



The Effect of Occupancy Sensors on T8 Lamp Life

A clear look at Occupancy Sensors – the myths and misunderstandings that result in drastically reduced lamp life.



Occupancy sensors: A quick look at energy savings vs. lamp life

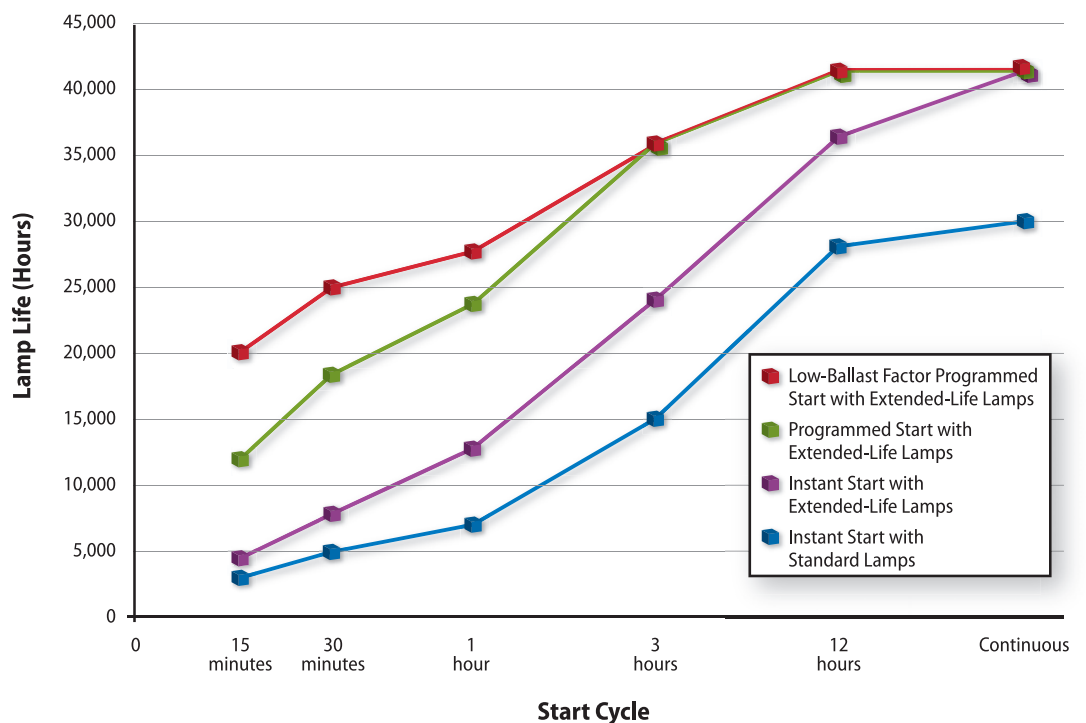
Occupancy sensors have long been used as a tool to help manage lighting-related energy costs. While maximized lights-off time cuts electrical use, there is considerable evidence that shorter switching cycles reduce fluorescent lamp life.

According to a research report by the Lighting Research Center at Rensselaer Polytechnic Institute, occupancy sensors that are set to a short switching cycle will reduce the lifespan on all fluorescent lamps. This is especially true for luminaires equipped with instant start ballasts, where improper cycling can shorten lamp life by as much as 50 percent. In large industrial or commercial applications, that reduced life span leads to increased downtime and higher maintenance costs.

Additionally, a 2007 survey of electrical contractors discovered that callbacks to recalibrate occupancy sensors were most frequent when the units were set to shut lights down in 10 minutes or less. On the other hand, the study found that after-installation calls were much less frequent when the initial time delay was set to 15 minutes or longer. Customer satisfaction and maintenance concerns were cited as key reasons for follow-up adjustments.

Occupancy Sensors Effect on Lamp/Ballast System Life

T8 Fluorescent Lamp Life Comparison



**Occupancy sensors:
Is there a standard cycle setting?**

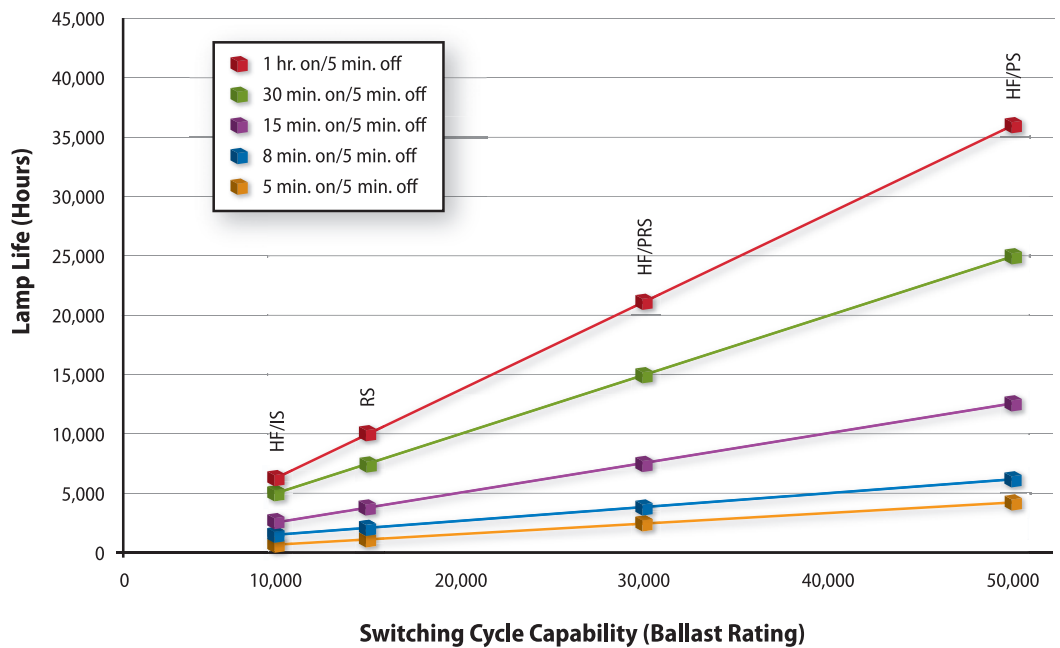
Most standard occupancy sensors have a 30 second to 20 minute delay timer that engages when occupancy is no longer detected. Faster shutdown means greater energy savings but also increases fixture cycling, which ultimately shortens lamp life and increases maintenance costs.

