

**TOWN OF JAMESTOWN, RHODE ISLAND
93 NARRAGANSETT AVE
JAMESTOWN, RI 02835**

INVITATION TO BID

BID NUMBER – JTN-21-500
STREET LIGHT MAINTENANCE AND LED CONVERSION

SPECIFICATIONS AND INSTRUCTIONS



Eco Engineering Inc.

11815 Highway Drive Suite #600

Cincinnati, Ohio 45241-2065

jparke@ecoengineering.com

716-863-9946

Authorized to Represent Contractor- Jenifer Parke

Authorized to Contract- Robb McCoy, CFO

Town of Jamestown, Rhode Island
93 Narragansett Ave
Jamestown, RI 02835

Dear Town of Jamestown,

February 08, 2021

Eco Engineering, Inc. (Eco”) is a leading national design build engineering firm specializing in the implementation of energy efficient technologies on customer sites. We pride ourselves in always striving for a delighted customer all while delivering a project on time and on budget that exceeds expectations for quality and safety. Established in 1993 and acquired by our current owner in 1998, Eco Engineering has grown from a local firm in Cincinnati, OH to today one that in 2020 implemented projects in 46 states, 5 Canadian provinces, and the islands of Guam and Puerto Rico.

We were recently awarded Private Business of the Year, 100+ Employees Category, Goering Center for Family & Private Business, University of Cincinnati College of Business; Cincinnati Business Courier’s **“Fast 55” Fastest Growing Private Companies** in Greater Cincinnati; **Green Business Award**, US Green Building Council; Section Winner, **Best Outdoor Lighting Design, Illumination** Engineering Society. We have completed thousands of successful projects for customers such as AT&T, Tenet Healthcare, Anheuser- Busch, Kroger, Target, Verizon and numerous schools, municipalities, and federal facilities.

With our experience and appetite to spread efficient and sustainable energy solutions across the US, we are thrilled by the opportunity to be a part of Town of Jamestown Street Light Maintenance and LED Conversion Project. Our attached proposal to design-build a pre-Led conversion for streetlight maintenance, LED conversion including all fixtures, hardware, equipment, fused disconnects, to include a lighting pilot, options for purchase of three streetlight controls solutions and post-LED conversion streetlight maintenance (years 2-5, and an option to hire Eco Engineering for the GIS Lighting Solution. This Street Light Maintenance and LED Conversion project takes into full consideration the specific needs and conditions of the scope based on the RFP and our desktop research. If selected, we will apply our hands-on approach to this project and inspect the site to revise designs and ensure the optimal system is developed for the Town of Jamestown.

Using rigorous project management and uncompromising standards, we have put in place a best-in-class team to design, construct, and maintain this Street light and Maintenance project. We only use safe, proven technology for all our projects and proactively monitor our systems to minimize down time.

All information contained in this RFP response is to be treated as confidential and proprietary. We agree to the terms of this RFP, and we thank you for your consideration. We look forward to discussing in detail this project and how Eco Engineering can best meet the needs of the Town of Jamestown. Jenifer Parke will remain the main day to day contact interfacing for clarification of any response: Jen can be reached by phone, 716.863.9946 and email jparke@econengineering.com.

Sincerely,

A handwritten signature in blue ink, reading "Robert J. McCoy". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Robert McCoy
Eco Engineering, Inc- CFO

3.03- Firm and Experience

Eco Engineering is a S-Corp, a national design-build energy services company specializing in providing turnkey lighting system upgrade services. We design and implement energy saving lighting and lighting control projects with compelling financial paybacks. Eco Engineering helps its customers reduce operating and maintenance expenses, boost employee productivity, while positively impacting the environment through reduced energy consumption.

- a.) S Corp 1993 Ohio
- b.) company offices are position across the united states: headquartered in Cincinnati Ohio
- c.) Having over 80 employees nationally & over 50 employees in the Northeast
- d.) 85% of contracted labor reside in Rhode Island and will be assigned to this project
- e.) Jenifer (Jen) Parke is the point of contact and can be reached at 716-863-9946

f.) Eco Engineering has more than 75 professional lighting employees focused on energy-saving lighting retrofit solutions. Specifically, we have Engineers, Auditors, a self-performing Labor force, and our Sales Divisions: Commercial & Industrial / ESCO. Holding industry lighting certifications are highly encouraged to maintain their certifications through organizations like National Association of Lighting Management Companies (NALMCO) and National Council on Qualifications for Lighting Professionals who certifies Lighting Certified (LC) professionals. We currently have three LC's on staff which is the highest recognized certification in the lighting industry.

In addition, our engineers and some of our auditors hold the following certifications:

- Certified Lighting Management Consultant (CLMC)
- Certified Senior Lighting Technician (CSLT)
- Certified Apprentice Lighting Technician (CALT)

Eco Engineering has successfully completed more than 2,440 energy efficient lighting projects involving approximately 244 million square feet of facility upgrades. These projects have delivered more than \$500 million in cumulative energy savings to our customers while reducing energy consumption by a combined 5 billion kilowatt hours.

g.) Eco Engineering is one of the largest lighting upgrade services providers in the U.S. providing design build turnkey solutions since 1998.

h.) Our team comprises industry veterans with extensive experience in turnkey lighting solutions, electrical power distribution, substation design, control systems, advanced metering, and utility integrations.

Our team:

Eco Engineering – Design-build lighting solution provider who bundles comprehensive energy services.

LightEdison – Lighting & Solar PV with Storage Implementation Experts

McCrea Electric- Lighting Electrical Contractor

Eco has assembled a best-in-class team to bring together both local experience as well as industry leaders with extensive experience on the national stage with deep history in complex project development, implementation, and operations and maintenance. The graphic and bios shown in team capabilities highlights the world class team who have been instrumental in the development and who will lead the implementation of the project selected. The team is ultimately led by Eco's Head of C&I Business Development.

Eco Engineering understands the design criteria:

- Our team will meet the needs and goals for this streetlight & maintenance project by following a simple and practical approach to planning, design, and implementation.
- LED conversion project elements include developing a lighting design- including the recommendation of equipment options for the LED conversion and equipment options for controls, and installing lighting samples in the Town of Jamestown for review and approval (pilot program), then removing and disposing of the existing luminaires and/or ancillary fixtures, installing town-approved LED luminaires, installing in-line fuse disconnects, installing streetlight controls, labeling streetlight poles, as appropriate, retrofitting and/or replacing post top fixtures as required, installing or repairing posts and poles as required, providing an update streetlight inventory, supplying GPS fixture location and inventory data to the Town, and applying for available rebate and incentives. Conversion also includes routine maintenance during the first year where labor and materials are fully warrantied.

Detailed Scope of work:

GIS- Streetlights will be audited by an on-the-ground team of auditors. The streetlight audit will be managed using a web based software with data points in place for each fixture. Attributes collected will be determined by the bid scope of work. Data reconciliation will be performed after the audit is completed to verify accuracy against any data provided. Photos are taken of each fixture during the audit process for verification and QC purposes. Fixture locations are built using Lat/Long on a GIS web based system and fine-tuned in the field using mobile devices, (cell phone or tablet). All measurements are taken using laser measuring tools such as the Bosch GLM 50 C.

Pre-LED Conversion Maintenance

During the course of the audit any fixtures that are out will be identified and tracked so that an installation team can follow up to complete troubleshooting, maintenance, or lamp swaps where necessary. This process will continue until the LED installation begins, at which time, streetlights that are out will be replaced with their appropriate LED substitute.

LED Conversion

Installation will be managed with a map based web interface (similar to the one used during the audit). The interface tracks the fixture model number, pole number, installation status, and other relevant attributes during the course of the installation. The web interface is updated live and includes post-installation photos. Installation crews will work through the town doing streetlight replacements. Traffic control will be implemented where necessary.

Post-Installation Maintenance

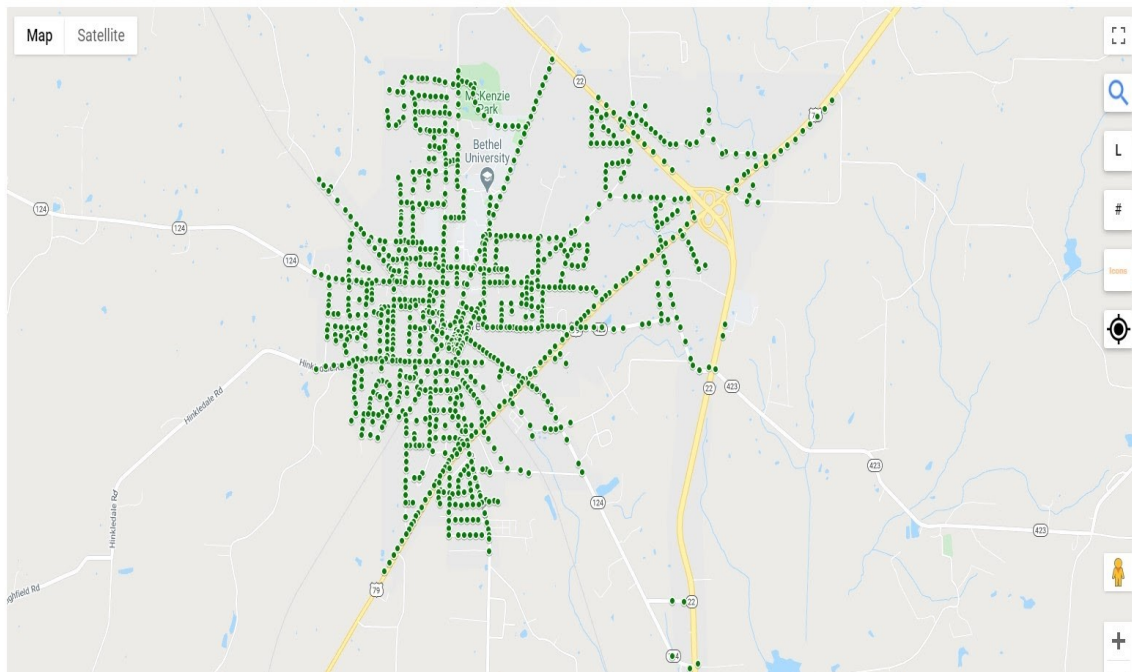
LED maintenance and service requests will be supported by a web based interface which tracks the status of every fixture. We can also support a web form which allows users to input details about a service request. See screenshot below for an example from a previous project:

Streetlight Status Map

The following map communicates the status of the McKenzie Streetlight Project. Updates are made to the map data at 6a CT, 8a CT, 1p CT, 7p CT and 12a CT.

Each fixture point can be clicked to reveal the Pole Sticker, which is very helpful for filing a [Service Request](#). The map is updated based on reported changes to the status of the light fixtures. If you see a fixture that is out at night or on during the day please complete a [Service Request](#) so it can be reflected on the map and service can be scheduled to keep the light operational. You can see more details on open service requests on the [Service Reports](#) page.

NOTE: To view your location on these maps on your mobile device, make sure that the browser you are using on your device has been setup to allow the website to access your location.



We support our clients through the entire project from concept to commissioning. Our team of experienced engineers will help assess your needs, analyze current state of operations, evaluate distributed generation options, and design the most economical solution that fits your needs.



Our goal is to convey how our expertise as being highly accomplished professionals in the country; we are committed to providing the most efficient solutions and trouble-free implementation possible. Eco has assembled a best-in-class team to bring together both local experience in the Rhode Island market as well as folks with extensive experience on the national stage with deep history in complex project development, implementation, and operations and maintenance. The graphic below and bios that follow highlight this team who has been instrumental in the proposal development and who will lead the implementation of the project if selected. The team below is ultimately led by Eco's Head of C&I Business Development

Douglas Golden, Head of C&I Business Development, Eco Engineering, Inc.

Mr. Golden brings over 15 years of lighting and energy market experience to the Eco Engineering team. He has responsibility for leading the company's efforts for business development to Fortune 1000 organizations expanding the Lighting as a Service (LaaS) platform and leading the company's emerging non-lighting project development group.

Prior to joining Eco Engineering, Mr. Golden served as Director of Business Development for Metrus Energy, a market leader in the "Efficiency as a Service" space. For most of the 12 years preceding Metrus, Mr. Golden served as Managing Director and co-founder of NRG Energy's Business Solutions group where he led a team responsible for the development and sale of products and services including large-scale distributed generation assets (solar and CHP), EV charging infrastructure, demand response and energy efficiency to national retailers, restaurant, hospitality, and commercial real estate clients. He previously served NRG as a Regional Director where he directed a group responsible for electricity sales to some of the most recognizable corporate brands and Fortune 500 firms in the U.S. Mr. Golden holds a BS in Economics from Syracuse University and is involved with numerous non-profit organizations.

Jenifer Parke, Sales Director, Eco Engineering, Inc.

Ms. Parke joined Eco in 2019 bringing with her 15+ years consulting, technology, and business process industry experience. Known as a leader in the energy & services industry for driving energy reduction by focusing on sustainability, standardization, cost analysis, and the customer experience, Ms. Parke is specifically responsible for identifying and deploying performance-based contracts, Energy Efficiency as a Service, single & multi-site program management, Electric Vehicle (EV) charging, Distributed Energy Resources (DER) including Microgrids and Renewable Energy Generation platforms across North America. Based in New York, she has experience in the electrical distribution product sales, construction, and utility energy efficiency program management making her a proficient project team member.

Osea Nelson, Partner, LightEdison

Mr. Nelson co-founded LightEdison in 2015 to directly support the fast-growing energy efficiency market, specifically focused lighting solar and solar + storage projects. Since inception, LightEdison has leveraged the industrial engineering background of its founders to deliver best in class implementation results built on a foundation of standard operating procedures and its proprietary digital project toolbox. Mr. Nelson has responsibility for managing the team in charge of key project deliverables, supporting, and growing key account relationships, and ensuring the quality and integrity of the installation process.

Before founding LightEdison, Mr. Nelson participated in the startup rounds of three fast growing Colorado companies. Mr. Nelson holds a BS in Mechanical Engineering and an MBA, both from the University of Wyoming.

McCrea Electric- licensed master electricians in Rhode Island.

ELECTRICAL CONTRACTOR Title: 7-1.2-1701

MICHAEL MCCREA- 120 POINT STREET, PROVIDENCE, RI, 02903, USA

Directors / Officers for this streetlight & maintenance project

- MARK NARCISO, project manager
- MICHAEL ANTHONY MCCREA, president
- VIJAY A SUDAMA, project manager

Our team understand their respective roles. Together, we will work seamlessly to deliver solutions that meet the economic, technical, management, reporting, code, and guideline requirements of this project to make all stakeholders delighted customers.

Our work plan is organized into the following tasks:

Task 1: General Project Tasks. As project lead, Eco will facilitate all high-level project communication and ensure funding commitments, contract execution and project progress.

Task 2: System Planning and Design. Our design team will conceptualize and prepare a final design and create a detailed execution plan.

Task 3: Engineering, Procurement, and Site Deployment. Our team will perform detailed engineering, procure goods and services, and install the systems.

Task 4: Testing, Commissioning, and Operation. Our team can support in testing and commissioning of the complete system. We can prepare product and system testing and commissioning protocols and training material for all required personnel.

Task 5: Data Collection and Sharing. We will coordinate operations support and performance data collection and evaluation. We can provide a secure repository for data collection, analysis, and sharing.

Task 6: Evaluation of Project Benefits. We can support in evaluating the project's benefits, including reliability improvement, operational cost reduction, emissions reduction, and societal benefits.

We have brought together a team of experts that have successfully completed these types of projects in the past and we are ready to work with the City of Aurora team to help in accomplishing these goals. Our past involvement with solar PV projects will yield benefits by being able to help and guide you every step of the way.

2.) Describe areas of expertise/ internal procedure/ policies cost control:

Eco Engineering plans to partner with LightEdison & McCrea Electric on this streetlight & maintenance project. Beyond these projects, and the five references provided, our team has also recently completed exterior roadway and streetlight project at the City of Cincinnati and Texas A&M University.

Our approach to logistics and material staging is proven. Eco Engineering has a step by step detailed process for procuring material and getting the ordered material to the job site, getting it scanned and stored securely in the laydown area, and transported to areas scheduled for immediate installation. We will remove waste from the site with proper documentation accounting for removal and recycling.

The Project Manager will communicate bi-weekly to recap progress made during the prior period and detail locations to be retrofitted over the next period. Eco Engineering's Project Management department has managed more than 3,000 lighting system upgrade projects across a full range of facilities in North America since our inception. By leveraging our field-tested project management approach, our clients allocate significantly less effort and internal resources to the lighting upgrade projects we implement on their behalf.

Our crews are accustomed to working any shift required by the customer to provide minimal disruption to your normal operations. With close coordination from our Project Manager, we will work with traffic coordinators to adjust installation hours as necessary in order to perform the work safely and on time.

The Town of Jamestown can rest assured that Eco Engineering understands the scope of work as presented. We understand the design specified and what it takes to execute a seamless installation. The installation phase will be critical to ensure a successful implementation. Our team will control the daily inventory, confirm access daily, and have materials staged in the work areas once scanned and approved to be on site per the information provided in this solicitation.

Eco Engineering has a multi-phase checklist process plan followed by all employees regarding project design and implementation. Relevant to the Town of Jamestown LED Street Light & Maintenance project focus starts at Phase 10 - Project Pre-Construction Planning detailed as follows:

Phase 10 - Project Pre-Construction Planning

- | | | |
|--|--------|---|
| PROJECT CHARTER MEETING | | Pre-assignment assumes Sales has advised new contract is coming and knows which Proposal has been selected |
| | | PM is assigned and PM Creates and reviews Construction documents: Construction Workbook, Budget, BOM, Labor Summary, |
| | 10.1 | etc. |
| | 10.2 | Sales schedules and holds Project Charter meeting part 1.0 with Engineering and OM/SR. PM/PM. ID if samples are required/needed and discuss audit accuracy. ID if FCM is in the Budget and notify OM or DO if FCM will be needed. Request tax exemption certificate from ESCO or C&I customer |
| | 10.3 | PM meets with Purchasing to identify preferred vendors, using EcoLink BOM, large quantity products and submittal package spec sheets |
| | 10.3.1 | Purchasing notifies vendor with prelim forecast of large quantities of products - no commitment made |
| | 10.3.2 | Purchasing requests free samples - fixtures, lamps, kits, etc. from manufacturer for "tough" fixtures; or to confirm color temp. |
| | 10.3.3 | PM verifies product requirements for Incentives and Buy America |
| | 10.4 | PM confirms proposal is still incentive/rebate eligible with PDE/Incentives & what is required |
| | | |

- Contact Installation manager or a network subcontractor for qualified crew to determine availability and interest. Hire if needed for pre- walk, voltage check, pre M&V or samples. Send NDA to Non
- 10.5 Network Subcontractors and Set up Subcontractor Agreement!
- If possible, always try to complete pre-contract walk using construction reports & Spec Sheets - invite crew supervisor if needed; bring ladder.
- 10.6
- Use pre-construction Agenda from construction documents to confirm logistics with or without customer. No Subcontractor in initial meeting with customer
- 10.6.1
- Verify voltages (have crew use tester), Tandem wiring (master/satellite above ceiling), emergency, etc.
- 10.6.2
- Install samples to validate fit & color temp if possible
- 10.6.3
- Verify new fixture requirements- lifts needed, mounting hardware, power feeds, etc.
- 10.6.4
- Verify exterior brackets and materials; confirm fixture colors; review MAP to make sure nothing missed
- 10.6.5
- Identify difficult fixtures/areas the crew should install first. Exterior Fixtures, High bays, Can Retrofits, etc.
- 10.6.6
- Phase 11 - Contract Received
- OM/Senior PM contract review/acceptance with Accounting/CFO
- 11.1 Accounting contract review - CFO and OM/Sr PM (PDE) to verify 1. achievable timeframe, 2. scope is correct and 3. Incentives are still in effect. DO NOT SIGN contract without incentive verification. If necessary, the PM should utilize PDE, Sales or IT resources to verify the incentive accuracy and viability.
- 11.2 PM must confirm incentive/rebate requirements (pre-inspection or DLC requirements). Also need confirmation of scope as outlined in steps and sub steps under 0.6
- 11.3 Order COI, plus bond & electrical permit, if needed. Provide Budget to Accounting
- 11.4 Project charter meeting part 1 or 2.0 – cover items deferred from meeting 1.0 and finalize sampling/M&V plan if not completed during pre-walk
- 11.4.1 PDE adds CE/Mfg. part numbers to EcoLink; and converts EcoLink/active files to building by building for construction
- 11.4.2 Discuss/confirm sales/use/B&O tax; provide tax exempt form to accounting.
- 11.4.3 Purchasing follow up meeting to finalize vendors, material delivery logistics, and ETA of free samples for hard to install items
- 11.5 Final acceptance of budget; notify Manager with email and details if margin cannot be met or will fall below 25%. CC the PDE and Sales Director.

