

Automated Gas Lamp Control - Independent Testing & Field Test Evaluation

Description: A product development and field testing program on the automation of sensors and controls of mantle-type gas lamps.

Status: Prototype development and laboratory testing are complete. Field testing program near complete.

BENEFITS

Gas lamp improvements modernize utility assets and meet higher environmental expectations of customers while maintaining a familiar nostalgic gas glow. Previous studies have shown advantages of automated gas lamp control.

Potential benefits include reduced lost-and-unaccounted-for gas, better gas lamp economics, increase in demand for the gas lamp product, reduced carbon footprint and improved gas lamp maintenance requirements.

BACKGROUND

NYSEARCH members have a challenge when faced with identifying how technology that reduces gas consumption can at the same time expand or preserve a gas market. In the case of gas lamps, particularly in the municipal sector, current demand for that product is lower than average because of the need for continual flow of natural gas and no automated means for shutoff or relight unless performed manually. However, with foresight about how to increase demand for the product while improving the environment and ultimately expanding the use of gas lamps, PSEG has identified an approach to adapt technologies for creating automation of gas lamps. Using experienced personnel from a PSEG municipal district where gas lamp usage is centered and higher than normal, PSEG and its South Orange municipality identified the technology options for automated ignition and shutdown of municipal gas lamps. The photo in Figure 1 illustrates a typical residential gas lamp

installation in the PSEG franchise. Following PSEG's initiative, NYSEARCH members expressed interest in creating a consortium approach to evaluate new technologies in controls and sensors for gas lamps.

TECHNICAL APPROACH

The focus of this project is on sensors, control and ignition of the gas lamp burner and not the gas lamp fixture itself. Figure 2 is a close up of the prototype burner assembly, designed to fit



Figure 1: Field test of prototype burner in city street lamp

and replace any existing burner style. A design from a specific manufacturer originally intended for the mantle-type application, improves on the current product by improving the original power source (which prohibited use of automated control) requiring it to be 24V or even 120V. That manufacturer now has a design that requires a 6V battery and they claim that battery life for the sensor is approximately (14) months. Through their earlier exchanges with PSEG and the South Orange municipality, the manufacturer completed second generation prototype testing in the laboratory.

NYSEARCH sent prototype burners to an independent test lab for testing under ANSI Z21.20, Standard for Safety of Automatic Gas Ignition Systems and Components. The prototype burners satisfied the independent testing requirements.

NYSEARCH participating members installed (50) prototype burners into existing gas lamp

increased crew time in the field replacing the mantles. Over the twelve to eighteen months, no increase in mantle failure was observed.

PROGRAM STATUS

This project was completed in 2011. The results of field testing of prototypes were reviewed and field lessons learned were documented. Improved specifications resulting from this project were provided to the manufacturer for a better field tested burner design.

Highlights

- Automation of gas lamp through sensors and controls
- Modernization of nostalgic and desirable lighting fixture
- Reduced environmental emissions
- Ready for market

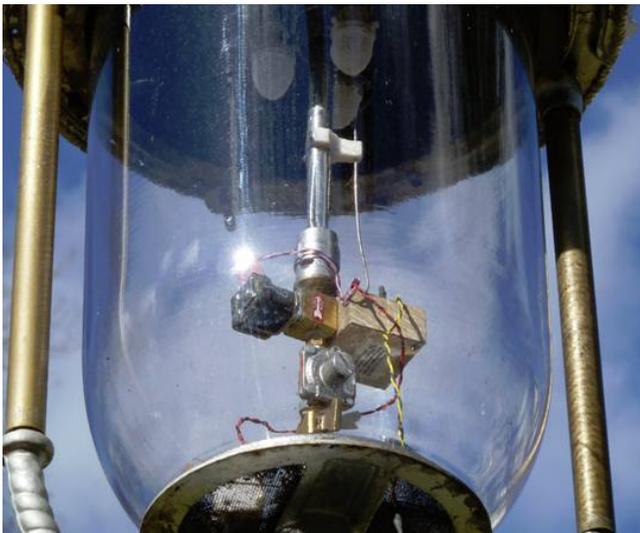


Figure 2: Prototype burner assembly, designed to fit and replace any existing burner style.

fixtures for twelve to eighteen months to determine if extended field use would reveal any unintended consequences on daily cycling on-to-off-to-on of these burners. One concern was the mantle element of the burner. Basically a pressed fabric, the mantle initially burns and becomes extremely brittle. The concern for the fragile mantle being thermally cycled daily would lead to a much shorter life, consequently

For more information contact:
admin@NYSEARCH.org