

Induction Lighting

Technology Description

Induction lamps, a form of electrodeless lamps, operate using the same principle as fluorescent lamp technology. Mercury vapor inside the lamp is excited to produce short-wave ultraviolet light, which then excites phosphors on the lamp surface to produce visible light. The difference is that an induction lamp does not use electrodes; rather electromagnet induction is used to excite the mercury vapor. A ballast drives the electromagnet. Induction lamps are available in round, rectangular, and olive shaped forms. The units tested used rectangular lamps with external inductors. Induction lamps offer some advantages over conventional light sources including long lifetime, robustness, and instant-on capability.



New Induction Lighting Fixtures

Value to the Warfighter

The advantages of induction technology in outdoor lighting applications are:

- Induction provides a longer lamp life (50,000 to 100,000 hours) than conventional high-pressure sodium (24,000 hours) and metal halide (7,500 to 24,000 hours). Ballast life for induction lighting is estimated at 60,000 hours.
- Provides a whiter light than conventional high-pressure sodium.

Economics of the Technology: ROI or Payback

- Induction equipment costs more than conventional high-pressure sodium or metal halide equipment (lamps and fixtures).
- Induction lighting does not appear to provide clear power reduction potential compared to conventional high-pressure sodium on the basis of power (Wattage) required to achieve minimum design standard illumination (foot-candles). Although pole spacing could be the reason for this limitation.
- There could be a potential payback if induction lighting is installed in hard to access applications where cost to replace shorter lived lighting is expensive.

Technology Transition Documentation

Category 4. The transition of Research knowledge into products that provide information for the NAVFAC community to purchase services for SRM, special projects and energy performance performing contractual mechanisms.

Site Implementation

The demonstrations were conducted at:

- Commissary parking lot, Naval Base Ventura County, Port Hueneme, CA
- Parking lot A, Naval Station Pearl Harbor, HI

Specific Applications

Contact: Mr. Paul Kistler, EXWC PW61, paul.kistler@navy.mil, 805-982-1387