- 11.5.1 Ensure compliance contract items (Schedule, background checks, invoicing, list of sub-contractors and deliverables) are documented in order to be prepared sent to ESCO/customer.
- 11.5.2 Determine if ST-8 form agreement needed? (labor tax; PM to ask Sales to provide)
- 11.6 Negotiate final price with subcontractor using Labor Summary. Prepare Labor Summary to send to accounting. (break out only Labor and if applicable Equipment, Misc. Materials, and Dumpsters or storage. (Travel, per diem and handling are labor categories)
- 11.7 PM leads Pre-Construction meeting/discussion with ESCO/Customer. Do not include sub-contractor in the meeting.
- 11.8 Create and Provide crew manager final/revised EcoLink outputs (with product codes)- Construction Workbook, BOM, spec sheets/wiring diagrams and project summary snapshot to crew and MAPs.
- 11.8.1 For projects that use an Eco crew, PM provides Installation Manager with budget info: Man hours, travel budget, equipment budget and estimated completion.
- 11.9 If CA. Public Works Project, additional notification needed for apprentice requirements. See instructions Folder #5 at Preconstruction. Save notification paperwork in Proposal folder.
- 11.1 PM ensure completion of Incentive Application and schedules Pre-Approval site visits.
- Phase 12 - Material Management
- Materials verified and orders placed
- 12.1 **FINALIZING Bill of Materials (BOM)**
- 12.1.1 PM samples difficult items and confirms part numbers with purchasing before project starts.
- 12.1.2 PM verifies installation instructions for all fixtures: Cans, color temp, voltage, wattage, etc.
- 12.1.3 PDE updates the BOM in EcoLink.
- 12.1.4 PM creates final BOM, fully fills in "PO required" email from Desktop Icon and sends to Purchasing
- 12.2 Purchasing places final material orders with preferred vendors
- 12.2.1 Purchasing orders unusual items first - AFTER samples installed and approved. Construction schedule will be based on when all items can be delivered, not just easy items; install hard items first.
- 12.2.2 (If project is more than 4 weeks of work and multiple buildings, PM will stay 4 weeks ahead of the install schedule to identify and order difficult items.) Exceptions only if approved by President.
- 12.3 PM advises accounting of invoicing schedule, when to send initial invoice
- 12.4 PM or Accounting prepares fully executed final Subcontractor Work Order and/or crew PW letters to Eco crew manager or subcontractor. Utilize the desktop icon Email Template "Labor Work Order Request" and fill it in with the information required in the template

- 12.4.1 PM provides crew manager with job site reference manual information - permit, PW wage posting, customer required info for job board, etc. (Accounting will update CE)
- 12.5 PM WORKS WITH Admin to create PO's and orders for all equipment, recycling, storage, etc. Provide Admin with fully filled- in desktop email templates for "Equipment PO Request", for "Recycling PO Request" and sends to Admin
- 12.6 M&V completed prior to construction start/week one and/or ongoing
- 12.7 Provide customer firm construction schedule with project completion date; Send email to Account with scheduled Start and Target Completion Date and name of Crew (Accounting will update CE)
- 12.8 Meet all contractual requirements i.e., schedule of values, list of subcontractors, PPE, safety, background checks, reporting
- 12.9 Acceptance and verification of materials by crew supervisor or PM.

Phase 13 – Installation

- 13.1 Daily Progress reporting and meeting schedule (will vary by ESCO)
Pre-Construction meeting with full crew before construction starts to review customer requirements and schedule, including fire safety Plans
- 13.1.1 PM discusses equipment requirements with Crew supervisor and has Crew Supervisor verify equipment on site to insure everything is there to start
- 13.1.2 Required daily reporting from crew and contractor - conprog, incidents, etc.
- 13.1.3 Required customer reporting - may be daily, weekly, include maps, safety toolbox sign off sheets, etc. Important to review and follow contract.
- 13.1.4 Update CE and provide Accounting with all information such as final start date and estimated completion date
- 13.2 Required weekly safety toolbox/JSA/AHA to PM (and ESCO?)
- 13.3 Required certified payroll and PW reporting to customer (and ESCO?)
- 13.4 Two-week look ahead/scheduling updates – for customer, ESCO
- 13.5 Process invoices and AP; keep CE up to date
- 13.6 Site visit requirements
- 13.6.1 QC inspection each week- use Site Visit Form; ensure commissioning and sign off by area/building
- 13.6.2 Internal punch list - WALKTHROUGH INDIVIDUAL BUILDINGS AS COMPLETED!! Always complete all materials on hand that can be completed before crew leaves site
- 13.7 Ongoing materials inventory including ongoing return of unneeded material and defectives - do not wait until end of job!
- 13.8 Change order process- if changes will impact the budget and CO is requested or required - use CO forms and follow up for written approval before proceeding. Send to Accounting for CE Update!
- 13.9 Trouble Shooting- see service process

Phase 14 – Substantial Completion

Internal Punch list - Walk site to insure there are no punch items when we walk with customer

External punch list - CLOSE OUT INDIVIDUAL PROJECT WITH SIGN OFF BY PROJECT Built!!

- 14.1.1 PM to obtain 100% sign off before leaving. Save in proposal folder
- 14.1.2 Close out permit with inspector; coordinate any needed post site inspection

- 14.1.3 Close out incentives with utility; coordinate any needed post rebate on-site inspection with utility rep

- 14.2 Count and provide attic stock/convenience/warranty material. PM or Crew to have customer sign Attic Stock form.

- 14.3 PM works with purchasing to complete final returns (defectives, RMA, etc.) - submit Eco Inventory Transfer Checklist. Purchasing will return checklist with final amount to be credited to project

- 14.4 PM orders recycling and equipment pick up

- 14.5 Have M&V and final FC readings completed if applicable

- 14.6 Begin assembly of O&M Manual

- 14.7 PM begins work with accounting to process Final Invoice, Incentives, PJM, EPAct

Phase 15 – Installation complete

PM schedules close out meeting

PM creates warranty package of closeout folder using CE closeout automation process. Finalize assembly of O&M manual.

- 15.2 PM adds as-built/maps, recycle certificate, completion/punch list sign offs to closeout folders; then copies to thumb drive

- 15.3 Sales or PM provides warranty packet to customer and lets customer know of pending survey contact for QC feedback

- 15.4 PM provides any additional applicable deliverables to closeout project such as: M&V/commissioning reports, sign off for keys, final certified payroll, etc.

Phase 16 – DELIGHTED CUSTOMER!

- 16.1 Accounting sends QC survey to customer 30 days after project completion date

- 16.2 PM notifies CFO project is ready for monthly reconciliation; summarizes key learnings

- 16.3 PM to move completed projects from M:\data\proposal to M:\data\complete.

- 16.4 Service Call (if needed) See Service Call Process in Ops Manual or Service Call Check list

- **Schedule and access to specific areas** – *Plan the work, work the plan and plan for changes.* Once on site to confirm the scope of work as designed, Eco Engineering will identify the areas of the parking lots where

access is difficult and areas that are readily accessible. We will design and execute a schedule that meets the Town of Jamestown's approval and strive to maintain productivity from the installation teams by coordinating with all tenants of the spaces for access. Contingency planning anticipated each week will help the crew to maintain productivity.

- **Logistics** – Our comprehensive approach of planning and execution help you meet those needs with little disruption to your daily operations. Our process evolves around getting material to the site, scanned, received in laydown area, and transported to areas

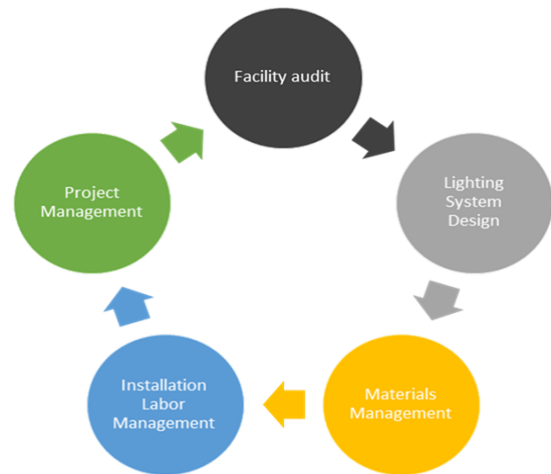
scheduled for the day. Waste from the day's demolition to laydown area are removed from the site with proper documentation of waste removal and recycling accounted for.

Installation- Eco Engineering has proven installation experience nationally with demonstrated success in some of the most complex and intensive work environments for many Fortune 1000 companies and institutions. Implementing energy efficient lighting solutions in each environment requires coordinating crews and performing installation in a tightly scheduled operation. These projects must be implemented within difficult operating cycles. Eco Engineering has earned the reputation of providing outstanding customer service and non-disruptive installation for our customers and we continue to provide maximum flexibility in scheduling and implementation to address the unique needs of a college operation.

- **Safety Supervision & Management-** Eco Engineering places a significant emphasis on safety. We realize the importance Supervision and Safety play in our overall success. We have a safety officer that works with our project management team, implementation crews and subcontractor crews to ensure all Eco Engineering safety measures are understood and followed. Our safety manual is a living document that is used and maintained with the most current safety measures (and available at your request). Eco conducts weekly Safety Meetings, Site Inspections and Daily Toolbox Talks as part of our on-going safety protocols. We exercise all available means and methods to control and eliminate hazards

risks associated with construction. Installation crews have certifications included OSHA-10, OSHA-30 and not limited to EM385-1-1SSHO.

- **Timeline/schedule (CPM)** – Eco Engineering has a fully developed timeline for the college to review. Having over 25 years of experience managing all aspects of project management leads to successful installations that are on budget and on time. We anticipate (at times) access issues and lack of common spaces for staging materials. We have contingency plans for daily work productivity regarding student, faculty, safety. Depending on the situation we can provide trailers, safety cones, safety signage, and messaging to update college personnel of upcoming project work.



- **Reporting/Documentation/Bonds/Permits:** Eco Engineering delights customers with details. All considerations are acknowledged and included with in this response. Highly experienced for efficiency we report and document correctly. From pre-construction maps to construction progress reports to close out documents, we can provide you whatever information needed at every step of the way. With our proven track record of successful completion of projects, our bonding rate is some of the lowest in the industry giving comfort to the customer about our experience and ultimately saving you money on the project.
- **Warranty** – 12 months labor / 10 years (drivers and emitters). Acceptance dates will start with final acceptance at project sign-off. As part of our close out process, you will receive full documentation to assist in warranty claims including who each of the project materials were bought through as well as contact information for that supplier and the purchase order used to place that order to make referencing the materials easier. Eco Engineering has a customer service staff available after installation to help with filing warranty claims with the manufacturer. We will provide close out “As-Builts” documentation in the order and form necessary to catalogue the new lighting system across the North, Central, and South parking lots.

Eco Engineering will coordinate submittals with the Town of Jamestown. We will set up communications with an email mailbox distribution group created upon project award, using it daily for communication needs and the archiving progress. Communication by phone call and text messaging is supported where necessary. A full dialog for complete understanding is had before materials are ordered and during the entire installation process and maintenance contract.

Eco Engineering has developed a phasing solution that minimizes disruptions to the process and assures overall safety of workers and residence areas. The project team approaches risk management using the proven strategy of avoid, mitigate, transfer, and accept. Avoidance and mitigation are the most critical elements for pre-construction and construction. During these phases, risk can be avoided by early collection of information, following daily communication guidelines (including issue logs/RFIs), and by having each subject matter expert reviewing the next day's plan for any potential upcoming issues. Our team uses digital onsite project management tools to accomplish these avoidance and mitigation elements. Mitigation is further enhanced by relying on our digital tools to provide early warning of any upcoming issue so that a root cause solution can be implemented to avoid the issue from growing in magnitude or being repeated later in the project.

The transfer strategy is only applicable when the avoidance and mitigation strategies require third- party support for resolution. No third parties are currently identified as needed beyond the project team for risk mitigation. Acceptance strategy is simple. Construction is complex and issues will arise. Our project team is uniquely experienced to avoid and mitigate challenges as they arise and have a proven history of preventing issues from impacting the college's educational process, student safety, and your construction schedule.

3.) McCrea Electric will store materials and will readily have access to them.
There is no conflict with receiving any materials for this project bid.

Describe traffic control:

Eco works directly with the State of Rhode Island- Police & Traffic Control Division.

Eco Engineering follows individual statewide principles & policy. The purpose of work zone traffic control is to provide a safe work area for workers within the roadway, while facilitating the safe and orderly flow of all road users (motorists, bicyclists and pedestrians including persons with disabilities in accordance with the Americans with Disabilities Act of 1990) through the work zone. This information is intended to provide our employees, utility companies, municipalities, and contractors who are involved with the design, set-up and maintenance of highway work zones, or anyone working within right-of-way areas, with the basic principles and elements constituting a safe work zone. The information presented is based on the requirements set forth in the National Manual of Uniform Traffic Control Devices and the other Supplements, review of work zone manuals from a selection of state and federal agencies, and discussions with members of the most Work Zone Traffic Control Committee. Here is basic information on work zone traffic control, including a description of traffic control devices, illustrations of acceptable, commonly used devices, and the proper flagger attire and methods. Color diagrams (typical applications) depicting typical traffic control set-ups for two-lane and multilane highways are intended to show the minimum requirements for a safe work zone set-up. Traffic control or protection can be enhanced for situations that may require additional measures such as high traffic or pedestrian volume, high speeds, restricted sight distance, poor or confusing alignment. This is a “living document” that will evolve as recommendations are received from Regions.

These principles listed provide a guiding philosophy of good temporary traffic control and enhance the safety of motorists, pedestrians, and workers within and near temporary traffic control zones:

- Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
- Select the most appropriate typical application for the worksite. Keep in mind conditions may change as the work / day progresses. Plan to have items and materials ready to meet the changing conditions.
- Inhibit traffic movement as little as possible.
- Provide clear and positive guidance to drivers and pedestrians as they approach and travel through the temporary traffic control zone.
- Inspect traffic control elements routinely and modify when necessary.
- Pay increased attention to roadside safety near temporary traffic control. Workers shall maintain situational awareness when working in proximity of traffic. This may include the use of spotters.
- Immediately address any incidents that occur within the work zone. Activities may include documenting incident, providing a temporary spotter to protect the incident, or temporarily suspending the work until the incident can be managed.
- Train all persons that select, place, and maintain temporary traffic control devices.
- Establish proper legislative authority to implement and enforce needed traffic regulations, speed zoning, parking controls, and incident management.
- Keep the public well informed.
- If there is a side road intersection/driveway or ramp within the work area, additional traffic control, such as flaggers and appropriate signs, may be needed on the side road/driveway approaches or ramps.
- If there is a side road intersection/driveway or ramp within the work area, additional traffic control, such as flaggers and appropriate signs, may be needed on the side road/driveway approaches or ramps. Page 4 of 39 The Work Zone The work zone is the distance between the first advance warning sign and the point beyond the work area where traffic is no longer affected.
- Advance warning area tells traffic what to expect ahead.
- Transition area moves traffic out of its normal path.
- The Activity area provides space for the work, traffic, and buffer space and/or protective vehicles between the two. o Buffer areas separate traffic from workers and provide a recovery area for errant vehicles. No equipment, vehicles or material shall be placed in this area.

Protective vehicle area provides a temporary barrier vehicle and roll-ahead distance for worker safety. If a vehicle is not being used, then the roll-ahead distance is not necessary. No equipment, vehicles or material shall be placed in the roll-ahead distance.

Work area is set aside for workers, equipment, and material storage.

- Termination area lets traffic resume normal driving.

4.) Describe familiarity with utility programs: Eco Engineering has a deep understanding of the rebate & incentive programs from NGRID. We have an internal division that works directly on all project through the United States & Canada.

5.) Key members of this project will work 100% on this project. Rhode Island labor is positioned.

6.) McCrea Electric owns bucket trucks and other vehicles necessary for the installation of the project. Any other required equipment to include Type D Arrow board for mobile operation is rented with costs built within this response.

3.04- Project approach and understanding- LED Conversion:

- 1.) Eco Engineering will work with the Town to determine appropriate wattages, lumen output for Pilot Review program. As a design-build energy firm we have the internal capabilities to review and propose streetlight solutions. This is a simple process for us, and we look forward to partner with the Town.
- 2.) Using control systems to maximize incentives and limit on-going utility costs is an everyday process fir Eco Engineering. Learning the exact goals and dialing in to reach them is what Eco Engineering does best. With the mutual understanding of the preferred control package desired we will outline the product capabilities and design to reach Town goals.
- 3.) Describe storage and staging areas: Out team plans the storage and the staging of materials with our labor contractor: McCrea Electric. The adjustments to goals to speed up or to slow down installation is managed with LightEdison as the project Manager. Both parties understand the Rhode Island Department of Transportation requirements for traffic control in residential areas. Planning will be discussed in greater detail after an award.
- 4.) Describe handheld devices to update database:

5.) Project timeline & capabilities:

LightEdison- Osea Nelson leads the GIS through LED conversion process. On site will be Ryan Witt- Project coordinator- Senior Service Manager. Ryan has worked on more than 20 streetlight & maintenance projects. Ryan's main responsibility is to oversee the safety and installation of McCrea Electric's and to update on-going project area completion documents.

| ID | Task Name | Calendar Days | Start | End | Task Owner | 5-Apr | 12-Apr | 19-Apr | 26-Apr | 3-May | 10-May | 17-May | 24-May | 31-May | 7-Jun | 14-Jun | 21-Jun | 28-Jun | 5-Jul | 12-Jul | 19-Jul | 26-Jul | 2-Aug | 9-Aug | 16-Aug | 23-Aug |
|-----|--|---------------|---------|---------|-----------------|-------|--------|--------|--------|-------|--------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|-------|--------|--------|
| 1.0 | Proposed Project Schedule | 131 | 4/5/21 | 8/22/21 | Eco Engineering | | | | | | | | | | | | | | | | | | | | | |
| 1 | Customer issues PO/Contract | 2 | 4/5/21 | 4/7/21 | Customer | | | | | | | | | | | | | | | | | | | | | |
| 1.1 | Customer Project Approval | 1 | 4/5/21 | 4/6/21 | Customer | | | | | | | | | | | | | | | | | | | | | |
| 1.2 | NTP Executed | 1 | 4/6/21 | 4/7/21 | Sales | | | | | | | | | | | | | | | | | | | | | |
| 2 | Site Audit | 11 | 4/8/21 | 4/19/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 2.1 | Audit start date | 1 | 4/8/21 | 4/9/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 2.2 | On-Site data collection | 10 | 4/8/21 | 4/18/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 2.3 | Audit completion date | 1 | 4/18/21 | 4/19/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 2.4 | Audit Data Verified | 1 | 4/18/21 | 4/19/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 3 | Design and Specification | 6 | 4/18/21 | 4/24/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 3.1 | Pole Specific Assignments Review and Revisions | 5 | 4/18/21 | 4/23/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 3.2 | Pole Assignment & Fixture List | 1 | 4/23/21 | 4/24/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 3.3 | Deliverable Package Complete | 1 | 4/23/21 | 4/24/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 4 | Procurement | 70 | 4/24/21 | 7/3/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | Materials lead time | 70 | 4/24/21 | 7/3/21 | PM | | | | | | | | | | | | | | | | | | | | | |
| 5 | Project Installation Phase | 42 | 7/5/21 | 8/16/21 | PM & Crew 1 | | | | | | | | | | | | | | | | | | | | | |
| 5.1 | Installation Start Date | 1 | 7/5/21 | 7/6/21 | PM & Crew 1 | | | | | | | | | | | | | | | | | | | | | |
| 5.2 | Installation | 42 | 7/5/21 | 8/16/21 | PM & Crew 1 | | | | | | | | | | | | | | | | | | | | | |
| 5.3 | Substantial Completion | 1 | 8/16/21 | 8/17/21 | PM & Crew 1 | | | | | | | | | | | | | | | | | | | | | |
| 5.4 | Punch List | 5 | 8/16/21 | 8/21/21 | PM & Crew 1 | | | | | | | | | | | | | | | | | | | | | |
| 5.5 | Final Acceptance | 1 | 8/21/21 | 8/22/21 | PM | | | | | | | | | | | | | | | | | | | | | |

- * This is a general flow of the main project tasks and milestones and does not show all typical subtasks.
- * Audits and samples dates , if necessary, are estimates and changes could affect the schedule

6.) Describe safety policies:

Eco Engineering places a significant emphasis on safety. We realize the importance Supervision and Safety play in our overall success. We have a safety officer that works with our project management team, implementation crews and subcontractor crews to ensure all Eco Engineering safety measures are understood and followed. Our safety manual is a living document that is used and maintained with the most current safety measures (and available at your request). Eco conducts weekly Safety Meetings, Site Inspections and Daily Toolbox Talks as part of our on-going safety protocols. We exercise all available means and methods to control and eliminate hazards risks associated with construction. Installation crews has certifications included OSHA-10, OSHA-30 and not limited to EM385-1-1SSHO.

7.) Commissioning of the Cimcon System:

Option 1: Simple dimming controls

Each twist-lock photocontrol comes with multiple selectable dimming schedules. A pre-wire meeting with the customer will be required to determine the dimming schedule for each fixture. At the time of installation of each fixture the dimming photocontrol will set to the predetermined schedule. The photo control will auto-adjust for daylight savings time. The installation team will verify each fixture for proper operation.

Option 2: Networked controls from Cimcon:

Smart lighting controls provided by Cimcon includes end to end deployment support. A project manager from Cimcon will be dedicated to the project until customer sign off. The project manager will schedule and perform a pre-wire meeting with our electrical contractor to make sure that they have all information necessary for installation.

After project completion (customer sign off), Cimcon will be available 24/7 for support, the customer is provided with a customer portal (LightingGale) login credentials to obtain additional training materials, log in service requests and obtain any relevant information on their system.

Cimcon's streetlight control system includes street light controllers for each fixture, gateways that provide communication between each controller and a cloud-based management software for your lighting assets. A representative from Cimcon will be

on site to manage commissioning of each fixture. A mobile management tool (LightingGale Mobile) that is accessible via a smartphone/tablet or a Web browser will give the end user real-time reports, control, and scheduling of commissioned fixtures.

Option 3: Photocell On/Off operation.

At the time of installation of each fixture a twist-lock photocell will be installed. Each fixture will turn on at dusk and turn off at dawn. The installation team will verify proper operation.

