 and up to 40 percent more than T12 systems (and even more when used in combination with a lighting system re-design). RWT8 savings are dependent on the lamp you install. If the low-watt lamp you install is replaced in the future with a standard 32-watt T8 lamp, the savings will be lost, light quality will be lowered, and lamp operating life reduced.

TAKE ACTION TODAY. SEE RESULTS TOMORROW.

Lighting can be one of the most cost-effective ways for businesses to save energy and money. Businesses can install high-performance or reduced-wattage T8 lamps and ballasts, pulse-start metal halide systems, or high-bay fluorescent fixtures for large applications and compact fluorescent light bulbs (CFLs) for task lighting. Lighting control systems, including daylighting controls, occupancy sensors, and timers, to turn lights off automatically when not needed provide additional energy savings. Light-emitting diode (LED) technologies are an ideal solution for many applications as well. To learn

more call Focus on Energy at **800.762.7077** or visit **focusonenergy.com**.

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Existing Lighting	New Lighting	Average Annual Energy Savings
4' 2 lamp T12	2 lamp HPT8 with low BF ballast	\$7
4' 3 lamp T12	3 lamp HPT8 with low BF ballast	\$7
4' 4 lamp T12	4 lamp HPT8 with low BF ballast	\$14
8'2L T12 HO	4 lamp tandem HPT8 normal BF ballast	\$23

Savings in this example are based on replacing T12 lighting with HPT8 lamps and a low-BF ballast or RWT8 lamps and a normal-BF ballast that operates 3,000 hours annually (typical for retail), and an energy cost of \$0.075 per kilowatt-hour of electricity.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800.762.7077** or visit **focusonenergy.com**.

