



Public Works Committee

Wednesday, June 8, 2022 3:30PM

40 McMaster Street, Ballston Spa, NY 12020

Chair: Phil Barrett

Members:

C. Eric Butler
Diana Edwards
Scott Ostrander-VC
Tom Richardson
Kevin Veitch
Sandra Winney

- I. Welcome and Attendance
- II. Approval of the minutes of the May 4, 2022 meeting.
- III. Authorizing the use of ARPA funding for two (2) Public Works projects and amending the 2022 budget in relation thereto - Chad Cooke, Public Works
- IV. Authorizing a Task Order with National Grid for an LED lighting replacement project at Saratoga County Facilities located at the County Farm Road complex and amending the budget in relation thereto – Chad Cooke, Public Works
- V. Other Business
- VI. Adjournment



SARATOGA COUNTY

AGENDA ITEM REQUEST FORM

TO: Steve Bulger, County Administrator
Ridge Harris, Deputy County Administrator
Michael Hartnett, County Attorney
Therese Connolly, Clerk of the Board
Stephanie Hodgson, Director of Budget

CC: Jason Kemper, Director of Planning and Economic Development
Bridget Rider, Deputy Clerk of the Board
Matt Rose, Management Analyst
Clare Giammusso, County Attorney's Office
Audra Hedden, County Administrator's Office

DEPARTMENT: Department of Public Works

DATE: 5/31/22

COMMITTEE: Public Works

RE: ARPA funding for two (2) Public Works projects

1. Is a Resolution Required:

Yes, Other

2. Proposed Resolution Title:

Authorize the use of ARPA funding and amend the 2022 budget in relation thereto

3. Specific Details on what the resolution will authorize:

Authorize the use of ARPA funding for two (2) Public Works projects including a bridge rehabilitation on County Route 49 over the Kayaderosseras Creek in the Town of Milton totaling \$1,695,000 and the rehabilitation of 1.84 miles of County Route 33 in the Town of Wilton totaling \$1,647,000. Total budget amendment is \$3,342,000.

This column must be completed prior to submission of the request.

County Attorney's Office
Consulted

4. Is a Budget Amendment needed: YES or NO
 If yes, budget lines and impact must be provided.
 Any budget amendments must have equal and offsetting entries.

County Administrator's Office
 Consulted

Please see attachments for impacted budget lines.
 (Use ONLY when more than four lines are impacted.)

Revenue

Account Number	Account Name	Amount
D.50-5031	Transfer from General Fund	\$3,342,000
A.90-4089	Federal Aid	\$3,342,000

Expense

Account Number	Account Name	Amount
D.50.501-7502	Contracted Highway Services	\$3,342,000
A.90.920-9900.D	Transfer to County Road Fund	\$3,342,000

Source of Revenue

Fund Balance	State Aid	Federal Aid	Other
			\$3,342,000

5. Identify Budget Impact:

Other

- a. G/L line impacted D.50.501-7502, A.90.920-9900.D
- b. Budget year impacted 2022
- c. Details

Funding will be appropriated in 2022 and will be re-appropriated as necessary until completion of projects.

BUDGET IMPACT STATEMENT: Funding will require an appropriation of \$3,342,000 utilizing ARPA funds.

6. Are there Amendments to the Compensation Schedule?

YES or NO (If yes, provide details)

a. Is a new position being created? Y N

Effective date

Salary and grade

b. Is a new employee being hired? Y N

Effective date of employment

Salary and grade

Appointed position:

Term

c. Is this a reclassification? Y N

Is this position currently vacant? Y N

Is this position in the current year compensation plan? Y N

7. Does this item require hiring a Vendors/Contractors: Y N

a. Were bids/proposals solicited: Y N

b. Type of Solicitation

c. Is the vendor/contractor a sole source: Y N

d. If a sole source, appropriate documentation has been submitted and approved by Purchasing Department? Y N N/A

e. Commencement date of contract term:

f. Termination of contract date:

g. Contract renewal and term:

h. Contact information:

i. Is the vendor/contractor an LLC, PLLC or partnership:

j. State of vendor/contractor organization:

k. Is this a renewal agreement: Y N

l. Vendor/Contractor comment/remarks:

Human Resources Consulted

Purchasing Office Consulted

8. Is a grant being accepted: YES or NO

County Administrator's Office
Consulted

a. Source of grant funding:

b. Agency granting funds:

c. Amount of grant:

d. Purpose grant will be used for:

e. Equipment and/or services being purchased with the grant:

f. Time period grant covers:

g. Amount of county matching funds:

h. Administrative fee to County:

9. Supporting Documentation:

Marked-up previous resolution

No Markup, per consultation with County Attorney

Program information summary

Copy of proposal or estimate

Copy of grant award notification and information

Other TIP Project Approval Summary

10. Remarks:

See attached TIP project approval summary

**CDTC TIP Update
2022-2027
Projects Approved 4-27-2022**

Sponsor	Project ID	Name	Amount Approved
Saratoga County	59	Dimmick Rd - Bridge Replacement	\$1.805M
Saratoga County ARPA FUNDS	57	CR 49 (West Milton Rd) – Bridge Rehab over Kayaderosseras Creek	\$1.695M
Saratoga County	61	Rehabilitation of Bridge- Heath Road over Sturdevant Creek	\$0.374M
Saratoga County ARPA FUNDS	56	CR 33 (Ballard Rd.) Pavement Preservation	\$1.647M

Projects Approved 5-4-2022

Sponsor	Project ID	Name	Amount Approved
Saratoga County	66	Zim Smith Northern Trail Extension	\$0.5M
Saratoga County	54	CR 109 (Kinns Rd.) & Plank Rd., Intersection Improvements	\$1.977M
Town of Halfmoon	82	NYS Rt. 236 and Guideboard Road (CR 94), Intersection Improvements	\$0.5M
Town of Malta	83	East Line Rd and NYS Rt. 67 Roundabout	\$1.0M
Town of Clifton Park	73	NYS Rt 146@Miller/Tanner Rd, and NYS Rt. 146 @ Waite Rd. – 2 Roundabouts	\$0.5M
Town of Wilton	89	NYS Rt. 50 Safety Improvements	\$0.5M

DOT Projects Located within Saratoga County, Approved

Sponsor	Project ID	Name	Amount Approved
NYSDOT	41	NYS Route 32 over Fish Creek	\$1.298M
NYSDOT	26	Ballard Rd. @ Exit 16/I-87, Interchange Improvements & Bridge Replacement	\$9.000M
NYSDOT	33	Nelson Ave. Extension over I-87, Bridge Replacement	\$5.330M
NYSDOT	35	Riverview Rd. Over I-87, Bridge Replacement	\$7.975M

DOT & Sar. Co. Projects Within Saratoga County Not Approved

Sponsor	Project ID	Name	Amount
NYSDOT	40	NYS Route 29 over D&H RR, Bridge Replacement	\$1.936M
Saratoga County	55	Ballard Rd. (CR 33) over Snook Kill, Bridge Replacement	\$2.955M
Saratoga County	65	Viall Ave. over Anthony Kill, Bridge Replacement	\$3.059M
Saratoga County	63	Tabor Rd. over Dwaas Kill, Bridge Replacement	\$4.306M
Saratoga County	62	Nelson Ave. Ext. (CR 64) over Kayaderosseras Creek, Bridge Rehab	\$0.557M
Saratoga County	60	Dix Bridge Rehabilitation	\$2.298M
Saratoga County	64	Tiffault Rd. Superstructure Replacement	\$1.853M
Saratoga County	58	Charlton Rd. (CR 51), Pavement Preservation	\$2.346M



SARATOGA COUNTY

AGENDA ITEM REQUEST FORM

TO: Steve Bulger, County Administrator
Ridge Harris, Deputy County Administrator
Michael Hartnett, County Attorney
Therese Connolly, Clerk of the Board
Stephanie Hodgson, Director of Budget

CC: Jason Kemper, Director of Planning and Economic Development
Bridget Rider, Deputy Clerk of the Board
Matt Rose, Management Analyst
Clare Giammusso, County Attorney's Office
Audra Hedden, County Administrator's Office

DEPARTMENT: Department of Public Works

DATE: May 25, 2022

COMMITTEE: Public Works

RE: National Grid Task Order for LED lighting project

1. Is a Resolution Required:

Yes, Contract Approval

2. Proposed Resolution Title:

See attached draft resolution

3. Specific Details on what the resolution will authorize:

Authorize a task order with National Grid for the construction of an energy saving LED lighting project at the County Farm Road complex.

This column must be completed prior to submission of the request.

County Attorney's Office
Consulted

4. Is a Budget Amendment needed: YES or NO
 If yes, budget lines and impact must be provided.
 Any budget amendments must have equal and offsetting entries.

County Administrator's Office
 Consulted

Please see attachments for impacted budget lines.
 (Use ONLY when more than four lines are impacted.)

Revenue

Account Number	Account Name	Amount
A.0599.B	Appropriated Fund Balance	\$277,586

Expense

Account Number	Account Name	Amount
A.50.000-7094	Bldg Components Realty	\$277,586

Source of Revenue

Fund Balance	State Aid	Federal Aid	Other
\$277,586			

5. Identify Budget Impact:

Other

- a. G/L line impacted A.50.000-7094
- b. Budget year impacted 2022
- c. Details

Unfunded project will require an appropriation from fund balance.

6. Are there Amendments to the Compensation Schedule?

YES or NO (If yes, provide details)

a. Is a new position being created? Y N

Effective date

Salary and grade

b. Is a new employee being hired? Y N

Effective date of employment

Salary and grade

Appointed position:

Term

c. Is this a reclassification? Y N

Is this position currently vacant? Y N

Is this position in the current year compensation plan? Y N

Human Resources Consulted

7. Does this item require hiring a Vendors/Contractors: Y N

a. Were bids/proposals solicited: Y N

b. Type of Solicitation Professional Service

c. Is the vendor/contractor a sole source: Y N

d. If a sole source, appropriate documentation has been submitted and approved by Purchasing Department? Y N N/A

e. Commencement date of contract term: Upon execution

f. Termination of contract date: Upon project completion

g. Contract renewal and term: N/A

h. Contact information: National Grid
1125 Broadway
Albany, NY 12204

i. Is the vendor/contractor an LLC, PLLC or partnership: No

j. State of vendor/contractor organization: NY

k. Is this a renewal agreement: Y N

l. Vendor/Contractor comment/remarks:

This project will be facilitated through the County's Master Services Agreement with National Grid, executed by the Board, for energy saving projects. DPW solicited bids from two (2) National Grid authorized project expeditors with Centrica Business Solutions providing a better value proposal.

Purchasing Office Consulted

8. Is a grant being accepted: YES or NO

County Administrator's Office Consulted <input type="checkbox"/>

- a. Source of grant funding:
- b. Agency granting funds:
- c. Amount of grant:
- d. Purpose grant will be used for:
- e. Equipment and/or services being purchased with the grant:
- f. Time period grant covers:
- g. Amount of county matching funds:
- h. Administrative fee to County:

9. Supporting Documentation:

- Marked-up previous resolution
- No Markup, per consultation with County Attorney
- Program information summary
- Copy of proposal or estimate
- Copy of grant award notification and information
- Other draft resolution and draft task order

10. Remarks:

Proposals received from the following National Grid authorized Project Expeditors:

Centrica Business Solutions \$277,586

LEDES \$397,551



SARATOGA COUNTY BOARD OF SUPERVISORS

RESOLUTION **XX - 2022**

Introduced by Public Works: Supervisors Barrett, Butler, Edwards, Ostrander, Richardson, K. Veitch and Winney

AUTHORIZING THE CHAIRMAN TO EXECUTE A TASK ORDER WITH NIAGARA MOHAWK POWER CORPORATION D/B/A NATIONAL GRID FOR THE IMPLEMENTATION AND INSTALLATION OF AN LED LIGHTING REPLACEMENT PROJECT AT SARATOGA COUNTY FACILITIES LOCATED AT THE COUNTY FARM ROAD COMPLEX IN THE TOWN OF MILTON, NEW YORK AND AMENDING THE BUDGET IN RELATION THERETO

WHEREAS, Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid”) previously offered its services to the County, at no cost, to serve as General Contractor to manage the County’s energy conservation project, which services were to include, but not be limited to, arranging for the provision of engineering and design studies, and initial labor, material, supplies and equipment, which services National Grid would assign to subcontractors via Task Orders; and

WHEREAS, pursuant to Resolution 264-2019, this Board authorized the Chair of the Board to execute a Master Agreement for Energy Conservation and Management Services with National Grid for the provision of General Contractor services in managing the County’s construction of energy conservation projects; which General Contractor services were to be provided at no cost to the County; and

WHEREAS, National Grid has requested that the County execute an implementation task order requiring payment in the amount of \$308,604.97 to National Grid for purposes of paying subcontractor Centrica Business Solutions Services Inc. (“CBSS”) for the installation of energy efficient LED lighting to replace all existing lights at the County’s Animal Shelter, Correctional Facility and Department of Public Works facilities; and

WHEREAS, National Grid has pre-qualification standards that the subcontractors performing this work must meet prior to selection by National Grid; and

WHEREAS, Centrica Business Solutions Services has met all subcontractor requirements as determined by National Grid; and

WHEREAS, the County hopes to receive incentives for this project by the electric utility National Grid in the amount of approximately \$31,019 which would result in an approximate six year simple pay back on energy savings; and

WHEREAS, our Law and Finance Committee and the Commissioner of Public Works have recommended that the Chairman be authorized to execute an implementation task order with National Grid in the amount of \$308,604.97 for the implementation and installation of an LED lighting replacement project at the County’s Animal Shelter, Correctional Facility and Department of Public Works facilities; now, therefore, be it

RESOLVED, that the Chair of the Board is authorized to execute an implementation task order with Niagara Mohawk Power Corporation, d/b/a National Grid, of Syracuse, New York, in the amount of \$308,604.97 for the implementation and installation of an LED lighting replacement project at the County's Animal Shelter, Correctional Facility and Department of Public Works facilities; and, be it further

RESOLVED, that the form and substance of said implementation task order shall be subject to the approval of the County Attorney; and, be it further

RESOLVED, that the 2022 County Budget is amended as follows:

PUBLIC WORKS:

Appropriations:

Increase Acct. #: A.50.000-7094 – Bldg Components Realty	\$277,586
--	-----------

Revenue:

Increase Acct. #: A.0599.M – Appropriated Fund Balance	\$277,586
--	-----------

and, be it further

RESOLVED, this Resolution shall take effect immediately.

BUDGET IMPACT STATEMENT: Funding for this agreement will require an appropriation from fund balance in the amount of \$277,586.



Project Statement

SECTION 1: PROJECT DETAILS

Subcontractor	Centrica Business Solutions Services Inc. (CBSS) – Formerly SmartWatt Energy, Inc.
National Grid Entity	Niagara Mohawk Power Corporation
Project ID	20220517
Project Name	County of Saratoga LED Lighting Improvement Project
Start Date	May 17, 2022
End Date	December 31, 2022
Total Approximate Cost [USD\$]	\$308,604.97
Master Services Agreement	Master Services Agreement between National Grid and SmartWatt Energy, Inc. effective August 5, 2015

SECTION 2: PROJECT AUTHORIZATION

National Grid and Service Firm hereby acknowledge and agree to the terms of this Project Statement and to the performance of the Services and provision of the Deliverables specified in this Project Statement by Subcontractor for and on behalf of National Grid in accordance with the terms and conditions of the Master Services Agreement.

Attached Herein:

- National Grid and Centrica Business Solutions Services Inc. Proposal No. 20220517 submitted to the County of Saratoga, NY
- Saratoga County IGA Acceptance Letter dated May, 17 2022

Authorizations:

Becky Badalato UESC Project Administrator, National Grid		Date
	Signature	Date

Proposal for an Energy Conservation Project Implementation at

County of Saratoga, NY

National Grid Proposal Number: **20220517**

SUBMITTED TO

**County of Saratoga
40 McMaster Street
Ballston Spa, 12020**

PROPOSAL SUBMITTED BY

nationalgrid

THE POWER OF ACTION

www.nationalgridus.com

and

centrica
Business Solutions

**National Grid USA Service Co. on behalf of the
Niagara Mohawk d.b.a. National Grid
1125 Broadway
Albany, NY 12204**

May 17, 2022

Project Implementation – County of Saratoga, NY

1. INTRODUCTION

National Grid is pleased to offer this proposal for an energy conservation project implementation for the County of Saratoga through the Utility Energy Services Contract (UESC) Program. The UESC Program gives municipalities the opportunity to meet conservation goals by expeditiously implementing economically viable energy efficiency projects that reduce energy and water consumption.

National Grid selected a Sub-Contractor, Centrica Business Solutions Services Inc. (CBSS) Formerly SmartWatt Energy, Inc. (“SmartWatt”), per the direction of the County. CBSS performed an Investment Grade Audit (IGA) that was completed on April 18, 2022. The findings of the IGA indicate that County of Saratoga Sewer District facility is a candidate for LED lighting upgrades and replacement providing energy savings. The IGA has identified first year energy cost savings of \$46,532.71.

2. PROJECT ORGANIZATION

The proposed IGA may, at the County of Saratoga option, be implemented in accordance with the conditions described in the attached Master Agreement for Energy Conservation and Management Services (“Master Agreement”). All terms and conditions shall be as listed in the Master Agreement unless modified by the Task Order as discussed below. For this project, National Grid intends to subcontract the services described in Attachment A to CBSS (Formerly SmartWatt). CBSS may or may not sub-contract portions of the required services subject to approval of the customer.

3. TECHNICAL PROPOSAL

a. Scope of Services

National Grid proposes to install the one (1) Facility Improvement Measure (FIM) described in the attached Investment Grade Audit dated 4/18/2022 in Attachment B. The total cost of the project will be \$308,604.97. The scope of services will be performed at the following facilities at County of Saratoga:

County Jail
DPW Complex
Animal Shelter

The IGA analysis included energy savings projections using accepted methodologies, in-house installation pricing, FIM specifications and design documentation. The FIM included in the IGA are summarized in the following table:

FIM #	Measure
1	Lighting Upgrades and Replacements

More detail on all proposed FIMs can be found in the IGA under Attachment B.

Project Implementation – County of Saratoga, NY

After evaluation and acceptance of the IGA, the County of Saratoga has elected to proceed with the Implementation Phase. Prior to proceeding, the parties shall agree upon a statement of work necessary for the engineering, design, and implementation of FIMs, a time frame for completion of the work, and price or cost cap. County of Saratoga will include the costs of the IGA into the implementation phase.

Overall Program Phases

Phase I (complete)	Preliminary Audit	No Cost
Phase II (complete)	Investment Grade Audit a) Cost estimating and effectiveness b) Preliminary detailed design.	\$0
Phase III	Implementation: a) Detailed Engineering & Design b) Procurement c) Construction	\$308,604.97

b. Proposal Costs

Estimated sub-contractor costs for Phase III	\$299,346.97
National Grid UESC Administrative Expense	\$9,258
Total Phase III Cost	\$308,604.97

4. OTHER

a) Terms and Conditions

- 1) **EQUAL OPPROTUNITY** National Grid shall comply with all applicable laws, ordinances and regulations, including non-discrimination and labor laws. National Grid and the County agree that for the duration of this Agreement, they will not discriminate against any employee, applicant for employment, or person requesting services because of race, creed, color, national origin, disability, age, sex, marital status, sexual preference or source of payment.
- 2) **INDEMNIFICATION**
 - a. Centrica shall indemnify and hold Owner and its employees harmless from all claims for bodily injury and damage to property that may arise from the performance of the Work or the Services, to the extent caused by the negligent acts or omissions of Centrica or anyone for whose acts Centrica is liable.
 - b. Owner shall indemnify and hold Centrica and its employees harmless from all claims for bodily injury and damage to property (excluding damage for which Owner assumes the risk of loss) that may arise in connection with the Project to the extent caused by the negligent acts or omissions of Owner or anyone for whose acts Owner is liable.
- 3) **POLICY TERMS** Owner shall be named as an additional insured on all coverage obtained by Centrica as required per the terms of agreement with National Grid, except Workers Compensation coverage, and such policies shall be primary and non-contributory with respect to any liability coverage maintained by Owner. The foregoing policies shall contain a provision that coverage will not be cancelled or not renewed

Project Implementation – County of Saratoga, NY

until at least thirty (30) days' prior written notice has been given to Owner. Certificates of Insurance showing such coverage to be in force shall be filed with Owner prior to commencement of the Work and the Services.

- 4) **WAGES FOR TRADE LABOR.** Centrica and subcontractors performing trade labor shall pay trade laborer employed on the project jobsite not less than the prevailing wage rates (including fringe benefits) listed in the NYS Department of Labor Prevailing Wage Labor Rate determination (PRC#) for the project for corresponding classes of trade laborer. Copies of certified payroll shall accompany invoices to owner.

b) Task Order or Contract

The Task Order shall be approved by the Chairman of the Board after both County of Saratoga and National Grid review and approve the necessary documents for this project. All documents relating to this project can be either e-mailed or mailed to:

County of Saratoga
40 McMaster Street
Ballston Spa, NY 12020

Attention: Chad Cooke, PE
Commissioner of Public Works
Saratoga County Department of Public Works
E-mail: CCooke@saratogacountyny.gov
Phone: (518)-885-2235

For National Grid:
21265 NYS Route 232
Watertown, NY 13601

Attention: Becky Badalato
Business Development Manager
E-mail: becky.badalato@nationalgrid.com
Phone: (315) 785-7227

Payment Terms

Customer has selected to fund the project by cash. Subcontractor bills using percent complete invoicing based on the reflected schedule of completion. The Customer must approve schedule of values (Table 1) prior to the Subcontractor invoicing. All bills submitted by Subcontractor to Customer must be accompanied by a Customer voucher duly executed and supported by Subcontractor.

Project Implementation – County of Saratoga, NY

Table 1: Schedule of Values

ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE %	SCHEDULED VALUE \$
1	Engineering and Development	6%	\$ 18,516.30
2	General Conditions	5%	\$ 15,430.25
3	Project Management	4%	\$ 12,344.20
4	Lighting Material	35%	\$ 108,011.74
5	Lighting Installation	40%	\$ 123,441.99
6	As-Built/Closeout	10%	\$ 30,860.49
Total		100%	\$ 308,604.97

Upon completion of the project:

- a) Subcontractor shall pay the full National Grid fee of \$9,258.

5. PROPOSER QUALIFICATIONS

Corporate Profiles

National Grid - National Grid is an international energy delivery company. In the U.S., National Grid delivers electricity to approximately 3.3 million customers in Massachusetts, New Hampshire, New York, and Rhode Island, and manages the electricity network on Long Island under an agreement with the Long Island Power Authority (LIPA). It is the largest distributor of natural gas in the northeastern U.S., serving approximately 3.4 million customers in Massachusetts, New Hampshire, New York and Rhode Island. National Grid also owns over 4,000 megawatts of contracted electricity generation that provides power to over one million LIPA customers. National Grid offers nationally recognized energy conservation programs which have been recognized as EPA's Energy Star 2010 partner of the year.