- 8.) (2) day training is supported for the Cimcon system for the Town of Jamestown.
- 9.) Eco Engineering has more than 75 professional lighting employees focused on energy-saving lighting retrofit solutions. Specifically, we have Engineers, Auditors, a self-performing Labor force, and our Sales Divisions: Commercial & Industrial / ESCO. Holding industry lighting certifications are highly encouraged to maintain their certifications through organizations like National Association of Lighting Management Companies (NALMCO) and National Council on Qualifications for Lighting Professionals who certifies Lighting Certified (LC) professionals. We currently have three LC's on staff which is the highest recognized certification in the lighting industry.

In addition, our engineers and some of our auditors hold the following certifications:

- Certified Lighting Management Consultant (CLMC)
- Certified Senior Lighting Technician (CSLT)
- Certified Apprentice Lighting Technician (CALT)

3.05- Project Approach and Understanding- Maintenance- Eco Engineering understands and has no conflict with bid expectations as written.

- 1.) Material has a (10) year warranty, maintaining is routine, emergency and additional maintenance definitions within this scope will be practiced and are supported.
- 2.) McCrea Electric is managing all aspects of the call center operations to include online portal, staffing, oversight, and operation. Everyday call center practices are noted and are supported.

3.06- Proposed LED Luminaire and Network Controls, Including is the 10 year manufacturer warranty

- 1.) Luminaire- Refer to Technical Fixture cutsheets
- Option One- Streetworks Archeon Large & Streetworks Archeon Small Roadway fixtures
- 2.) Streetlight Controls- Refer to Technical controls cutsheet
- Option One: CIMCON's iSLC-3100-7P
 - Option Two: Dimulator- ELL Series Long Life LED Photocontrol
 - Option Three: CIMCON's Wireless Gateway
- 3.) Decorative/ Post Top Fixtures: Refer to Technical fixture cutsheet
- Option One- CEM/MEM EPIC MEDIUM LED

3.07- References

| Client Business Name | Project Description | Project Dates | Client Business Contact | Contract Amount |
|-----------------------------------|---|------------------------|---|-----------------|
| McKenzie, TN Streetlight | 1700 fixtures; Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Commissioning, Reporting | October-December 2018 | Russ Phillips, PATH Company, 601.460.9609 | \$600,000.00 |
| Columbus, MS Streetlight | 4600 fixtures; Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Commissioning, Reporting | January 2019-June 2019 | Russ Phillips, PATH Company, 601.460.9609 | \$1,400,000.00 |
| Chapel Hill, TN Streetlight | 350 fixtures, Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Reporting | Nov-19 | Russ Phillips, PATH Company, 601.460.9609 | \$150,000.00 |
| Columbia, TN Streetlight | 6500 fixtures, Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Reporting | Presently Active | Russ Phillips, PATH Company, 601.460.9609 | \$2,200,000.00 |
| Goodlettsville, TN Streetlight | 1800 fixtures, Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Reporting | Presently Active | Russ Phillips, PATH Company, 601.460.9609 | \$1,000,000.00 |

3.08- Pricing- Placed in a separate – marked: Price Proposal: bid name number company with address.

Forms

PLEASE COMPLETE THIS PAGE AND SUBMIT WITH YOUR PROPOSAL

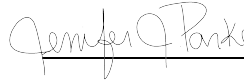
ACKNOWLEDGEMENT OF ADDENDUM

(if applicable)

Addendum Number

1-7

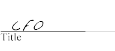
Signature of Bidder



COMPANY NAME: **Eco Engineering Inc**

COMPANY ADDRESS: **11815 Highway Drive Suite #600 Cincinnati, Ohio 45241-2065**

COMPANY ADDRESS: _____

BIDDER'S SIGNATURE:  

BIDDER'S NAME (PRINT): **Robb McCoy**

TITLE: **CFO** TEL. NO.: **513-673-3056**

EMAIL ADDRESS: **rmccoy@eco engineering.com** *

*Please include your email address. Future proposals will be emailed, unless otherwise noted.

BID FORM

Bid Number – ITB JTN-21-500
Street Light Maintenance and LED Conversion

To:
Town of Jamestown
Address: 93 Narragansett Ave
Jamestown, Rhode Island 02835

From:
Eco Engineering Inc.
Name of Proposer
11815 Highway Drive Suite #600
Cincinnati, Ohio 45241-2065
Town, State & Zip

THE PRICE OF EACH ITEM MUST BE WRITTEN IN WORDS AND FIGURES. IN CASE OF
DISCREPANCY, THE AMOUNT SHOWN IN WORDS WILL GOVERN.

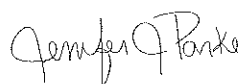
All items shall be completely filled out in writing

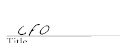
Please provide the following cost items in writing:

Base Cost:

| | |
|---|------------|
| Total Cost of LED Conversion Option 1: | 331,978.81 |
| Total Cost of LED Conversion Option 2: | |
| Total Cost of Controls Option 1: | 19,267.50 |
| Total Cost of Controls Option 2: | 37,984.50 |
| Total Cost of Controls Option 3: | 61,303.68 |
| Total Cost of Decorative Lights Option 1: | 24,500.75 |
| Total Cost of Decorative Lights Option 2: | |
| Total Pre-Conversion Maintenance: | 22,020.00 |
| Total Post-Conversion Maintenance: | 8808.00 |
| Total GIS Lighting Survey: | 8040.00 |

 
Signature Title



 
Signature Title

Eco Engineering Inc.

Company Name of Proposer

11815 Highway Drive Suite #600

Mailing Address (PO Box or street)

Cincinnati, Ohio 45241-2065

Town, State, and Zip Code

Robert McCoy

Name of Authorized Representative



Signature

S- Corporation



Title

Type of Business (Corp, Partnership, Sole Proprietorship)

716-863-9946

Telephone Number

513-985-9940

Facsimile

CONTRACTOR'S PROPOSAL

The undersigned Proposer agrees that he will contract with the Town to provide all necessary labor, supervision, tools, and other means to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and that he will take in full payment the amount set forth hereon.

The Town will have the sole authority to enter into an Agreement under this Invitation for Bid with the Bidder of its choice based on the evaluation criteria referenced herein. The Town has the sole right to select any Bid Item or combination of Bid Items when making an award.

To Be Completed, Notarized, and Submitted with Bid

NON-COLLUSION AFFIDAVIT

Bid Number – ITB JTN-21-500

Street Light Maintenance and LED Conversion

State of Rhode Island Counties of Newport and Providence“.

Eco Engineering, Inc, Bidder, being first duly sworn, deposes and says that he or she is Owner of the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the Bidder has not , directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid."

February 08, 2021

Date

Eco Engineering Inc.

Bidder name


(Person, Firm, Corp.)

11815 Highway Drive Suite #600

Address

Cincinnati, Ohio 45241-2065

City, State, Zip



(Signed at)

Robert McCoy

Authorized Representative

Jenifer J. Parke

Representative's Name

Sales Director

Representative's Title

BIDDER STATEMENT REGARDING INSURANCE COVERAGE

Bid Number – ITB JTN-21-500
Street Light Maintenance and LED Conversion

BIDDER HEREBY CERTIFIES that the Bidder has reviewed and understands the insurance coverage requirements specified in the Request for Proposal No2020-07. Should the Bidder be awarded the contract for the work, Bidder further certifies that the Bidder can meet the specified requirements for insurance and agrees to name the Town as Additional Insured for the work specified.

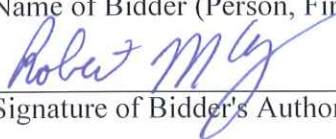
Insurance Required:

Workmen's Compensation and Employment Liability Insurance in compliance with statutory limits.
Comprehensive General Liability Insurance including Products Completed, Contractual, Property, and Personal Injury coverage with combined single limits of \$1,000,000 per occurrence and in the aggregate.
Professional Liability Insurance with a limit of \$1,000,000 per claim and in the aggregate. Automobile Liability Insurance including non-owned and hired automobiles with the limits listed below.

| | |
|-----------------|-----------------------------|
| Bodily Injury | \$1,000,000 each person |
| | \$1,000,000 each occurrence |
| Property Damage | \$1,000,000 each occurrence |

Eco Engineering Inc.

Name of Bidder (Person, Firm, or Corporation)



Signature of Bidder's Authorized Representative

Robert McCoy

Name & Title of Authorized Representative

February 08, 2021

Date of Signing

BIDDER STATEMENT OF RELEVANT EXPERIENCE

Bidders should provide a minimum of three (3) references from similar projects performed for any local government clients within the last five years. Information provided shall include:

Client/Business name;

Project description;

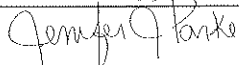
Project dates (starting and ending);

Client/Business project manager name and telephone number;

Contract amount.

I hereby certify that I have performed the work listed below.

Eco Engineering/ LightEdison: Ryan Witt

Signature of Bidder 

| CLIENT/ BUSINESS NAME | PROJECT DESCRIPTION | PROJECT DATES | CLIENT/BUSINESS CONTACT | CONTRACT AMOUNT |
|--------------------------------|---|------------------------------|--|--------------------|
| McKenzie, TN Streetlight | 1700 fixtures; Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Commissioning, Reporting | October- December 2018 | Russ Phillips, PATH Company, 601.460.9609 | \$600,000.00 |
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| | | | | |
|-----------------------------------|---|---------------------|--|----------------|
| Columbia, TN Streetlight | 6500 fixtures, Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Reporting | Presently Active | Russ Phillips, PATH Company, 601.460.9609 | \$2,200,000.00 |
| Goodlettsville, TN Streetlight | 1800 fixtures, Turnkey & Maintenance retrofit, Audit, Design/Spec, Project Management, Reporting | Presently Active | Russ Phillips, PATH Company, 601.460.9609 | \$1,000,000.00 |

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned Eco Engineering, Inc., as Principal, and , as Surety, are hereby held and firmly bound unto the TOWN OF JAMESTOWN, RHODE ISLAND, as OWNER in the penal sum of (\$ 449,072.32), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this 10th day of February, 2021.

The condition of the above obligation is such that whereas the Principal has submitted to the Town of Jamestown, Rhode Island, a certain BID, attached hereto and hereby made a part hereof to enter into a Contract in writing, for BID NUMBER – JTN-21-500 STREET LIGHT MAINTENANCE AND LED CONVERSION.

NOW, THEREFORE,

If said BID shall be rejected, or

If said BID shall be accepted and the Principal shall execute and deliver a Contract in the Form Of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a Performance Bond and a Labor and Material Payment Bond for his/her faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the Agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time with which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Harco National Insurance Company

Eco Engineering, Inc.

Tiff. Goble
Tiffany Goble, Attorney-in-Fact

and

Principal

Notary
Seal

Notary

By: Susan A. Yeazell and
Seal

Surety



SUSAN A. YEAZELL
Notary Public, State of Ohio
My Commission Expires 04-14-2023

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

POWER OF ATTORNEY
HARCO NATIONAL INSURANCE COMPANY
INTERNATIONAL FIDELITY INSURANCE COMPANY

Bond # n/a

Member companies of IAT Insurance Group, Headquartered: 702 Oberlin Road, Raleigh, North Carolina 27605

KNOW ALL MEN BY THESE PRESENTS: That **HARCO NATIONAL INSURANCE COMPANY**, a corporation organized and existing under the laws of the State of Illinois, and **INTERNATIONAL FIDELITY INSURANCE COMPANY**, a corporation organized and existing under the laws of the State of New Jersey, and having their principal offices located respectively in the cities of Rolling Meadows, Illinois and Newark, New Jersey, do hereby constitute and appoint

SUSAN A. YEAZELL, TIFFIANY GOBICH, LOUIS R. FISHER, PAULETTE M. AERNI, THOMAS W. CHATHAM, THOMAS D. CASSADY, JULIE CLINE, LINDA L. HOGLE

Cincinnati, OH

their true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise, and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said **HARCO NATIONAL INSURANCE COMPANY** and **INTERNATIONAL FIDELITY INSURANCE COMPANY**, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices.

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of **HARCO NATIONAL INSURANCE COMPANY** and **INTERNATIONAL FIDELITY INSURANCE COMPANY** and is granted under and by authority of the following resolution adopted by the Board of Directors of **INTERNATIONAL FIDELITY INSURANCE COMPANY** at a meeting duly held on the 13th day of December, 2018 and by the Board of Directors of **HARCO NATIONAL INSURANCE COMPANY** at a meeting held on the 13th day of December, 2018.

"**RESOLVED**, that (1) the Chief Executive Officer, President, Executive Vice President, Senior Vice President, Vice President, or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of, Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto, bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seals when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, **HARCO NATIONAL INSURANCE COMPANY** and **INTERNATIONAL FIDELITY INSURANCE COMPANY** have each executed and attested these presents on this 31st day of December, 2019



STATE OF NEW JERSEY
County of Essex

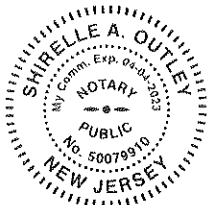
Kenneth Chapman

Executive Vice President, Harco National Insurance Company
and International Fidelity Insurance Company

STATE OF ILLINOIS
County of Cook



On this 31st day of December, 2019, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of **HARCO NATIONAL INSURANCE COMPANY** and **INTERNATIONAL FIDELITY INSURANCE COMPANY**; that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies.



IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark, New Jersey the day and year first above written.

Shirelle A. Outley a Notary Public of New Jersey
My Commission Expires April 04, 2023

CERTIFICATION

I, the undersigned officer of **HARCO NATIONAL INSURANCE COMPANY** and **INTERNATIONAL FIDELITY INSURANCE COMPANY** do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney, with the originals on file in the home office of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this day, February 10, 2021

B36449 USI MidWest

Irene Martins, Assistant Secretary

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that _____

Eco Engineering Inc.

(Name of Contractor)

of 11815 Highway Drive Suite #600 Cincinnati, Ohio 45241-2065

(Address of Contractor)

as Principal, hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto the Town of Jamestown, Rhode Island, called the Obligee, in the full penal sum of _____ Dollars (\$ _____), in lawful money of their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT WHEREAS said Principal has entered into a certain written Contract with said Obligee, dated the _____ day of 20 for the _____

which Contract, together with all Contract Documents now made or which may hereafter be made in extension, modification or alteration thereof, are hereby referred to, incorporated in and made a part of this Bond as though herein fully set forth.

NOW, THEREFORE, if the said Principal shall well and truly keep, perform, and execute all the terms, conditions and stipulations of said Contract according to its provisions on his/her or its part to be kept and performed and shall indemnify and reimburse the Obligee for any loss that it may suffer through failure of the Principal to faithfully observe and perform each and every obligation and duty imposed upon the Principal by the said Contract, at the time and in the manner therein specified, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

PROVIDED, HOWEVER, that any alterations which may be made in the terms of said Contract or in the Work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of said Contract or any other forbearance on the part of either the Obligee or the Principal one to the other, shall not in any way release the Principal and/or the Surety, or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, notice to the Surety or Sureties of any such alteration, extension or forbearance being hereby specifically and absolutely waived.

AND PROVIDED FURTHER THAT NO ACTION, suit, or proceeding shall be had or maintained against the Surety on this instrument unless the same be brought or instituted and process served upon the Surety within three (3) years from the expiration of the guaranty period

provided in the Contract, whether the Work be completed by the Principal, or Obligee.

IN WITNESS WHEREOF, the said Principal and Surety have SIGNED AND SEALED this instrument this _____ day of _____, 20_____.

ATTEST:

Principal

(Principal) Secretary
By _____ (S)
(SEAL)

Witness as to Principal

ATTEST:

Surety

(Surety) Secretary

(SEAL)

By _____
Attorney-in-Fact

Witness as to Surety

Note: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the U.S. Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Rhode Island.

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that _____

Eco Engineering Inc

(Name of CONTRACTOR)

of 11815 Highway Drive Suite #600 Cincinnati, Ohio 45241-2065 _____

(Address of CONTRACTOR)

as Principal hereinafter called Principal, and

(Name of Surety)

of _____

(Address of Surety)

_____, a Corporation organized and existing under the laws of the State of _____, as Surety, hereinafter called Surety, are held and firmly bound unto the Town of Jamestown as Obligee, hereinafter called the Obligee, in the full penal sum of _____ dollars (\$_____) in lawful money of the United States for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT WHEREAS said Principal has entered into a certain written Contract with said Obligee, dated the _____ day of _____, 20_____, which written Contract provides for the which Contract, together with all Plans and Specifications now made or which may hereafter be made in extension, modification of alteration thereof, are hereby referred to, incorporated in and made a part of this Bond as though herein fully set forth.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such Contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs or machinery, equipment and tools, consumed or used in connection with the construction of such Work, and all insurance premiums on said Work and for all labor, performed in such Work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this Bond is executed, pursuant to the provision of the General Statutes of the State of Rhode Island and the rights and liabilities hereunder shall be determined and limited by said sections to the same extent as if they were copies at length herein.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed there under or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the Obligee and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, the said principal and surety have signed and sealed this instrument this _____ day of _____, 20____.

ATTEST:

Principal

(Principal) Secretary
By _____ (S)

(SEAL)

Witness as to Principal

ATTEST:

Surety

(Surety) Secretary

(SEAL)
By _____
Attorney-in-Fact

Witness as to Surety

NOTE: Date of Bond must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing Bonds must appear on the U.S. Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Rhode Island.

PROPOSED SUBCONTRACTORS

THE BIDDER SHALL STATE THE NAMES OF ALL THE SUBCONTRACTORS THAT THEY PROPOSE TO USE

Note: If more than two (2) subcontractors are proposed, provide multiple copies of this form with the various entities' information filled in below.

If none, write "None" _____ McCrea Electric _____

*Description of Work

Proposed Subcontractor, Name: McCrea Electric

Address: 120 Point Street Providence, RI 02903

Description of Work

Proposed Subcontractor, Name: _____

Address: _____

*Insert description of Work and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest in respect to this Contract.

Bidder Eco Engineering, Inc.

(Fill in Name)

By Robert M. Y.

CFO

(Signature and Title)

PROPOSED SUBCONTRACTORS

THE BIDDER SHALL STATE THE NAMES OF ALL THE SUBCONTRACTORS THAT THEY PROPOSE TO USE

Note: If more than two (2) subcontractors are proposed, provide multiple copies of this form with the various entities' information filled in below.

If none, write "None" LightEdison_____

*Description of Work

Project Management and installation for streetlighting with on-going maintenance contract

Proposed Subcontractor, Name: Ryan Witt

Address: 17th Street, 3rd Floor
Denver, Colorado 80202

Description of Work

Project Management for streetlight labor & maintenance

Proposed Subcontractor, Name: _____

Address: _____

*Insert description of Work and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest in respect to this Contract.

Bidder Eco Engineering Inc

(Fill in Name)

By

Robert M. G. CFO

(Signature and Title)

NOTICE OF AWARD

TOWN of Jamestown

TO: Eco Engineering Inc
11815 Highway Drive Suite #600
Cincinnati, Ohio 45241-2065

PROJECT DESCRIPTION: Streetlight Maintenance and LED Conversion Project

The OWNER has considered the BID submitted by you dated February 08, 2021 for the above referenced WORK in response to its Invitation to Bid and the Standard & Special Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amounts shown in the Bid Schedule, for the Town of Jamestown portion only.

You are required by the Standard & Special Instructions to Bidders to execute the Agreement and furnish the required CONTRACTOR'S PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND, and Certificates Of Insurance within fifteen (15) calendar days from the date of this NOTICE to you. The bond forms contained within the Contract Documents must be used. Substitute bond forms will not be accepted.

If you fail to execute said Agreement and to furnish said BONDS and CERTIFICATES OF INSURANCE within fifteen (15) days from the date of this NOTICE, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned, and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.
Dated this _____ day of _____, 20_____.

TOWN OF _____, RHODE ISLAND

OWNER

BY:

TITLE:

Agenda Item # _____ Date: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by Eco Engineering Inc
this the ___ day of _____, 20_____. (Company Name)

BY: _____

TITLE: _____

NOTICE TO PROCEED

TOWN OF Jamestown

TO: Eco Engineering Inc

DATE:

PROJECT DESCRIPTION: Streetlight Maintenance and LED Conversion Project

Town of _____ Portion Only

You are hereby notified to commence WORK in accordance with the Bid Proposal dated ____/____/20____, on or before ____/____/20____ and you are to complete the WORK within one hundred twenty (120) consecutive calendar days thereafter. The date of completion of all WORK is therefore xx/xx/20xx.

TOWN OF _____, RHODE ISLAND
OWNER

BY:

TITLE:

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____
this the ____ day of _____, 20____. (Company Name)

BY: _____

TITLE: _____

PRICE PROPOSAL FORMS

Intentionally blank.

Please see attached Excel Files.

CONTRACT AGREEMENT

TOWN OF _____

THIS AGREEMENT made and executed this ____ day of _____, in the year 20_____, by and between the Town of _____, a municipality located within the State of Rhode Island, by its Town Council duly constituted, and without personal liability for the individual's signatory hereto, herein termed the OWNER, party, of the first part, and _____ of _____ doing business as a corporation, hereinafter termed the CONTRACTOR, party of the second part;

WITNESSETH: That the parties to this Agreement each in consideration of the Agreements on the part of the other herein contained have agreed, and by these presents do hereby agree, the OWNER for itself, and the CONTRACTOR for themselves and their heirs, executors, administrators, successors, and assigns, as follows:

That the Contract Documents consisting of this Agreement, together with the Legal and Procedural Documents, General and Supplemental Conditions, Detailed Specification Requirements, Contract Drawings, and any Addenda issued before execution of the Agreement, for the Contract;

That the CONTRACTOR has informed themselves fully in regard to all conditions pertaining to the place where the Work is to be done and other circumstances affecting the Work;

That the CONTRACTOR has obtained all the information he needs to enable them to estimate fully and fairly the costs of the Work herein contemplated;

That the CONTRACTOR shall furnish all plant, labor, materials, suppliers, tools, equipment, and other facilities and things necessary or proper for or incidental to, the party of the first part in accordance with this Contract, commencing Work within the time interval stated in the Bid Proposal, provided he shall have been notified by the OWNER so to do, and completing everything required of them under this Contract not later than the time stated in the Bid Proposal.

