



T8 LINEAR FLUORESCENT LAMPS

Replace your T12 linear fluorescent lamps and magnetic ballasts with T8 linear fluorescent lamps and electronic ballasts to reduce your lighting energy cost up to 35%.

Fluorescent lighting is the most common type of lighting for businesses and can be found in offices, schools, hospitals and a wide variety of retail establishments. Retrofitting with T8 lamps and electronic ballasts can save energy in both general and task lighting applications.

ADVANTAGES

ENERGY SAVINGS – Depending on the ballast start type, ballast factor and the specific T8 lamp in use, you can realize up to 35% energy cost savings by replacing standard T12 lighting systems.

LOWER MAINTENANCE COSTS – Longer equipment life reduces both your maintenance and disposal costs. Newer T8 lamps are rated from 24,000 to 36,000 hours – equivalent to 5 - 6 years in a typical office application – when matched with the correct ballast.

ENVIRONMENTAL BENEFITS – Interior lighting represents approximately 29% of the energy consumed in the commercial building sector each year. Lowering this percentage has the potential to reduce the emissions of carbon dioxide and other air pollutants that may be generated during electricity production.

QUIET OPERATION – T8s operate more quietly than T12s, eliminating the “hum” often associated with fluorescent lighting systems.

COOLING LOAD REDUCTIONS – Electronic ballasts consume fewer watts than magnetic ballasts but provide the same light output. Lighting systems generate less heat, which reduces cooling loads.

REDUCED LAMP FLICKER – Electronic ballasts drive fluorescent lamps at 20 kilohertz (kHz), a frequency well beyond the visible range of flicker to the human eye. This can significantly reduce eye strain in the work environment.

IMPROVED LIGHT – T8 lamps have a higher Color Rendering Index (CRI) than common T12 lamps. The CRI measures the ability of a light source to reproduce the colors of various objects being lit by the source. To qualify for a PG&E rebate, T8 lamps must have a CRI of at least 80.



“We liked the results of the retrofit done in our first store and have done T8 retrofits in our other stores. Overall, my PG&E bill has come down, the lighting is better and employees definitely noticed a significant difference in our work areas. The rebates helped influence our decision – we feel good about the changes we’ve made.”

Mike Rose, President
Mike Rose’s Auto Body, Inc.



MORE ADVANTAGES

CHOICE OF COLORS – T8 lamps are available in a variety of colors, from warm (3000 Kelvin) to very cool (6500 Kelvin). Warm color temperature lamps produce light with a golden hue, such as that generated by incandescent lamps. As the color temperature increases, the color becomes more bluish, resembling daylight.

CONSISTENT LIGHT OUTPUT – T8 lamps have better lumen maintenance, maintaining 92% of their rated light output, as compared to around 86% for T12 lamps.

FEDERAL ENERGY TAX DEDUCTIONS – A lighting retrofit project may qualify for new federal tax deductions created as part of the Energy Policy Act 2005 (EPAAct 2005). For more details, please check with your tax professional.

TAKE ADVANTAGE OF INCENTIVES THROUGH PG&E’S ENERGY EFFICIENCY REBATES FOR YOUR BUSINESS.

PG&E offers rebates ranging from \$3.50 to \$7.50 per lamp, depending on the length of the lamp, for the installation of qualifying T8 lamps with an electronic ballast. By removing existing T12 lamps, magnetic ballasts and unused lamp-holders from existing fixtures without replacing the lamps (called “de-lamping”), you can obtain additional rebates ranging from \$4.00 to \$9.00, depending on the length of the lamp.



SELECTING A BALLAST

BALLASTS ARE CLASSIFIED BY THEIR STARTING METHOD AND BALLAST FACTOR. T8 lamps work in the same socket as T12s in existing fixtures. The ballast — which provides the necessary starting voltage and regulates the lamp current during operation — will need to be changed from magnetic to electronic when installing T8 lamps.

INSTANT START BALLASTS – Instant start ballasts are the most common and typically the least expensive. They produce more lumens per watt by using less energy during operation than other ballast types. Instant start ballasts can have an effect on lamp life if lamps are often turned on and off and work best in general lighting applications, such as open office areas.

PROGRAMMED START/PROGRAMMED RAPID START BALLASTS – Programmed Start/Programmed Rapid Start ballasts are also known as “soft-start” ballasts. These ballasts are most suitable in locations where lights are frequently turned on and off. If you are installing occupancy sensors along with your T8 fixtures, consider using the programmed start ballast to extend the life of the lamp.

BALLAST FACTOR (BF) – Selecting an appropriate ballast factor is critical for optimal lighting conditions and energy savings. Ballast factor directly impacts light output and power consumption (wattage) of your lighting system. For example, choosing a ballast with a Low BF will provide less lumens while consuming less power than a ballast with a Normal BF.

Description	KW	Input Watts	System Light Output	Energy Cost	Energy Savings	Relative Light Output
2-lamp T12 34 watt lamp w/ Magnetic Ballast	0.072	72	4011	\$4.32		
2-lamp T8 32 watt lamp w/ Normal Power Electronic (.88 bf) Ballast	0.059	59	5016	\$3.54	18%	125%
2-lamp T8 32 watt lamp w/ Low Power Electronic (.78 bf) Ballast	0.052	52	4446	\$3.12	28%	111%
2-lamp T8 28 watt lamp w/ Low Power Electronic (.75 bf) Ballast	0.045	45	4087	\$2.70	38%	102%

PG&E recommends contacting a lighting professional to identify the appropriate lighting retrofit for your business.



“Installing the T8s and electronic ballasts in place of existing T12 fluorescent lamps was a win-win situation for me; the store is brighter, we received a rebate and customers and employees like the change.”

David McKenzie, Owner
Pacific Ace Hardware

Optimizing the energy efficiency of your business not only reduces your energy costs, it can earn you rebates and benefit the environment by conserving our natural resources and reducing air emissions.

ENERGY EFFICIENCY REBATES FOR YOUR BUSINESS

Rebates are the quickest and simplest way for you to get cash back for your eligible energy-efficient purchases. PG&E offers rebates for hundreds of energy-efficient technologies in multiple categories including:

- Lighting
- Heating, Ventilation and Air Conditioning (HVAC)
- Food Service
- Refrigeration
- Boilers and Water Heating
- Agricultural Products
- Appliances and General Improvements

The combination of PG&E rebates, potential EPAct 2005 tax incentives and energy savings for a typical T8 lamp and electronic ballast retrofit could pay for itself in 2 years or less.

WANT TO LEARN MORE ABOUT YOUR ENERGY USE?

An energy survey may help you identify overlooked opportunities for saving energy at your business and is the first step toward a comprehensive energy management plan. Find out how your business uses energy via on-site, phone, CD-ROM or on-line surveys.

For more information about saving energy in your business and Energy Efficiency Rebates for Your Business, please call PG&E's Business Customer Center at 800-468-4743 or visit pge.com/biz/rebates.



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