Centrica Business Solutions Services Inc. (CBSS) - Formerly SmartWatt Energy Inc. - Is a leading nationwide provider of turnkey energy-efficiency solutions. We are dedicated to lowering businesses' operational costs through demand-side energy reduction strategies. CBSS provides whole building energy assessments and implements renewable energy systems, lighting upgrades, control system enhancements, variable frequency drive (VFD) upgrades, HVAC enhancements and other energy conservation measures to help commercial, industrial, institutional, and government customers and utilities meet their sustainability goals. CBSS also maintains status as a National Grid tier one partner and an approved contractor on National Grid's Project Expeditor (PEX) program.

For National Grid

Sincerely,

Becky Badalato
Business Development Manager

Attachment A

May 17, 2022

Becky Badalato
National Grid
21265 NYS Route 232
Watertown, New York 13601

Subject: IGA Implementation Proposal for County of Saratoga

Dear Becky;

On behalf of Centrica Business Solutions Service Inc. (CBSS) - Formerly SmartWatt Energy, Inc., I am pleased to submit herewith our proposal to perform the implementation of the findings within the attached Investment Grade Audit (IGA) at the County of Saratoga. The scope of work is based on the IGA presented on April 18, 2022. Through discussions with you and County staff we have confirmed the final Facility Improvement Measure (FIM) to be installed under this implementation phase of work.

Project Overview:

County of Saratoga has authorized National Grid to proceed with implementation of an energy savings project as described in the IGA conducted by Centrica Business Solutions Services Inc. (Formerly SmartWatt) dated (4/18/2022).

CBSS is pleased to submit herewith its formal Firm Fixed Price IGA valued at \$308,604.97 covering performance implementation as defined under the attached Scope of Work (SOW).

CBSS is pleased to have the opportunity to partner with National Grid, and we eagerly anticipate working with you on this phase of the County of Saratoga Energy Conservation Project. CBSS is looking forward to demonstrating to the County of Saratoga and National Grid our depth of experience and expertise in developing comprehensive energy solutions.

CBSS appreciates this opportunity and looks forward to a long and mutually beneficial relationship with National Grid. Please feel free to contact the undersigned should you have any questions concerning the attached.

Sincerely,



Mitch Tombs
Account Executive
Centrica Business Solutions Services Inc. (CBSS) - Formerly SmartWatt Energy, Inc.
Cell: 315.532.7584
Email: Mitch.Tombs@Centrica.com

Project Management/Implementation Overview

Geoff Frey, Senior Project Manager at CBSS will have the overall responsibility for managing and executing the construction phase of this project. The table below lists the major milestones for this project. The dates below are approximate. A detailed WBS will be provided as part of the Project Management Plan presented during the construction phase.

Task Name	Duration	Start	Finish
Saratoga County LED Lighting	81 days	Fri 7/1/22	Fri 10/21/22
Pre Construction	25 days	Fri 7/1/22	Thu 8/4/22
Task Order Issued	0 days	Fri 7/1/22	Fri 7/1/22
Material Procurement	25 days	Fri 7/1/22	Thu 8/4/22
Preconstruction Kickoff Meeting	1 day	Wed 7/27/22	Wed 7/27/22
Construction	49 days	Mon 8/8/22	Thu 10/13/22
Animal Shelter LED Lighting Installation	4 days	Mon 8/8/22	Thu 8/11/22
DPW Complex LED Lighting Installation	10 days	Fri 8/12/22	Thu 8/25/22
County Jail LED Lighting Installation	30 days	Fri 8/26/22	Thu 10/6/22
Substantial Completion	0 days	Thu 10/6/22	Thu 10/6/22
Punchlist	5 days	Fri 10/7/22	Thu 10/13/22
Closeout	6 days	Fri 10/14/22	Fri 10/21/22
As-Built	5 days	Fri 10/14/22	Thu 10/20/22
Closeout Meeting	1 day	Fri 10/21/22	Fri 10/21/22

Scope of Work

Please see Attachment B (County of Saratoga – Investment Grade Audit).

Attachment B



Saratoga County, NY – LED Lighting Improvement Project


Mitch Tombs | Account Executive

April 18, 2022

Centrica Business Solutions (CBS)

Formerly SmartWatt Energy Inc. – Acquired by CBS in 2019

Same local team  Ballston Lake, NY Office is the North American Headquarters

Fully turnkey with in-house teams  Lighting audit/design, Project Management, Installation
No subcontractor = “one throat to choke”

Previous Lighting Project across County Buildings: completed by us in 2012

We’ve already installed lighting in these buildings, which is still existing 10 years later.
We know what we’re looking for and what is needed to get it done again.

Saratoga County Sewer District Solar PV Project: completed by us in 2020

581 kW ground mount solar pv system designed & installed

Saratoga County Sewer District LED Lighting Project: completed by us in 2021

Upgraded all interior & exterior lighting to LED (993 fixtures), including lighting controls

Project Summary

- Centrica performed an investment grade audit and the following County Facilities:
 - County Jail
 - DPW Complex
 - Animal Shelter

Facility Improvement Measures (FIMs)

#	FIM Name	FIM Description
1	LED Lighting Improvements	Upgrade or replace all existing fluorescent or HID lighting technology to LED

LED Lighting Improvements

- Retrofit existing interior fluorescent lighting with LED lamps & drivers
- Replace any existing exterior HID lighting (area lights, wall-packs, floods lights) with new LED lighting.
- Replace existing T-5 highbays in DPW Garages with new LED fixtures, with sensors



Project Financials

Building	kWh Saved	Annual Maintenance Savings	Energy Savings (Lighting & HVAC)	Total Cost Savings (Annual)	Total Cost	Utility Incentive	Cost After Incentive	Payback (Years)
Animal Shelter	18,868.34	\$ 739.74	\$ 2,075.52	\$ 2,815.26	\$ 27,936.47	\$ 2,908.61	\$ 25,027.86	9.25
County Jail	200,200.98	\$ 9,825.69	\$ 22,022.11	\$ 31,847.80	\$ 208,946.81	\$ 20,398.92	\$ 188,547.89	5.73
DPW Complex	81,631.71	\$ 2,890.16	\$ 8,979.49	\$ 11,869.65	\$ 71,721.69	\$ 7,711.47	\$ 64,010.22	5.81
Totals	300,701.03	\$ 13,455.59	\$ 33,077.12	\$ 46,532.71	\$ 308,604.97	\$ 31,019.00	\$ 277,585.97	5.97



GHG reductions: 451,052 lbs. (204 MetricTons) of CO2 reduced = 66 acres of trees, 43 cars removed from the road, 27,336 gallons of gasoline/year.

Rate: based on billing analysis of existing utility bills = \$.098

Existing wattage of T8 lamps: 28W not 32W

Rebate: accurate based on National Grid project calculator

Material: Tier 1 products & all DLC approved (5- or 10-year warranty)

Jail: We know what it takes to install this scope because we've already done it before.

- Our price includes full scope based on our in-person audit (prints aren't up to date)
- Cells have bi-level control (requires multiple ballasts in each fixture) – factored into project
- All lifts required are included
- Current PW Rate being used

Thank you

Mitch Tombs | Account Executive

P: 315-532-7584

Mitch.Tombs@centrica.com

Tim Monahan | Lighting Project Director

P: 518-406-6553

Tim.Monahan@centrica.com

Energy Calculations & Scope Line by Line

Action #	Map Location #	Location Description	Pre-Install (Baseline)										Post-Install (Proposed)						Lighting Energy Savings				Interactive Energy Savings				Energy Savings			
			# of Baseline Fixtures	Pre-Install Fixture Code	Pre Watts Per Fixture	Pre Watt per Fixture (Lmb)	Pre kW (Light)	Peak kW Demand	Pre kW (Load)	Pre Hours of Annual Operation	Pre Hours of Annual Operation (Zone)	Pre kWh	Proposed # of Fixtures	Proposed Fixture Code	Proposed Action Description	Proposed Watts per Fixture	Proposed kW (Light)	Proposed kW (Load)	Proposed Hours of Annual Operation	Proposed Hours of Annual Operation (Zone)	Annual Proposed kWh	kWh Demand Saved	kWh Saved	LW Interactive Factor	kWh Saved	kWh Interactive Factor	kWh Saved	LW Demand Saved	kWh Saved	
349	0	Elevator	1	54/19/28/R-AP	76	0	0.076	0.08	0.00	2,346	0	178	1	3 Fluorescent(s), 39W	Rebuild existing fixture using (1) LED Replacement Type C Lamps and (2) 4-lamp fixture	39	0	0.04	0.04	2,346	0	92	0.04	87	0.32	29.3	0.12	10	29.32	97
350	0	Mechanical outside	1	54/19/28/R-AP	76	0	0.076	0.08	0.00	2,346	0	178	1	3 Fluorescent(s), 39W	Rebuild existing fixture using (1) LED Replacement Type C Lamps and (2) 4-lamp fixture	39	0	0.04	0.04	2,346	0	92	0.04	87	0.32	29.3	0.12	10	29.32	97
351	0	Exterior Wall Heads	6	MW/250	295	0	1.77	1.77	0.00	4,380	0	7,753	6	1 Fluorescent(s), 63W	Replace existing metal halide/halogen lamp with a new Raytone LED replacement lamp. 63w 9100 lumens	63	0	0.38	0.38	4,380	0	1,856	1.39	6,007	0.32	520.8	0.12	732	531.20	6,829
352	0	Exterior Poles	11	MW/250	295	0	3.245	3.25	0.00	4,380	0	14,213	11	1 Fluorescent(s), 63W	Replace existing metal halide/halogen lamp with a new Raytone LED replacement lamp. 63w 9100 lumens	63	0	0.69	0.69	4,380	0	3,035	2.55	11,178	0.32	971.3	0.12	1,341	973.86	12,519
353	0	Exterior Wallheads	3	MW/250	295	0	0.885	0.89	0.00	4,380	0	3,876	3	3 Fluorescent(s), 63W	Replace existing metal halide/halogen lamp with a new Raytone LED replacement lamp. 63w 9100 lumens	63	0	0.39	0.39	4,380	0	838	0.70	3,048	0.32	264.9	0.12	366	265.60	3,414
354	0	Exterior Wallheads	1	LED/30	30	0	0.03	0.03	0.00	4,380	0	331	1	No Fixture Action	No Action	30	0	0.03	0.03	4,380	0	331	0.00	0	0.32	42.0	0	42.00	0	
355	0	Exterior Poles	2	LED/30	30	0	0.06	0.06	0.00	4,380	0	663	2	No Fixture Action	No Action	30	0	0.06	0.06	4,380	0	663	0.00	0	0.32	84.0	0	84.00	0	
356	0	Lobby	8	CV/129/2L	68	0	0.544	0.54	0.00	8,760	0	4,745	8	2 Raytone 4-Pin LED, Horizontal, 11-Watt(s), 220W	Replace existing PL lamp with a new Raytone LED PL replacement bulb	22	0	0.18	0.18	8,760	0	1,542	0.37	3,218	0.32	493.4	0.12	387	493.73	3,611
			1822				1822			50,040	0	100				62.38		62.38		221,485	64.40	216,045	89	18,612	39	24,264	18,696	188,147		

Lighting Material Cut Sheets



CC1322MTP

T8 ELECTROMAGNETIC BALLAST



DESCRIPTION

1 x 13W CFL | 120 Input Voltage | Normal Power Factor | Preheat Start

STARTING METHOD: Preheat
LAMP CONNECTION: Series
INPUT VOLTAGE: 120VAC + 5% -10%
INPUT FREQUENCY: 60 Hz
BALLAST FACTOR (LIGHT OUTPUT): Normal
WARRANTY: 3 Years

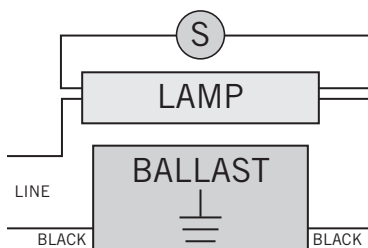
PRODUCT FEATURES

- Sound Rated: A
- Minimum Starting Temperature: 50°F, 10°C
- Maximum Case Temperature: 194°F, 90°C
- UL, cUL 935 Listed (Class P, Outdoor, Type 1)
- Thermally Protected

ELECTRICAL SPECIFICATIONS

Lamp Type	No. of Lamps	Input Volts	Input Watts	Input Current (Amps)	Power Factor	Crest Factor	Ballast Factor	Ballast Efficacy Factor	Max. THD %
F14T8	1	120	16	0.33	0.40	1.70	0.80	5.00	15
F15T8	1	120	16	0.27	0.49	1.67	0.71	4.44	15
F18T8	1	120	16	0.25	0.51	1.56	0.71	4.44	15
F14T12	1	120	16	0.33	0.40	1.70	0.80	5.00	15
F15T12	1	120	16	0.30	0.46	0.56	0.85	5.31	15
F20T12	1	120	16	0.25	0.58	1.65	0.65	5.31	15
CFT13W/GX23	1	120	16	0.26	0.50	1.67	0.93	5.81	15
FC6T9 20W	1	120	17.5	0.24	0.60	1.56	0.73	4.17	15
FC8T9 22W	1	120	18	0.30	0.51	1.59	0.73	4.06	15

WIRING DIAGRAM





CC1322MTP

T8 ELECTROMAGNETIC BALLAST

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS

	LENGTH	3.15"
	WIDTH	1.14"
	HEIGHT	1.77"
	MOUNTING	2.50"
	CASE STYLE	B2

STANDARD LEAD LENGTHS*

BLACK	1 x 9", 1 x 18"
--------------	-----------------

*Consult Keystone for special lead length requirements.

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
CC1322MTP-CP	Carton Pack	TBD	Active

CATALOG NUMBER BREAKDOWN

CC1322MTP-CP





EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-2LT5HO-UV-22C-VDIM

CONSTANT CURRENT LED DRIVER FOR TYPE C T5HO LAMPS

DESCRIPTION

Constant Current Output | 120–277V Input | 0–10V Dimming



DRIVER TYPE: Constant Current

OUTPUT CURRENT: 500A × 2 Channels

INPUT POWER: 25W × 2

MAX. CURRENT 0.49A@120V

MAX. OUTPUT POWER: 48W

WARRANTY: 5 Years

PRODUCT FEATURES

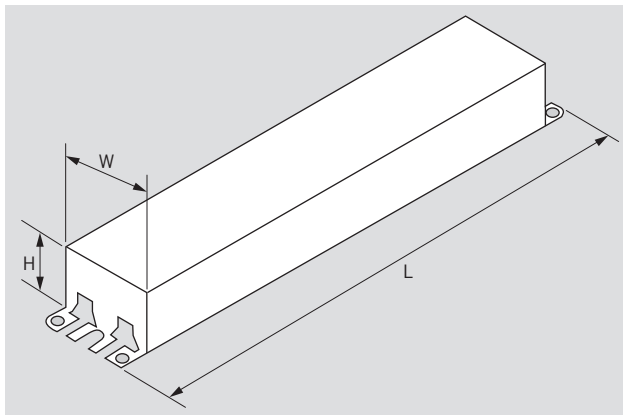
- Compatible with Keystone external drive T5HO LED lamps
- Meets FCC Part 15 (Class B) consumer limits
- Short circuit overload and open load protection
- Type 1 outdoor, suitable for dry and damp locations
- UL8750 Recognized component
- Dimmable with 0–10V Dimmer
- Operating temperature: –20°C/–4°F to 45°C/113°F
- 85°C/185°F maximum case temperature
- Input frequency: 50/60 Hz
- THD: < 20%

ELECTRICAL SPECIFICATIONS

INPUT CHARACTERISTICS				OUTPUT CHARACTERISTICS			FEATURES
Input Voltage	Input Power	Power Factor	Max. Current	Max. Output Power	Max. Current	Output Voltage	Efficiency
120–277Vac	25W × 2	>0.9	0.49A@120V	45W	500A × 2 Channels	36–45Vdc	88%

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS



LENGTH (L)	9.50"
WIDTH (W)	1.33"
HEIGHT (H)	1.10"

*TC Point (85°C) is noted on each driver label



EXTERNAL DRIVE LED

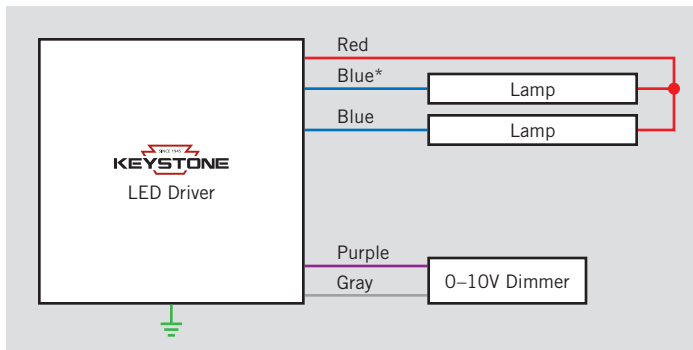
TYPE C LED TUBES

KTLD-2LT5HO-UV-22C-VDIM

CONSTANT CURRENT LED DRIVER FOR TYPE C T5HO LAMPS

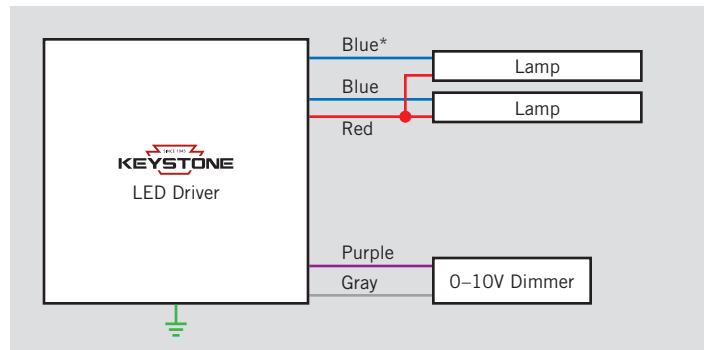
WIRING

DOUBLE-ENDED WIRING



* For 1 lamp application, cap off 1 blue lead

SINGLE-ENDED WIRING



* For 1 lamp application, cap off 1 blue lead

STANDARD LEAD LENGTHS*

Input	Black	30.00"
	White	30.00"
Output	Red	30.00"
	Blue	30.00"
Dimming	Purple	30.00"
	Gray	30.00"

Lead wires are 18 AWG 105° C/600V.

*Consult Keystone for special lead length requirements.

ORDERING INFORMATION

Order Code	Packaging Style	Pack Quantity	Item Status
KTLD-2LT5HO-UV-22C-VDIM-CP	Carton Pack	25	Active

CATALOG NUMBER BREAKDOWN

KTLD-2LT5HO-UV-22C-VDIM-CP

1
2
3
4
5
6
7
8

- 1** Keystone Technologies LED Driver
- 2** Number of Lamps
- 3** Lamp Type
- 4** High Output
- 5** 120–277V Input
- 6** Lamp Wattage
- 7** 0–10V Dimming
- 8** Packaging Style



EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-2LT8-UV-8C-VDIM

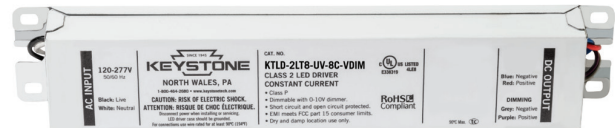
CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

DESCRIPTION

Constant Current Output | 120-277V Input | 0-10V Dimming



DRIVER TYPE: Constant Current
MAX. OUTPUT POWER: 16.7W
INPUT VOLTAGE: 120-277Vac ±10%
OUTPUT VOLTAGE: 36~45 Vdc
OUTPUT CURRENT: 185mA x 2 channels
WARRANTY: 5 Years



PRODUCT FEATURES

- Compatible with Keystone External Drive T8 LED Lamps
- Meets FCC Part 15 (Class B) Consumer Limits
- Short Circuit Overload and Open Load Protection
- Type 1 Outdoor, Suitable for Dry and Damp Locations
- UL8750 Recognized Component
- Dimmable with 0-10V Dimmer
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- 85°C/185°F Maximum Case Temperature
- Input Frequency: 50/60 Hz
- THD: < 20%

SPECIFICATIONS

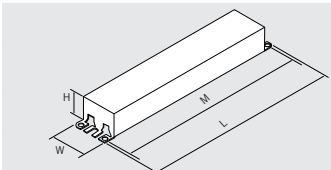
ELECTRICAL SPECIFICATIONS

INPUT CHARACTERISTICS				OUTPUT CHARACTERISTICS			FEATURES
Input Voltage	Input Power	Power Factor	Max. Current	Max. Output Power	Rated Output Current	Output Voltage	Efficiency
120-277Vac	20.4W	>0.9	0.17A @ 120V	16.7W	185mA x 2 Channels	36-45Vdc	88%

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS

KTLD-2LT8-UV-xxC-VDIM	
LENGTH	9.5"
WIDTH	1.3"
HEIGHT	1.1"
MOUNTING	8.9"



*TC Point (85°C) is noted on each driver label



KTLD-2LT8-UV-8C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

MECHANICAL SPECIFICATIONS

STANDARD LEAD LENGTHS*

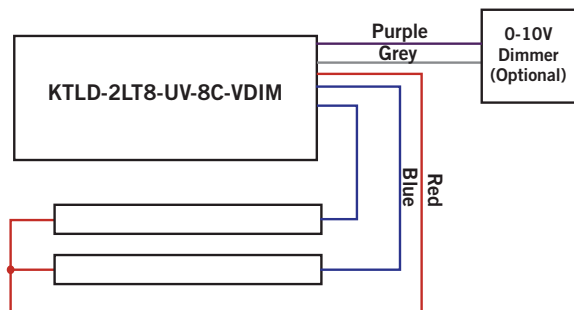
WHITE	30.00"
BLACK	30.00"
RED	30.00"
BLUE	30.00"
PURPLE	30.00"
GRAY	30.00"

CASE MATERIAL: Metal

INPUT WIRES	18 AWG 105°C/600V
OUTPUT WIRES	18 AWG 105°C/600V

*Consult Keystone for special lead length requirements.