That the OWNER shall pay and the CONTRACTOR shall receive, as full compensation for fulfilling everything required of the CONTRACTOR under this Contract, the unit prices and lump sums recorded in the Bid Form of the Proposal.

That the quantities shown in the Bid Proposal or Bid Form are approximate only, and are solely for the purpose of facilitating the comparison of Proposals; that the OWNER shall not be held responsible if these quantities are not even approximately correct; that for all Work upon which unit prices and lump sums are quoted, the CONTRACTOR'S compensation shall be computed upon the Work actually performed, measured by the units of measurement specified, whether greater or less than the quantities shown in the Bid Proposal or Bid Form; and that the unit prices and lump sums set against the several items cover all incidental services required of the CONTRACTOR under the Contract. That the CONTRACTOR shall give to the OWNER, as liquidated damages, for each day lost by the CONTRACTOR in the completion of the Work of the Contract after the time stipulated in the Contract Documents, the sum of Two Hundred Dollars (\$200.00) per day;

Signed, sealed and delivered in triplicate the day and year first above written.

OWNER:

Town of _____ a, Rhode Island

BY:

Town Administrator

CONTRACTOR*:

ADDRESS:

BY:

TITLE:

*IMPORTANT: Execute acknowledgment of officer or agent of CONTRACTOR who signs this document.

This Contract, Bonds, and Certificates of Insurance are satisfactory to the Town of XXXXX, Rhode Island.

BY:

Town Solicitor

Town Council Agenda Approval Date

DESCRIPTION

The EPIC Collection delivers custom luminaire flexibility with high quality, yet availability expectations of standard specification grade product. The EPIC Collection can be dressed to suit any application. Recognizing evolving environmental and legislative trends, the EPIC Collection delivers world class LED optical and performance solutions to the decorative luminaire marketplace.

| Catalog # | | Type |
|-------------|--|------|
| Project | | |
| Comments | | Date |
| Prepared by | | |

SPECIFICATION FEATURES

Construction

TOP: Cast aluminum top housing attaches to cast aluminum mounting arm hub with four stainless steel fasteners. One-piece silicone gasket between mounting hub and top casting seals out moisture and contaminants. (See the mounting accessories section for a full selection of mounting arms. (Only these arms are compatible with the Epic luminaire). **MIDSECTION:** Continuous silicone gaskets seal lens to top casting and shade. The mid section features cast aluminum construction and stainless steel assembly. **SHADES:** Heavy gauge precision spun aluminum shades offer superior surface finish and consistency in form. **DOORFRAME:** Die-cast aluminum 1/8" thick door and doorframe seal to underside of shade with a thick wall continuous silicone gasket. Mounting hub ships attached to mounting arm.

Optics

Choice of twelve patented, high-efficiency AccuLED Optic™ technology manufactured from

injection-molded acrylic. Optics are precisely designed to shape the optics, maximizing efficiency and application spacing. AccuLED Optic technology, creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and nominal 70 CRI. Optional 3000K CCT and 5000K CC. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical

LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.9 power factor, less than 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard

with 10kV/10kA common – and differential – mode surge protection. LightBARs feature and IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Finish

Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

Warranty

Five-year warranty.



CEM/MEM EPIC MEDIUM LED

1 - 4 LightBARs
Solid State LED

DECORATIVE AREA LUMINAIRE



CERTIFICATION DATA

UL/cUL Listed
IP66 LightBARs
LM79 / LM80 Compliant
2G Vibration Tested
ISO 9001

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz,
480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA

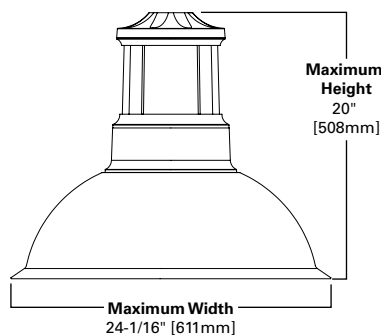
Effective Projected Area: (Sq. Ft.) 0.94

SHIPPING DATA

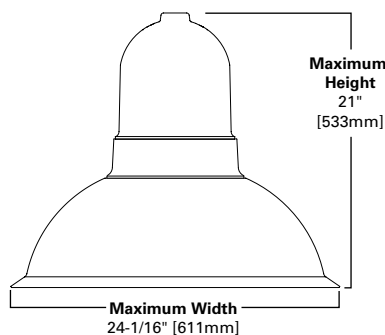
Approximate Net Weight:
45 lbs. [20 kgs.]

DIMENSIONS

CEM Classical

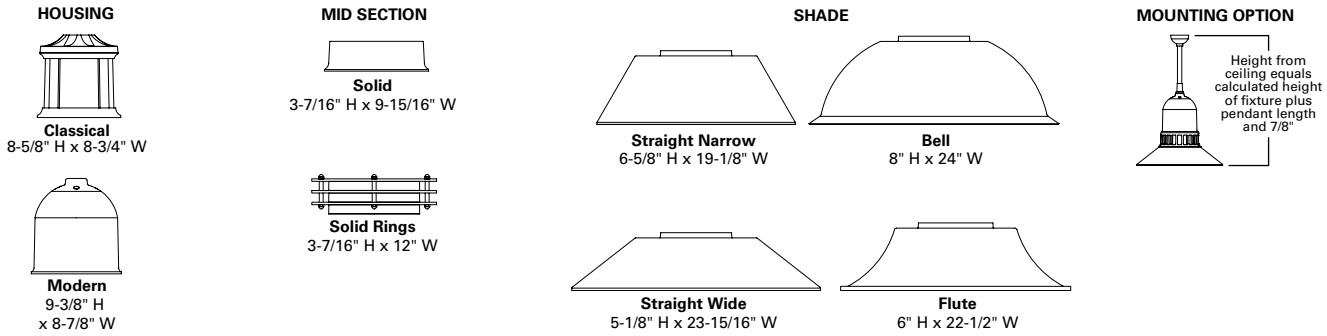


MEM Classical



See configurations for more detailed information.

CONFIGURATIONS



POWER AND LUMENS BY BAR COUNT (21 LED LIGHTBARS)

| Number of LightBARs | | E01 | E02 | E03 | E04 |
|---------------------------|------------|---------------------|----------|----------|----------|
| Drive Current | | 350mA Drive Current | | | |
| Power (Watts) | | 25W | 52W | 75W | 97W |
| Current @ 120V (A) | | 0.22 | 0.44 | 0.63 | 0.82 |
| Current @ 277V (A) | | 0.10 | 0.20 | 0.28 | 0.36 |
| Power (Watts) | | 31W | 58W | 82W | 99W |
| Current @ 347V (A) | | 0.11 | 0.19 | 0.28 | 0.29 |
| Current @ 480V (A) | | 0.09 | 0.15 | 0.20 | 0.21 |
| T2 | Lumens | 2,948 | 5,896 | 8,844 | 11,792 |
| | BUG Rating | B1-U0-G1 | B2-U0-G2 | B3-U0-G3 | B3-U0-G3 |
| T3 | Lumens | 2,936 | 5,873 | 8,809 | 11,745 |
| | BUG Rating | B1-U0-G1 | B2-U0-G2 | B3-U0-G3 | B3-U0-G3 |
| T4 | Lumens | 2,876 | 5,752 | 8,627 | 11,503 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B2-U0-G3 |
| 5MQ | Lumens | 3,054 | 6,108 | 9,161 | 12,215 |
| | BUG Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G2 | B4-U0-G2 |
| 5WQ | Lumens | 2,987 | 5,975 | 8,962 | 11,949 |
| | BUG Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G2 | B4-U0-G2 |
| 5XQ | Lumens | 2,982 | 5,963 | 8,945 | 11,926 |
| | BUG Rating | B2-U0-G1 | B3-U0-G2 | B3-U0-G3 | B4-U0-G3 |
| SL2 | Lumens | 2,878 | 5,756 | 8,634 | 11,512 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| SL3 | Lumens | 2,894 | 5,788 | 8,682 | 11,576 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| SL4 | Lumens | 2,823 | 5,647 | 8,470 | 11,294 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| RW | Lumens | 2,957 | 5,915 | 8,872 | 11,829 |
| | BUG Rating | B2-U0-G2 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 |
| SLL/SLR | Lumens | 2,616 | 5,231 | 7,847 | 10,462 |
| | BUG Rating | B1-U0-G2 | B1-U0-G2 | B1-U0-G3 | B2-U0-G3 |

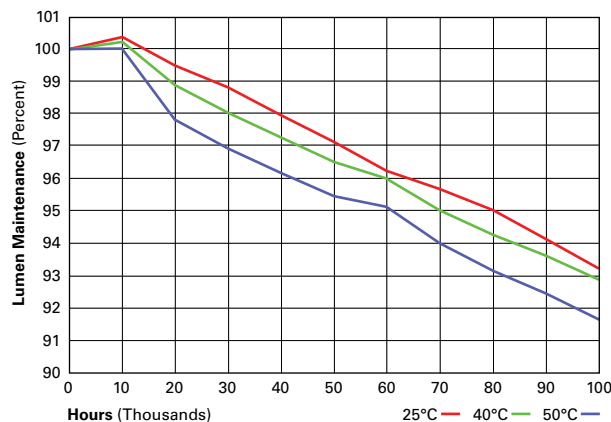
POWER AND LUMENS BY BAR COUNT (7 LED LIGHTBARS)

| Number of LightBARs | | F01 | F02 | F03 | F04 |
|---------------------------|------------|------------------|----------|----------|----------|
| Drive Current | | 1A Drive Current | | | |
| Power (Watts) | | 26W | 55W | 78W | 102W |
| Current @ 120V (A) | | 0.22 | 0.46 | 0.66 | 0.86 |
| Current @ 277V (A) | | 0.10 | 0.21 | 0.29 | 0.37 |
| Power (Watts) | | 32W | 60W | 85W | 105W |
| Current @ 347V (A) | | 0.11 | 0.19 | 0.28 | 0.30 |
| Current @ 480V (A) | | 0.09 | 0.15 | 0.21 | 0.22 |
| T2 | Lumens | 2,434 | 4,867 | 7,301 | 9,735 |
| | BUG Rating | B1-U0-G1 | B2-U0-G2 | B2-U0-G2 | B3-U0-G3 |
| T3 | Lumens | 2,424 | 4,848 | 7,272 | 9,696 |
| | BUG Rating | B1-U0-G1 | B2-U0-G2 | B2-U0-G2 | B3-U0-G3 |
| T4 | Lumens | 2,374 | 4,748 | 7,122 | 9,496 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 |
| 5MQ | Lumens | 2,521 | 5,042 | 7,563 | 10,084 |
| | BUG Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G1 | B3-U0-G2 |
| 5WQ | Lumens | 2,466 | 4,932 | 7,398 | 9,864 |
| | BUG Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G2 | B4-U0-G2 |
| 5XQ | Lumens | 2,461 | 4,923 | 7,384 | 9,845 |
| | BUG Rating | B2-U0-G1 | B3-U0-G2 | B3-U0-G2 | B4-U0-G3 |
| SL2 | Lumens | 2,376 | 4,752 | 7,127 | 9,503 |
| | BUG Rating | B1-U0-G1 | B1-U0-G1 | B2-U0-G2 | B2-U0-G2 |
| SL3 | Lumens | 2,389 | 4,778 | 7,167 | 9,556 |
| | BUG Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G2 | B2-U0-G2 |
| SL4 | Lumens | 2,331 | 4,662 | 6,993 | 9,323 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 |
| RW | Lumens | 2,441 | 4,883 | 7,324 | 9,765 |
| | BUG Rating | B1-U0-G1 | B2-U0-G2 | B3-U0-G3 | B3-U0-G3 |
| SLL/SLR | Lumens | 2,159 | 4,318 | 6,478 | 8,637 |
| | BUG Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G3 | B1-U0-G3 |

LUMEN MAINTENANCE

| Ambient Temperature | 25,000 Hours* | 50,000 Hours* | 60,000 Hours* | 100,000 Hours | Theoretical L70 (Hours) |
|---------------------|---------------|---------------|---------------|---------------|-------------------------|
| 25°C | > 99% | > 97% | > 96% | > 93% | > 450,000 |
| 40°C | > 98% | > 97% | > 96% | > 92% | > 425,000 |
| 50°C | > 97% | > 96% | > 95% | > 91% | > 400,000 |

* Per IESNA TM-21 data.



LUMEN MULTIPLIER

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 10°C | 1.02 |
| 15°C | 1.01 |
| 25°C | 1.00 |
| 40°C | 0.99 |
| 50°C | 0.96 |

CONTROL OPTIONS

0-10V (DIM)

This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PC, PER and PER7)

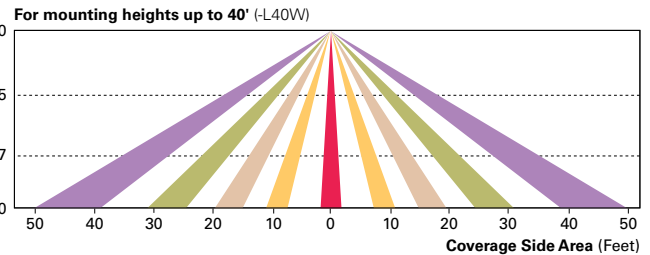
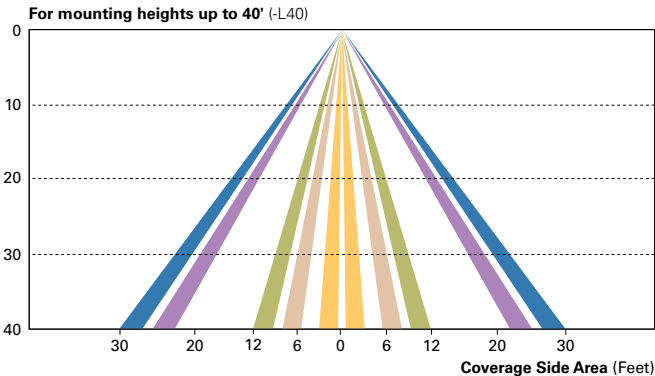
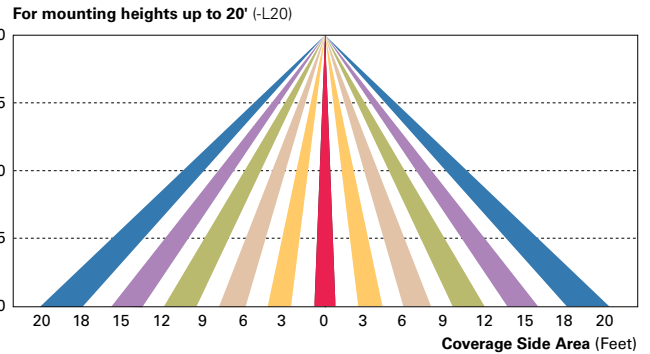
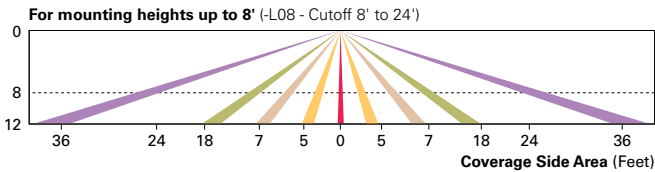
Optional button-type photocontrol (PC) and photocontrol receptacles (PER and PER7) provide a flexible solution to enable “dusk-to-dawn” lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)

These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for “dusk-to-dawn” control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters.

A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.



ORDERING INFORMATION

Sample Number: CEM-E04-LED-E1-T2-FL-GM

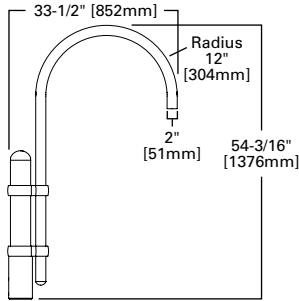
| Product Family ¹ | Number of LightBARs ^{2,3} | Lamp Type | Voltage | Distribution | Mid Section Type | Shade Type | Color ⁵ |
|--|--|---|---|---|--|---|--|
| CEM =Epic Classical Medium MEM =Epic Modern Medium | E01 =(1) 21 LED LightBAR E02 =(2) 21 LED LightBARs E03 =(3) 21 LED LightBARs E04 =(4) 21 LED LightBARs F01 =(1) 7 LED LightBAR F02 =(2) 7 LED LightBARs F03 =(3) 7 LED LightBARs F04 =(4) 7 LED LightBARs | LED =Solid State Light Emitting Diodes | E1 =Electronic (120-277V) 347 =347V 480 =480V ⁴ | T2 =Type II T3 =Type III T4 =Type IV SL2 =Type II w/Spill Control SL3 =Type III w/Spill Control SL4 =Type IV w/Spill Control 5MQ =Type V Square Medium 5WQ =Type V Square Wide 5XQ =Type V Square Extra Wide RW =Rectangular Wide SLL =90° Spill Light Eliminator Left SLR =90° Spill Light Eliminator Right | SO =Solid SR =Solid Rings | SN =Straight Narrow SW =Straight Wide BL =Bell FL =Flute | AP =Grey BZ =Bronze BK =Black DP =Dark Platinum GM =Graphite Metallic WH =White |
| Options (Add as Suffix) | | Accessories (Order Separately) ¹³ | | | | | |
| 2L =Two Circuits ⁶ 7030 =70 CRI / 3000K CCT ⁷ 7050 =70 CRI / 5000K CCT ⁷ 8030 =80 CRI / 3000K CCT ⁷ LCF =LightBAR Cover Plate Matches Housing Finish MS-LXX =Motion Sensor for ON/OFF Operation ⁸ MS/X-LXX =Motion Sensor for Bi-Level Switching ⁹ PMXX =Pendant Mount (XX=Pendant Length in Inches, 9.5" min - 48.0" max) ¹⁰ HSS =Factory Installed House Side Shield ¹¹ DIM =0-10V Dimming Driver ¹² | | OA/RA1016 =NEMA Twistlock Photocontrol - Multi-Tap OA/RA1027 =NEMA Twistlock Photocontrol - 480V OA/RA1201 =NEMA Twistlock Photocontrol - 347V OA/RA1013 =Photocontrol Shorting Cap LB/HSS-21 =Field Installed House Side Shield for "E" LightBARs ^{11,15} LB/HSS-07 =Field Installed House Side Shield for "F" LightBARs ^{11,15} Mounting Accessories (Order Separately) Classical SA6150-XX =Bishop Wall Mount Arm SA6151-XX =Bishop Wall Mount Arm with Cross Rod SA6152-XX =Traditional Wall Mount Arm SA6153-XX =Traditional Wall Mount Arm with 45° Strap SA6154-XX =Bishop Single Pole Mount Arm SA6155-XX =Bishop Single Pole Mount Arm with Cross Rod SA6156-XX =Bishop Twin Pole Mount Arm SA6157-XX =Bishop Twin Pole Mount Arm with Cross Rods SA6158-XX =Traditional Single Pole Mount Arm SA6159-XX =Traditional Single Pole Mount Arm with Rounded Upper Bar SA6160-XX =Traditional Single Pole Mount Arm with Rounded Lower Bar ¹⁴ SA6161-XX =Traditional Single Pole Mount Arm with 45° Upper Bar SA6162-XX =Traditional Single Pole Mount Arm with 45° Lower Bar ¹⁴ SA6163-XX =Traditional Single Pole Mount Arm with 45° Upper Strap SA6165-XX =Traditional Twin Pole Mount Arm SA6166-XX =Traditional Twin Pole Mount Arm with Rounded Upper Bars SA6167-XX =Traditional Twin Pole Mount Arm with Rounded Lower Bars ¹⁴ SA6168-XX =Traditional Twin Pole Mount Arm with 45° Upper Bars SA6169-XX =Traditional Twin Pole Mount Arm with 45° Lower Bars ¹⁴ SA6170-XX =Traditional Twin Pole Mount Arm with 45° Upper Straps SA6171-XX =Mast Arm Adapter Modern SA6101-XX =Bishop Wall Mount Arm SA6102-XX =Bishop Wall Mount Arm with Cross Rod SA6103-XX =Traditional Wall Mount Arm SA6104-XX =Traditional Wall Mount Arm with 45° Strap SA6105-XX =Bishop Single Pole Mount Arm SA6106-XX =Bishop Single Pole Mount Arm with Cross Rod SA6107-XX =Bishop Twin Pole Mount Arm SA6108-XX =Bishop Twin Pole Mount Arm with Cross Rods SA6109-XX =Traditional Single Pole Mount Arm SA6110-XX =Traditional Single Pole Mount Arm with Rounded Upper Bar SA6111-XX =Traditional Single Pole Mount Arm with Rounded Lower Bar ¹⁴ SA6112-XX =Traditional Single Pole Mount Arm with 45° Upper Bar SA6113-XX =Traditional Single Pole Mount Arm with 45° Lower Bar ¹⁴ SA6114-XX =Traditional Single Pole Mount Arm with 45° Upper Strap SA6116-XX =Traditional Twin Pole Mount Arm SA6117-XX =Traditional Twin Pole Mount Arm with Rounded Upper Bars SA6118-XX =Traditional Twin Pole Mount Arm with Rounded Lower Bars ¹⁴ SA6119-XX =Traditional Twin Pole Mount Arm with 45° Upper Bars SA6120-XX =Traditional Twin Pole Mount Arm with 45° Lower Bars ¹⁴ SA6121-XX =Traditional Twin Pole Mount Arm with 45° Upper Straps SA6122-XX =Mast Arm Adapter | | | | Accessory Options ¹⁶ V =Victorian Finial ¹⁷ M =Modern Finial ¹⁷ A =Architectural Finial ¹⁷ N =Nostalgic Finial ¹⁷ R =NEMA Twistlock Photocontrol Receptacle ¹⁸ | |

NOTES:

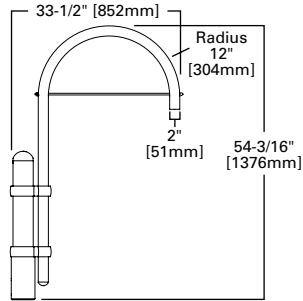
1. Arm not included. Order separately. See accessories.
2. Standard 4000K CCT and greater than 70 RI.
3. 21 LED LightBAR powered by 350mA and 7 LED LightBAR powered by 1A.
4. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
5. Custom and RAL color matching available upon request. Consult your lighting representative at Cooper Lighting Solutions for more information.
6. Low-level output varies by bar count. Consult factory. Requires quantity of two or more LightBARs.
7. Consult customer service for lead times and multiplier.
8. Sensor mounted to the luminaire. Available in E01-E04 and F01-F04 configurations. Replace "XX" with mounting height in feet for proper lens selection, (e.g., MS-L25). Consult factory for additional information.
9. Sensor mounted to the luminaire. Available in E02-E04 and F02-F04 configurations. Replace "X" with number of LightBARs operating in low output mode and replace XX with mounting height in feet for proper lens selection, (e.g., MS/3-L25). Maximum four bars in low output mode. Consult factory for additional information.
10. Pendant mount option "PMXX" must be used with Invue Pendant mount kit only. Includes pendant pipe, swivel hangar and canopy cover. Other pendant lengths can be specified in inches (XX). Minimum pendant length is 9-1/2". For lengths above 48", consult your lighting representative at Cooper Lighting Solutions for more information.
11. Only for use with SL2, SL3 and SL4 distributions.
12. Dimming leads provide for external 0-10V control system (by others).
13. Replace XX with color suffix.
14. Only available with traditional arms.
15. One required for each LightBAR.
16. Add as suffix to mounting accessory. Example: VA6106-BK-R.
17. Not available with finials, pendant mount "PM48" or bishop wall mounts.
18. Requires use of 4" O.D. round straight pole.