Considering a space with 100 fluorescent high bay fixtures using six-32 watt T8 lamps and a five-minute cycle time, lamp life would be reduced from 24,000 hours to approximately 8,000 hours. That translates into three lamp replacements over the rated lamp life or \$5,850.00* in additional lamp/maintenance costs.

H.E. Williams, Inc. recommends a standard setting of 15 minutes-on to achieve the most efficient balance of lamp life and energy efficiency. Fixtures are set to this standard when they leave our factory.

Impact of Lamp Life vs. Switching Cycles

*Operating on Various Ballasts***



* Based on average maintenance cost of \$1.50 per lamp. Courtesy of Philips group brands.

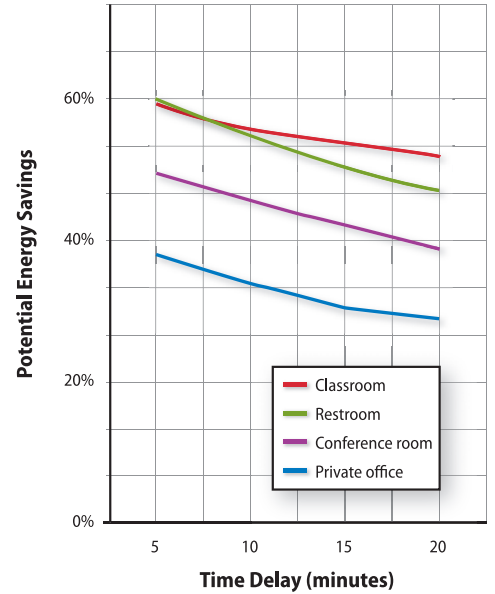
**HF/IS: High Frequency/Instant Start; RS: Rapid Start; HF/PRS: High Frequency/Programmed Rapid Start; HF/PS: High Frequency/Programmed Start

Finding optimal balance

Interestingly, occupancy sensors set to short cycle times save on energy costs—but not as much as many people may assume. The adjacent chart illustrates the energy savings potential for occupancy sensors in multiple space types versus different time delay options.

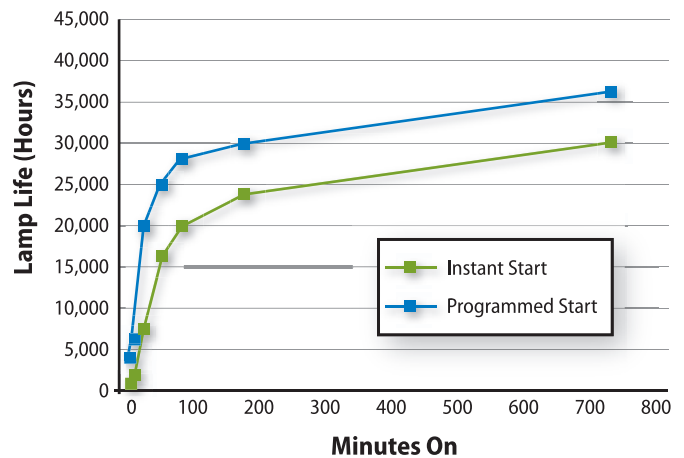
The research, reported by the Lighting Controls Association, suggests that a sensible balance of lamp life and energy conservation can be achieved by:

- ◆ Calibrating occupancy sensors to a minimum 15-minute delay setting.
- ◆ Installing only high quality specification-grade ballasts and long-life specification grade lamps.
- ◆ Using programmed-start ballasts in areas where a high number of switching cycles per day are regularly expected.



Graphic courtesy of New Buildings Institute

Instant Start vs. Programmed Start Ballasts Standard T8 Lamp



Visit these helpful links:

- ◆ Philips Warranty Statement
- ◆ Osram Sylvania Warranty Statement
- ◆ GE Warranty Statement
- ◆ "The Impact of Occupancy Sensors on Fluorescent Lamp Performance," by Thomas O. Leyh, Director of Fluorescent Product Development, Philips Lighting Company