

A FULLY CONTROLLABLE DIMMIBLE SYSTEM DESIGNED SPECIFICALLY FOR TUNNELS AND PASSAGEWAYS THAT SAVES 60% TO 80% WITH MAGNETIC INDUCTION LIGHTS!

Now there is a comprehensive tunnel lighting solution that provides maximum design flexibility with the most extraordinary power-savings and maintenance-savings in the world. The Tunnel-BrightTM System combines uniquely designed magnetic induction lighting (MIL) with a precise control system and <u>linear dimming capabilities</u> to comply with ANSI/IES RP 22-05 standards. These critical features solve the complexities of tunnel illumination that include:

- Dimming control at entrances, midsections, and exits (threshold, transitional, and interior).
- Daylight and nighttime lighting differentials
- Short-haul and long-haul distances (multi-zone)
- Full spectrum high color rendition index (CRI) output > .90
- Low maintenance/long life cycle exceeding 100,000 hours (11 years 365x24)
- Ultra high power efficiency with Power Factor > .95
- Easy-to-install retrofits and/or new lamping
- Low light loss factor (LLF) less than 15% over life cycle (low lumen depreciation factor LDF)
- IP66 rated models for longevity and high pressure cleaning

The Tunnel-BrightTM System is the only lighting solution that provides true power-saving dimming that does not negatively impact ballast or lamp life. The instant-strike capabilities of MIL combined with insensitivity to on/off cycles addresses problems associated with power failures and automated lamp control.

What Makes the Tunnel-BrightTM System Different?

Until now, most tunnel lighting has been either metal halide (MH), mercury vapor (MV), high pressure sodium (HPS), or low pressure sodium (LPS). All of these technologies have significant drawbacks. For tunnels using mercury vapor, re-lamping is a necessity since these bulbs are no longer manufactured due to legal restrictions. Sodium technology produces a monochromatic spectrally biased light that has a very low color rendition index; colors become indistinguishable. Metal halide lamps have a high lumen depreciation factor, losing as much as 40% of original luminosity within the first third of their life cycle. Although light emitting diode (LED) fixtures have been tested in tunnels, reliability and cost issues make effective implementation questionable.

The unique nature of tunnel lighting requires different intensities to compensate for the adjustment of the human eye when transitioning from light to dark and back. ANSI/IES RP 22-05 standards for tunnel illumination establish guidelines for light intensity, transition, and strobe effect. To accommodate ANSI/IES RP 22-05, lighting designs using MH, HPS, and LPS have used spacing and on/off sequencing to accomplish daytime and nighttime transitions while minimizing strobe. These implementations are far from ideal.

To effectively address all aspects of tunnel illumination requires a high intensity, bright-white, full-spectrum light with 50% dimming capability. This is what Ultra-TechTM Lighting has created in the Tunnel-BrightTM System. Consider these unique features:

FEATURES	HID	HPS	LED	Tunnel-Bright™	Other MIL
100,000 hour life cycle	No	No	No	YES	Some
60% - 80% energy savings	No	No	No	YES	No
Line-side dimming up to 50%*	No	No	No	YES	No
Nano-Reflector with 98% efficiency	No	No	No	YES	No
Proprietary Geometry	No	No	No	YES	No
Instant strike - no warm up or cool down	No	No	No	YES	Yes
Full Spectrum with CRI > .90	No	No	No	YES	Some
Exceptionally high power factor > .95	No	No	No	YES	Some
Unparalleled Warranty 5 years 50K hrs	No	No	No	YES	Some
Fully recyclable, no special disposal	No	No	No	YES	Yes
Lease Financing Available	No	No	No	YES	No

^{*(}Tunnel-Bright™ lamps are available apart from the Tunnel-Bright™ System in the event a control system is already installed. Dimmable ballasts can be controlled by line signal, motion sensor, RF, photo sensor, and a variety of other activation mechanisms.)

The Tunnel-BrightTM System is the first holistic approach to tunnel illumination that fully considers the dynamics of tunnel lighting, guidelines, maintenance, light quality, energy savings, recyclability, capital cost, and return on investment.

In fact, the Tunnel-BrightTM System is <u>so</u> reliable and cost effective that projects can



receive up to 100% lease financing. In today's environment of tight capital and operating budgets, a leased Tunnel-BrightTM System can fully cover payments with energy and maintenance savings. Only Ultra-TechTM Lighting offers such unique and flexible programs.

Don't design your tunnel project without the benefit of the Tunnel-BrightTM System. See how you can save substantially more while spending significantly less. The choice for any retrofitting or new tunnel project is clear – the Tunnel-BrightTM System from Ultra-TechTM Lighting.

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