MOUNTING ACCESSORIES

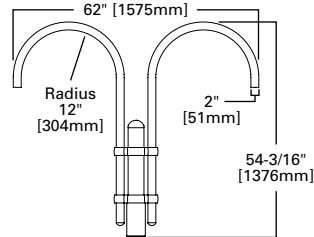
Pole mount arms are designed to fit both medium CEM/MEM housings. (Only these arms are compatible with the Epic luminaire). Arms feature a precision welded cast aluminum mounting hub for attachment of fixture head to arm with four stainless steel fasteners. Wall mount arms compliment pole mount luminaires and attractively transition fixture scale in lower mounting height pedestrian environments. Wall mount arms are designed to fit both medium CEM/MEM housings. Arms feature a precision welded cast aluminum mounting hub for attachment of fixture head to arm with four stainless steel fasteners.

**BISHOP SINGLE POLE MOUNT ARM**

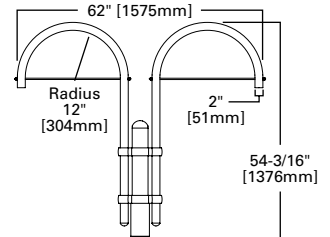
SA6105 (Modern), SA6154 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 24 lbs. E.P.A: 0.92

**BISHOP SINGLE POLE MOUNT ARM WITH CROSS ROD**

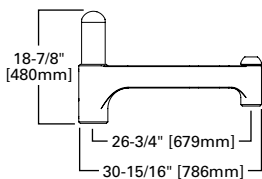
SA6106 (Modern), SA6155 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 25 lbs. E.P.A: 0.98

**BISHOP TWIN POLE MOUNT ARM**

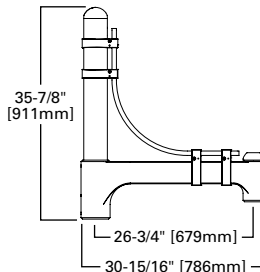
SA6107 (Modern), SA6156 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 37 lbs. E.P.A: 1.43

**BISHOP TWIN POLE MOUNT ARM WITH CROSS RODS**

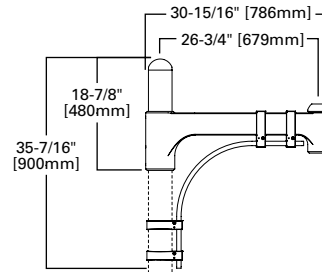
SA6108 (Modern), SA6157 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 39 lbs. E.P.A: 1.55

**TRADITIONAL SINGLE POLE MOUNT ARM**

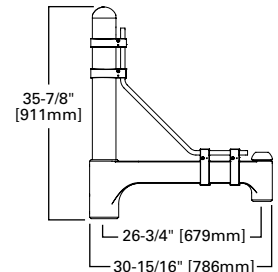
SA6109 (Modern), SA6158 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 20 lbs. E.P.A: 0.86

**TRADITIONAL SINGLE POLE MOUNT ARM WITH ROUNDED UPPER BAR**

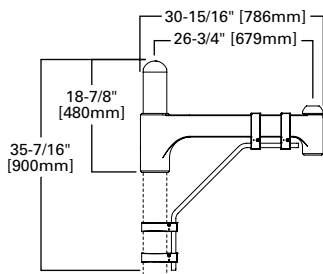
SA6110 (Modern), SA6159 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 28 lbs. E.P.A: 1.4

**TRADITIONAL SINGLE POLE MOUNT ARM WITH ROUNDED LOWER BAR**

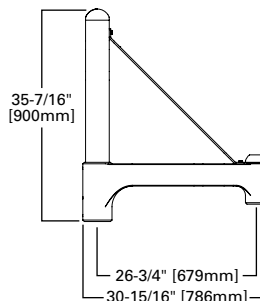
SA6111 (Modern), SA6160 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 25 lbs. E.P.A: 1.16

**TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° UPPER BAR**

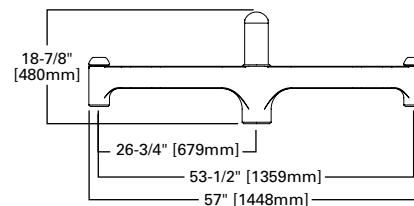
SA6112 (Modern), SA6161 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" round tenon.
Weight: 28 lbs. E.P.A: 1.38

**TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° LOWER BAR**

SA6113 (Modern), SA6162 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 24 lbs. E.P.A: 1.17

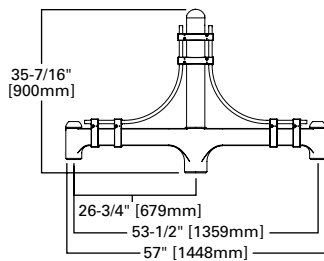
**TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° UPPER STRAP**

SA6114 (Modern), SA6163 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 24 lbs. E.P.A: 1.17

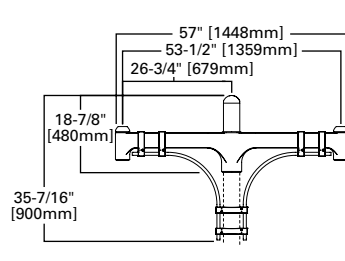
**TRADITIONAL TWIN POLE MOUNT ARM**

SA6116 (Modern), SA6165 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall round tenon.
Weight: 30 lbs. E.P.A: 1.44

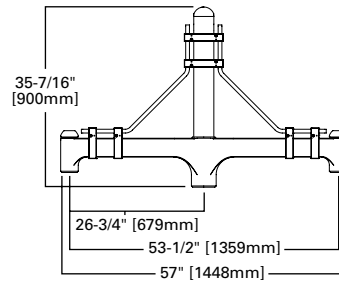
MOUNTING ACCESSORIES


**TRADITIONAL TWIN POLE
MOUNT ARM WITH ROUNDED
UPPER BARS**

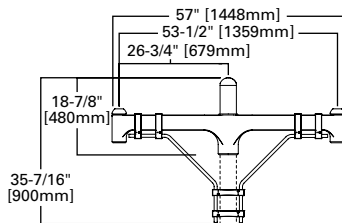
SA6117 (Modern), SA6166 (Classical)
Slipfits over 4" round straight pole,
or 4" O.D. by 6" tall round tenon.
Weight: 43 lbs. E.P.A: 2.28


**TRADITIONAL TWIN POLE
MOUNT ARM WITH ROUNDED
LOWER BARS**

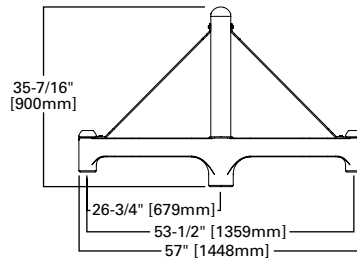
SA6118 (Modern), SA6167 (Classical)
Slipfits over 4" round straight pole,
or 4" O.D. by 6" tall round tenon.
Weight: 40 lbs. E.P.A: 2.04


**TRADITIONAL TWIN POLE
MOUNT ARM WITH 45° UPPER BARS**

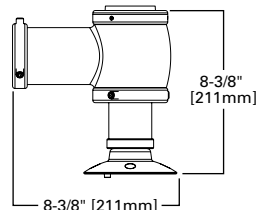
SA6119 (Modern), SA6168 (Classical)
Slipfits over 4" round straight pole,
or 4" O.D. by 6" tall round tenon.
Weight: 43 lbs. E.P.A: 2.24


**TRADITIONAL TWIN POLE
MOUNT ARM WITH 45° LOWER BARS**

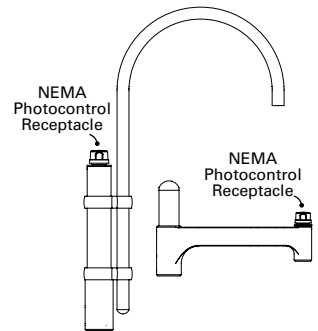
SA6120 (Modern), SA6169 (Classical)
Slipfits over 4" round straight pole,
or 4" O.D. by 6" tall round tenon.
Weight: 40 lbs. E.P.A: 2.0


**TRADITIONAL TWIN POLE
MOUNT ARM WITH 45° UPPER STRAPS**

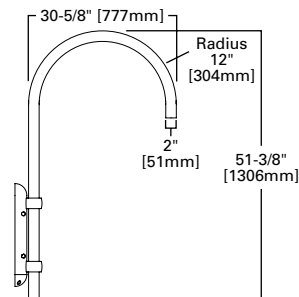
SA6121 (Modern), SA6170 (Classical)
Slipfits over 4" round straight pole,
or 4" O.D. by 6" tall round tenon.
Weight: 37 lbs. E.P.A: 1.81


MAST ARM ADAPTER

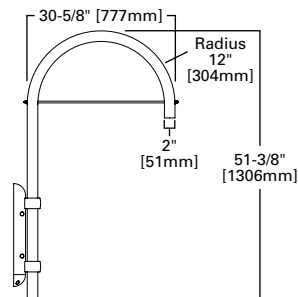
SA6122 (Modern), SA6171 (Classical)
Secures fixture to nominal 2" pipe
(2-3/8" horizontal O.D.)
Weight: 4 lbs.


NEMA TWISTLOCK PHOTOCONTROL (R)
Order separately (Not compatible with
finials or wall mount bishop arms)

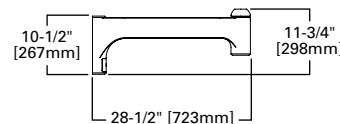
Wall Mount Accessories


BISHOP WALL MOUNT ARM

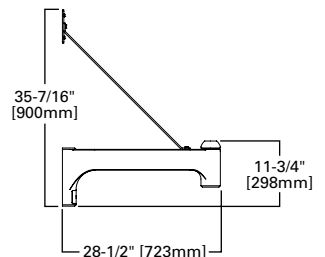
SA6101 (Modern), SA6150 (Classical)
Mounts to wall with four stainless
steel lag bolts (provided by other).
Weight: 16 lbs.


**BISHOP WALL MOUNT ARM
WITH CROSS ROD**

SA6102 (Modern), SA6151 (Classical)
Mounts to wall with four stainless
steel lag bolts (provided by other).
Weight: 17 lbs.


TRADITIONAL WALL MOUNT ARM

SA6103 (Modern), SA6152 (Classical)
Mounts to wall with four stainless
steel lag bolts (provided by other).
Weight: 17 lbs.


**TRADITIONAL WALL MOUNT ARM
WITH 45° STRAP**

SA6104 (Modern), SA6153 (Classical)
Mounts to wall with four stainless
steel lag bolts (provided by other).
Weight: 18 lbs.

DESCRIPTION

The UFLD LED floodlight luminaire combines high-efficiency optics, superior thermal management and energy efficiency in a cost-effective solution. The compact, robust design incorporates a separate driver compartment for maximum heat dissipation to insure longevity of both the fixture and the optics. The UFLD luminaire uses precision engineered optics delivering superior uniformity and excellent illumination to the targeted application. Typical applications include area lighting for security, building facade lighting, accent and signage lighting in both commercial and industrial applications. The UFLD luminaire is UL/cUL listed for wet locations and is IP66 rated.

SPECIFICATION FEATURES

Construction

Heavy-duty, die cast aluminum housing, driver compartment and driver door. A separate driver compartment and external fins provide optimal thermal management that result in longer LED and driver life. The housing, optical chamber and driver compartment are IP66 rated. Access to the driver for maintenance is achieved with a removable driver door using pan head screws. A one-piece silicone gasket seals the door to the fixture housing. The fixture is 3G vibration rated (ANSI C136.31) to ensure durability in area and site lighting applications. Suitable for mounting within 4' (1.2m) of the ground.

Optics

The LED chamber incorporates a vacuum metalized reflector that provides high-efficiency illumination. Optics are precisely designed to shape the NEMA type 6H x 6V wide distribution and 3H x 3V spot distribution, maximizing efficiency and application spacing. Clear glass tempered lens with full circumference form-in-place silicone gasket protects the optics from damage. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 5700K CCT, 5000K CCT and 3000K CCT and minimum 70 CRI are available.

Electrical

LED driver is mounted to the removable die-cast aluminum door for optimal heat sinking and ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Integral 6kV surge is standard. 10kV/10kA common- and differential- mode surge protection available as an option. 0-10V dimming driver is available to accommodate controls capability such as dimming and occupancy. Available with 3-PIN or 7-PIN NEMA photocontrol receptacles. Suitable for ambient temperatures from -40°C to 40°C. Optional 50°C HA (high ambient) available. 90% lumen maintenance greater than 50,000 hours per IESNA TM-21. Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected.

Accessories

Heavy-duty steel top and side visors control glare and spill light. 1/8" thick UV stabilized vandal guard shields glass lens from impact when mounted at low levels. Easy to install wire guard features a heavy-gauge welded construction with corrosion resistant polyester powder coat

finish to protect glass from projected objects.

Mounting

Mounting options include an integral die-cast aluminum slipfitter that is preset to a tilt of 45°. The knuckle base is supplied with a tooth lock adjustment that can be adjusted in 5° increments. Visual 15° adjustment indicators on the knuckle allow for 180° field rotation of the floodlight assembly. The slipfitter fits standard 2-3/8"-3" O.D. tenon. The trunnion mounting includes a 3/16" polyester powder coated galvanized steel trunnion with a 16/3 STW-A cord. The trunnion mount uses an interlocking slide adjustment that is locked in place with a set screw.

Finish

Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear.

Warranty

Standard five-year warranty. Optional ten-year warranty, please see your Cooper Lighting Solutions Streetworks sales representative for more information.



UFLD UTILITY FLOOD

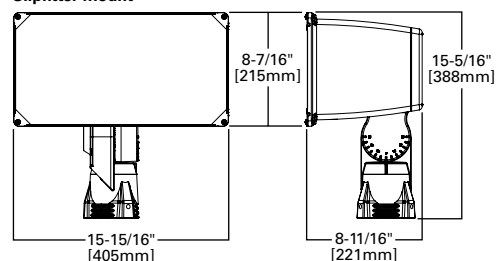
Solid State LED

FLOODLIGHT

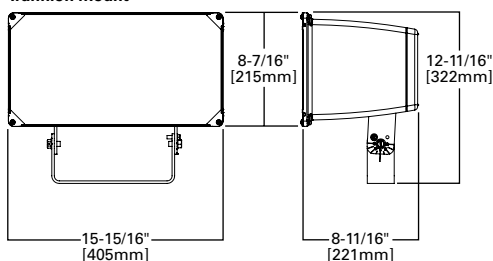


DIMENSIONS

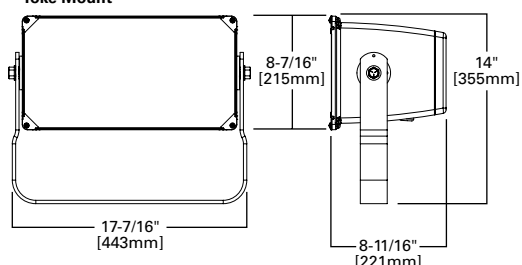
Slipfitter Mount



Trunnion Mount



Yoke Mount



CERTIFICATION DATA

UL/cUL Wet Location Listed
IP66 Fixture and Optical Chamber
LM79/LM80 Compliant
3G Vibration Rated
RoHS Compliant
DesignLights Consortium® Qualified*

ENERGY DATA

Electronic LED Driver
> 0.9 Power Factor
< 20% Total Harmonic Distortion
120V 50/60Hz, 347V/60Hz and 480V/60Hz
-40°C Minimum Ambient Temperature Rating
+40°C Maximum Ambient Temperature Rating

EPA

Effective Projected Area (Sq. Ft.): 1.25

SHIPPING DATA

Approximate Net Weight:
20 lbs. (9.09 kgs.)



POWER AND LUMENS

| | 6x6 | | | | 3x3 | | | |
|-----------------------------|-----------------|----------------------|----------------------|----------------------|-----------------|----------------------|----------------------|----------------------|
| C25 LED | UFLD-C25 | UFLD-C25-7030 | UFLD-C25-7050 | UFLD-C25-7060 | UFLD-C25 | UFLD-C25-7030 | UFLD-C25-7050 | UFLD-C25-7060 |
| Delivered Lumens | 10,530 | 10,122 | 10,383 | 10,217 | 10,272 | 9,874 | 10,128 | 9,967 |
| CCT (Kelvin) | 4000K | 3000K | 5000K | 5700K | 4000K | 3000K | 5000K | 5700K |
| CRI (Color Rendering Index) | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Power Consumption (Watts) | 85W | 85W | 85W | 85W | 93W | 93W | 93W | 93W |
| C40 LED | UFLD-C40 | UFLD-C40-7030 | UFLD-C40-7050 | UFLD-C40-7060 | UFLD-C40 | UFLD-C40-7030 | UFLD-C40-7050 | UFLD-C40-7060 |
| Delivered Lumens | 16,932 | 16,268 | 16,686 | 16,421 | 14,113 | 13,567 | 13,916 | 13,694 |
| CCT (Kelvin) | 4000K | 3000K | 5000K | 5700K | 4000K | 3000K | 5000K | 5700K |
| CRI (Color Rendering Index) | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Power Consumption (Watts) | 128W | 128W | 128W | 128W | 143W | 143W | 143W | 143W |
| C55 LED | UFLD-C55 | UFLD-C55-7030 | UFLD-C55-7050 | UFLD-C55-7060 | | | | |
| Delivered Lumens | 19,943 | 19,407 | 20,144 | 20,285 | | | | |
| CCT (Kelvin) | 4000K | 3000K | 5000K | 5700K | | | | |
| CRI (Color Rendering Index) | 70 | 70 | 70 | 70 | | | | |
| Power Consumption (Watts) | 145W | 145W | 145W | 145W | | | | |
| C70 LED | UFLD-C70 | UFLD-C70-7030 | UFLD-C70-7050 | UFLD-C70-7060 | | | | |
| Delivered Lumens | 23,797 | 23,157 | 24,037 | 24,205 | | | | |
| CCT (Kelvin) | 4000K | 3000K | 5000K | 5700K | | | | |
| CRI (Color Rendering Index) | 70 | 70 | 70 | 70 | | | | |
| Power Consumption (Watts) | 184W | 184W | 184W | 184W | | | | |

CURRENT DRAW

| Voltage (V) | Model Series | | | | | |
|-------------|--------------|-------------|-------------|-------------|-------------|-------------|
| | 6x6 | | | | 3x3 | |
| | UFLD-C25 | UFLD-C40 | UFLD-C55 | UFLD-C70 | UFLD-C25 | UFLD-C40 |
| | Current (A) | Current (A) | Current (A) | Current (A) | Current (A) | Current (A) |
| 120V | 0.708 | 1.070 | 1.2299 | 1.5695 | 0.778 | 1.190 |
| 277V | 0.340 | 0.465 | 0.535 | 0.6726 | 0.340 | 0.531 |
| 347V | 0.251 | 0.377 | 0.4213 | 0.5334 | 0.271 | 0.419 |
| 480V | 0.195 | 0.273 | 0.3044 | 0.3831 | 0.207 | 0.320 |

LUMEN MAINTENANCE

| Ambient Temperature | TM-21 Lumen Maintenance (60,000 Hours) | Theoretical L70 (Hours) |
|-----------------------|--|-------------------------|
| 6H x 6V (Wide) | | |
| 25°C | > 94.55% | > 388,000 |
| 40°C | > 93.58% | > 327,000 |
| 50°C | -- | -- |
| 3H x 3V (Spot) | | |
| 25°C | >92.18% | >262,000 |
| 40°C | >91.81% | >249,000 |