WIRING DIAGRAM



*For 1 Lamp application, cap off 1 blue lead

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KTLD-2LT8-UV-8C-VDIM-CP	Carton Pack	25	Active

CATALOG NUMBER BREAKDOWN

KTLD-2LT8-UV-8C-VDIM-CP





EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-2LT8-UV-12C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

DESCRIPTION

Constant Current Output | 120-277V Input | 0-10V Dimming



DRIVER TYPE: Constant Current
MAX. OUTPUT POWER: 24.3W
INPUT VOLTAGE: 120-277Vac ±10%
OUTPUT VOLTAGE: 36~45 Vdc
OUTPUT CURRENT: 270mA x 2 channels
WARRANTY: 5 Years



PRODUCT FEATURES

- Compatible with Keystone External Drive T8 LED Lamps
- Meets FCC Part 15 (Class B) Consumer Limits
- Short Circuit Overload and Open Load Protection
- Type 1 Outdoor, Suitable for Dry and Damp Locations
- UL8750 Recognized Component
- Dimmable with 0-10V Dimmer
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- 85°C/185°F Maximum Case Temperature
- Input Frequency: 50/60 Hz
- THD: < 20%

SPECIFICATIONS

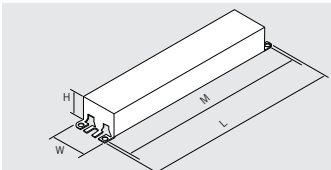
ELECTRICAL SPECIFICATIONS

INPUT CHARACTERISTICS				OUTPUT CHARACTERISTICS			FEATURES
Input Voltage	Input Power	Power Factor	Max. Current	Max. Output Power	Rated Output Current	Output Voltage	Efficiency
120-277Vac	28.8W	>0.9	0.24A @ 120V	24.3W	270mA x 2 Channels	36-45Vdc	88%

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS

KTLD-2LT8-UV-xxC-VDIM	
LENGTH	9.5"
WIDTH	1.3"
HEIGHT	1.1"
MOUNTING	8.9"



*TC Point (85°C) is noted on each driver label



KTLD-2LT8-UV-12C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

MECHANICAL SPECIFICATIONS

STANDARD LEAD LENGTHS*

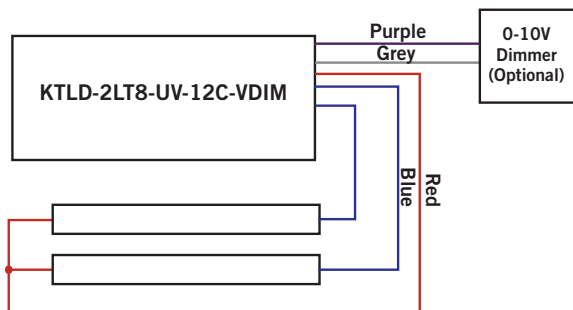
WHITE	30.00"
BLACK	30.00"
RED	30.00"
BLUE	30.00"
PURPLE	30.00"
GRAY	30.00"

CASE MATERIAL: Metal

INPUT WIRES	18 AWG 105°C/600V
OUTPUT WIRES	18 AWG 105°C/600V

*Consult Keystone for special lead length requirements.

WIRING DIAGRAM



*For 1 Lamp application, cap off 1 blue lead

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KTLD-2LT8-UV-12C-VDIM-CP	Carton Pack	25	Active

CATALOG NUMBER BREAKDOWN

KTLD-2LT8-UV-12C-VDIM-CP





EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-4LT8-UV-8C-VDIM

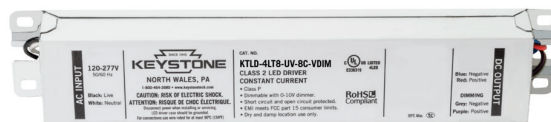
CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

DESCRIPTION

Constant Current Output | 120-277V Input | 0-10V Dimming



DRIVER TYPE: Constant Current
MAX. OUTPUT POWER: 33.3W
INPUT VOLTAGE: 120-277Vac ±10%
OUTPUT VOLTAGE: 36~45 Vdc
OUTPUT CURRENT: 185mA x 4 channels
WARRANTY: 5 Years



PRODUCT FEATURES

- Compatible with Keystone External Drive T8 LED Lamps
- Meets FCC Part 15 (Class B) Consumer Limits
- Short Circuit Overload and Open Load Protection
- Type 1 Outdoor, Suitable for Dry and Damp Locations
- UL8750 Recognized Component
- Dimmable with 0-10V Dimmer
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- 85°C/185°F Maximum Case Temperature
- Input Frequency: 50/60 Hz
- THD: < 20%

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

INPUT CHARACTERISTICS				OUTPUT CHARACTERISTICS			FEATURES
Input Voltage	Input Power	Power Factor	Max. Current	Max. Output Power	Rated Output Current	Output Voltage	Efficiency
120-277Vac	40.8W	>0.9	0.34A @ 120V	33.3W	185mA x 4 Channels	36-45Vdc	88%

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS

	KTLD-4LT8-UV-xxC-VDIM	
	LENGTH	9.5"
	WIDTH	1.8"
	HEIGHT	1.3"
	MOUNTING	8.9"

*TC Point (85°C) is noted on each driver label



KTLD-4LT8-UV-8C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

MECHANICAL SPECIFICATIONS

STANDARD LEAD LENGTHS*

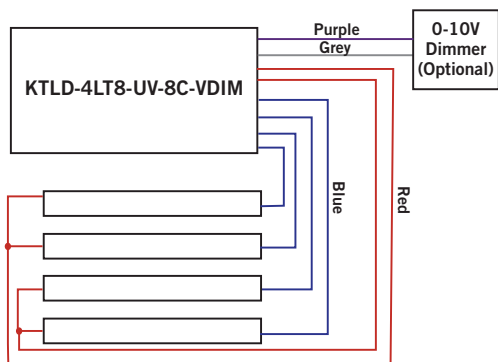
WHITE	30.00"
BLACK	30.00"
RED	30.00"
BLUE	30.00"
PURPLE	30.00"
GRAY	30.00"

CASE MATERIAL: Metal

INPUT WIRES	18 AWG 105°C/600V
OUTPUT WIRES	18 AWG 105°C/600V

*Consult Keystone for special lead length requirements.

WIRING DIAGRAM



*For 3 Lamp applications, cap off 1 blue lead

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KTLD-4LT8-UV-8C-VDIM-CP	Carton Pack	25	Active

CATALOG NUMBER BREAKDOWN

KTLD-4LT8-UV-8C-VDIM-CP





EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-4LT8-UV-12C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

DESCRIPTION

Constant Current Output | 120-277V Input | 0-10V Dimming



DRIVER TYPE: Constant Current
MAX. OUTPUT POWER: 48.6W
INPUT VOLTAGE: 120-277Vac ±10%
OUTPUT VOLTAGE: 36~45 Vdc
OUTPUT CURRENT: 270mA x 4 channels
WARRANTY: 5 Years



PRODUCT FEATURES

- Compatible with Keystone External Drive T8 LED Lamps
- Meets FCC Part 15 (Class B) Consumer Limits
- Short Circuit Overload and Open Load Protection
- Type 1 Outdoor, Suitable for Dry and Damp Locations
- UL8750 Recognized Component
- Dimmable with 0-10V Dimmer
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- 85°C/185°F Maximum Case Temperature
- Input Frequency: 50/60 Hz
- THD: < 20%

SPECIFICATIONS

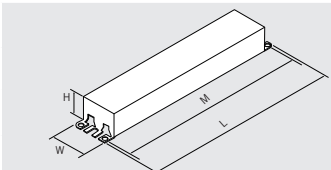
ELECTRICAL SPECIFICATIONS

INPUT CHARACTERISTICS				OUTPUT CHARACTERISTICS			FEATURES
Input Voltage	Input Power	Power Factor	Max. Current	Max. Output Power	Rated Output Current	Output Voltage	Efficiency
120-277Vac	57.6W	>0.9	0.48A @ 120V	48.6W	270mA x 4 Channels	36-45Vdc	88%

MECHANICAL SPECIFICATIONS

CASE DIMENSIONS

KTLD-4LT8-UV-xxC-VDIM	
LENGTH	9.5"
WIDTH	1.8"
HEIGHT	1.3"
MOUNTING	8.9"



*TC Point (85°C) is noted on each driver label



EXTERNAL DRIVE LED

TYPE C LED TUBES

KTLD-4LT8-UV-12C-VDIM

CONSTANT CURRENT LED DRIVERS FOR TYPE C LED T8 LAMPS

MECHANICAL SPECIFICATIONS

STANDARD LEAD LENGTHS*

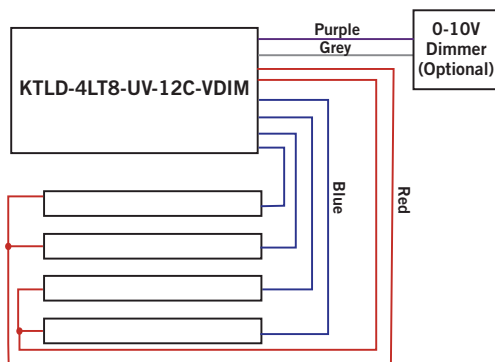
WHITE	30.00"
BLACK	30.00"
RED	30.00"
BLUE	30.00"
PURPLE	30.00"
GRAY	30.00"

CASE MATERIAL: Metal

INPUT WIRES	18 AWG 105°C/600V
OUTPUT WIRES	18 AWG 105°C/600V

*Consult Keystone for special lead length requirements.

WIRING DIAGRAM



*For 3 Lamp applications, cap off 1 blue lead

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KTLD-4LT8-UV-12C-VDIM-CP	Carton Pack	25	Active

CATALOG NUMBER BREAKDOWN

KTLD-4LT8-UV-12C-VDIM-CP

Keystone Technologies LED Driver	# of Lamps	Lamp Type	120-277V Input	Lamp Wattage	0-10V Dimming	Packaging Style
-------------------------------------	---------------	--------------	-------------------	--------------	------------------	--------------------



EXTERNAL DRIVE LED

TYPE C LED TUBES

KT-LED8T8-24G-8XX-E

T8 LED LAMP

DESCRIPTION

8W T8 LED Tube | Type C | 3000–5000K | >83 CRI | 0–10V Dimming



RoHS Compliant

5 YEAR WARRANTY

LAMP TYPE: Linear
BULB TYPE: T8 LED
BASE TYPE: G13 (Medium Bi-Pin)
DIMMING TYPE: 0–10V
WATTAGE: 8W
LAMP INPUT VOLTAGE: 36–45Vdc
COLOR TEMPERATURE: 3000–5000K
COLOR RENDERING INDEX (CRI): >83



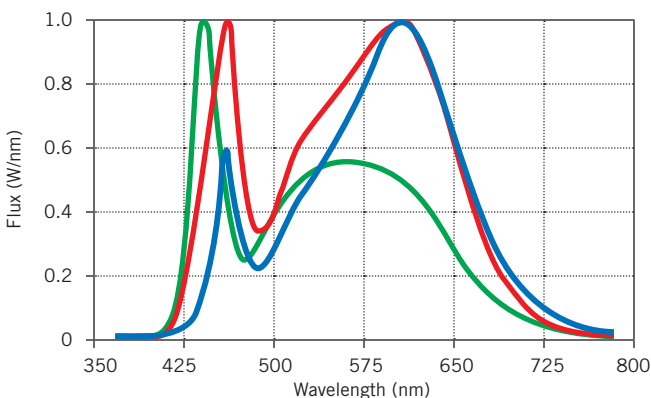
PRODUCT FEATURES

- Compatible with Keystone external drive LED drivers
- Replacement for conventional fluorescent lamps
- 50,000+ hour lifetime
- Type C application for custom installations and maximum efficiency
- Environmentally friendly: No mercury used
- Instant startup
- Frosted glass eliminates pixelation
- UL Classified (pending)
- Operating temperature: -20°C/-4°F to 45°C/113°F
- 120+ lumens per watt
- DLC Listed

OPERATING SPECIFICATIONS

Catalog Number	Color Temp.	KTLD-2LT8-UV-8C-VDIM						KTLD-4LT8-UV-8C-VDIM						
		1 Lamp			2 Lamps			3 Lamps			4 Lamps			Power Factor
		Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	
KT-LED8T8-24G-830-E	3000K	9W	1,100	122 lm/W	18W	2,200	122 lm/W	27W	3,300	122 lm/W	36W	4,400	122 lm/W	>0.9
KT-LED8T8-24G-835-E	3500K	9W	1,125	125 lm/W	18W	2,250	125 lm/W	27W	3,375	125 lm/W	36W	4,500	125 lm/W	>0.9
KT-LED8T8-24G-840-E	4000K	9W	1,150	128 lm/W	18W	2,300	128 lm/W	27W	3,450	128 lm/W	36W	4,600	128 lm/W	>0.9
KT-LED8T8-24G-850-E	5000K	9W	1,200	133 lm/W	18W	2,400	133 lm/W	27W	3,600	133 lm/W	36W	4,800	133 lm/W	>0.9

SPECTRAL DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
-------------	--------

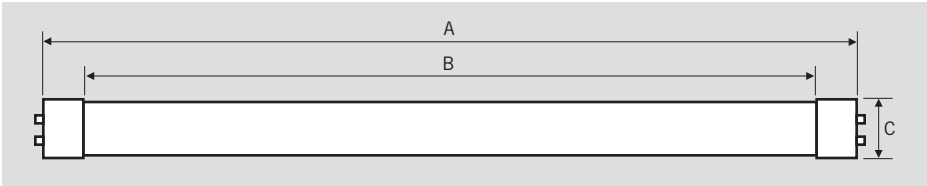
BEAM ANGLE: 240°

VISIBLE LIGHT AREA: 325°

Flux (W/nm)
— 3000K, 3500K
— 4000K
— 5000K

KT-LED8T8-24G-8XX-E
T8 LED LAMP

PHYSICAL CHARACTERISTICS

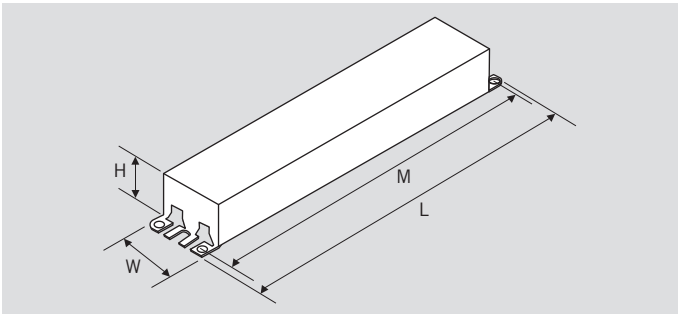


LAMP DIMENSIONS

A (Body Length)	23.23"
B (Illuminated Length)	22.12"
C (Diameter)	1.00"

NOMINAL LENGTH: 48"

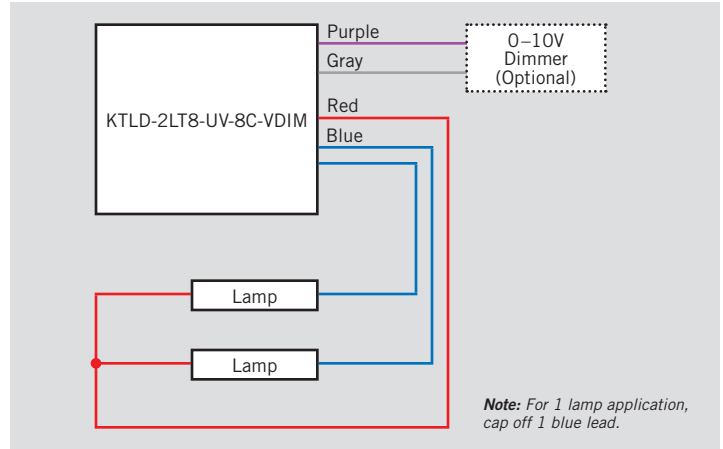
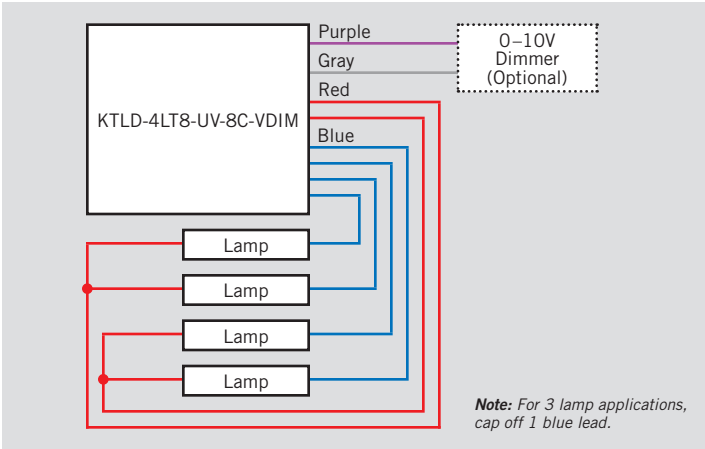
BASE TYPE: G13 (Medium Bi-Pin)



DRIVER DIMENSIONS

KTLD-2LT8-UV-8C-VDIM		KTLD-4LT8-UV-8C-VDIM	
Length (L)	9.50"	Length (L)	9.60"
Width (W)	1.30"	Width (W)	1.80"
Height (H)	1.10"	Height (H)	1.30"
Mounting (M)	8.90"	Mounting (M)	8.90"

WIRING DIAGRAMS





EXTERNAL DRIVE LED
TYPE C LED TUBES

KT-LED8T8-24G-8XX-E

T8 LED LAMP

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED8T8-24G-8XX-E-CP	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED8T8-24G-8XX-E

1 2 3 4 5 6 7 8 9

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Type
- 5 Nominal Length (Inches)
- 6 Glass Construction
- 7 800 Series
- 8 Color Temperature
- 9 External Drive Series

KT-LED9.5A19-0-8XX

REPLACEMENT LAMP

DESCRIPTION

9.5W A19 Lamp | 2700–5000K | >80 CRI | Omni-Directional



RoHS
Compliant

2YEAR
WARRANTY

LAMP TYPE: A19
BASE TYPE: E26 (Medium)
WATTAGE: 9.5W
COLOR TEMPERATURE: 2700–5000K
COLOR RENDERING INDEX (CRI): >80
WARRANTY: 2 Years
RATED LIFE: L70 (15,000 Hours)



TYPICAL APPLICATIONS

- Table, Desk, and Floor Lamps
- Wall Sconces
- Surface Mount Ceiling Fixtures
- General Lighting
- Pendant Lights

PRODUCT FEATURES

- Energy Efficient, 80%+ Energy Savings over Legacy Equivalents
- Lower Heat Generation than Legacy Equivalents
- PF >0.70
- Complies with Part 15 of FCC
- Durable Plastic housing lowers the risk for breakage
- ANSI complaint construction ensures fitment for intended applications
- Operating temperature range –4°F/–20°C to 95°F/35°C
- Long Life minimizes replacement and maintenance costs
- Meets Energy Star requirements
- UL Listed
- Smooth diffused lens for comfortable glare free performance
- UL enclosed rated, suitable for use in totally enclosed luminaires
- Smooth, uniform dimming

ELECTRICAL AND PERFORMANCE SPECIFICATIONS

Keystone Catalog Number	Description	Color Temp	Input Voltage	Rated Lamp Wattage	Legacy Equivalent Wattage	Base Type	Lumens	CRI	Light Distribution	Dimmable	Efficacy
KT-LED9.5A19-0-827	A19 bulb. Omni-Directional, dimmable	2700K	120V	9.5W	60W halogen	E26	800	>80	230°	Yes	84 lm/W
KT-LED9.5A19-0-830	A19 bulb. Omni-Directional, dimmable	3000K	120V	9.5W	60W halogen	E26	800	>80	230°	Yes	84 lm/W
KT-LED9.5A19-0-835	A19 bulb. Omni-Directional, dimmable	3500K	120V	9.5W	60W halogen	E26	800	>80	230°	Yes	84 lm/W
KT-LED9.5A19-0-840	A19 bulb. Omni-Directional, dimmable	4000K	120V	9.5W	60W halogen	E26	800	>80	230°	Yes	84 lm/W
KT-LED9.5A19-0-850	A19 bulb. Omni-Directional, dimmable	5000K	120V	9.5W	60W halogen	E26	800	>80	230°	Yes	84 lm/W



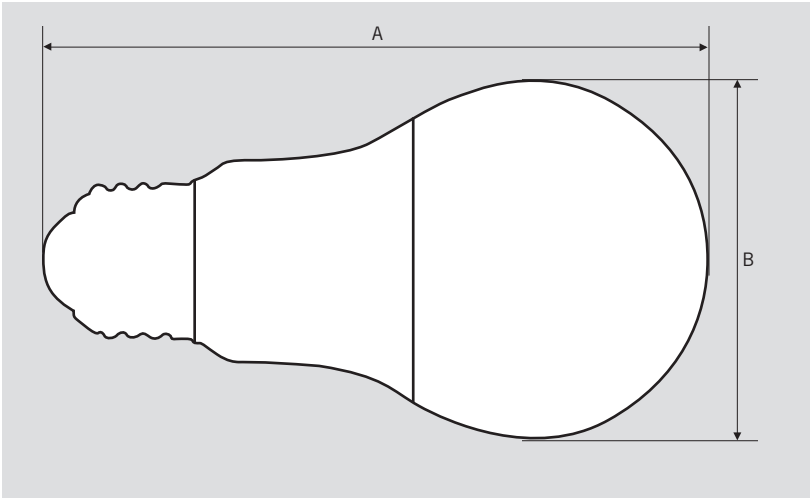
ESSENTIAL SERIES

GENERAL PURPOSE LED BULBS

KT-LED9.5A19-0-8XX

REPLACEMENT LAMP

PHYSICAL CHARACTERISTICS



PACKAGING

Carton Quantity	60 pcs
Carton Dimensions	15.55" × 13.07" × 10"
Carton Weight	9.9 lbs

LAMP DIMENSIONS

A (Length)	4.33"
B (Diameter)	2.36"

BASE TYPE: E26 (Medium)

ORDERING INFORMATION

ORDER CODE	CARTON QUANTITY	ITEM STATUS
KT-LED9.5A19-0-8XX	60 pcs	Active

CATALOG NUMBER BREAKDOWN

KT-LED9.5A19-0-8XX

- 1
- 2
- 3
- 4
- 5
- 6
- 7

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Shape
- 5 Omni-Directional
- 6 800 Series
- 7 Color Temperature



EXTERNAL DRIVE LED

TYPE C LED TUBES

KT-LED12T8-48G-8XX-E

T8 LED LAMP

DESCRIPTION

12W T8 LED Tube | Type C | 3000-5000K | >83 CRI | 0-10V Dimmable



LAMP TYPE: Linear	COLOR TEMPERATURE: 3000-5000K
BULB TYPE: T8 LED	COLOR RENDERING INDEX (CRI): >83
BASE TYPE: G13 (Medium Bi-Pin)	WARRANTY: 5 Years
WATTAGE: 12W	



