

# Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2019-883

Topic # N152-086

Flight Deck Lighting Addressable Smart Control Modules

InnoSys

## WHO

**SYSCOM:** NAVAIR

**Sponsoring Program:**

**Transition Target:** Deck-Lighting-Addressable-Smart-Control-Modules (DLASCMS) for flight deck landing lights for DDG1000 class ships

**TPOC:**

(732)323-1696

**Other transition opportunities:** Other fixed wing and helicopter carriers of NAVAIR, NAVSEA and other Navy and DoD needs.



Deck-lighting-addressable-smart-control-module demonstration

## WHAT

**Operational Need and Improvement:** The Navy needs an improved solution for aviation lighting aboard aviation capable ships utilizing light emitting diode (LED) technology through a standardized flight deck lighting addressable smart control module (DLASCMS) that allow lights of different functions and power requirements to be daisy chained and controlled to significantly reduce cable runs and installation costs. The DLASCMS recognize lighting package configurations and types of light fixtures it is controlling using embedded firmware/software thus allowing lights with different functionality and power requirements to be daisy chained significantly reducing costs for materials, labor and other resources from the current system.

**Specifications Required:** Over-current Protection (OCP); Over-voltage Protection (OVP); Over-temperature Protection (OTP); Short Circuit Protection (SCP); Arc Detection/Protection (ADP); Transient Surge Protection (TSP); Fuse Protection (FP); Relays; Other forms of redundant/multiple forms of protection; Alerts (Alarms; Status modes, Certain override modes, etc.); Additional 'Protection Buses' with low power wiring. No single points of failure design, redundant bidirectional communications between the DLASCMS and the Gateway including failure to detect/communicate with one or more DLASCMS as well as the Gateway as well as the Gateway to OCP.

**Technology Developed:** Innovative approaches for DLASCMS to digitally control LED aviation light fixtures on Navy surface combatants. The results are modular/integrated driver/controller products that provide no single-point-of-failure, efficient, low-risk, affordable, easy to maintain/upgrade and extremely reliable driver power of DLASCMS for flight deck landing lights for DDG1000 (Large Surface Ship class) class ships, other fixed wing and helicopter carriers.

**Warfighter Value:** Digital lighting and digitally controlled lighting, better lighting, better working environment, better control of lighting, easier configuration and installation, lower acquisition and operating cost, easier and lower cost maintenance, easy to upgrade, easy to integrate with additional sensing, monitoring, controlling and even data acquisition and analysis capabilities, and easy to configure with future functions. Overall, improve operation and sustainment efficiencies and reduce costs.

## WHEN

**Contract Number:** N68335-17-C-0212 **Ending on:** July 17, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Development of Deck-Lighting-Addressable-Smart-Control-Module initial design	Low	Demonstration to NavAir TPOC	3	April 2017
Development of driver circuits for Deck-Lighting-Addressable-Smart-Control Module	Low	Laboratory emulated environment demonstration	4	December 2017
Demonstration of Prototype Deck-Lighting-Addressable-Smart-Control-Module	Low	Demonstration to NavAir at Navair Lakehurst	4	May 2018
Communications for Deck-Lighting-Addressable-Smart-Control-Module	Low	Laboratory emulated environment demonstration	4	July 2018
Development of Control Circuits Deck-Lighting-Addressable-Smart-Control-Module	Low	Laboratory emulated environment demonstration	5	January 2019
Testing and Optimization of Deck-Lighting-Addressable-Smart-Control-Module	Low	Laboratory emulated environment demonstration	5	July 2019

## HOW

**Projected Business Model:** Using the transition of the Navy SBIR Deck-Lighting-Addressable-Smart-Control-Modules (DLASCMS) technology to the fleet and as our route for enhanced control of LED lighting capabilities, we intend to focus on our current business model of direct sales of high quality, customized intelligent lighting to commercial and government facilities and develop a line of LED lamps and luminaries. We have both distribution channels and sales representatives as well as in-house sales to aid in the development efforts.

**Company Objectives:** Using the knowledge we derived from the Deck-Lighting-Addressable-Smart-Control-Modules (DLASCMS) technology we intend to develop more extreme/rugged, ultra-high reliability, low-cost, MIL-STD-461F smart control monitoring and management lighting modules. We plan to utilize this technology in the growing industrial, institutional, enterprise and commercial lighting control markets for general lighting, security, information gathering and presentations as well as commercial and general aviation.

**Potential Commercial Applications:** The technology developed and derived from the Deck-Lighting-Addressable-Smart-Control-Modules (DLASCMS) technology could be used in many commercial applications from: commercial and general aviation airports, vertical lift ports (helicopter pads), oil and gas platforms, security needs, general control public and private lights requirements, smart home/building/campus applications and others where lighting and controls are needed.

**Contact:** Dr. Larry Sadwick, CTO  
[sadwick@innosystem.com](mailto:sadwick@innosystem.com) 8016947367