LUMEN MULTIPLIER

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 10°C | 1.03 |
| 15°C | 1.02 |
| 25°C | 1.00 |
| 40°C | 0.97 |
| 50°C | 0.96 |

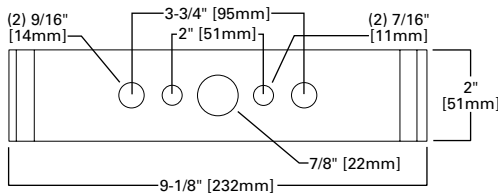
FADC SETTINGS

| FADC Position | Percent of Typical Lumen Output |
|---------------|---------------------------------|
| 1 | 25% |
| 2 | 48% |
| 3 | 56% |
| 4 | 65% |
| 5 | 75% |
| 6 | 80% |
| 7 | 85% |
| 8 | 90% |
| 9 | 95% |
| 10 | 100% |

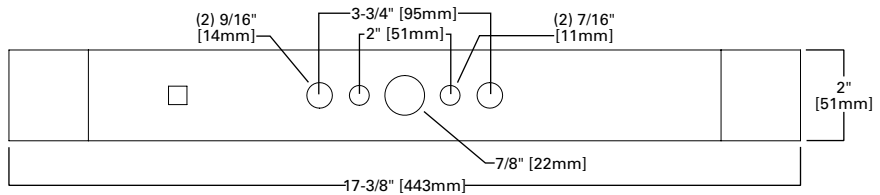
NOTES: +/-5% typical value

DRILLING PATTERNS

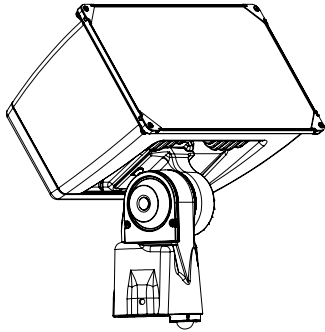
Trunnion Mount



Yoke Mount

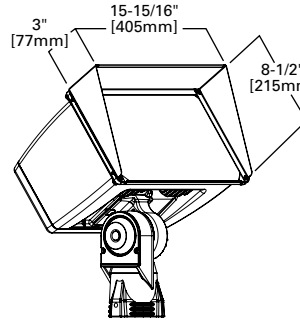


OPTIONAL INTEGRATED SENSOR

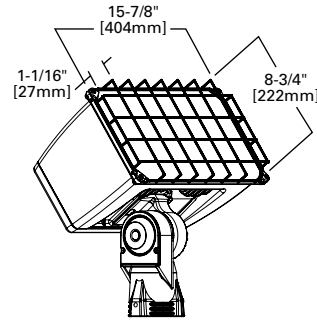


ACCESSORIES

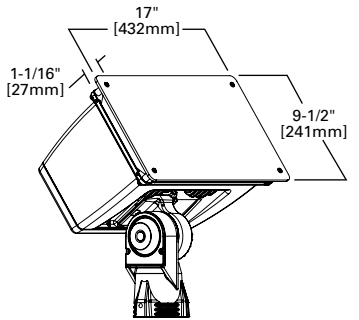
Top and Side Visors



Wire Guard



Vandal Shield



ORDERING INFORMATION

Sample Number: UFLD-C40-D-U-66-S-AP-4N7

| Product Family | Light Engine ¹ | Driver ² | Voltage | Distribution | Mounting | Color |
|--|--|---|--|---|--|---|
| UFLD=Utility LED Floodlight | C25=10,400 Nominal Lumens C40=15,500 Nominal Lumens C55=20,000 Nominal Lumens C70=24,000 Nominal Lumens | E=Non-Dimming D=Dimming (0-10V) ³ | U=120-277V 8=480V ⁴ 9=347V ⁴ | 66=NEMA 6Hx6V Wide 33=NEMA 3Hx3V Spot ⁵ | C=Slipfitter, 2-3/8"-3" O.D. (Cord through housing) S=Slipfitter, 2-3/8"-3" O.D. (Leads through slipfitter) T=Trunnion Y=Yoke | AP=Grey (Standard) BZ=Bronze BK=Black WH=White |
| Options (Add as Suffix) | | | Accessories (Order Separately) ¹¹ | | | |
| 7030=70 CRI / 3000K ⁶ 7050=70 CRI / 5000K ⁶ 7060=70 CRI / 5700K ⁶ 4=NEMA 3-PIN Twistlock Photocontrol Receptacle 4N7=NEMA 7-PIN Twistlock Photocontrol Receptacle ⁷ 10K=10kV/10kA UL 1449 Surge Protective Device HA=50°C High Ambient Temperature ⁸ D10<10% Dimming ⁷ MSP/DIM-L12=Integrated Sensor for Dimming Operation, 8' - 12' Mounting Height ^{9,10} MSP/DIM-L30=Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height ^{9,10} MSP-L12=Integrated Sensor for ON/OFF Operation, 8' - 12' Mounting Height ^{9,10} MSP-L30=Integrated Sensor for ON/OFF Operation, 12' - 30' Mounting Height ^{9,10} CXXXX=Cord Type ¹⁶ FADC=Field Adjustable Dimming Controller ¹⁷ | | | FA63=3" O.D. Surface Mount Bracket ¹² OA1223=10kV/10kA UL 1449 Surge Protective Device Replacement OA/RA1013=Photocontrol Shorting Cap OA/RA1014=NEMA Photocontrol - 120V OA/RA1016=NEMA Photocontrol - Multi-Tap OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V RAB-XX=Right Angle Pipe Bracket for Slipfitter SAB-XX=Steel Angle Bracket for Trunnion TYS-XX=Slipfitter Adapter for 2-3/8", 3" or 3-1/2" O.D. Tenon ¹³ TS2/UFLD-XX=Top and Side Visors ¹⁴ VS/UFLD=Vandal Shield ¹⁴ WG/UFLD=Wire Guard ¹⁴ ISHH-01=Integrated Sensor Programming Remote LLPC=Long-life Photocontrol ¹⁵ LLPC-FO=Long-life Photocontrol (Fail-Off) | | | |

NOTES:

- Standard 4000K CCT and minimum 70 CRI. Consult IES file for actual lumen output.
- Consult factory for driver surge protection values.
- Must specify 4N7 option.
- Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems)
- Only available with C25 and C40 light engines.
- Extended lead times apply. Use dedicated IES files for 3000K, 5000K, and 5700K when performing layouts. These files are published on the UFLD luminaire product page on the website.
- Must order with dimming driver.
- Not available with 3H x 3V spot distribution.
- 0-10V dimming driver required. Integrated sensor option only available in slipfitter mounting.
- Not available with Photocontrol.
- Replace XX with color designation. Additional brackets and adaptors available on the poles product page on the website.
- Not available with tenon mount.
- Not available with slipfitter mount.
- Cannot combine TS2 (Top and Side Visor), VS (Vandal Shield), or WG (Wire Guard), limited to one external guard per fixture.
- Sold as accessory. Not covered under luminaire warranty.
- 3-conductor cord available in 12, 14, and 16 gauge with lengths of 5, 8, 10, 15, 20, and 25 feet. Specify cord gauge with the first 2 digits and cord length with the last 2 digits (ex: C1605 = 16-gauge, 5 feet length cord). Standard cord is 16-gauge with length of 3.5 ft if not specified.
- Cannot be used with motion response control options.

| | | | | | |
|-------------|--|-----------|--|------|--|
| Project | | Catalog # | | Type | |
| Prepared by | | Notes | | Date | |



Streetworks

Archeon Large

Roadway Luminaire

Typical Applications

Outdoor • Roadways • Parking Lots • Building Areas

Interactive Menu

- Ordering Information page 2
- Product Specifications page 3
- Energy and Performance Data page 3
- Control Options page 4

Product Certifications



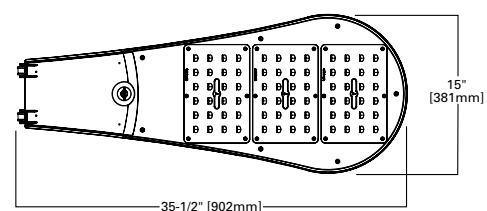
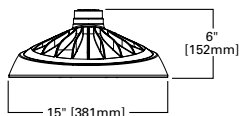
Product Features



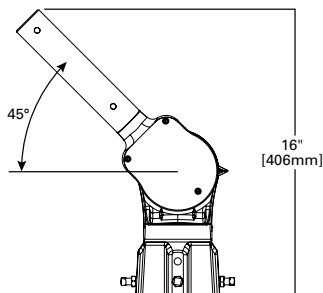
Quick Facts

- Die-cast aluminum construction; Single latch tool-less entry
- Replaces up to 1000W equivalent HID; -40°C to 40°C operating range
- Pole-mounted; Optional arm and offset adjustable arm mounting
- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation; IP66 rated

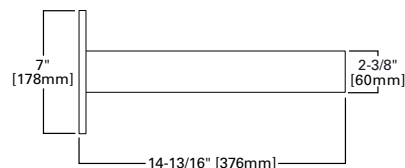
Dimensional Details



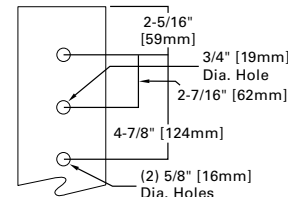
Adjustable Slipfitter Offset Arm



15" Straight Arm



Type "M" - Drilling Pattern



Ordering Information

SAMPLE ORDER NUMBER: ARCH-L-PA3-90-740-U-T2R-A15-AP-10K-PR

| Product Family ^{1, 2} | Light Engine | Wattage Bucket | Color Temperature | Voltage | Distribution | Mounting | Finish |
|---|---|---|--|---|---|--|--|
| ARCH-L =Archeon Large | PA3 =(3) Direct Mount Rectangle (72 LED) | 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 | 722 =70 CRI, 2200K 740 =70 CRI, 4000K 727 =70 CRI, 2700K 827 =80 CRI, 2700K 730 =70 CRI, 3000K 750 =70 CRI, 5000K AMB =Amber, 590nm ^{22, 23} | U =Universal (120-277V) 8 =480V ⁴ 9 =347V ⁴ | T2R =Type II Roadway T2U =Type II Urban T3 =Type III T4W =Type IV Wide 5WQ =Type V Square Wide | [Blank] =None A15 =15" Straight Mast Arm ASJS15 =Adjustable Slipfitter (Factory set at 15° degrees) ASJS25 =Adjustable Slipfitter (Factory set at 25° degrees) ASJS45 =Adjustable Slipfitter (Factory set at 45° degrees) | AP =Grey BZ =Bronze BK =Black DP =Dark Platinum WH =White |
| Options (Add as Suffix) | | | | Controls | | | |
| 10K =Series 10kV UL 1449 Surge Protective Device 20K =Series 20kV UL 1449 Surge Protective Device 20KI =Series 20kV UL 1449 Surge Protective Device with light indicator 10MSP =Parallel 10kV MOV Surge Protective Device 20MSP =Parallel 20kV MOV Surge Protective Device K =Level Indicator HA =50°C High Ambient Temperature ¹⁰ HSS =Factory Install House Side Shield ¹¹ PSC =Photocontrol Shorting Cap NPC =NEMA Photocontrol - Multi-Tap LLPC =Longlife Photocontrol Included IP66 =IP66 Rated Housing FADC =Field Adjustable Dimming Controller ²⁴ | | | | PR =NEMA 3-PIN Twistlock Photocontrol Receptacle ⁶ PR7 =NEMA 7-PIN Twistlock Photocontrol Receptacle MS/DIM-L08 =Motion Sensor for Dimming Operation, Maximum 8' Mounting Height ^{3, 7} MS/DIM-L20 =Motion Sensor for Dimming Operation, Maximum 9' - 20' Mounting Height ^{3, 7} MS/DIM-L40 =Motion Sensor for Dimming Operation, Maximum 21' - 40' Mounting Height ^{3, 7} LWR-LW =Enlighted Wireless Sensor, Wide Lens for 8' - 16' Mounting Heights ^{3, 8, 9} LWR-LN =Enlighted Wireless Sensor, Narrow Lens for 16' - 40' Mounting Heights ^{3, 8, 9} 5LTD =DALI ³ ZD =DALI-enabled 4-PIN Twistlock Receptacle ^{16, 17} ZW =WaveLinx-enabled 4-PIN Twistlock Receptacle ^{16, 17} SWPD4XX =WaveLinx Wireless Sensor, 7' - 15' Mounting Height ^{19, 20, 21, 22} SWPD5XX =WaveLinx Wireless Sensor, 15' - 40' Mounting Height ^{19, 20, 21, 22} | | | |
| Accessories (Order Separately) ¹⁷ | | | | | | | |
| OA / RA1013 =Photocontrol Shorting Cap OA/RA1014 =NEMA Photocontrol - 120V OA/RA1016 =NEMA Photocontrol - Multi-Tap OA/RA1027 =NEMA Photocontrol - 480V OA/RA1201 =NEMA Photocontrol - 347V OA1223 =10kV Surge Module Replacement A15-XX =Arm (15" Straight Arm) ^{12, 14} FSIR-100 =Wireless Configuration Tool for Occupancy Sensor ¹⁵ HS-ARCH-24 =Factory Install ARCH House Side Shield for AF24 ^{11, 13} | | | | VGS-ARCH =Short Vertical Drop Shield VGL-ARCH =Long Vertical Drop Shield ASJS15-XX =Adjustable slipfitter (Factory set at 15 degrees) ¹⁴ ASJS25-XX =Adjustable slipfitter (Factory set at 25 degrees) ¹⁴ ASJS45-XX =Adjustable slipfitter (Factory set at 45 degrees) ¹⁴ SWPD4-XX =WaveLinx Wireless Sensor, 7' - 15' Mounting Height ^{19, 20, 21, 22} SWPD5-XX =WaveLinx Wireless Sensor, 15' - 40' Mounting Height ^{19, 20, 21, 22} | | | |
| NOTES: 1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information. 2. Nominal wattage values will be labeled on fixture as per ANSI C136.15. For specific fixture wattage, refer to Power and Lumen tables. 3. Only available in universal voltage. 4. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems). 6. If "PR" selected, dimming functionality not available, dimming leads will be capped. 7. The FSIR-100 accessory is required to adjust parameters. 8. Enlighted wireless system is not available with photocontrol receptacle (not required). 9. Enlighted wireless sensors are factory installed and require network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See website for Enlighted application information. 10. HA option not available with the following configurations, 250W+, 210W+ if paired with HSS, or 5LTD 150W+. 11. HSS not available with 5WQ distribution, 5LTD 270W+. 12. Round pole adapter and mounting hardware included. "M" drill pattern. 13. Requires three house side shields. 14. Replace XX with color designation. 15. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information. 16. Utilizes internal step-down transformer when 347V or 480V is selected. 17. Controls system is not available with photocontrol (BPC), photocontrol receptacle (PR or PR7), or other controls systems (MS, ZD, ZW, LWR, DALI, or DIM). 18. Requires 4-PIN twistlock receptacle (ZD or ZW) option. 19. Replace XX with sensor color (WH, BZ or BK). 20. Sensor passive infrared (PIR) may be overly sensitive with operating below -20°C (-4°F). 21. For this device to be field-configurable, requires WAC Gateway components WAC-PoE and WPOE-120 in appropriate quantities. Only compatible with WaveLinx system and software and requires system components to be installed for operation. See website for more WaveLinx application information. 22. Not available with HA option. 23. Amber 590nm +/-5nm for wildlife and observatory use. Supplied in PA3 90 wattage bucket only. 24. Cannot be used with motion response control options. | | | | | | | |

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

| Product Family | Camera Type | Data Backhaul | |
|---------------------------------|---|---|--|
| L =LumenSafe Technology* | D =Dome Camera, Standard H =Dome Camera, Hi-Res Z =Dome Camera, Remote PTZ | C =Cellular, Customer Installed SIM Card A =Cellular, Factory Installed AT&T SIM Card V =Cellular, Factory Installed Verizon SIM Card S =Cellular, Factory Installed Sprint SIM Card | |
| | | W =Wi-Fi Networking w/ Omni-Directional Antenna E =Ethernet Networking | |

*Consult LumenSafe system pages for additional details and compatibility.

Product Specifications

Construction

- Heavy-duty die-cast aluminum housing and door
- Tool-less entry, hinged removable door for easy maintenance
- 3G vibration rated

Optics

- Choice of four patented, high efficiency AccuLED Optics
- Available in Type IIR, IIU, III, IV wide and V square wide the optics are precisely designed to shape the distribution maximizing efficiency and application spacing
- Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 2200K, 2700K, 3000K, and 5000K CCT
- For the ultimate level of spill light control, an optional house side shield accessory is available and can be field or factory installed
- Optics are IP66 enclosure rated

Electrical

- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation

- Standard 0-10V dimming
- 10kV/10kA common- and differential- mode surge protection available
- Ambient operating temperature from -40°C to 40°C; 50°C HA, high ambient, capability available
- Standard with three position tunnel type compression terminal block
- Greater than 98% lumen maintenance expected at 60,000 hours
- Replaces 400W to 1000W HID
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected.

Mounting

- Two-bolt/one-bracket slipfitter with cast-in pipe stop and 2.5° leveling steps
- Fixed-in-place bird guard seals around 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) mounting arms
- Optional 15" pole mount arm available with round pole adapter and mounting hardware included

Finish

- Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear
- Consult your lighting representative at Cooper Lighting Solutions for a complete selection of standard colors

Shipping Data

- Approximate Net Weight: 27 lbs. (12.2 kgs.)
- Effective Projected Area: 0.86 (Sq. Ft.)

Warranty

- Standard five-year warranty.
- Optional ten-year warranty, please see your CLS Streetworks sales representative for more information

Energy and Performance Data

Power and Lumens (PA3 Light Engine)

| Light Engine - PA3* | | PA3-90 | PA3-100 | PA3-110 | PA3-120 | PA3-130 | PA3-140 | PA3-150 | PA3-160 | PA3-170 | PA3-180 |
|--------------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Power (Watts) | | 93 | 102 | 113 | 123 | 133 | 143 | 153 | 162 | 173 | 181 |
| Wattage Label | | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 |
| Input Current @ 120V (A) | | 0.78 | 0.85 | 0.94 | 1.03 | 1.11 | 1.19 | 1.28 | 1.35 | 1.44 | 1.51 |
| Input Current @ 277V (A) | | 0.34 | 0.39 | 0.42 | 0.45 | 0.49 | 0.53 | 0.56 | 0.59 | 0.62 | 0.68 |
| Input Current @ 347V (A) | | 0.27 | 0.31 | 0.34 | 0.37 | 0.39 | 0.42 | 0.45 | 0.48 | 0.51 | 0.55 |
| Input Current @ 480V (A) | | 0.24 | 0.24 | 0.26 | 0.28 | 0.30 | 0.32 | 0.34 | 0.36 | 0.38 | 0.43 |
| Optics | | | | | | | | | | | |
| T2R | 4000K/5000K | 15,645 | 16,846 | 18,414 | 19,846 | 21,273 | 22,632 | 23,977 | 25,098 | 26,301 | 26,930 |
| | BUG Rating | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 |
| | 3000K | 14,248 | 15,341 | 16,769 | 18,074 | 19,372 | 20,611 | 21,836 | 22,855 | 23,952 | 24,525 |
| | BUG Rating | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 |
| T3 | 4000K/5000K | 15,537 | 16,730 | 18,287 | 19,710 | 21,126 | 22,476 | 23,812 | 24,924 | 26,119 | 26,745 |
| | BUG Rating | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| | 3000K | 14,149 | 15,236 | 16,654 | 17,950 | 19,239 | 20,469 | 21,686 | 22,698 | 23,788 | 24,356 |
| | BUG Rating | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 |
| T4W | 4000K/5000K | 15,473 | 16,661 | 18,212 | 19,629 | 21,038 | 22,383 | 23,713 | 24,820 | 26,011 | 26,633 |
| | BUG Rating | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| | 3000K | 14,090 | 15,172 | 16,584 | 17,875 | 19,159 | 20,384 | 21,596 | 22,604 | 23,688 | 24,254 |
| | BUG Rating | B2-U0-G3 | B2-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| 5WQ | 4000K/5000K | 16,019 | 17,249 | 18,854 | 20,322 | 21,781 | 23,174 | 24,551 | 25,697 | 26,930 | 27,574 |
| | BUG Rating | B4-U0-G3 | B4-U0-G3 | B4-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 |
| | 3000K | 14,588 | 15,709 | 17,169 | 18,508 | 19,836 | 21,103 | 22,358 | 23,403 | 24,525 | 25,111 |
| | BUG Rating | B4-U0-G2 | B4-U0-G3 | B4-U0-G3 | B4-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 |
| T2U | 4000K/5000K | 15,490 | 16,678 | 18,232 | 19,651 | 21,061 | 22,409 | 23,740 | 24,848 | 26,040 | 26,663 |
| | 3000K | 14,106 | 15,189 | 16,603 | 17,894 | 19,181 | 20,407 | 21,620 | 22,629 | 23,714 | 24,281 |
| | BUG Rating | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 |