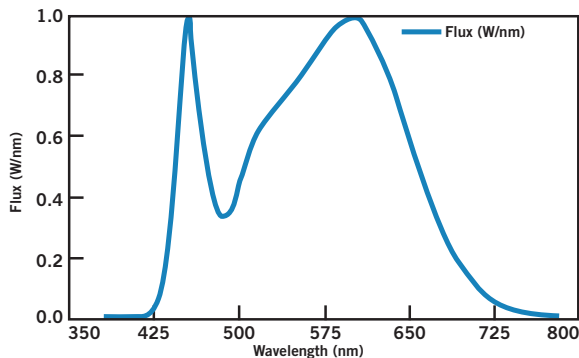
PRODUCT FEATURES

- Compatible with Keystone External Drive LED Drivers
- Replacement for Conventional Fluorescent Lamp
- 50,000+ Hour Lifetime
- Type C Application for Custom Installations and Maximum Efficiency
- Environmentally Friendly: No Mercury Used
- Instant Startup
- Frosted Glass Eliminates Pixelation
- UL Classified*
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- 120+ Lumens per Watt
- DLC Listed

OPERATING SPECIFICATIONS

Catalog Number	Color Temp.	CRI	Input Voltage	KTLD-2LT8-UV-12C-VDIM						KTLD-4LT8-UV-12C-VDIM						Power Factor	Dimming Type
				1 Lamp			2 Lamps			3 Lamps			4 Lamps				
				Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy		
KT-LED12T8-48G-830-E	30K	>83	120-277V	13W	1650lm	127lm/W	26W	3300lm	127lm/W	39W	4950lm	127lm/W	52W	6600lm	127lm/W	>0.9	0-10V
KT-LED12T8-48G-835-E	35K	>83	120-277V	13W	1700lm	131lm/W	26W	3400lm	131lm/W	39W	5100lm	131lm/W	52W	6800lm	131lm/W	>0.9	0-10V
KT-LED12T8-48G-840-E	40K	>83	120-277V	13W	1750lm	135lm/W	26W	3500lm	135lm/W	39W	5250lm	135lm/W	52W	7000lm	135lm/W	>0.9	0-10V
KT-LED12T8-48G-850-E	50K	>83	120-277V	13W	1800lm	139lm/W	26W	3600lm	139lm/W	39W	5400lm	139lm/W	52W	7200lm	139lm/W	>0.9	0-10V

SPECTRAL DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
-------------	--------



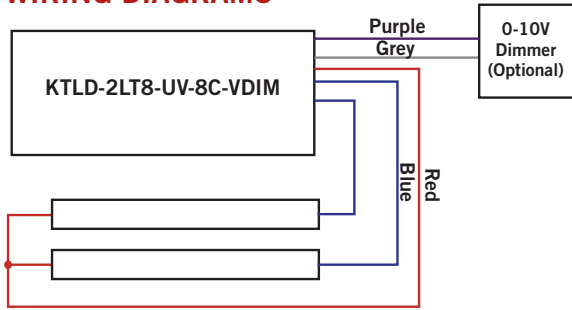
EXTERNAL DRIVE LED

TYPE C LED TUBES

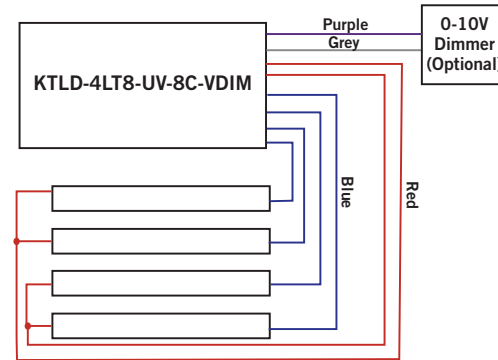
KT-LED12T8-48G-8XX-E

T8 LED LAMP

WIRING DIAGRAMS



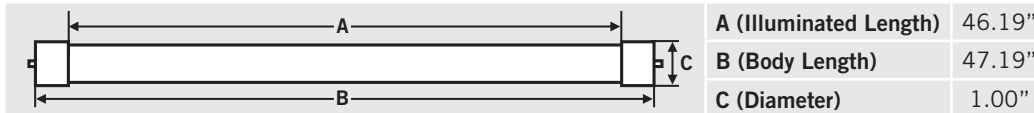
*For 1 Lamp application, cap off 1 blue lead



*For 3 Lamp applications, cap off 1 blue lead

PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS



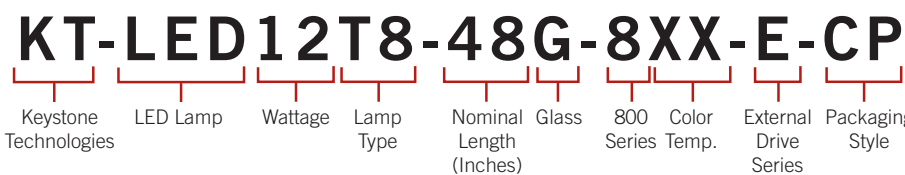
NOMINAL LENGTH: 48" BASE TYPE: G13 (Medium Bi-Pin)

	KTLD-2LT8-UV-12C-VDIM	KTLD-4LT8-UV-12C-VDIM		
	LENGTH	9.5"	LENGTH	9.5"
	WIDTH	1.3"	WIDTH	1.8"
	HEIGHT	1.1"	HEIGHT	1.3"
	MOUNTING	8.9"	MOUNTING	8.9"

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED12T8-48G-8xx-E-CP	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN





KT-LED12T8-U6P-8XX-E

T8 U-BEND LED LAMP

DESCRIPTION

12W T8 U-Bend LED | Type C | 3500–5000K | >82 CRI | 0–10V Dimming



RoHS
Compliant

5 YEAR
WARRANTY

LAMP TYPE: U-Bend
BULB TYPE: T8 LED
BASE TYPE: G13 (Medium Bi-Pin)
DIMMING TYPE: 0–10V
WATTAGE: 12W
COLOR TEMPERATURE: 3500–5000K
COLOR RENDERING INDEX (CRI): >80

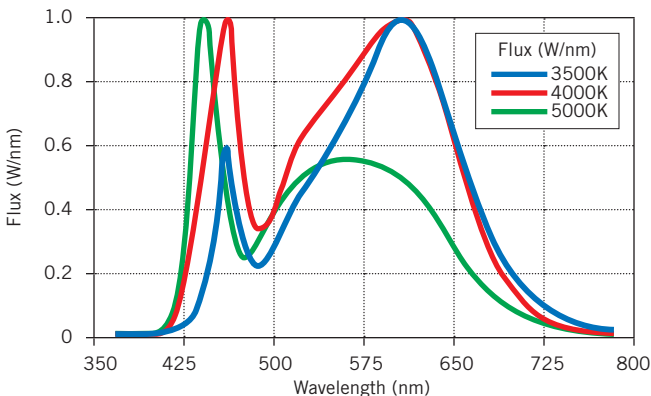
PRODUCT FEATURES

- UL Type C LED tubes, powered by Keystone Type C LED drivers
- UL Classified Std. 1598C
- Plastic construction
- Operating temperature: –20°C/–4°F to 45°C/113°F
- THD <15% at full driver load
- PF >0.90 at full driver load
- 0–10V dimmable
- 50,000+ hours lifetime
- Keystone tube and driver pairing wires are exactly the same as an Instant Start T8 ballast for quick and easy installation
- Low optical flicker

LAMP SPECIFICATIONS

		Driver: KTLD-1LT8-UV-12C-VDIM			Driver: KTLD-2LT8-UV-12C-VDIM			
		1 Lamp			2 Lamps			
Catalog Number	Color Temp.	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Power Factor
KT-LED12T8-U6P-835-E	3500K	13W	1700 lm	130 lm/W	26W	3400 lm	130 lm/W	>0.9
KT-LED12T8-U6P-840-E	4000K	13W	1750 lm	134 lm/W	26W	3500 lm	134 lm/W	>0.9
KT-LED12T8-U6P-850-E	5000K	13W	1800 lm	138 lm/W	26W	3600 lm	138 lm/W	>0.9

SPECTRAL DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
-------------	--------



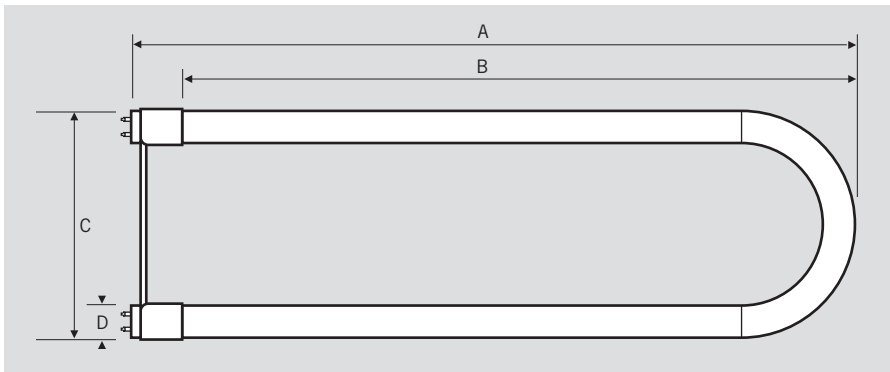
KT-LED12T8-U6P-8XX-E

T8 U-BEND LED LAMP

DRIVER SPECIFICATIONS

Catalog Number	Description	Dimensions
KTLD-1LT8-UV-12C-VDIM	Driver for (1) T8 U-Bend lamp; 120–277V input, 0–10V dimming; 270mA output current	1.10" × 1.30" × 9.50"
KTLD-2LT8-UV-12C-VDIM	Driver for (2) T8 U-Bend lamps; 120–277V input, 0–10V dimming; 270mA output current	1.10" × 1.33" × 9.50"

PHYSICAL CHARACTERISTICS

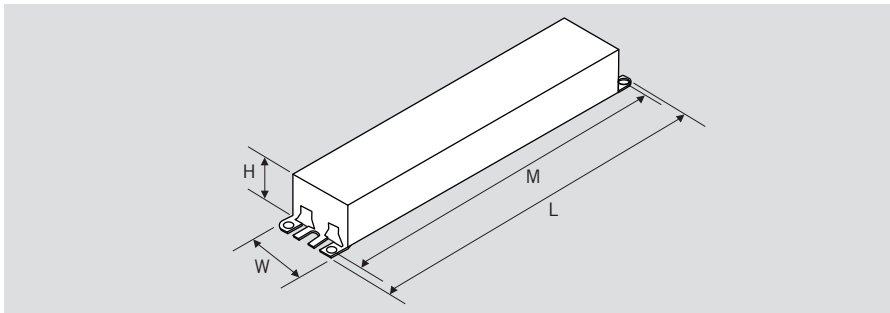


LAMP DIMENSIONS

A (Body Length)	22.55"
B (Illuminated Length)	20.71"
C (Body Width)	5.98"
D (Diameter)	1.10"

NOMINAL LENGTH: 48"

BASE TYPE: G13



DRIVER DIMENSIONS

KTLD-1LT8-UV-12C-VDIM		KTLD-2LT8-UV-12C-VDIM	
Length (L)	9.50"	Length (L)	9.50"
Width (W)	1.30"	Width (W)	1.30"
Height (H)	1.10"	Height (H)	1.10"
Mounting (M)	8.90"	Mounting (M)	8.90"



KT-LED12T8-U6P-8XX-E

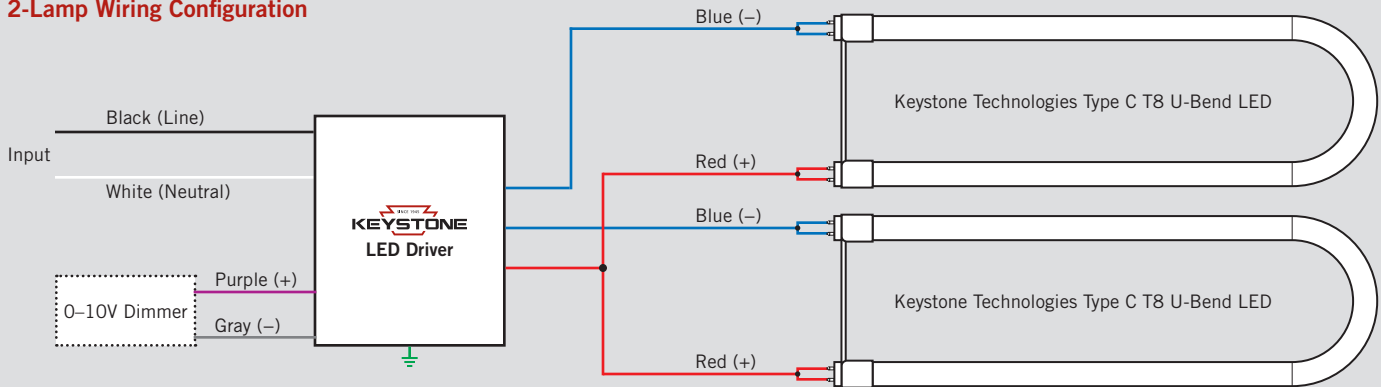
T8 U-BEND LED LAMP

WIRING INSTRUCTIONS

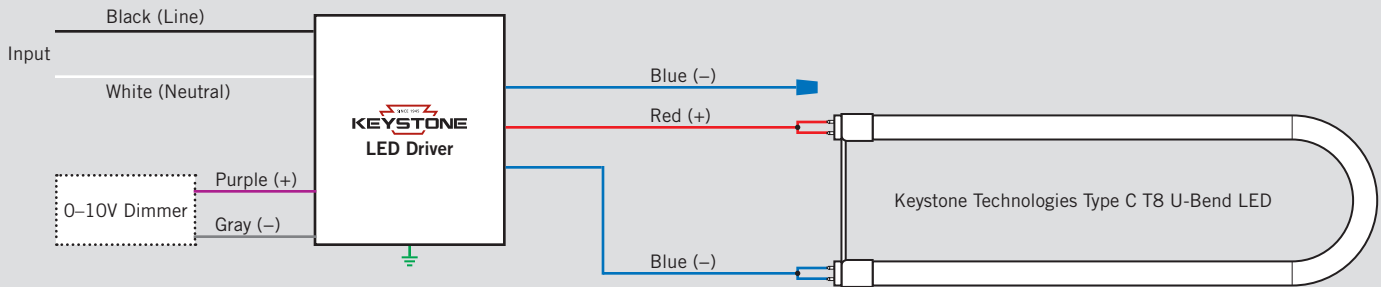
1. Shut off power.
2. Wire according to diagrams (as shown below). **Note: Do not leave any loose wires exposed.**

NEW INSTALLATION: DOUBLE-ENDED WIRING

2-Lamp Wiring Configuration



1-Lamp Wiring Configuration



(continued on page 4)



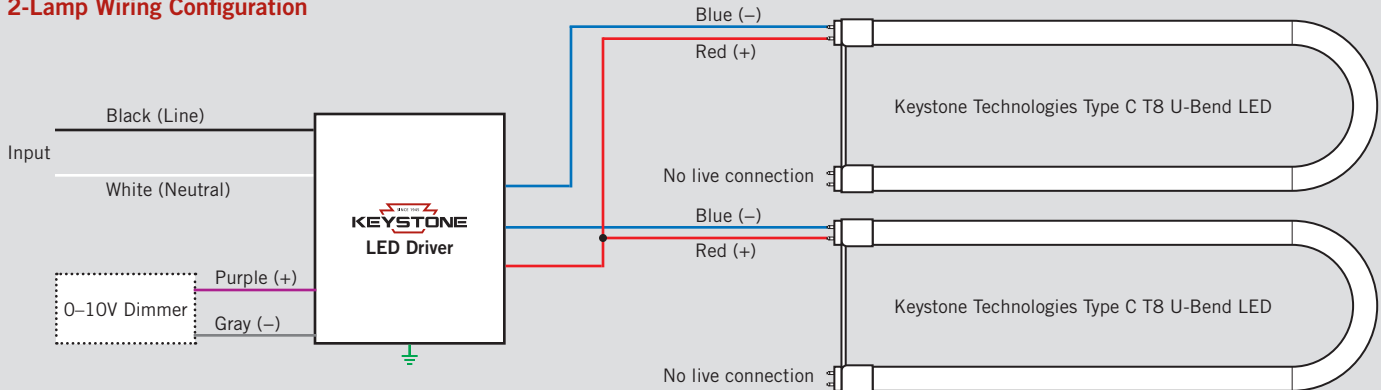
KT-LED12T8-U6P-8XX-E

T8 U-BEND LED LAMP

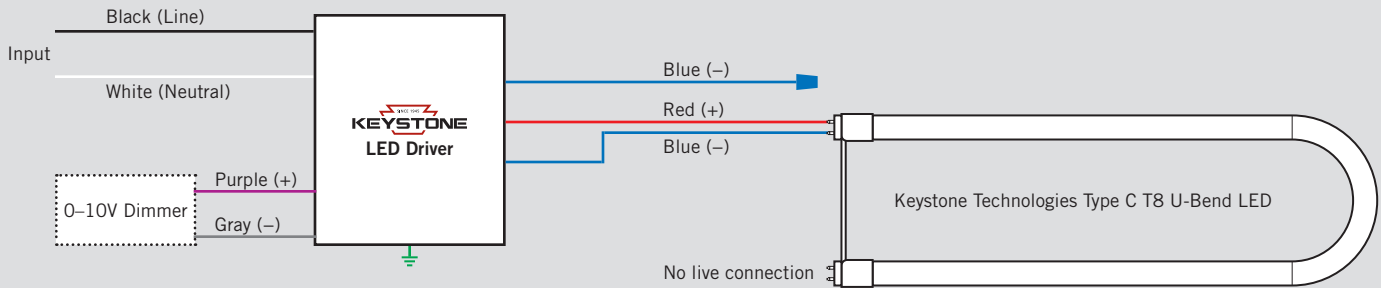
WIRING INSTRUCTIONS *(continued)*

NEW INSTALLATION: SINGLE-ENDED WIRING

2-Lamp Wiring Configuration



1-Lamp Wiring Configuration



3. Close compartment cover and make sure live parts are not accessible. Affix field-applied label in a visible section inside the luminaire.
4. Install the LED tubes and cover the diffuser (if applicable).
5. Turn on power and verify that the tubes are working correctly. **If not, immediately turn off power and contact Keystone Technologies.**

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED12T8-U6P-8XX-E	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED12T8-U6P-8XX-E

1 2 3 4 5 6 7 8 9

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Type
- 5 Nominal Size
- 6 Plastic Construction
- 7 800 Series
- 8 Color Temperature
- 9 External Drive Series



KT-LED15T8-48GC-865-D

T8 LED LAMP

DESCRIPTION

15W T8 LED | 6500K | >83 CRI | High Efficiency



LAMP TYPE: Linear
BULB TYPE: T8 LED
BASE TYPE: G13 (Medium Bi-Pin)
WATTAGE: 15W
COLOR TEMPERATURE: 6500K
COLOR RENDERING INDEX (CRI): >83
WARRANTY: 5 Years



PRODUCT FEATURES

- Replacement for Conventional Fluorescent Lamp
- 50,000+ Hour Lifetime
- Approximately 40% More Energy Efficient than Standard F32T8 Lamps
- Environmentally Friendly: No Mercury Used
- Instant Startup
- Frosted Lens Eliminates Pixelation
- UL Classified
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- Integral Driver (Isolated), Eliminates the Need for External Driver or Ballast
- 110+ Lumens per Watt
- Improved Lamp Durability with Shatterproof Coated Glass
- ETL Sanitation Listed NSF/ANSI Standard 2 - Food Equipment

OPERATING SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Input Voltage	Power Consumption	Power Factor	Input Current
120-277Vac	15W	>0.9	0.16A @ 120V 0.07A @ 277V

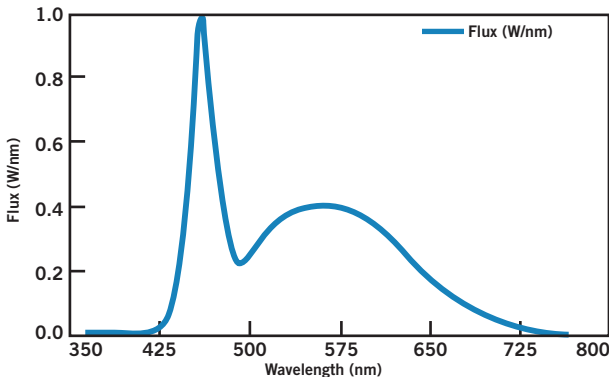
PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	6500K
Luminous Flux	1900 lm
Color Rendering Index (CRI)	>83
Efficacy	127 lm/W
Beam Angle	240°
Visible Light Area	325°

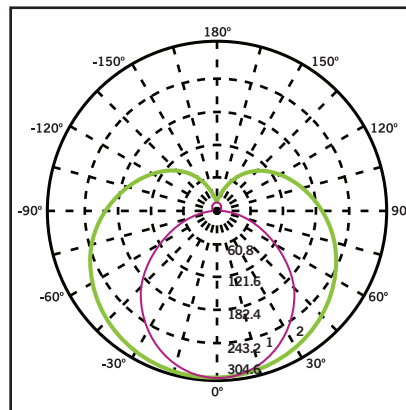
RATED LIFE

L70 (Hours)	50,000
-------------	--------

SPECTRAL DISTRIBUTION



POLAR CANDELA DISTRIBUTION



Maximum Candela = 1248.55
Located at Horizontal Angle = 0,
Vertical Angle 0

1. Violet Vertical Plane through Horizontal Angles (90-270)
2. Green Vertical Plane through Horizontal Angles (0-180)



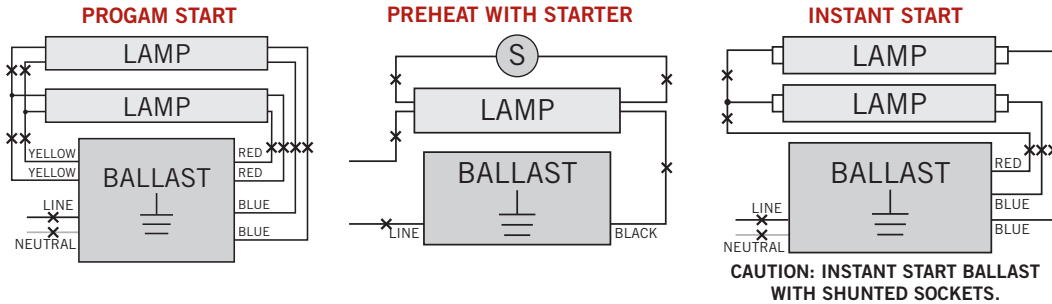
KT-LED15T8-48GC-865-D

T8 LED LAMP

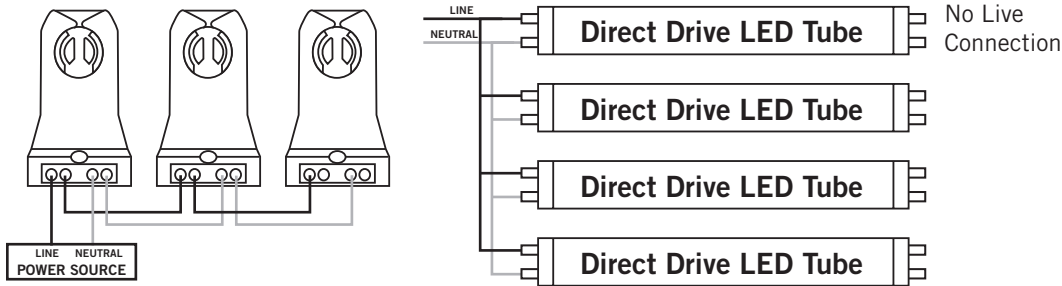
WIRING DIAGRAMS

1. Cut all existing connections to ballast as shown below and remove ballast.

Typical Ballast Configurations:



2. Re-wire fixture as shown below.



Typical Non-Shunted Lampholder

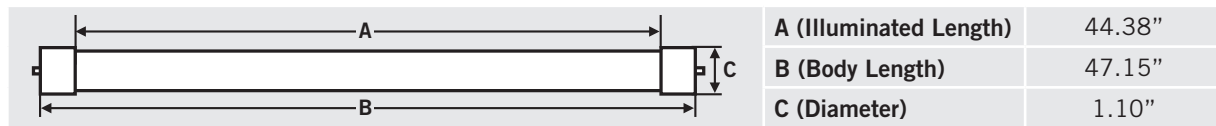
Connect wires directly to these terminals

CAUTION: Use only non-shunted lampholders.
Do not install product in a fixture with shunted lampholders (found in all fixtures using instant start ballasts). If the current lampholders are shunted, remove them and replace them with non-shunted lampholders. Make new connections directly to terminals as indicated above.

