

Illuminating Showrooms and Car Lots

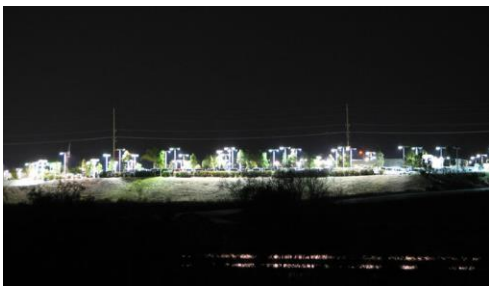
Overview –

Technical requirements for effective showroom and car lot lighting is almost always overlooked in favor of inexpensive generic lighting. Traditionally, both showrooms and lots were illuminated with conventional metal halide (MH) fixtures that produce considerable heat and are not energy efficient. Sometimes, outdoor lots employ high pressure sodium (HPS) fixtures that may be modestly more efficient, but have an orange monochromatic light that makes colors almost impossible to distinguish.



Poor quality lighting with low Color Rendition Index (CRI) makes car colors hard to distinguish and dulls their appearance.

Light emitting diode (LED) lamps offer excellent energy efficiency, but reliability remains an issue and light quality from high energy LEDs is not optimum for displaying car colors, body contours, and finishes. More importantly, the harsh effects of LEDs can actually create eye fatigue and



Excessive glare from new LED installation spills beyond property line and causes neighbors to complain.

discourage positive purchasing decisions. Many car dealerships have had to deal with light pollution complaints immediately after installing LEDs with excessive glare. Although LEDs appear to produce considerable light, they have a high “blue bias” that can negatively impact circadian rhythms. Equally important, LEDs flicker which can interfere with surveillance video, causing strobe lines and wash-out.

Ultra-Tech™ Lighting has developed a new line of fixtures specifically designed to enhance vehicle appearance. Lamps are rated for 100,000 continuous operating hours and maintain over 90% of lumen output for more than 90% of their lifecycle. For outdoor lots, unique flicker-free operation enhances safety and property surveillance by producing clear, crisp security

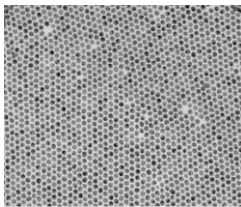
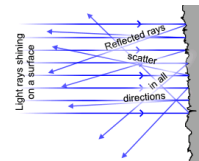
video. The exceptionally high color rendition index (CRI) makes colors pop to maximize visual perception and subjective impressions.

The Technology –

Auto-Bright™ fixtures use proprietary LumenTec® spectral tuning in conjunction with magnetic induction lighting (MIL) to precisely match visual properties with the showroom floor or outdoor lot. MIL was actually invented by world renowned Nikola Tesla back in the late 1800s and was patented in 1891. Tesla called his invention “Forever Bulbs” when they were presented at the 1893 Chicago World’s Fair because there are no filaments to burn out. Auto-Bright™ fixtures have a rated lifecycle of 100,000 hours which is 11 years operating 24 hours x 365 days per year. Thomas Edison thought such a long lasting bulb was a terrible business model and idea.



As the diagram illustrates, MIL uses a large format bulb that evenly disperses light without the glare of LEDs, halogen, or metal halide. This makes lamps safe for direct viewing, allowing them to be strategically placed where needed. Unlike standard lighting that emits a focused beam, Auto-Bright™ uses a specialized proprietary nano-reflector material with



millions of highly reflective particles that evenly diffuses light into a “field.” The effect is similar to reflected sunlight for a more natural and safe effect. Light is dispersed in outdoor settings by bouncing off of uneven natural surfaces in all directions. Even when direct sunlight is blocked, light continues into shaded areas. This is the principle behind the Auto-Bright™ design. The reflector material appears white instead of the common metalized (silver) finish. The material used in Auto-Bright™ technology is actually 60% more reflective than a metal reflector with an index of .96.

This is extremely important when displaying automobiles. The fully diffused light eliminates lamp glare off the car finish, making the appearance smoother and more pleasing. A more appropriate contrast between the car and the showroom surroundings helps boost the customer’s concentration on the vehicle.

Color Rendition Index (CRI) –



The CRI tells you how well the human eye can distinguish color and shading. The higher the index, the more crisp and clear colors appear. Unfortunately, many car dealerships use lighting with a CRI under .80. This can make even the most

colorful car finishes appear dull and unappealing. Auto-Bright™ technology has a CRI of .95, making all finishes appear true to their color. Effectively, cars appear as they would on a bright sunny day. This is extremely important for making the sale and for

after-sale satisfaction. Customers see the car in the showroom as it will appear outside. The color remains consistent.