Energy and Performance Data

Power and Lumens (PA3 Light Engine)

| Light Engine - PA3* | | PA3-190 | PA3-200 | PA3-210 | PA3-220 | PA3-230 | PA3-240 | PA3-250 | PA3-260 | PA3-270 | PA3-280 |
|--------------------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Power (Watts) | | 189 | 201 | 211 | 222 | 229 | 242 | 251 | 261 | 273 | 279 |
| Wattage Label | | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 |
| Input Current @ 120V (A) | | 1.58 | 1.68 | 1.76 | 1.85 | 1.91 | 2.01 | 2.10 | 2.18 | 2.27 | 2.33 |
| Input Current @ 277V (A) | | 0.71 | 0.75 | 0.78 | 0.82 | 0.85 | 0.89 | 0.92 | 0.96 | 0.99 | 1.02 |
| Input Current @ 347V (A) | | 0.58 | 0.61 | 0.64 | 0.67 | 0.70 | 0.73 | 0.76 | 0.78 | 0.81 | 0.84 |
| Input Current @ 480V (A) | | 0.44 | 0.46 | 0.48 | 0.50 | 0.52 | 0.54 | 0.57 | 0.58 | 0.60 | 0.62 |
| Optics | | | | | | | | | | | |
| T2R | 4000K/5000K | 27,868 | 29,218 | 30,114 | 31,168 | 31,950 | 33,030 | 33,790 | 34,591 | 35,538 | 36,067 |
| | BUG Rating | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| | 3000K | 25,380 | 26,608 | 27,424 | 28,384 | 29,097 | 30,080 | 30,772 | 31,501 | 32,364 | 32,846 |
| | BUG Rating | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G3 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| T3 | 4000K/5000K | 27,678 | 29,017 | 29,906 | 30,954 | 31,731 | 32,804 | 33,557 | 34,351 | 35,294 | 35,818 |
| | BUG Rating | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| | 3000K | 25,205 | 26,425 | 27,235 | 28,189 | 28,896 | 29,874 | 30,560 | 31,283 | 32,141 | 32,620 |
| | BUG Rating | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 |
| T4W | 4000K/5000K | 27,562 | 28,896 | 29,781 | 30,825 | 31,598 | 32,667 | 33,417 | 34,210 | 35,148 | 35,670 |
| | BUG Rating | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G5 | B3-U0-G5 | B3-U0-G5 | B3-U0-G5 | B3-U0-G5 |
| | 3000K | 25,100 | 26,316 | 27,122 | 28,072 | 28,777 | 29,749 | 30,433 | 31,154 | 32,008 | 32,484 |
| | BUG Rating | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G4 | B3-U0-G5 | B3-U0-G5 | B3-U0-G5 |
| 5WQ | 4000K/5000K | 28,535 | 29,917 | 30,834 | 31,913 | 32,715 | 33,820 | 34,598 | 35,418 | 36,389 | 36,929 |
| | BUG Rating | B5-U0-G3 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 |
| | 3000K | 25,986 | 27,246 | 28,080 | 29,063 | 29,791 | 30,801 | 31,507 | 32,254 | 33,138 | 33,630 |
| | BUG Rating | B5-U0-G3 | B5-U0-G3 | B5-U0-G3 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 | B5-U0-G4 |
| T2U | 4000K/5000K | 27,592 | 28,929 | 29,815 | 30,858 | 31,633 | 32,703 | 33,454 | 34,247 | 35,186 | 35,709 |
| | 3000K | 25,128 | 26,344 | 27,151 | 28,103 | 28,808 | 29,783 | 30,467 | 31,188 | 32,044 | 32,519 |
| | BUG Rating | B3-U0-G3 | B3-U0-G3 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 | B4-U0-G4 |

Lumen Maintenance

| Light Engine | Ambient Temperature | TM-21 Lumen Maintenance (60,000 Hours) | Theoretical L70 (Hours) |
|--------------|---------------------|--|-------------------------|
| PA3 | Up to 40°C | > 98% | > 800,000 |

Lumen Multiplier

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 0°C | 1.02 |
| 10°C | 1.01 |
| 25°C | 1.00 |
| 40°C | 0.99 |
| 50°C | 0.97 |

FADC Settings

| FADC Position | Percent of Typical Lumen Output |
|---------------|---------------------------------|
| 1 | 25% |
| 2 | 48% |
| 3 | 56% |
| 4 | 65% |
| 5 | 75% |
| 6 | 80% |
| 7 | 85% |
| 8 | 90% |
| 9 | 95% |
| 10 | 100% |

Note: +/-5% typical value

Control Options

Photocontrol (PR and PR7)

Photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with ANSI C136.41 7-pin standards can be utilized with the PR7 receptacle.

Dimming Occupancy Sensor (MS/DIM-LXX)

These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. These occupancy sensors include an integral photocell that can be activated with the FSIR-100 accessory for "dusk-to-dawn" control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters. A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8' - 40'.

Enlighted Wireless Control and Monitoring (LWR-LW and LWR-LN)

Enlighted is a connected lighting solution that combines a broad selection of energy-efficient LED luminaires with a powerful integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of building resources, beyond lighting. For additional details, refer to the Enlighted product guides.

LumenSafe Integrated Network Security Camera (LD)

Cooper Lighting Solutions brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

| | | | | | |
|-------------|--|-----------|--|------|--|
| Project | | Catalog # | | Type | |
| Prepared by | | Notes | | Date | |



Streetworks

Archeon Small

Roadway Luminaire

Typical Applications

Outdoor • Roadways • Parking Lots • Building Areas

Interactive Menu

- Ordering Information page 2
- Product Specifications page 2
- Energy and Performance Data page 3

Product Certifications



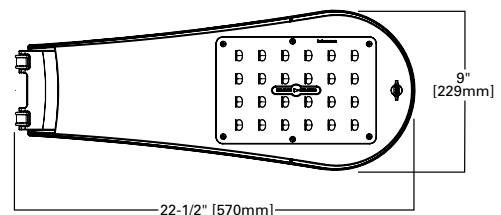
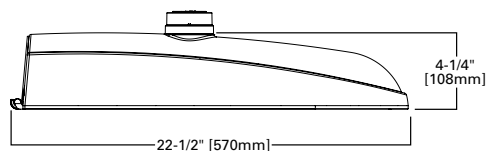
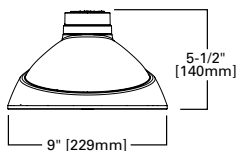
Product Features



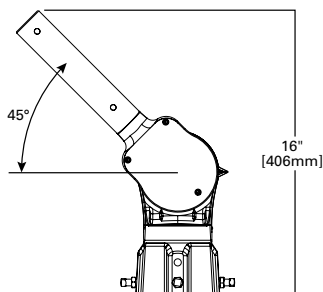
Quick Facts

- Die-cast aluminum construction; Single latch tool-less entry
- Replaces up to 200W equivalent HID; -40°C to 40°C operating range
- Pole-mounted; Optional arm and offset adjustable arm mounting
- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation; IP66 rated

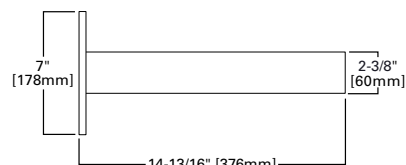
Dimensional Details



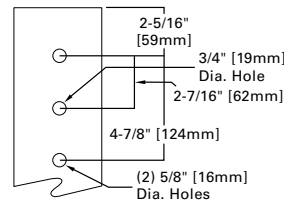
Adjustable Slipfitter Offset Arm



15" Straight Arm



Type "M" - Drilling Pattern



Ordering Information

SAMPLE ORDER NUMBER: ARCH-S-PA1-20-740-U-T2R-A15-AP-10K-PR

| Product Family ^{1, 2} | Light Engine | Wattage Bucket | Color Temperature | Voltage | Distribution | Mounting | Finish |
|--|---|--|---|--|--|---|--|
| ARCH-S =Archeon Small | PA1 =Direct Mount Rectangle (24 LED) | 20 30 40 50 60 70 80 90 100 | 722 =70CRI, 2200K 727 =70CRI, 2700K 730 =70CRI, 3000K 740 =70CRI, 4000K 750 =70CRI, 5000K 827 =80CRI, 2700K ⁴ AMB =Amber 590nm ^{16, 17} | U =Universal 8 =480V ^{2, 3} 9 =347V ² | T2R =Type II Roadway T2U =Type II Urban T3 =Type III T4W =Type IV Wide 5WQ =Type V Square Wide | [Blank] =None A15 =15" Straight Mast Arm ASJS15 =Adjustable Slipfitter (Factory set at 15° degrees) ⁹ ASJS25 =Adjustable Slipfitter (Factory set at 25° degrees) ⁹ ASJS45 =Adjustable Slipfitter (Factory set at 45° degrees) ⁹ | AP =Grey BZ =Bronze BK =Black DP =Dark Platinum WH =White |
| Options (Add as Suffix) | | | | Controls | | | |
| 10K =Series 10kV UL 1449 Surge Protective Device 20K =Series 20kV UL 1449 Surge Protective Device 20KI =Series 20kV UL 1449 Surge Protective Device with light indicator 10MSP =Parallel 10kV MOV Surge Protective Device 20MSP =Parallel 20kV MOV Surge Protective Device K =Level Indicator HA =50°C High Ambient Temperature ⁶ HSS =Factory Install House Side Shield ⁷ PSC =Photocontrol Shorting Cap NPC =NEMA Photocontrol - Multi-Tap LLPC =Longlife Photocontrol Included FADC =Field Adjustable Dimming Controller ¹⁸ | | | | PR =NEMA 3-PIN Twistlock Photocontrol Receptacle ⁵ PR7 =NEMA 7-PIN Twistlock Photocontrol Receptacle 5LTD =DALI ZD =DALI-enabled 4-PIN Twistlock Receptacle ^{10, 11} ZW =WaveLinx-enabled 4-PIN Twistlock Receptacle ^{10, 11} SWPD4XX =WaveLinx Wireless Sensor, 7' - 15' Mounting Height ^{12, 13, 14, 15} SWPD5XX =WaveLinx Wireless Sensor, 15' - 40' Mounting Height ^{12, 13, 14, 15} | | | |
| Accessories (Order Separately) ¹⁷ | | | | | | | |
| OA / RA1013 =Photocontrol Shorting Cap OA/RA1201 =NEMA Photocontrol - 347V OA1223 =10kV Surge Module Replacement OA/RA1014 =NEMA Photocontrol - 120V OA/RA1016 =NEMA Photocontrol - Multi-Tap OA/RA1027 =NEMA Photocontrol - 480V | | | OA/RA1201 =NEMA Photocontrol - 347V A15-XX =Arm (15" Straight Arm) ^{8,9} ASJS15-XX =Adjustable slipfitter (Factory set at 15 degrees) ⁹ ASJS25-XX =Adjustable slipfitter (Factory set at 25 degrees) ⁹ ASJS45-XX =Adjustable slipfitter (Factory set at 45 degrees) ⁹ HS-ARCH-24 =Field Install ARCH House Side Shield | | VGS-ARCH =Short Vertical Drop Shield VGL-ARCH =Long Vertical Drop Shield SWPD4-XX =WaveLinx Wireless Sensor, 7' - 15' Mounting Height ^{12,13,14,15} SWPD5-XX =WaveLinx Wireless Sensor, 15' - 40' Mounting Height ^{12,13,14,15} | | |
| NOTES: 1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information. 2. Not available with PA1-20. 3. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems). 4. Extended lead times may apply. 5. If "PR" selected, dimming functionality not available, dimming leads will be capped. 6. Option not available with PA1-90 or PA1-100. 7. HS-ARCH not available with 5WQ and T2U distribution. 8. Round pole adapter and mounting hardware included. "M" drill pattern. 9. Replace XX with color designation. 10. Utilizes internal step-down transformer when 347V or 480V is selected. 11. Controls system is not available with photocontrol (BPC), photocontrol receptacle (PR or PR7), or other controls systems (MS, ZD, ZW, LWR, DALI, or DIM). 12. Requires 4-PIN twistlock receptacle (ZD or ZW) option. 13. Replace XX with sensor color (WH, BZ or BK). 14. Sensor passive infrared (PIR) may be overly sensitive with operating below -20°C (-4°F). 15. For this device to be field-configurable, requires WAC Gateway components WAC-PoE and WPOE-120 in appropriate quantities. Only compatible with WaveLinx system and software and requires system components to be installed for operation. See website for more WaveLinx application information. 16. Not available with HA option. 17. Amber 590nm +/-5nm for wildlife and observatory use. Supplied in PA1 30 wattage bucket only. 18. Cannot be used with motion response control options. | | | | | | | |

Product Specifications

Construction

- Heavy-duty die-cast aluminum housing and door
- Tool-less entry, hinged removable door for easy maintenance
- 3G vibration rated

Optics

- Choice of four patented, high efficiency AccuLED Optics
- Available in Type IIR, IIU, III, IV wide and V square wide the optics are precisely designed to shape the distribution maximizing efficiency and application spacing
- Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 2200K, 2700K, 3000K, and 5000K CCT
- For the ultimate level of spill light control, an optional house side shield accessory is available and can be field or factory installed
- Optics are IP66 enclosure rated

Electrical

- 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation
- Standard 0-10V dimming
- 10kV/10kA common- and differential- mode surge protection available
- Ambient operating temperature from -40°C to 40°C; 50°C HA, high ambient, capability available

- Standard with three position tunnel type compression terminal block
- Greater than 98% lumen maintenance expected at 60,000 hours
- Replaces 50W to 150W HID
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected.

Mounting

- Two-bolt/one-bracket slipfitter with cast-in pipe stop and 2.5° leveling steps
- Fixed-in-place bird guard seals around 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) mounting arms
- Optional 15" pole mount arm available with round pole adapter and mounting hardware included

Finish

- Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear
- Consult your lighting representative at Cooper Lighting Solutions for a complete selection of standard colors

Shipping Data

- Approximate Net Weight: 12 lbs. (5.4 kgs.)
- Effective Projected Area: 0.5 (Sq. Ft.)

Warranty

- Standard five-year warranty.
- Optional ten-year warranty, please see your CLS Streetworks sales representative for more information

Energy and Performance Data

Power and Lumens (PA1 Light Engine)

| Light Engine - PA1 | | PA1-20 | PA1-30 | PA1-40 | PA1-50 | PA1-60 | PA1-70 | PA1-80 | PA1-90 | PA1-100 |
|--------------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Power (Watts) | | 21 | 31 | 40 | 54 | 64 | 74 | 83 | 94 | 96 |
| Wattage Label | | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Input Current @ 120V (A) | | 0.179 | 0.257 | 0.338 | 0.450 | 0.534 | 0.619 | 0.695 | 0.783 | 0.798 |
| Input Current @ 277V (A) | | -- | 0.122 | 0.155 | 0.212 | 0.244 | 0.279 | 0.312 | 0.347 | 0.354 |
| Input Current @ 347V (A) | | -- | 0.100 | 0.125 | 0.161 | 0.187 | 0.217 | 0.244 | 0.275 | 0.280 |
| Input Current @ 480V (A) | | -- | 0.073 | 0.094 | 0.127 | 0.145 | 0.165 | 0.184 | 0.205 | 0.209 |
| Optics | | | | | | | | | | |
| T2R | 4000K/5000K Lumens | 3,398 | 4,756 | 6,137 | 7,912 | 9,083 | 10,127 | 10,942 | 11,729 | 11,850 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 |
| | 3000K Lumens | 3,094 | 4,331 | 5,588 | 7,206 | 8,271 | 9,223 | 9,966 | 10,681 | 10,791 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G1 | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 |
| T2U | 4000K/5000K Lumens | 3,385 | 4,739 | 6,114 | 7,884 | 9,052 | 10,091 | 10,905 | 11,688 | 11,809 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B3-U0-G3 | B3-U0-G3 |
| | 3000K Lumens | 3,084 | 4,316 | 5,568 | 7,180 | 8,243 | 9,189 | 9,930 | 10,644 | 10,755 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G1 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| T3 | 4000K/5000K Lumens | 3,378 | 4,729 | 6,102 | 7,868 | 9,033 | 10,071 | 10,882 | 11,664 | 11,785 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| | 3000K Lumens | 3,077 | 4,307 | 5,558 | 7,165 | 8,226 | 9,172 | 9,911 | 10,623 | 10,732 |
| | Bug Rating | B1-U0-G1 | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G2 |
| T4W | 4000K/5000K Lumens | 3,357 | 4,700 | 6,062 | 7,819 | 8,976 | 10,006 | 10,813 | 11,591 | 11,710 |
| | Bug Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 |
| | 3000K Lumens | 3,058 | 4,280 | 5,521 | 7,121 | 8,175 | 9,112 | 9,847 | 10,554 | 10,665 |
| | Bug Rating | B1-U0-G1 | B1-U0-G2 | B1-U0-G2 | B1-U0-G2 | B2-U0-G2 | B2-U0-G2 | B2-U0-G3 | B2-U0-G3 | B2-U0-G3 |
| 5WQ | 4000K/5000K Lumens | 3,452 | 4,832 | 6,234 | 8,040 | 9,230 | 10,291 | 11,120 | 11,918 | 12,042 |
| | Bug Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G1 | B3-U0-G2 | B3-U0-G2 | B4-U0-G2 | B4-U0-G2 | B4-U0-G2 | B4-U0-G2 |
| | 3000K Lumens | 3,144 | 4,401 | 5,678 | 7,322 | 8,406 | 9,372 | 10,127 | 10,854 | 10,967 |
| | Bug Rating | B2-U0-G1 | B3-U0-G1 | B3-U0-G1 | B3-U0-G2 | B3-U0-G2 | B3-U0-G2 | B4-U0-G2 | B4-U0-G2 | B4-U0-G2 |

Lumen Maintenance

| Light Engine | Ambient Temperature | TM-21 Lumen Maintenance (60,000 Hours) | Theoretical L70 (Hours) |
|--------------|---------------------|--|-------------------------|
| PA1 | 40°C | 98% | > 800,000 @ 40°C |

Lumen Multiplier

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 0°C | 1.02 |
| 10°C | 1.01 |
| 25°C | 1.00 |
| 40°C | 0.99 |
| 50°C | 0.97 |

FADC Settings

| FADC Position | Percent of Typical Lumen Output |
|---------------|---------------------------------|
| 1 | 25% |
| 2 | 46% |
| 3 | 55% |
| 4 | 62% |
| 5 | 72% |
| 6 | 77% |
| 7 | 82% |
| 8 | 85% |
| 9 | 90% |
| 10 | 100% |

Note: +/-5% typical value

Technical

Controls

Cutsheets

Wireless Gateway

CIMCON's Ethernet and Cellular Gateway



Technical Data Sheet

CIMCON's Wireless Gateway serves as a "switchboard" for a group of intelligent wireless lighting controllers (iSLCs) to communicate with the CIMCON's cloud-based LightingGale software. Gateways use backhaul communications networks such as GPRS, Ethernet and also include a Zigbee® radio module for self-organizing, self-healing local wireless mesh networking.



Key Features of the Wireless Gateway

Robust and Reliable

Can communicate with up to 750 CIMCON intelligent wireless lighting controllers (iSLCs) spread across significant distances with high scalability and fault tolerance, using self-forming and self-healing mesh networking.

Wireless Technologies

CIMCON's Wireless Gateway utilizes the latest developments in wireless technologies to configure and collect data from CIMCON's intelligent wireless lighting controllers (iSLCs) and transmit data to and from the CIMCON cloud-based LightingGale software.

Local Intelligence

CIMCON's Wireless Gateway uses an extremely powerful 64-bit microprocessor that enables local complex logic and intelligence for faster response times and better performance.

Local Data Storage

CIMCON's Wireless Gateway can store large amounts of data in the event of a communication link failure. This data is transferred to the cloud and cloud-based LightingGale software once the link is available, thus ensuring data integrity.

Multiple Connectivity Options

CIMCON's Wireless Gateway offers several wired and wireless options to connect to the cloud including Ethernet and cellular support. It also supports Open VPN as an option to ensure highly secure VPN connection between Gateway and the Server.

Simple Remote Configuration

CIMCON's Wireless Gateway can be remotely configured from an easy-to-use web interface. Configurations include: input and output mapping and polling rates.

Multiple Protocol Support

CIMCON's Wireless Gateway provides support for several industry standard protocols that enable easy integration with other systems and networks.

Network Fault Tolerance

Multiple Wireless Gateways can be configured in fault tolerant mode to provide the highest levels of network availability.

Simple Installation

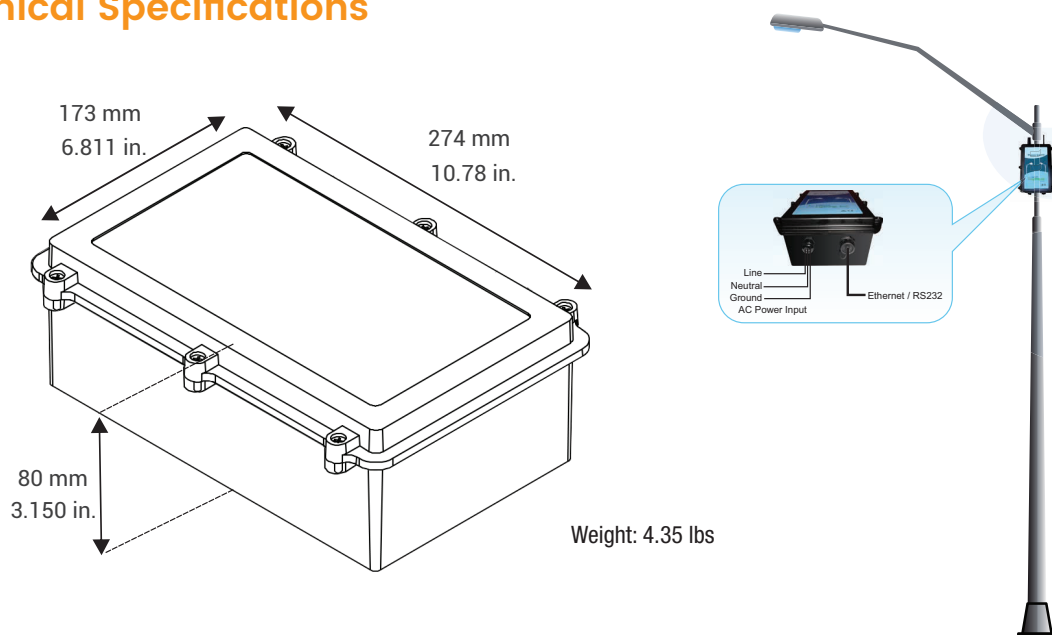
CIMCON's Wireless Gateway can be pole or rooftop mounted for easy installation.