Keystone can provide any style replacement lampholders.
Call us at 800-464-2680.

PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS



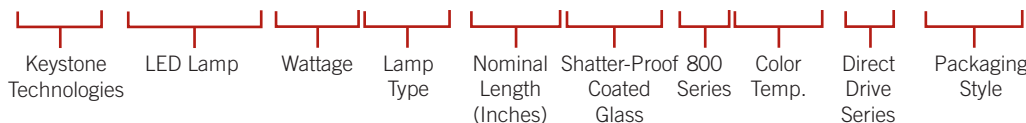
NOMINAL LENGTH: 48" BASE TYPE: G13 (Medium Bi-Pin)

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED15T8-48GC-865-D /G3-CP	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED15T8-48GC-865-D-CP





EXTERNAL DRIVE LED

TYPE C LED TUBES

KT-LED22T5HO-48G-8XX-E

T5 LED LAMP

DESCRIPTION

22W T5 LED Tube | Type C | 3500–5000K | >82 CRI | 0–10V Dimming



RoHS Compliant

5 YEAR WARRANTY

LAMP TYPE: Linear
BULB TYPE: T5 LED
BASE TYPE: G5
DIMMING TYPE: 0–10V
WATTAGE: 22W
LAMP INPUT VOLTAGE: 36–45Vdc
COLOR TEMPERATURE: 3500–5000K
COLOR RENDERING INDEX (CRI): >82



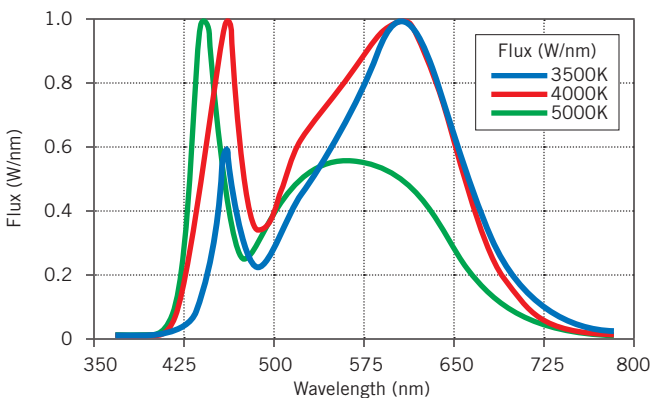
PRODUCT FEATURES

- UL Type C LED tubes, powered by Keystone Type C LED drivers
- UL Classified Std. 1598C
- Glass construction with metal end caps
- Operating temperature: –20°C/–4°F to 45°C/113°F
- THD <15% at full driver load
- PF >0.90 at full driver load
- 0–10V dimmable
- 50,000+ hours lifetime
- Keystone tube and driver pairing wires either single-ended or double-ended. See wiring diagrams for details and common ballast retrofit scenarios
- Low optical flicker

LAMP SPECIFICATIONS

Catalog Number	Color Temp.	Driver: KTLD-2LT5HO-UV-12C-VDIM						Driver: KTLD-4LT5HO-UV-12C-VDIM						
		1 Lamp			2 Lamps			3 Lamps			4 Lamps			
		Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Nominal Input Power	Nominal Lumens	Nominal Efficacy	Power Factor
KT-LED22T5HO-48G-835-E	3500K	25W	3200 lm	128 lm/W	50W	6400 lm	128 lm/W	75W	9600 lm	128 lm/W	100W	12800 lm	128 lm/W	>0.9
KT-LED22T5HO-48G-840-E	4000K	25W	3300 lm	132 lm/W	50W	6600 lm	132 lm/W	75W	9900 lm	132 lm/W	100W	13200 lm	132 lm/W	>0.9
KT-LED22T5HO-48G-850-E	5000K	25W	3400 lm	136 lm/W	50W	6800 lm	136 lm/W	75W	10200 lm	136 lm/W	100W	13600 lm	136 lm/W	>0.9

SPECTRAL DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
-------------	--------

BEAM ANGLE: 240°

VISIBLE LIGHT AREA: 325°

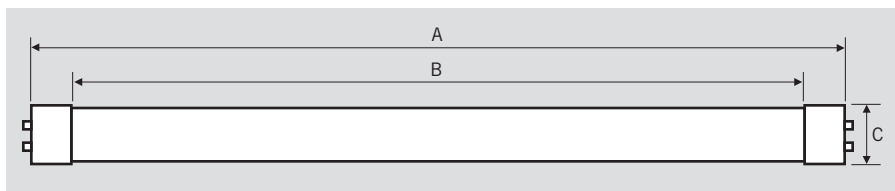
KT-LED22T5HO-48G-8XX-E

T5 LED LAMP

DRIVER SPECIFICATIONS

Catalog Number	Description	Dimensions
KTLD-2LT5HO-UV-12C-VDIM	Driver for (2) 4' T5 Type C lamps; 120-277V input, 0-10V dimming; 520mA output current	1.10" × 1.33" × 9.50"
KTLD-4LT5HO-UV-12C-VDIM	Driver for (4) 4' T5 Type C lamps; 120-277V input, 0-10V dimming; 520mA output current	1.30" × 1.80" × 9.60"

PHYSICAL CHARACTERISTICS

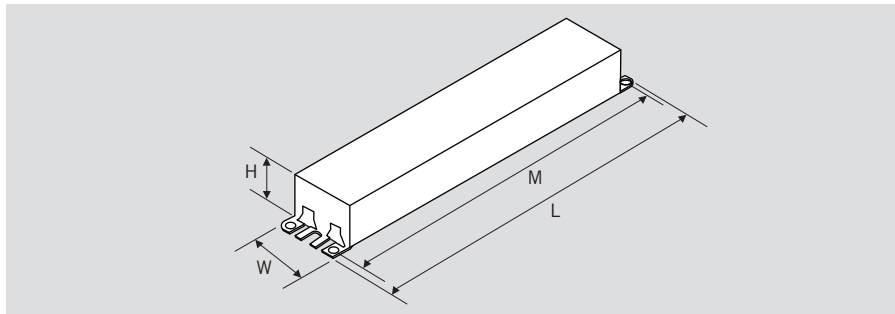


LAMP DIMENSIONS

A (Body Length)	47.24"
B (Illuminated Length)	45.50"
C (Diameter)	0.63"

NOMINAL LENGTH: 48"

BASE TYPE: G5



DRIVER DIMENSIONS

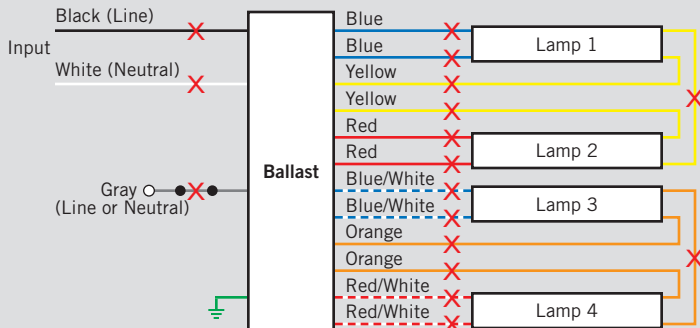
	KTLD-2LT5HO-UV-12C-VDIM	KTLD-4LT5HO-UV-12C-VDIM
L (Length)	9.50"	L (Length) 9.60"
W (Width)	1.33"	W (Width) 1.80"
H (Height)	1.10"	H (Height) 1.30"
M (Mounting)	8.90"	M (Mounting) 8.90"

WIRING INSTRUCTIONS

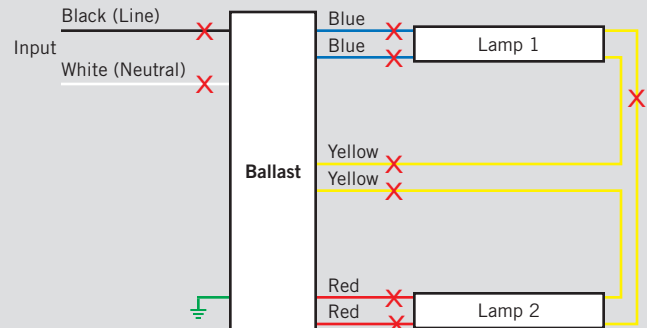
1. Shut off power.
2. Remove existing fluorescent tube(s) and diffuser (if applicable).
3. Open ballast compartment cover, cut all wires (as shown below), and remove existing ballast. Disconnect starter (if applicable).

TYPICAL BALLAST CONFIGURATIONS

4-Lamp Wiring



2-Lamp Wiring



(continued on page 3)

KT-LED22T5HO-48G-8XX-E

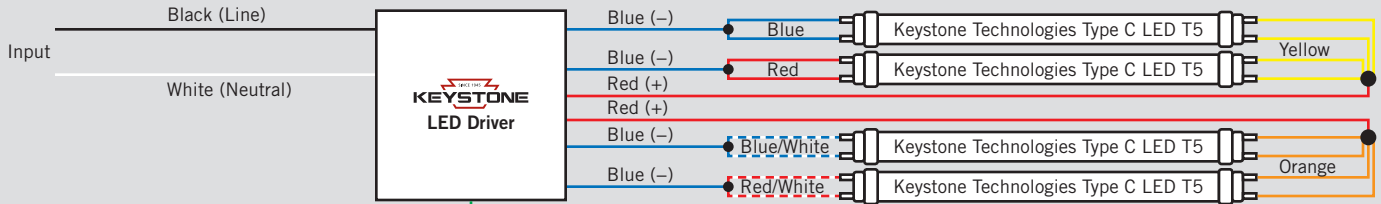
T5 LED LAMP

WIRING INSTRUCTIONS *(continued)*

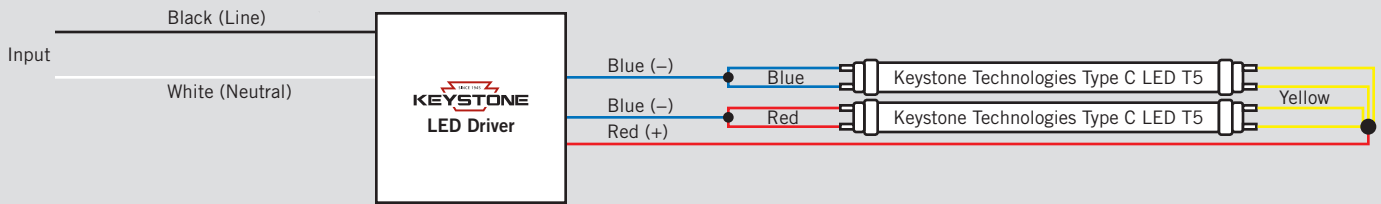
4. Check the mounting holes of ballast to see whether they are suitable to install LED driver. If not, drill new holes for mounting. Install LED driver to luminaire using screws.
5. Wire according to diagrams (as shown below). **Note: Do not leave any loose wires exposed.**

RETROFIT WIRING

4-Lamp Wiring Configuration



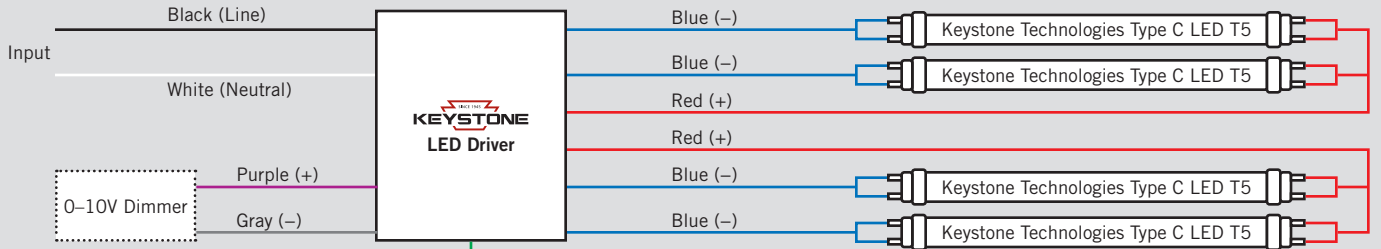
2-Lamp Wiring Configuration



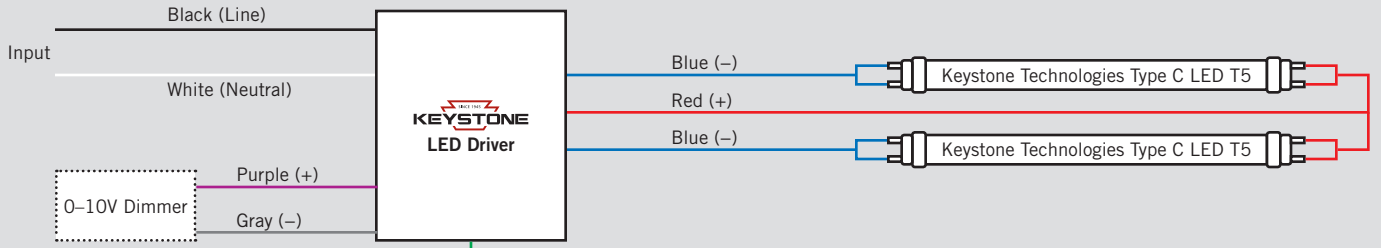
Note: Other manufacturers may use different colored wires.

NEW INSTALLATION: DOUBLE-ENDED WIRING

4-Lamp Wiring Configuration



2-Lamp Wiring Configuration



(continued on page 4)



EXTERNAL DRIVE LED

TYPE C LED TUBES

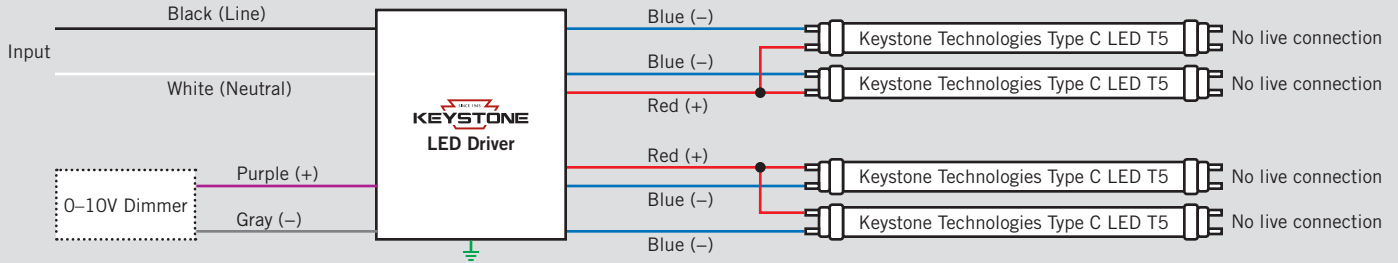
KT-LED22T5HO-48G-8XX-E

T5 LED LAMP

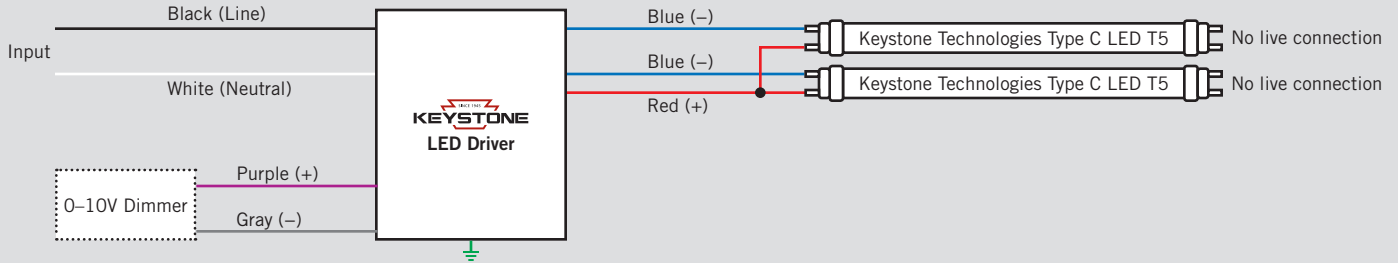
WIRING INSTRUCTIONS *(continued)*

NEW INSTALLATION: SINGLE-ENDED WIRING

4-Lamp Wiring Configuration



2-Lamp Wiring Configuration



6. Close compartment cover and make sure live parts are not accessible. Affix field-applied label in a visible section inside the luminaire.
7. Install the LED tubes and cover the diffuser (if applicable).
8. Turn on power and verify that the tubes are working correctly. **If not, immediately turn off power and contact Keystone Technologies.**

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED22T5HO-48G-8XX-E	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED22T5HO-48G-8XX-E

1 2 3 4 5 6 7 8 9

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Type
- 5 Nominal Length (Inches)
- 6 Glass Construction
- 7 800 Series
- 8 Color Temperature
- 9 External Drive Series



KT-LED63HID-H-EX39-840-D

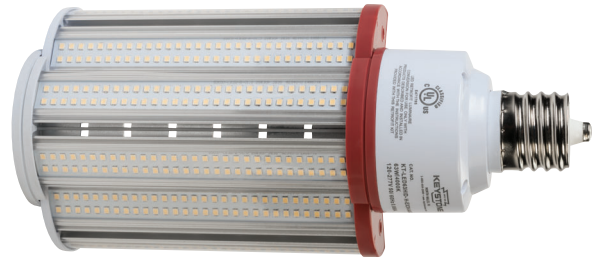
HID REPLACEMENT LED LAMP

DESCRIPTION

63W HID Replacement LED Lamp | 4000K | 80 CRI | IP64 Rated



LAMP TYPE: HID Replacement LED
BASE TYPE: EX39 (Mogul) Rotatable
WATTAGE: 63W
COLOR TEMPERATURE: 4000K
METAL HALIDE EQUIVALENT: 250W
COLOR RENDERING INDEX (CRI): 80
WARRANTY: 5 Years



PRODUCT FEATURES

- Replacement for conventional metal halide lamp
- Ideal for wallpack retrofit applications
- Optimized for horizontal applications with directional light output from opening LED assembly construction
- Non-dimmable; Do not dim
- 50,000+ hour lifetime
- Environmentally friendly: No mercury used
- Instant startup
- DLC Listed
- UL Listed
- Operating temperature: -40°C/-40°F to 45°C/113°F in enclosed fixture
- Integral driver, eliminates the need for external driver or ballast; Includes 4kV surge protection
- IP64 Rated; integrated heat sink quickly dissipates heat and guides water intrusion out of the lamp
- Horizontal orientation
- Suitable for use in fully enclosed fixture

OPERATING SPECIFICATIONS

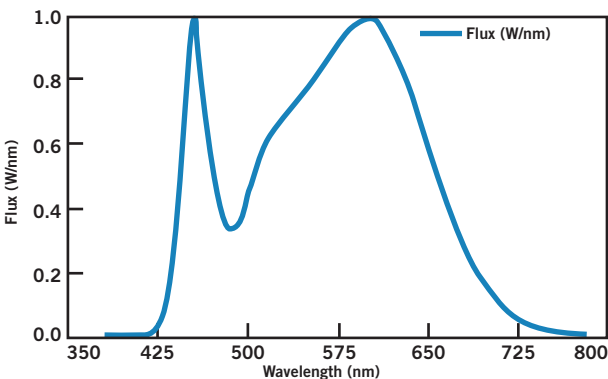
ELECTRICAL CHARACTERISTICS

Input Voltage	Power Consumption	Power Factor	Input Current
120-277Vac	63W	>0.9	0.53@120V, 0.23@277V

PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	4000K	Efficacy	146 lm/W
Luminous Flux	9,198 lm	Beam Angle	180°
Color Rendering Index (CRI)	80		

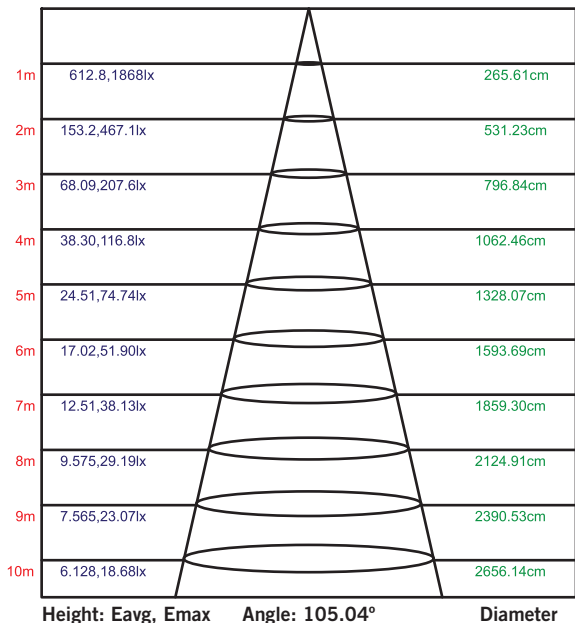
SPECTRAL DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
-------------	--------

Flux out: 3647 lm





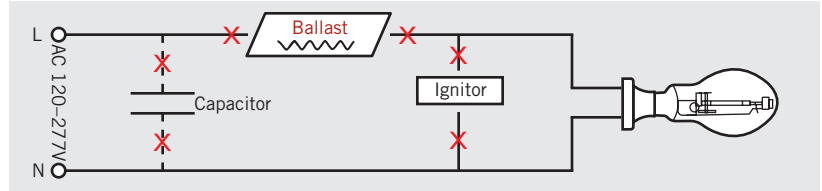
KT-LED63HID-H-EX39-840-D

HID REPLACEMENT LED LAMP

WIRING DIAGRAM

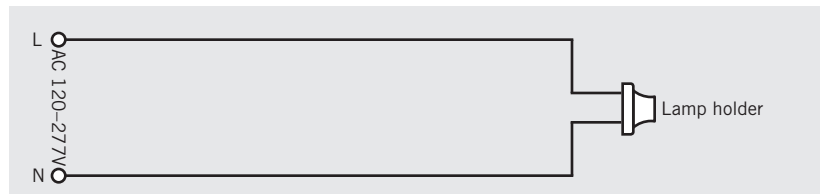
STEP 1

Disconnect power. Disconnect and remove existing ballast, capacitor, and/or ignitor (where applicable) from fixture.