Mood Enhancement Technology –

Scientists know that light can affect mood. In addition to making vehicles look their best, Auto-Bright™ fixtures incorporate a unique blend of modulated light that can actually enhance a customer's mood and increase the likelihood of a positive buying decision. Light can stimulate hunger, make people sleepy, or keep people awake. It is a powerful tool for increasing sales. The special characteristics incorporated into Auto-Bright™ lighting can increase positive attitudes towards purchase decisions.

For car dealerships, a 5% increase in top-line sales can make an enormous difference in month-to-month profitability. A customer could be turned off by the wrong lighting. For example, fluorescent lighting has a propensity to flicker at the 60Hz cycle rate of alternating current (AC). Flicker has been associated with headaches, nervousness, lethargy, nausea, agitation, irritability, and even paranoia. Light can disrupt the natural circadian rhythm causing sleep disorders, Seasonal Affective Disorder (SAD), confusion, and disorientation. It is important to protect both employees and customers from these potential hazards.

Ultra-Tech™ Lighting was first to incorporate a Health-Bright™ spectrum into magnetic induction lighting to provide maximum positive health benefits. There is no flicker, no harmonics, and a spectrum that concentrates on the visually effective lumens (VEL) to improve eyesight. Health-Bright™ has UV truncation, too. This protects eyes from potentially harmful ultraviolet radiation.

Lifecycle –

When lighting fails it can have a major impact upon the appearance of showrooms and lots. If fixtures burn out in the service center it can cause excessive eye strain and lost productivity as well as increase risks of accidents or mistakes. Auto-Bright™ technology lasts for 100,000 hours which is 11 years operating 24 hours X 365 days. Equally important, Auto-Bright™ lamps retain 90% of their lumen output over 90% of their lifecycle. That's longer than any other lighting technology.

Maintenance costs are an increasingly important consideration. For most installations it is necessary to use a lift to access lights for servicing. Today, new environmental rules and regulations can require steep disposal fees for fluorescent bulbs and LED fixtures due to toxic elements like dispersed mercury or circuit board PCBs. As landfills become scarcer, disposal fees are bound to increase.

Auto-Bright™ lighting can provide decades of worry-free service. Magnetic induction lighting is the only technology that has actually been tested in the real world for more than a century. When individual LED elements fail a fixture can lose 50% or more of its light output, but the warranty may not be honored because the lamp remains operational. The means many LEDs do not provide real warranty protection.

Safety –

In the May 13, 2013 edition of *Live Science*, Assistant Editor Marc Lallanilla reported on the research of Dr. Celia Sánchez-Ramos of Complutense University (Madrid, Spain) regarding potential dangers of directly viewing unshielded LED lighting. Simply put, the intense concentrated light of LEDs can permanently damage the retina, causing blind spots and color de-sensitivity. As the installed base of LEDs rapidly expands, more and more emphasis is being placed upon health risks associated with directly viewing LEDs. In fact, the problem has become sufficiently serious for CREE, one of the largest LED lighting manufacturers, to issue its own warning white paper.



Facility managers are increasingly faced with the tradeoff between installing energy efficient LED fixtures and potential liability associated with eye-damage claims. There is concern that children may fixate on LED lighting, causing serious permanent retinal damage. The most serious problem stems from high intensity ultraviolet and near-ultraviolet light as well as the small footprint of individual LED components. The uneducated public may have a propensity to admire an LED fixture. In the process, eye damage can occur.

For employees, LEDs and fluorescent fixtures can present many health concerns and negatively impact productivity. That is why several countries are reconsidering the use of LEDs for many applications including street lighting.

Environmental Sustainability –

Today's environmental awareness and our sustainability needs are addressed by the "Green" nature of MIL fixtures. Unlike fluorescent bulbs, mercury lamps, and other lighting that uses dispersed mercury, Auto-Bright™ lamps use a solid mercury amalgam slug that can be clipped and recycled. MIL glass bulbs are 100% recyclable. Even the induction magnets can be sent back to Ultra-Tech™ Lighting for recycling or simply disposed of as metal. With serious legislative proposals to impose high disposal fees on hazardous waste, the environmentally friendly design of Auto-Bright™ bulbs is an important consideration.



A small solid mercury amalgam ball is easily and safely snapped off for recycling. Magnets are recyclable metal and the remainder of the bulb is disposable glass.

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