Technical Specifications

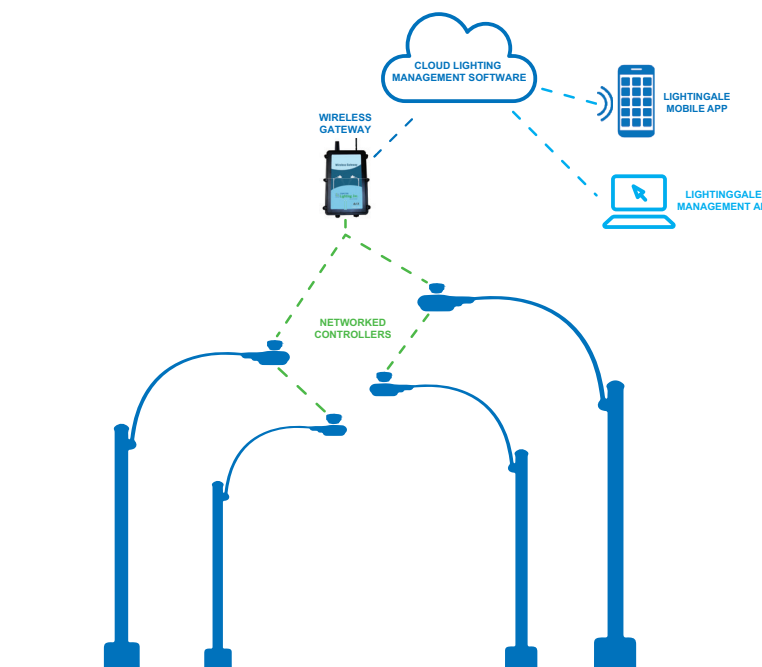
| | |
|--------------------------|--|
| Processor | 64 bit ARM A7 running at 696 MHz |
| Real Time Clock | Battery-backed RTC |
| Radio Communication | <div> <div> 2.4 GHz, IEEE 802.15.4 Data Rate: 250 kbps Receiver Sensitivity: -102 dBm Network Fault Tolerance: Self-healing mesh Open Field Range: 4000 ft/1.2 km RF Transceiver Certifications: United States (FCC), Canada (IC) and Europe (ETSI) </div> <div> Transmit Power* (Maximum): +18 dBm Network Type: Self-forming mesh network Hardware: CSMA/CA Mechanism Data Protection: 128-bit/256-bit AES encryption </div> </div> <p><i>* Radio power can vary based on Country specific regulatory requirements. Contact CIM-CON for the details.</i></p> |
| Cellular Characteristics | <p>Multi band</p> <p>US/Canada: 4G: 700 (B17), 800 (B5), AWS 1700 (B4), 1900 (B2) 3G: 850 (B5), 1900 (B2) 2G: 850, 1900</p> <p>US-Verizon: 4G: 700 (B13), AWS 1700 (B4) International* 4G: 2100 (B1), 1800 (B3), 2600 (B7), 990 (B8), 800 (B20), 700 (B28A) (Europe/Latam/APAC) 3G: 2100 (B1), 1800 (B3), 900 (B8) 2G: 1800, 900</p> <p>Mobile Originated, Mobile Terminated and Cell Broadcast PDU or Text Mode</p> <p><i>*Contact CIMCON for the Bands supported in a specific country</i></p> |
| Storage Memory | eMMC Flash Storage (4 GB MLC) |
| Power | AC input 100 V-277 V (+/- 10%), 50/60 Hz |
| Power Back-up | 20-60 Seconds |
| Ports | Ethernet: 10/100 Base-T IPv4 and IPv6 compatible |
| Installation | Pole Mount or Wall Mount |
| Enclosure | Dimensions (LxWxD): 274 mm x 173 mm x 80 mm Material: Aluminum Die cast |
| Operating Conditions | -40°C to 70°C / -40°F to 158°F, 20% to 90% Rh non-condensing |
| IP Rating | IP66 |
| Surge Protection | 700 Joule CATC (20kV/10kA) |
| Certifications | UL, CUL, CE, RCM, VCCI |

Wireless Gateway

Mechanical Specifications



How it Works




Wireless Gateway

Ordering Code

DCU-4G-ATT

Cellular
AT&T: ATT
Verizon: VEZ
International: INT



Specifications subject to change without notice.
Wireless Gateway R11
©2020 CIMCON Lighting, Inc.



Dimulator™
Patent #9210746

The Stand-Alone LED Dimming Solution

 *No Wireless Network Required*

Simple, Easy to Deploy

- Saves power, saves money, quickly pays for itself
- Extends fixture life
- Advanced time/date algorithm auto-adjusts for daylight savings
- Just plug it in - will automatically synchronize to local time

Optional Features

- Factory preset dimming – no selector switch
- Constant all night dimming
- Adaptive lighting control with progressive intensities
- High voltage version for 312-530 VAC available

Bat Eye Technology



- Advanced light sensor, only reacts to sunlight
- Immune to LED and other artificial light
- No false activations (no cycling)
- May be oriented in any direction

Reduce Light Trespassing *with the Dimulator*



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Patent #9210746

Unsurpassed construction, electrical, process, and environmental protections make this **Dimming Control** the highest grade twistlock photocontrol on the market today.

The stand-alone unit is made to work with the **ANSI C136.41** receptacle and will provide dimming of LED fixtures.

Dimming Photocontrol Electrical Information

| | | |
|-----------------------|--------------------|---|
| Load Rating | 1,000W/1,800 VA | 15 Amp relay tested to 15,000 operations on maximum available LED or Induction load |
| Operating Temperature | -40°C to +70°C | (-40°F to +158°F) |
| Surge Protection | 40,000 Amps | 1520 Joule MOV protection |
| Power Consumption | <0.5 Watts | @ 120 V |
| Dimming Circuit | 0-10 VDC - Class 1 | Must be used with Dimmable LED Fixture |
| Dielectric Strength | 5,000 Volts | Between current carrying parts |

Dimming Photocontrol Mechanical Data

| | | |
|------------------------|--------------------------------------|---|
| Bat Eye Technology | Blind to artificial light | <0.5% Drift over 10 Years |
| Printed Circuit Board | Moisture Repellant Glass Epoxy | 0.35 Maximum Moisture |
| Cover | Durable Polypropylene | Field Proven Optimal Solution for Ultra Long Life |
| Base | Polycarbonate 140°C | UL94HB Flame Class Rating |
| Gasket | Neoprene | ASTM D 1056 |
| Operating Light Levels | Turn-on: 1.5 FC, 1.5:1 Off/On Ration | +/- .25 FC, 3-5 Sec Turn-off Delay |

Model Numbers

| | |
|----------|---|
| DIM4 | 105-305 VAC, 50/60 Hz with 10 position field adjustable selector switch |
| DIM4-HV | High Voltage 312-530 VAC, 50/60 Hz |
| DIM4-CD | Constant all-night Dimming |
| DIM4-CUL | 120 VAC, 50/60 Hz, cUL certified version with grey cover |
| DIM4-ALC | Adaptive Lighting Control with 2% per year incremental increase to compensate for fixture aging |
| DIM3-XX | Factory set dimming schedule (10 position selector switch not available) |

Note: All Dimulators (except for CD and DIM3 versions) have three selectable dimming levels (30%, 50%, 70%) with three different start times (10:00 pm, Midnight or 2:00 am) which are settable through the ten-position selector switch located on the bottom of the base. All dimming schedules will return to full brightness at 5:00 am.

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Extra Long Life Photocontrol

Designed to meet or exceed the life expectancy of LED fixtures. Numerous feature upgrades extend the life expectancy of the already long life twistlock product line. Features exceed those of competitive long life designs. The ELL is an excellent choice when an extended life expectancy is desired.

MOV Surge Suppression

Our standard ELL long life photocontrol comes with (1) large 640 Joule MOV for superior surge protection. If a higher Joule rating is desired, we offer an alternate (4) MOV configuration. In this configuration, each MOV is rated 380 Joules resulting in 1520 Joule surge protection.

TRIAC Assisted Relay with Zero Cross Switching

In addition to our long life robust relay, we offer an advanced TRIAC option with additional solid-state switching operating in parallel with the relay contact. This device removes all electrical arcing on both open and closure of the relay. Zero Cross Switching is utilized to trigger the TRIAC, which greatly minimizes the inrush current typically seen in many LED light fixture loads.

Ordering Information



Specifications

| | |
|--------------------------------|--|
| Load Rating: | 1,000W/1,800 VA 15 Amp relay tested to 15,000 operations on maximum available LED or Induction load. |
| Operating Temperature: | -40°C to +70°C (-40°F to +158°) |
| Surge Protection: | 40,000 Amps 640 Joule MOV |
| Power Consumption: | <0.5 Watts @ 120 V |
| Dielectric Strength: | 5,000 Volts Between current carrying parts |
| Photocell: | Proprietary Bat Eye Technology circuit eliminates unintentional operation of LED fixtures, only reacts to sunlight, avoiding fixture cycling, reducing services calls. The sensor has no drift and is consistent over the service life. |
| Printed Circuit Board: | Plated Thru-hole Glass Epoxy |
| Cover: | Polypropylene; Long Life Green Cover Formula with UV Inhibitor and Antioxidant Additives |
| Base & Window: | Polycarbonate; 140°C, UL94HB Flame Class Rating |
| Gasket: | Neoprene; ASTM D 1056 |
| Operating Light Levels: | Turn-on: 1.5 FC, 1.5:1 Off/On Ratio; +/- .25 FC, 3-5 Sec Turn-off Delay |

ELL - 124 - 4 - T - FO

Extra Long Life Photocontrol

105-305 V

1520 Joule MOV

TRIAC Assisted Relay

Fail Off

Model

ELL-124 (105-305V)
ELL-347 (347 VAC)
ELL-480 (480 VAC)
ELL-124-CUL (105-305V CUL Version)

Surge Protection

(no code) standard
_ 640 Joule MOV, 40,000 Amps (standard)
4 1520 Joule, 40,000Amp

Relay Option

_ 15 Amp-150,000 operations (Standard)
T Triac Assisted Relay

Fail Mode

_ Fail ON (Standard)
FO Fail OFF

Color

_ Green (standard)
_ CUL Cover. @ Blue-105-305 VAC

Other Colors Available upon Request

Other configurations available-Please contact Customer Service at 508-821-1597

Note: No substitution for cUL units

iSLC-3100-7P



CIMCON's Plug & Play Wireless Lighting Controller (iSLC) with Remote Monitoring, Dimming, GPS, Metering and Sensor Input Capabilities

Technical Data Sheet

CIMCON's iSLC-3100-7P is an intelligent wireless lighting controller with exceptional fault tolerance and a multitude of features. Each iSLC-3100-7P provides intelligent on/off switching, dimming control, GPS, highly accurate power metering, analog and digital sensor inputs and constant status and health monitoring of your lighting fixtures.

Key Features of the iSLC-3100-7P

A Photocell in Every Controller

CIMCON's iSLCs operate immediately upon installation without dependency on the network.

A GPS in Every Controller

CIMCON's GPS capabilities reduce install times and eliminate future mapping issues. GPS coordinates for each iSLC are sent automatically to CIMCON's LightingGale software so iSLC locations can be seen in Google Maps. Without GPS, installers must manually record the pole ID, iSLC ID and its latitude/longitude location to map them correctly.

Extended Surge Protection

CATC surge protection is standard.

Full ANSI C136.41 7-pin Dimming Receptacle Support

CIMCON's iSLCs work with any lamp type or manufacturer with full support for all 7 pins on the ANSI C136.41 dimming receptacle for true "plug and play" installation. CIMCON's controllers support the addition of digital or analog sensors, such as motion, vehicle counts or environmental sensors through pins 6 and 7.

Revenue Grade Energy Metering

CIMCON's iSLCs monitor current, voltage, frequency, power factor, kW and kWh, and offer metering accuracy as high as 0.5% for accurate consumption data and billing.



Fault Tolerance

Each CIMCON iSLC is a highly intelligent stand-alone device that utilizes the latest developments in self-organizing, self-healing, wireless technologies. Proper operation and execution of a light's schedule is not dependent on network communications.

Remote Control and Scheduling

CIMCON's iSLCs enable you to control lamps in several ways including: individual ad-hoc control; photocell and astro-clock scheduling; on/off/dim schedules that operate on a daily, monthly, or special event basis; and mixed mode scheduling incorporating sensor inputs.

Flexible Dimming Control

CIMCON's iSLCs support dimming through 0-10 VDC or DALI interfaces.

Fault Monitoring

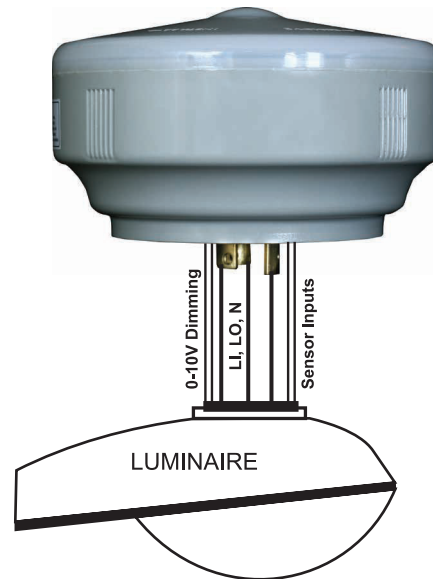
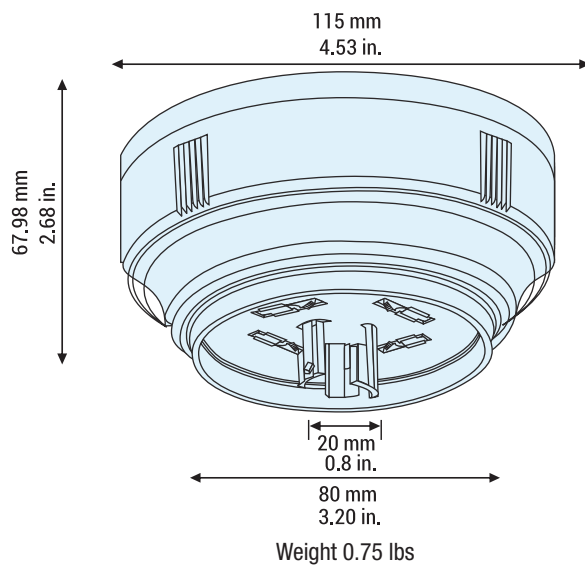
CIMCON's iSLCs provide extensive fault monitoring to report on day burners, burnouts, lamp cycling, ballast failures, over/under voltage, abnormal power consumption, low power factors, communication failures and more. All faults are sent to CIMCON's LightingGale software for alarm routing, visualization and fault correction. Alerts can be sent directly to relevant users via emails or text messages (SMS) immediately when they occur. Alerts are time stamped and contain key parameters associated with the fault/alarm.

Technical Specifications

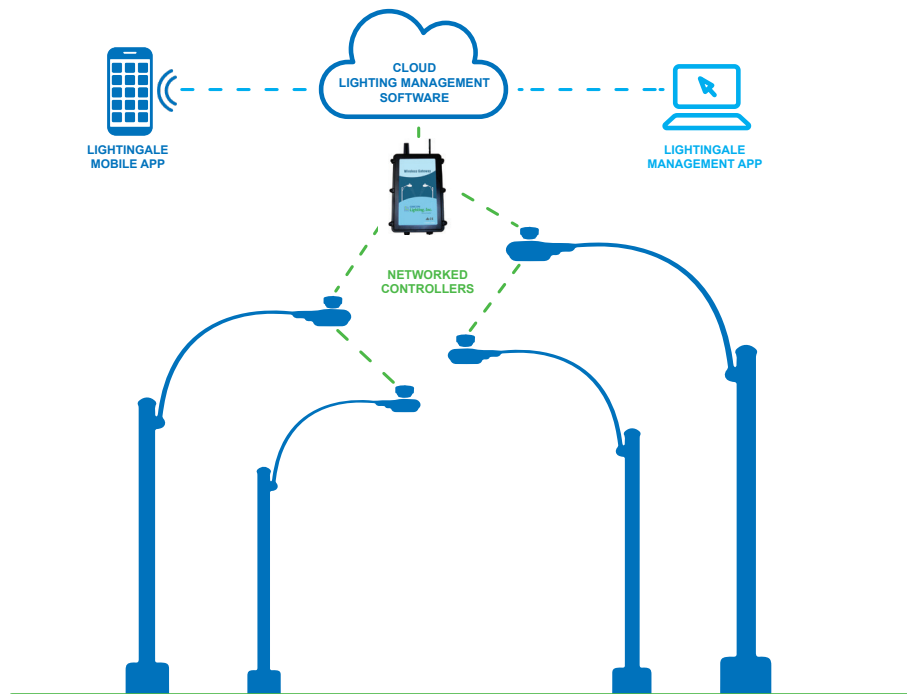
| | |
|---------------------------|---|
| Controller | Powerful 32-bit microcontroller |
| Real Time Clock | Battery-backed RTC |
| Storage Memory | 192 kB Flash and 12 kB RAM |
| Power Metering | Parameters measured: voltage, current, power factor, frequency, kW and kWh |
| Rated Load | 1560 VA 960 W |
| Power Supply | Universal AC input 100 V-277 V, +/- 10%, 50/60 Hz |
| Radio Communication | <p>2.4 GHz, IEEE 802.15.4</p> <p>RF Data Rate: 250 kbps Receiver Sensitivity: -104 dBm Network Fault Tolerance: Self-healing mesh</p> <p>Transmit Power*: +20 dBm (Maximum) Network Type: Self-forming mesh network Open Field Range: 4000 ft/1.2 km</p> <p>Encryption: Advanced Encryption Standard (AES-128 or AES-256) Hardware: IEEE 802.15.4-2003 CS MA-CA algorithm <i>* Radio power can vary based on the country specific regulatory requirements. Contact CIMCON for the details.</i></p> |
| GPS Module Specification | <p>Receiver Type: 22 Tracking/66 Acquisition Channel GPS Receiver GPS L1, C/A Code Max. Update Rate: 10 Hz</p> <p>Sensitivity: Tracking: -165 dBm Reacquisition: -160 dBm Cold starts: -147 dBm</p> <p>Time-To-First-Fix: Cold starts: 37 seconds (typical) Warm starts: 30 seconds Hot starts: <1 second</p> <p> EPO Assist: 13 seconds (CTTFF)</p> <p>Accuracy: Automatic Position: 2.5 m CEP Speed: 0.1 m/s</p> |
| Dimming Interface | <p>Analog Dimming (0-10 VDC) Maximum Current: 10 mA Protection: Output Short Circuit protection or DALI</p> |
| Optional Sensor Inputs | Provision of one digital input and one analog input that can be used for motion-based lighting controls, adaptive lighting or advanced lighting controls |
| Surge Protection | 700 Joule CATC (20 kV/10 kA) |
| Operating Conditions | -40°C to +70°C / -40°F to +158°F, 20% to 90% Rh non-condensing, IP66 |
| RoHS | Yes |
| Central Management System | Web-based software allows remote configuration, monitoring, control, and reporting |
| Certifications | UL, CSA, FCC, IC, CE, RCM (AUS/NZ), VCCI (Japan), ANATEL |

iSLC-3100-7P

Mechanical Specifications

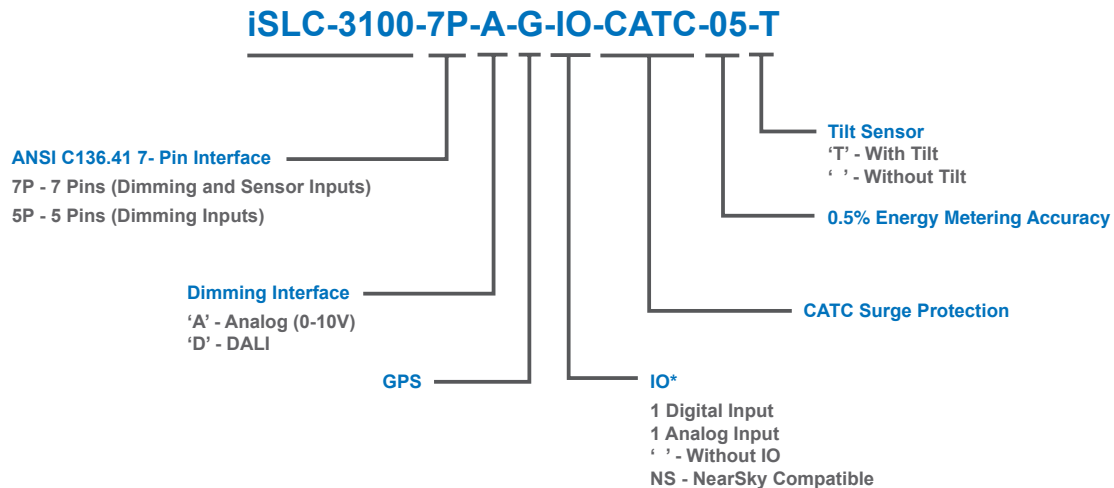


How it Works



iSLC-3100-7P

Ordering Code



* Nodes compatible with CIMCON's NearSky, will not have IO but RS485 interface to communicate with NearSky.

Specifications subject to change without notice.
iSLC-3100-7P R17
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