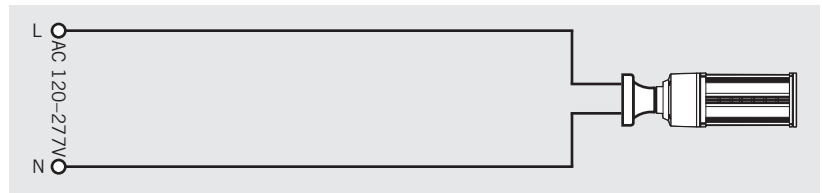
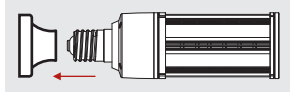
STEP 2

Rewire for line voltage to the lamp socket.



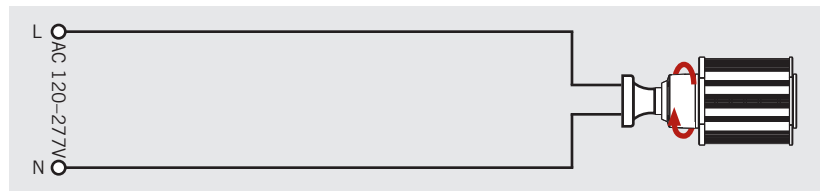
STEP 3

Install new LED replacement lamp. Ensure lamp is operating properly when power is turned on.

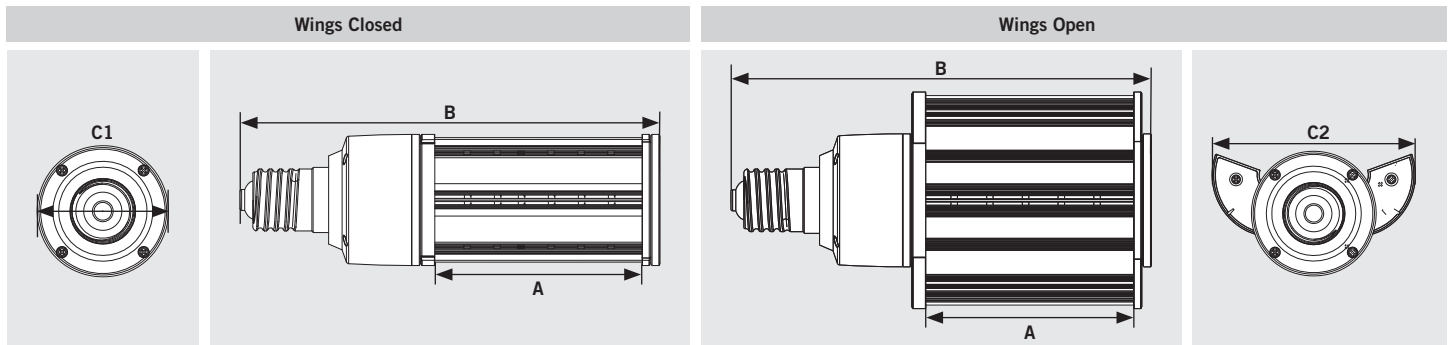


STEP 4

Rotate lamp base and open wings accordingly toward direction of desired lumination.



PHYSICAL CHARACTERISTICS



LAMP DIMENSIONS

A (Illuminated Length)	5.83"	C (Diameter)	3.23"
B (Body Length)	11.12"	C2 (Width, Wings Open)	5.26"

BASE TYPE: EX39 (Mogul) Rotatable



KT-LED63HID-H-EX39-840-D

HID REPLACEMENT LED LAMP

ORDERING INFORMATION

Order Code	Packaging Style	Pack Quantity	Item Status
KT-LED63HID-H-EX39-840-D-DP	Distributor Pack (Individual Cartons)	16	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED63HID-H-EX39-840-D-DP

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Type
- 5 Horizontal Orientation
- 6 Base Type
- 7 800 Series
- 8 Color Temperature
- 9 DirectDrive Series
- 10 Packaging Style



KT-LED82P-H-8xx-D

2-PIN LED LAMP

DESCRIPTION

8W 2-Pin LED Lamp | 2700K, 3000K, 3500K, 4000K, 5000K | ≥ 83 CRI



LAMP TYPE: Compact
BULB TYPE: 2-Pin LED
BASE TYPE: G24d
WATTAGE: 8W
COLOR TEMPERATURE: 2700K, 3000K, 3500K, 4000K, 5000K
COLOR RENDERING INDEX (CRI): ≥ 83
WARRANTY: 5 Years



PRODUCT FEATURES

- Replaces 26W/32W/42W G24d & G24q CFL Lamps
- 50,000+ Hour Lifetime
- Approximately 50% More Energy Efficient than Traditional CFL Lamps
- Environmentally Friendly: No Mercury Used
- Instant Startup
- Frosted Lens Eliminates Pixelation
- Integral Driver, Eliminates the Need for External Driver or Ballast
- UL Recognized and UL Classified
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- Up to 5x Longer Life than Traditional CFL Lamps
- Horizontal Orientation

OPERATING SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Input Voltage	Lamp Wattage	Power Factor	System Wattage
120-277V	8W	>0.9	8W

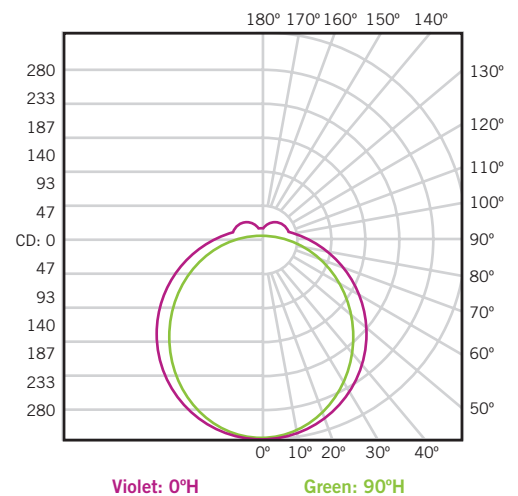
PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	2700K	3000K	3500K	4000K	5000K
Luminous Flux	900 lm	900 lm	900 lm	950 lm	950 lm
Color Rendering Index (CRI)	≥ 83	≥ 83	≥ 83	≥ 83	≥ 83
Bare Lamp Efficacy	113 lm/W	113 lm/W	113 lm/W	119 lm/W	119 lm/W
Beam Angle	>120°	>120°	>120°	>120°	>120°

RATED LIFE

L70 (Hours)	50,000
-------------	--------

POLAR CANDELA DISTRIBUTION





KT-LED82P-H-8xx-D

2-PIN LED LAMP

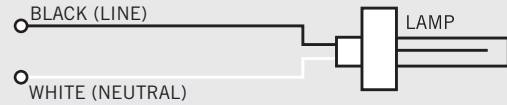
WIRING

BYPASS MAGNETIC BALLAST WITH 1 LAMP

BEFORE

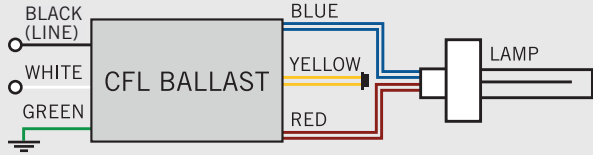


AFTER

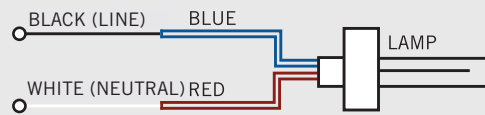


BYPASS ELECTRONIC BALLAST WITH 1 LAMP

BEFORE

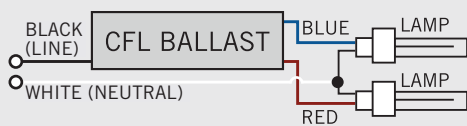


AFTER

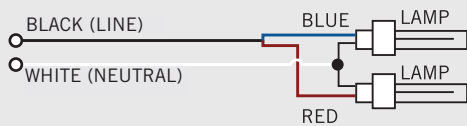


BYPASS MAGNETIC BALLAST WITH 2 LAMPS

BEFORE

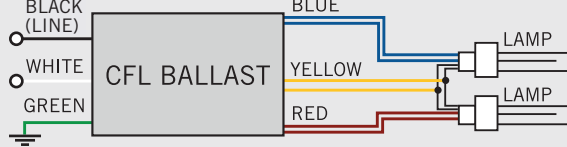


AFTER

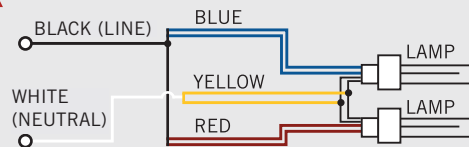


BYPASS ELECTRONIC BALLAST WITH 2 LAMPS

BEFORE

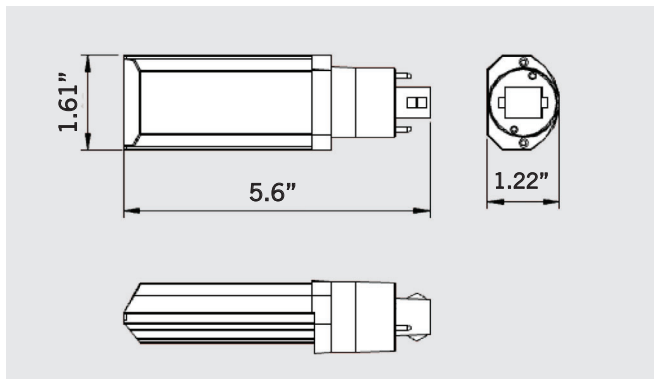


AFTER



PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS





KT-LED82P-H-8xx-D

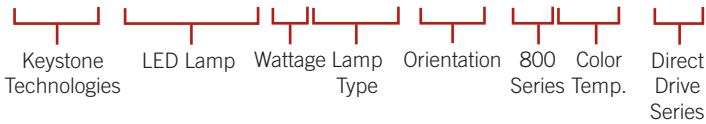
2-PIN LED LAMP

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED82P-H-8xx-D-DP	Distributor Pack	50	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED82P-H-8xx-D





KT-LED94P-H-8XX-S

4-PIN LED LAMP



DESCRIPTION

9W | 4-Pin LED Lamp | 2700K, 3000K, 3500K, 4000K, 5000K | >80CRI | CFL Ballast Compatible

LAMP TYPE: Compact
BULB TYPE: 4-Pin LED
BASE TYPE: G24q/GX24q
LAMP WATTAGE: 9W
INPUT TYPE: Ballast Compatible
WARRANTY: 5 Years



PRODUCT FEATURES

- **Plug and Play: Directly Compatible with Most Existing CFL Ballasts. Contact Keystone for Ballast Compatibility List.**
- Replacement for Conventional 13W, 18W, 26W, and 42W G24q Lamps
- Last Up to 5x Longer for Traditional CFL Lamps
- UL Classified and UL Recognized Component
- Operating Temperature: -20°C/-4°F to 45°C /113°F
- Listed on DLC QPL
- Non-Dimmable, and Not for Use in Fully Enclosed Fixtures.

OPERATING SPECIFICATIONS

Catalog Number	Color	Base Type	Orientation	CRI	Power Factor	Input Voltage	Lamp Wattage	System Wattage*	Lumens*	Rated Life
KT-LED94P-H-827-S	2700K	G24q	Horizontal	>80	Ballast Dependent		9	11	920	50,000 Hrs.
KT-LED94P-H-830-S	3000K	G24q	Horizontal	>80			9	11	980	50,000 Hrs.
KT-LED94P-H-835-S	3500K	G24q	Horizontal	>80			9	11	980	50,000 Hrs.
KT-LED94P-H-840-S	4000K	G24q	Horizontal	>80			9	11	1050	50,000 Hrs.
KT-LED94P-H-850-S	5000K	G24q	Horizontal	>80			9	11	1050	50,000 Hrs.

* Values based off of typical 2x26W CFL Ballast.

PERFORMANCE SPECIFICATIONS

Original Best Wattage	System Wattage Per Lamp	Lumens Per Lamp (at 3000K)
13W	6.5	415
18W	7.5	480
26W	11	980
42W	12	1000

* Values based off of typical 2x26W CFL Ballast.

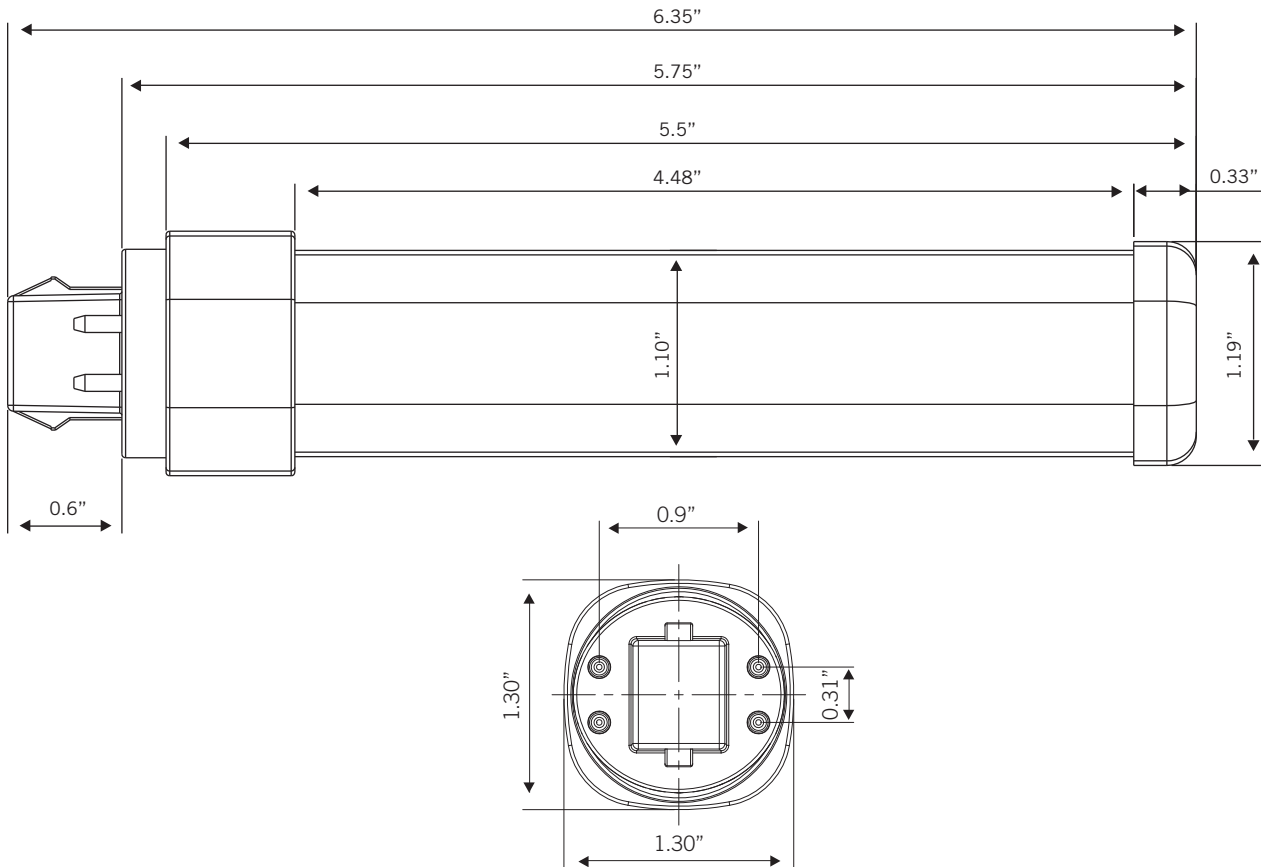


KT-LED94P-H-8XX-S

4-PIN LED LAMP

PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS

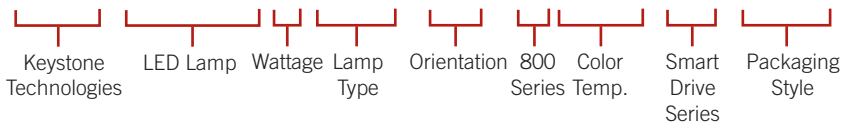


ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED94P-H-8xx-S-DP	Distributor Pack	6	Active

CATALOG NUMBER BREAKDOWN

KT-LED94P-H-8XX-S-DP





KT-LEDXXA21-0-E26-8XX

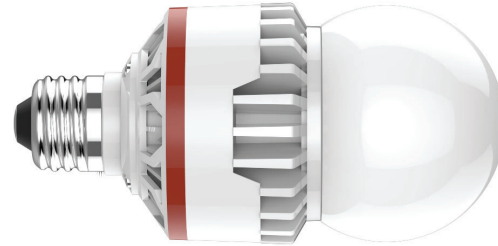
REPLACEMENT LAMP

DESCRIPTION

14–20W Commercial A21 Lamp | 2700–5000K | >80 CRI | Omni-Directional



LAMP TYPE: Commercial A21
BASE TYPE: E26 (Medium)
WATTAGE: 14–20W
COLOR TEMPERATURE: 2700–5000K
COLOR RENDERING INDEX (CRI): > 80
WARRANTY: 5 Years



PRODUCT FEATURES

- Up to 75% energy saving compared to legacy equivalent lamps
- Can be used in base-up or base-down position
- Rated for open and enclosed fixtures
- Large metal heatsink for optimal heat dissipation
- THD < 20%
- PF > 0.90
- Operating temperature range –4°F/–20°C to 113°F/45°C; 95°F/35°C max for fully enclosed fixture
- Ideal for post top, bollards, and outdoor corridor lighting
- Suitable for dry and damp location
- Meets Energy Star requirements
- UL 1993 and 1598C Rated pending

ELECTRICAL AND PERFORMANCE SPECIFICATIONS

Keystone Catalog Number	Description	Color Temp	Input Voltage	Rated Lamp Wattage	Legacy Equivalent Wattage	Base Type	Lumens	CRI	Light Distribution	Dimmable	Efficacy
KT-LED14A21-0-E26-827	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	2700K	120–277V	14W	100W incand.	E26	1760 L	>80	340	No	126 lm/W
KT-LED14A21-0-E26-830	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	3000K	120–277V	14W	100W incand.	E26	1790 L	>80	340	No	128 lm/W
KT-LED14A21-0-E26-840	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	4000K	120–277V	14W	100W incand.	E26	1900 L	>80	340	No	136 lm/W
KT-LED14A21-0-E26-850	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	5000K	120–277V	14W	100W incand.	E26	1960 L	>80	340	No	140 lm/W
KT-LED20A21-0-E26-827	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	2700K	120–277V	20W	150W incand.	E26	2500 L	>80	340	No	125 lm/W
KT-LED20A21-0-E26-830	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	3000K	120–277V	20W	150W incand.	E26	2540 L	>80	340	No	127 lm/W
KT-LED20A21-0-E26-840	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	4000K	120–277V	20W	150W incand.	E26	2720 L	>80	340	No	136 lm/W
KT-LED20A21-0-E26-850	Commercial A21 bulb. Universal input voltage, Omni-directional, Non-dimmable	5000K	120–277V	20W	150W incand.	E26	2760 L	>80	340	No	138 lm/W
KT-LED20A21-0-E26-827-DIM	Commercial A21 Bulb. Omni-directional, TRIAC dimmable	2700K	120V	20W	150W incand.	E26	2460 L	>80	340	Yes	123 lm/W
KT-LED20A21-0-E26-830-DIM	Commercial A21 Bulb. Omni-directional, TRIAC dimmable	3000K	120V	20W	150W incand.	E26	2500 L	>80	340	Yes	125 lm/W
KT-LED20A21-0-E26-840-DIM	Commercial A21 Bulb. Omni-directional, TRIAC dimmable	4000K	120V	20W	150W incand.	E26	2620 L	>80	340	Yes	131 lm/W
KT-LED20A21-0-E26-850-DIM	Commercial A21 Bulb. Omni-directional, TRIAC dimmable	5000K	120V	20W	150W incand.	E26	2660 L	>80	340	Yes	133 lm/W

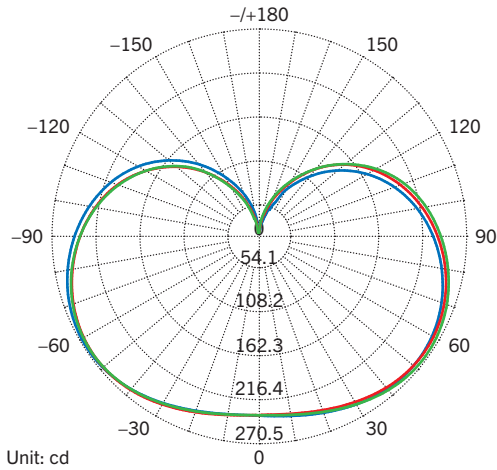


KT-LEDXXA21-0-E26-8XX

REPLACEMENT LAMP

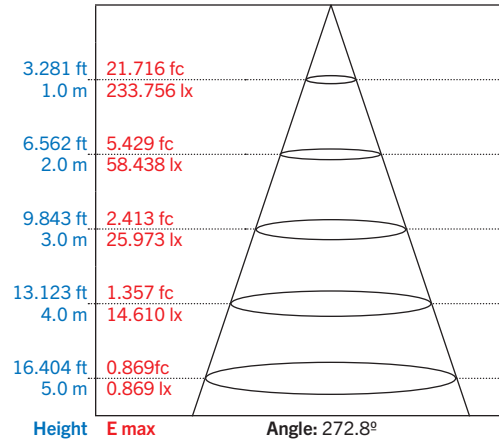
OPERATING SPECIFICATIONS

POLAR CANDELA DISTRIBUTION



C Plane	50% MaxAng.	10% MaxAng.
■ C240.0_60.0	272.8	343.2
■ C0.0_180.0	272.5	342.3
■ C90.0_270.0	273.0	342.8

LUX DISTANCE CURVE

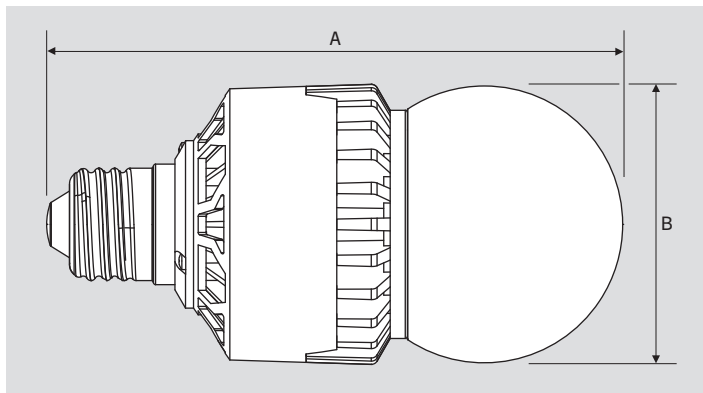


Note: The curves indicate the illuminated area and the average illumination when the luminaire is at a different distance.

RATED LIFE

L70 (Hours)	25,000
-------------	--------

PHYSICAL CHARACTERISTICS



LAMP DIMENSIONS

A (Length)	5.26"
B (Diameter)	2.56"

BASE TYPE: E26 (Medium)

PACKAGING

Carton Quantity	24 pcs
Carton Dimensions	11.6" × 13.38" × 15"
Carton Weight	19.1 lbs



KT-LEDXXA21-O-E26-8XX

REPLACEMENT LAMP

ORDERING INFORMATION

CATALOG NUMBER	PACK QTY.	EASY CODE	UPC
KT-LED14A21-O-E26-827	24 pcs	MKD-50	843654122700
KT-LED14A21-O-E26-830	24 pcs	LTE-35	843654122717
KT-LED14A21-O-E26-840	24 pcs	XEF-64	843654122724
KT-LED14A21-O-E26-850	24 pcs	XOI-75	843654122731
KT-LED20A21-O-E26-827	24 pcs	GAU-17	843654122748
KT-LED20A21-O-E26-830	24 pcs	SXF-69	843654122755
KT-LED20A21-O-E26-840	24 pcs	OPF-90	843654122762
KT-LED20A21-O-E26-850	24 pcs	XJH-40	843654122779
KT-LED20A21-O-E26-827-DIM	24 pcs	CLA-73	843654122786
KT-LED20A21-O-E26-830-DIM	24 pcs	JRC-19	843654122793
KT-LED20A21-O-E26-840-DIM	24 pcs	TMJ-80	843654122809
KT-LED20A21-O-E26-850-DIM	24 pcs	QHI-50	843654122816

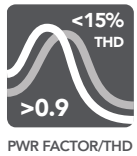
CATALOG NUMBER BREAKDOWN

KT-LEDXXA21-O-E26-8XX

1 2 3 4 5 6 7 8

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Style
- 5 Omni-Directional
- 6 Base Type
- 7 800 Series
- 8 Color Temperature

LEDCR G2 + LEDSR G2 LED RETROFIT KIT | FLEXWATT + FLEXCOLOR + FLEXCONTROL



retrofitting with flexibility

5 STYLES. 4 LUMEN PACKAGES. 3 COLOR TEMPERATURES. MULTIPLE CONTROL OPTIONS.
1 PERFECT SOLUTION FOR ALL YOUR RETROFITS.

flex:COLOR

- 3000°K NEUTRAL WHITE
- 3500°K NEUTRAL WHITE
- 4000°K NEUTRAL WHITE

flex:WATT

- | | | | |
|----------|-----|-----|-----|
| LEDCR 6W | 10W | 16W | 22W |
| LEDSR 6W | 9W | 12W | 15W |

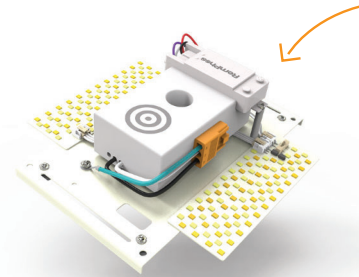


flex:CONTROL

ADJUSTS LIGHT LEVEL FOR OCCUPANCY AND DAYLIGHT



EASY TO CHANGE SETTINGS WITH REMOTE CONTROL (OPTIONAL)



ALL STYLES SHOWN ON PAGE 4

12 RETROFIT KITS IN 1 WITH FLEXWATT™ & FLEXCOLOR™ TECHNOLOGY

- Eliminate ordering and stocking multiple wattages and color temperatures. Product offers 12 SKUs in 1 unit which can easily be configured to 4 different wattage packages and 3 different CCTs.
- Product ships at a default color temp (K) and wattage setting (install as is, or tailor the settings to fit your needs at your facility or on the job site)
- Save on labor costs by having us factory pre-set the wattage and color temperature to fit your project needs.

UL 1598C LISTED RETROFIT KIT

- Can in-field retrofit existing fixtures or be used as a light engine by OEMs to build your own fixtures.

FUTURE PROOF YOUR LIGHTING

- User replaceable and upgradeable light engine.

SUITABLE FOR DRY & DAMP LOCATIONS



FLEXCONTROL™ TECHNOLOGY

- Order control ready or basic control (integrated high/low and daylight sensor) or wireless advanced control.
- Vandal Resistant Sensors are completely adjustable and hidden behind the fixture lens.
- Adjustable via remote for sensitivity, duration of time at high light level before dimming to low, duration of time at low light level before dimming to off (factory default is to disable), daylight hold-off, and the dimmed light level.

ADAPTABLE MOUNTING

- Integrated rare-earth magnets for easy placement.
- Cut-out in center of driver allows for threaded rods.
- Flexible wiring options accommodates various wiring configurations.
- Multiple holes for self-tapping screws.

10 YEAR WARRANTY, L70 >100,000HRS

OPTIONAL EMERGENCY BATTERY BACKUP

LEDCR G2 + LEDSR G2 LED RETROFIT KIT | FLEXWATT + FLEXCOLOR + FLEXCONTROL

PART NUMBER BUILDER

MFR	FAMILY	PRODUCT	GEN	SIZE	LUMEN CODE	COLOR	FUNCTION	OPTIONS
RPT	P		G2				FWFC	

LEDCR
LEDSR

9IN	→	8L, 14L, 23L, 31L
4IN	→	8L, 14L, 17L, 21L
9IN	→	8L, 14L, 17L, 21L
14INE	→	8L, 14L, 17L, 21L
14INM	→	8L, 14L, 17L, 21L

830=3000K/85CRI
835=3500K/85CRI
840=4000K/85CRI

FWFC=
FlexWatt +
FlexColor

OCC=high/low motion sensor
EMG=90 min emergency battery backup
LVD=120-277V line voltage dimming

ORDERING EXAMPLE

RPT-P-LEDCR-G2-9IN-14L-830-FWFC
RPT-P-LEDSR-G2-4IN-8L-830-FWFC

Default lumen package (wattage and CCT) are shown below in bold. There are two ways to achieve a non-default lumen package and/or CCT:

1. You can easily adjust in field via our FlexWatt and FlexColor internal switches. 2. Have us adjust the FlexWatt and FlexColor at the factory for an additional charge.

ORDERING GUIDE

CASE QTY	QUICK SHIP	ENERGY STAR	REMPHOS PART #	QUICK SHIP UPC CODE	LUMEN OUTPUT (LM)	WATTAGE (W)	LPW	CCT (K)	WARRANTY (YRS)
20		●	RPT-P-LEDCR-G2-9IN-8L-830-FWFC		780	6	130	3000	10
20		●	RPT-P-LEDCR-G2-9IN-8L-835-FWFC		780	6	130	3500	10
20		●	RPT-P-LEDCR-G2-9IN-8L-840-FWFC		816	6	136	4000	10
20		●	RPT-P-LEDCR-G2-9IN-14L-830-FWFC		1370	10	137	3000	10
20		●	RPT-P-LEDCR-G2-9IN-14L-835-FWFC		1440	10	144	3500	10
20	●	●	RPT-P-LEDCR-G2-9IN-14L-840-FWFC	844006010676	1370	10	137	4000	10
20	●	●	RPT-P-LEDCR-G2-9IN-14L-840-FWFC-OCC	844006010683	1370	10	137	4000	10
20		●	RPT-P-LEDCR-G2-9IN-23L-830-FWFC		2256	16	141	3000	10
20		●	RPT-P-LEDCR-G2-9IN-23L-835-FWFC		2240	16	140	3500	10
20		●	RPT-P-LEDCR-G2-9IN-23L-840-FWFC		2352	16	147	4000	10
20		●	RPT-P-LEDCR-G2-9IN-31L-830-FWFC		2970	22	135	3000	10
20		●	RPT-P-LEDCR-G2-9IN-31L-835-FWFC		3080	22	140	3500	10
20		●	RPT-P-LEDCR-G2-9IN-31L-840-FWFC		3124	22	142	4000	10
20		●	RPT-P-LEDSR-G2-XIN-8L-830-FWFC		780	6	130	3000	10
20		●	RPT-P-LEDSR-G2-XIN-8L-835-FWFC		780	6	130	3500	10
20	●	●	RPT-P-LEDSR-G2-4IN-8L-840-FWFC	844006010690	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-4IN-8L-840-FWFC-OCC	844006010706	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-9IN-8L-840-FWFC	844006010713	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-9IN-8L-840-FWFC-OCC	844006010720	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-14INE-8L-840-FWFC	844006010737	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-14INE-8L-840-FWFC-OCC	844006010744	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-14INM-8L-840-FWFC	844006010751	816	6	136	4000	10
20	●	●	RPT-P-LEDSR-G2-14INM-8L-840-FWFC-OCC	844006010768	816	6	136	4000	10
20		●	RPT-P-LEDSR-G2-XIN-14L-830-FWFC		1370	10	137	3000	10
20		●	RPT-P-LEDSR-G2-XIN-14L-835-FWFC		1440	10	144	3500	10
20		●	RPT-P-LEDSR-G2-XIN-14L-840-FWFC		1370	10	137	4000	10
20		●	RPT-P-LEDSR-G2-XIN-17L-830-FWFC		1692	12	141	3000	10
20		●	RPT-P-LEDSR-G2-XIN-17L-835-FWFC		1680	12	140	3500	10
20		●	RPT-P-LEDSR-G2-XIN-17L-840-FWFC		1764	12	147	4000	10
20		●	RPT-P-LEDSR-G2-XIN-21L-830-FWFC		2025	15	135	3000	10
20		●	RPT-P-LEDSR-G2-XIN-21L-835-FWFC		2100	15	140	3500	10
20		●	RPT-P-LEDSR-G2-XIN-21L-840-FWFC		2130	15	142	4000	10

X = 4IN, 9IN, 14INE, or 14INM

LEDCR G2 + LEDSR G2 LED RETROFIT KIT | FLEXWATT + FLEXCOLOR + FLEXCONTROL



HOW DOES IT WORK?

Our exclusive LED driver is designed to operate at 90%+ efficiency at each wattage setting. Standard drivers would have much lower efficiency as low as 60% and would result in poor performance and reduced efficacy.

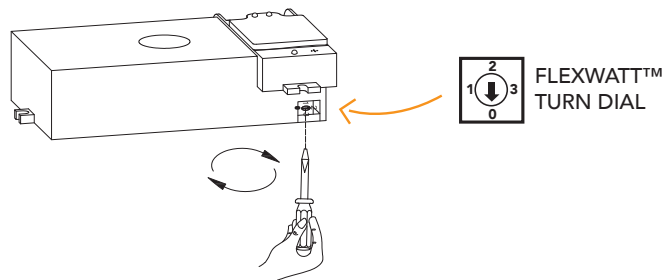
WHAT ARE THE WATTAGE CHOICES?

Please reference this table and the ordering guide on the last page of the cut sheet.

FLEXWATT TURN DIAL POSITION				
STYLE	0	1	2	3
LEDCR	6W (8L)	10W (14L)	16W (23L)	22W (31L)
LEDSR	6W (8L)	10W (14L)	12W (17L)	15W (21L)

HOW EASY IS IT TO SET?

Simply slide off the driver door, adjust the 4-position turn dial with a small, flat-head screw driver, and replace the door. Quick and easy. Can be "locked-out" to prevent field-adjustability if desired.



HOW DOES IT WORK?

We select the highest efficacy, multiple color LED diodes from quality suppliers, and mount them on the same circuit board. A proprietary LED binning process ensures color consistency between fixtures. The FlexColor technology controller ensures the correct color is selected, every time.

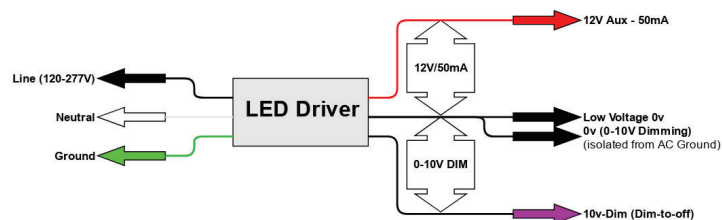
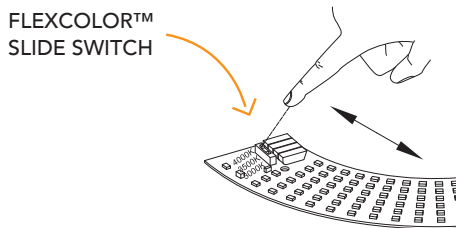
WHAT ARE THE COLOR CHOICES?

3000k, 3500k and 4000k. Please reference this table and the ordering guide on the last page of the cut sheet.

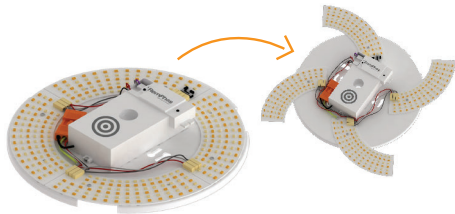
FLEXCOLOR SLIDE SWITCH POSITION		
TOP	MIDDLE	BOTTOM
3000K	3500K	4000K

HOW EASY IS IT TO SET?

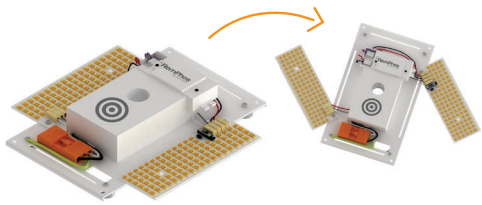
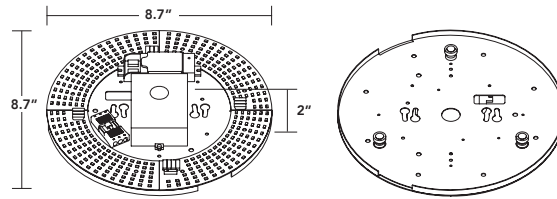
Adjust the 3-position slide switch with your finger. Quick and easy. Can be "locked-out" to prevent field-adjustability if desired.



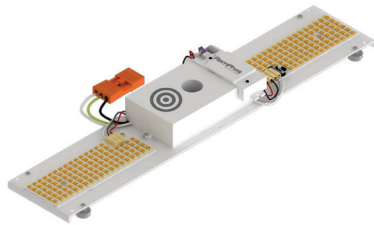
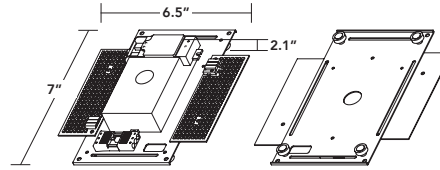
LEDCR G2 + LEDSR G2 LED RETROFIT KIT | FLEXWATT + FLEXCOLOR + FLEXCONTROL



LEDCR-G2-9IN (EXPANDABLE LED BOARDS)

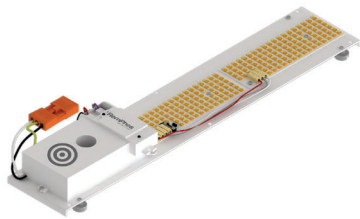
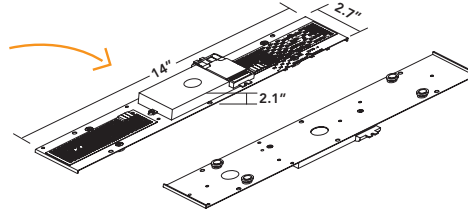


LEDSR-G2-4IN (EXPANDABLE LED BOARDS)



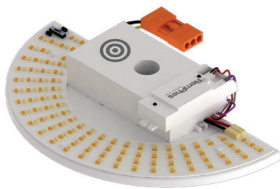
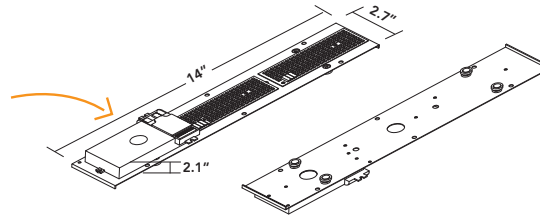
LEDSR-G2-14INM (FIXED LED BOARDS)

driver located in middle

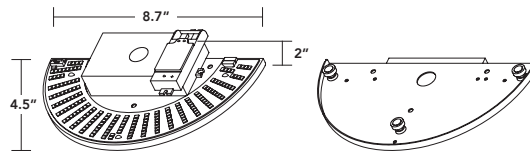


LEDSR-G2-14INE (FIXED LED BOARDS)

driver located at end



LEDSR-G2-9IN (FIXED LED BOARDS)



RETROFIT THESE FIXTURES & MORE



SURFACE MOUNTS



VANITIES/LINEARS



WALL MOUNTS



LED CR G2 + LED SR G2 LED RETROFIT KIT | FLEXWATT + FLEXCOLOR + FLEXCONTROL



CUT-OUT IN CENTER OF DRIVER ALLOWS FOR THREADED RODS

INCOMING POWER QUICK DISCONNECT LOCATED ON TOP OF CHASSIS FOR EASY AND SAFE WIRING. CLIP HOLDS DISCONNECT AND WIRING NEATLY IN PLACE.

MULTIPLE CHASSIS CUT-OUTS FOR FLEXIBLE WIRING OPTIONS

OPTIONAL INTEGRATED HIGH/LOW MOTION AND DAY-LIGHT SENSOR. COMPLETELY ADJUSTABLE AND HIDDEN BEHIND THE FIXTURE LENS

5VA DRIVER HOUSING. MEETS UL1598C REGULATIONS

CURVED LED BOARDS CAN EXPAND TO FIT SMALL TO LARGE FIXTURES

KEYHOLE SLOTS AND MULTIPLE HOLES FOR FLEXIBLE MOUNTING OPTIONS

STRONG RARE EARTH MAGNETS FOR EASY INSTALLATION

CONTROL OPTIONS

CONTROL READY

DRIVER

10V DIM

12V POWER

All LEDCR/SR models come standard as factory enabled to add controls at the factory, in the field or at a later date. Driver comes with 10V dimming and 12V DC power wiring.

BASIC CONTROL

OCC SENSOR

Integrated high frequency, high/low motion and daylight sensor. Can be mounted behind glass or plastic lens. Purchase optional remote control to adjust settings.

ORDERING CODES
SENSOR = OCC / RC = HNSIII REMOTE

ADVANCED WIRELESS CONTROL

MAGNUM INNOVATIONS

avi-on

PHILIPS LUTRON

Proudly Made In America

We partner with Magnum, avi-on, Philips, Lutron and other intelligent wireless lighting control systems. Allows for occupancy sensing, daylight harvesting, grouping, scheduling, high-end trim and more. Adjust settings via iPhone/Android apps. Contact us for

CONTACT US FOR ORDERING CODES

EASILY RETROFIT THESE FIXTURE STYLES, AND MORE!

LED CR-G2-9IN/SURFACE MOUNT

LED CR-G2-9IN/SURFACE MOUNT

LED SR-G2-9IN/SCONCE

LED SR-G2-14INM/VANITY + LINEAR

LED SR-G2-14INE/VANITY + LINEAR

LED SR-G2-4IN/SCONCE

PROJECT: _____
 CATALOG #: _____
 FIXTURE TYPE: _____
 NOTES: _____

FDC Flood Light Contractor



Images are shown for illustration purpose only.

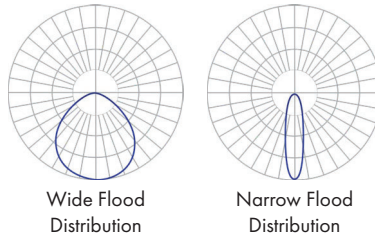
The **Flood Light Contractor Series** luminaire is a high performance lighting solution that comes in Small, Medium, Large, X-Large, and Huge. This versatile fixture has a slim rugged aluminum housing, watertight compartment for driver, and efficient heat sink. A variety of mounting options are available including Knuckle, Trunnion, Slipfitter, and Yoke. This FDC series is an excellent price-competitive solution without compromising quality that is ideal for signage, roadways, security, and general lighting applications.

APPLICATIONS

Landscape lighting, signage, internal roadways, parking lots, and general area lighting

REPLACEMENT

Up to 1000W Metal Halide



PERFORMANCE INFORMATION

SERIES NUMBER	WATT	LUMENS	CCT
FDCS 20 G1 5K	15W	2,000	5000K
FDCS 35 G1 5K	27W	3,600	5000K
FDCM 60 G1 5K	45W	5,650	5000K
FDCM 80 G1 5K	60W	7,450	5000K
FDCL 93 G1 5K	70W	8,900	5000K
FDCL 130 G1 5K	100W	13,300	5000K
FDCX 180 G1 5K	135W	18,000	5000K
FDCX 180 NFL G1 5K	135W	18,000	5000K
FDCX 260 G1 5K	200W	26,200	5000K
FDCX 260 NFL G1 5K	200W	26,500	5000K
FDCH 350 G1 5K*	250W	34,500	5000K
FDCH 350 NFL G1 5K*	250W	34,500	5000K
FDCH 480 G1 5K	350W	50,000	5000K
FDCH 480 NFL G1 5K	350W	49,500	5000K

*DLC Pending

ORDERING GUIDE										EXAMPLE: FDCS 35 WFL G1 5K
Luminaire Type	Size	Lumen Output	Light Distribution	Generation	Voltage	CCT	Finish	Dimming	Mount	Options
<input type="checkbox"/> FDC= Flood Light Contractor	<input type="checkbox"/> S= Small	<input type="checkbox"/> 20 2,000 Lumens/15 Watt <input type="checkbox"/> 35 3,600 Lumens/27 Watt	<input type="checkbox"/> BLANK= Wide Flood 7Hx6V	<input type="checkbox"/> G1= Generation 1	<input type="checkbox"/> BLANK= 120-277V	<input type="checkbox"/> 4K= 4000K <input type="checkbox"/> 5K= 5000K	<input type="checkbox"/> BLANK= Dark Bronze <input type="checkbox"/> C= Custom **	<input type="checkbox"/> BLANK= Non-dimming <input type="checkbox"/> D= Dimming	<input type="checkbox"/> BLANK= Knuckle Mount <input type="checkbox"/> T= Trunnion Mount	<input type="checkbox"/> BLANK= No Option <input type="checkbox"/> P= Button Photocell
	<input type="checkbox"/> M= Medium	<input type="checkbox"/> 60 5,650 Lumens/45 Watt <input type="checkbox"/> 80 7,450 Lumens/60 Watt			<input type="checkbox"/> BLANK= 120-277V <input type="checkbox"/> HVU= 347-480V				<input type="checkbox"/> T= Trunnion Mount <input type="checkbox"/> S= Slipfitter Mount	
	<input type="checkbox"/> L= Large	<input type="checkbox"/> 93 8,900 Lumens/70 Watt <input type="checkbox"/> 130 13,300 Lumens/100 Watt								
	<input type="checkbox"/> X= X-Large	<input type="checkbox"/> 180 18,000 Lumens/135 Watt <input type="checkbox"/> 260 26,200 Lumens/200 Watt	<input type="checkbox"/> BLANK= Wide Flood 7Hx6V <input type="checkbox"/> NFL=							Only available for FDC X and FDC H <input type="checkbox"/> EL UNV-8W= Emergency Battery Backup
	<input type="checkbox"/> H= Huge	<input type="checkbox"/> 350 34,500 Lumens/250 Watt <input type="checkbox"/> 480 49,500 Lumens/350 Watt	Narrow Flood 4Hx4V						<input type="checkbox"/> Y= Yoke Mount	

**For a custom color, please call to place your order

Due to continuous product improvements, specification and/or equipment updates may change without notice.

SPECIFICATIONS

HOUSING

One-piece die-cast aluminum housing with heat sink for effective conductive and convective cooling. The vented housing isolates the LED module from the driver. The LED driver is directly assembled on the casting for a low operative temperature and a long life span. The doorframe is sealed with an extruded silicone gasket to prevent moisture from accumulating.

AMBIENT TEMPERATURE

Suitable for use in -40°C to +45°C (-40°F to 113°F).

MOUNTING

Knuckle Mount

½ NPS adjustable knuckle mount in aluminum.

Trunnion Mount

Adjustable trunnion mount in aluminum for direct surface mounting with bolt to lock in the aiming angle.

Slipfitter Mount

Adjustable slipfitter mount in aluminum that fits 2-3/8" O.D. tenon. Includes set screws for securing luminaire to tenon and aiming angle markings with bolt to lock in the aiming angle.

Yoke Mount

Adjustable Yoke Mount with bolt to lock aiming angle, painted for corrosion. Direct mounting to surface.

EFFICACY

Up to 138 lumens per watt (see individual wattage data).

CCT AND CRI

4000K and 5000K CCT available; 70 CRI

OPTICS

Superior lighting uniformity for vertical and horizontal NEMA 7HX6V and 4HX4V flood distribution while reducing back light from poles.

ELECTRICAL

High efficiency current driver above 90%.
50/60Hz operation with standard 120-277 input.
Standard PC UNV B3-Button Photocell.

FDCS & FDCM is non-dimmable.

FDCL, FDCX & FDCH with 0-10V dimming option.

FINISH

Dark Bronze coat finish with superior resistance to corrosion and weather. Custom colors available.

WARRANTY

5-year limited warranty. Comprehensive warranty terms can be located on www.slgus.com.

CERTIFICATIONS

UL listed for wet locations. Design Lights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC qualified. Please visit www.slgus.com to confirm which versions are qualified.

MOUNTING



1/2" NPS Knuckle Mount
Small and Medium size only



Trunnion Mount
Small and Medium size only



Trunnion Mount
Large and X-Large size only



Slipfitter Mount
Large and X-Large size only



Yoke Mount
Huge size only

OPTIONS

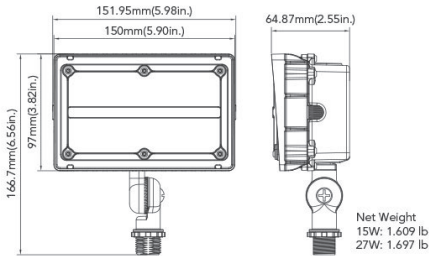


PC UNV B3

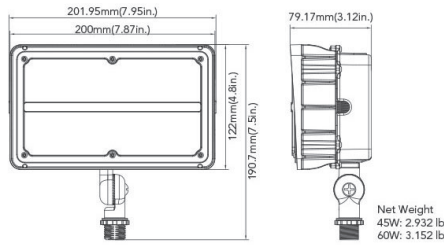
Due to continuous product improvements, specification and/or equipment updates may change without notice.

DIMENSIONS

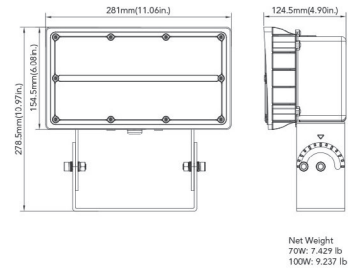
SMALL
15W & 27W
Knuckle Mount



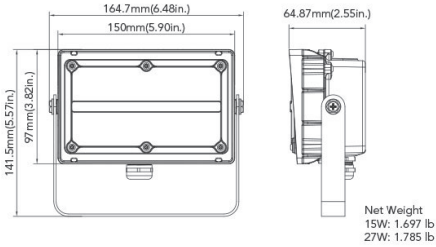
MEDIUM
45W & 60W
Knuckle Mount



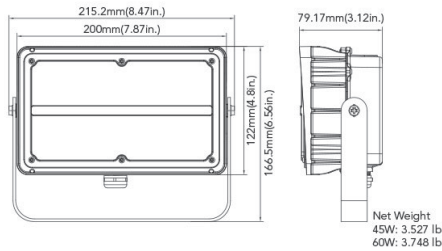
LARGE
70W, 90W, 100W
Trunnion Mount



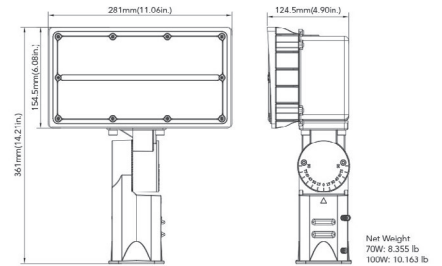
SMALL
15W & 27W
Trunnion Mount



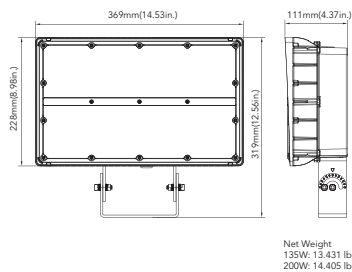
MEDIUM
45W & 60W
Trunnion Mount



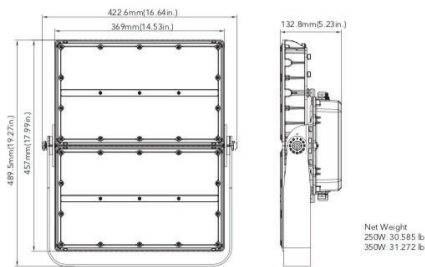
LARGE
70W, 90W, 100W
Slipfitter Mount



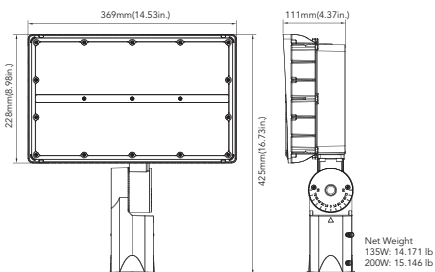
X-LARGE
135W & 200W
Trunnion Mount



HUGE
250W & 350W
Yoke Mount

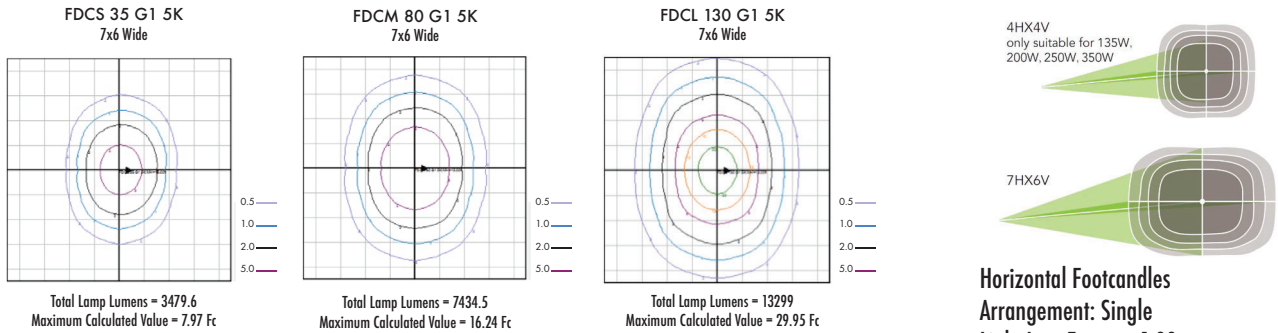


X-LARGE
135W & 200W
Slipfitter Mount



Due to continuous product improvements, specification and/or equipment updates may change without notice.

PHOTOMETRIC



Horizontal Footcandles
Arrangement: Single
Light Loss Factor = 1.00
Scale: 1 in = 7.5 ft
Mounting Height = 15.00 ft

PERFORMANCE DATA

4K & 5K

Distance Type	Wattage	Voltage	Lumen Output	Efficacy (LPW)	CRI Min	Replacement
7HX6V	15W	120-277V	2,000 Lm	133	70	70W MH
7HX6V	27W	120-277V	3,600 Lm	133	70	100W MH
7HX6V	45W	120-277V	5,650 Lm	126	70	150W MH
7HX6V	60W	120-277V	7,450 Lm	124	70	175W MH
7HX6V	60W	347-480V	7,600 Lm	127	70	175W MH
7HX6V	70W	120-277V	8,900 Lm	127	70	250W MH
7HX6V	70W	347-480V	9,300 Lm	133	70	250W MH
7HX6V	90W	347-480V	12,400 Lm	138	70	400W MH
7HX6V	100W	120-277V	13,300 Lm	133	70	400W MH
7HX6V	135W	120-277V	18,000 Lm	132	70	400W MH
7HX6V	135W	347-480V	18,000 Lm	132	70	400W MH
4HX4V	135W	120-277V	18,000 Lm	132	70	400W MH
4HX4V	135W	347-480V	18,000 Lm	132	70	400W MH
7HX6V	200W	120-277V	26,000 Lm	130	70	400W MH
7HX6V	200W	347-480V	26,000 Lm	130	70	400W MH
4HX4V	200W	120-277V	26,000 Lm	130	70	400W MH
4HX4V	200W	347-480V	26,000 Lm	130	70	400W MH
7HX6V	250W	120-277V	34,500 Lm	138	70	750W MH
7HX6V	250W	347-480V	34,500 Lm	138	70	750W MH
4HX4V	250W	120-277V	34,500 Lm	138	70	750W MH
4HX4V	250W	347-480V	34,500 Lm	138	70	750W MH
7HX6V	350W	120-277V	50,000 Lm	137	70	1000W MH
7HX6V	350W	347-480V	50,000 Lm	137	70	1000W MH
4HX4V	350W	120-277V	49,500 Lm	137	70	1000W MH
4HX4V	350W	347-480V	49,500 Lm	137	70	1000W MH

Due to continuous product improvements, specification and/or equipment updates may change without notice.

ELECTRICAL LOAD

Wattage	Current (A)					
	120V	208V	240V	277V	347V	480V
15W	0.13	0.07	0.06	0.05	0.04	0.03
27W	0.23	0.13	0.11	0.10	0.08	0.06
45W	0.38	0.22	0.19	0.16	0.13	0.09
60W	0.50	0.29	0.25	0.22	0.17	0.13
70W	0.58	0.34	0.29	0.25	0.20	0.15
90W	0.75	0.43	0.38	0.32	0.26	0.19
100W	0.83	0.48	0.42	0.36	0.29	0.21
135W	1.13	0.65	0.56	0.49	0.39	0.28
200W	1.67	0.96	0.83	0.72	0.58	0.42
250W	2.08	1.20	1.04	0.90	0.72	0.52
350W	2.92	1.68	1.46	1.26	1.01	0.73

Lumen Ambient Temperature (LAT) Multipliers


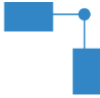



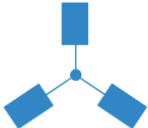

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance	1	0.97	0.97	0.96

Due to continuous product improvements, specification and/or equipment updates may change without notice.

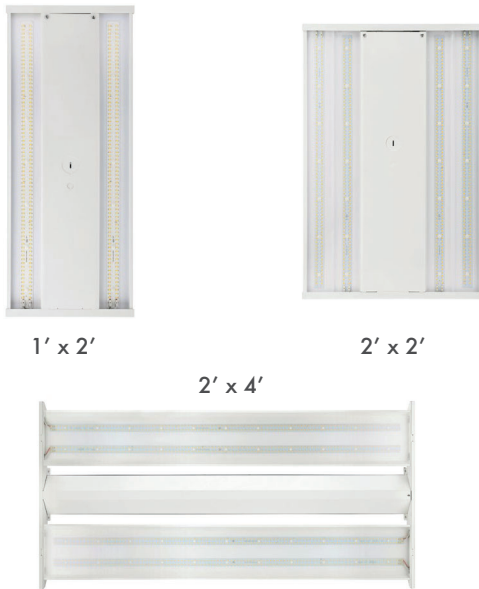
EPA

Wattage							
	1	2 @90°	2 @120°	2@180°	3 @90°	3 @120°	4 @90°
70W/100W	0.2885	0.6097	0.7475	0.577	0.8982	0.8196	0.8982
135W/200W	0.3868	0.8125	0.9973	0.7736	1.1993	1.0874	1.1993
250W/350W	0.536	1.061	1.278	1.072	1.597	1.803	1.597

Due to continuous product improvements, specification and/or equipment updates may change without notice.

PROJECT: _____
 CATALOG #: _____
 FIXTURE TYPE: _____
 NOTES: _____

HE Series High Bay Gen 1 & 2



PERFORMANCE INFORMATION

SERIES NUMBER	WATT	LUMENS	CCT	SIZE
HE 120 G2 4K	90W	12,200	4000K	1' x 2'
HE 120 G2 5K	90W	12,400	5000K	1' x 2'
HE 170 G2 4K	130W	17,400	4000K	1' x 2'
HE 170 G2 5K	130W	17,600	5000K	1' x 2'
HE 240 G2 4K	180W	24,200	4000K	2' x 2'
HE 240 G2 5K	180W	24,500	5000K	2' x 2'
HE 290 G2 4K	210W	28,200	4000K	2' x 2'
HE 290 G2 5K	210W	28,500	5000K	2' x 2'
HE 360 G1 4K	270W	35,500	4000K	2' x 4'
HE 360 G1 5K	270W	36,000	5000K	2' x 4'
HE 400 G1 4K	300W	39,500	4000K	2' x 4'
HE 400 G1 5K	300W	40,000	5000K	2' x 4'
HE 500 G1 4K	370W	49,500	4000K	2' x 4'
HE 500 G1 5K	370W	50,350	5000K	2' x 4'

The **HE Series High Bay Gen 1 & 2** provides high lumen output and efficiency in three sizes, 1' x 2', 2' x 2', and 2' x 4'. This luminaire has high temperature polycarbonate lens to reduce yellowing and directs light to desired locations.

APPLICATIONS

Industrial, Education, and Retail applications, etc.

REPLACEMENT

4 Lamp T8 32W, 4 Lamp T5HO 54W, 6 Lamp T5HO 54W, 8 Lamp T5HO 54W, 10 Lamp T5HO 54W, 12 Lamp T5HO 54W

ORDERING GUIDE

EXAMPLE: HE 120 G2 4K

Luminaire Type	Lumen Output	Optic Lens	Generation	Voltage	CCT	Finish	Options
<input type="checkbox"/> HE Lensed High Bay	<input type="checkbox"/> 120 12,200 Lumens <input type="checkbox"/> 170 17,400 Lumens <input type="checkbox"/> 240 24,200 Lumens <input type="checkbox"/> 290 28,200 Lumens	<input type="checkbox"/> BLANK= Frosted Lens	<input type="checkbox"/> G2	<input type="checkbox"/> BLANK= 120-277V <input type="checkbox"/> HVU 347-480V	<input type="checkbox"/> 4K 4000K <input type="checkbox"/> 5K 5000K	<input type="checkbox"/> BLANK= White	<input type="checkbox"/> BLANK= No Option <input type="checkbox"/> MS-FSP-212= Motion Sensor (Choose 1) <input type="checkbox"/> L3= L3 Lens* <input type="checkbox"/> L7= L7 Lens** <input type="checkbox"/> HBP-112-L7-OEM= High/Low-Bay PIR On/Off Sensor <input type="checkbox"/> EL UNV-8W= 8W Emergency Battery Kit <input type="checkbox"/> EL UNV-16W= 16W Emergency Battery Kit <input type="checkbox"/> SPD-277= 5KA/10KV Surge Protection device, single phase protection with 120-277V input <input type="checkbox"/> SPD-480= 10KA/20KV Surge Protection device, single phase protection with 277-480V input
	<input type="checkbox"/> 360 35,500 Lumens <input type="checkbox"/> 400 39,500 Lumens <input type="checkbox"/> 500 49,500 Lumens		<input type="checkbox"/> G1				

* Max 20 ft mounting height.
 ** Max 40 ft mounting height.

Due to continuous product improvements, specification and/or equipment updates may change without notice.

SPECIFICATIONS

HOUSING

Aluminum alloy

AMBIENT TEMPERATURE

Suitable for use in -40°C to 55°C (-40°F to 131°F)

MOUNTING

Aircraft cable included or Pendant mount

EFFICACY

Up to 136 lumens per watt (see individual wattage data)

CCT AND CRI

4000K and 5000K CCT available; 80CRI

LENS

Frosted diffuser polycarbonate lens

WARRANTY

10-year limited warranty. Comprehensive warranty terms can be located on www.slgus.com.

ELECTRICAL

Class 2 Constant Current Driver efficiency (90% standard); 50/60Hz available in 120-277V or 347-480V; 0-10V Dimming standard.

ENERGY DATA

Power factor above 90%.

FINISH

White coat finish

CERTIFICATIONS

UL Listed for damp locations. FCC compliant. RoHs compliant. Design Lights Consortium® (DLC) Premium qualified product.

OPTIONS



MS-FSP-212
Dimmable Motion Sensor



MS-FSP-L3/L7
Lens

The **MS-FSP-212** provides multi-level control base on motion and daylight level. Requires L3 or L7 lens depending the mounting height.

Operation Voltage	Shape	Adjustable Time Delay	Fade Down Time	Operating Temperature	Mounting Height For MS-FSP-L3	Mounting Height For MS-FSP-L7
120/277V	Cone	30 sec - 30 min	0-10 sec	-40°F to 158°F	20 ft*	40 ft**

*Covers a 40 ft diameter when mounting height is 20 ft. Coverage is equal to 2x the height.

**Covers a 100 ft diameter when mounting height is 40 ft. Coverage is equal to 2.5x the height

Due to continuous product improvements, specification and/or equipment updates may change without notice.

OPTIONS CONTINUED



M1 (HBP-112-L7-OEM)

High/Low-Bay PIR On/Off Sensor

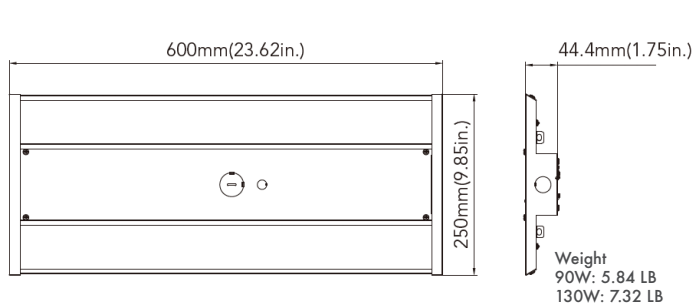
The **HBP-112-L7-OEM** on/off PIR motion sensor ideal for warehouses, distribution centers, gymnasiums, and other indoor applications.

Operation Voltage	Mounting Height	Coverage	Shape	Adjustable Time Delay	Operating Temperature	Applications
120V/ 277V/ 347V	15-40 ft	2.5x Height*	Cone	5/10/15/20/30 min. Default 15 min.	0°C to 70°C 32°F to 158°F	Indoor Only

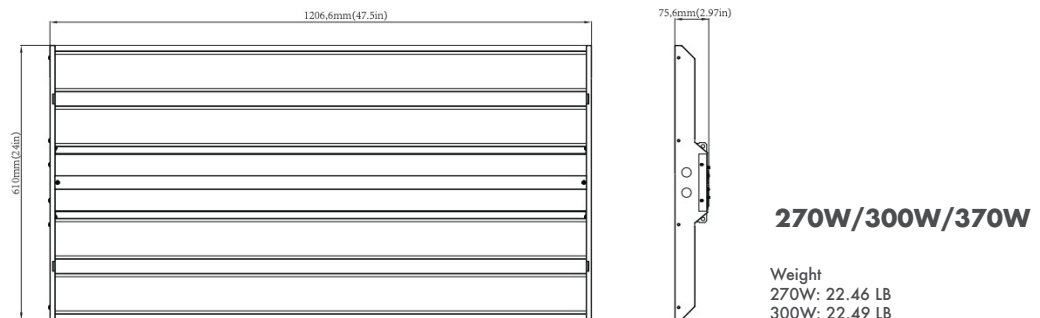
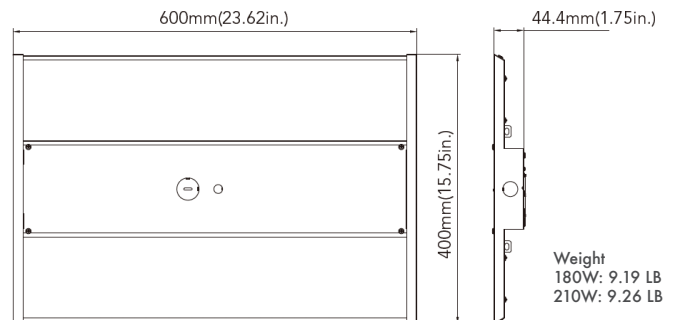
*Covers a 100 ft diameter when the mounting height is 40 ft.

DIMENSIONS

90W/130W

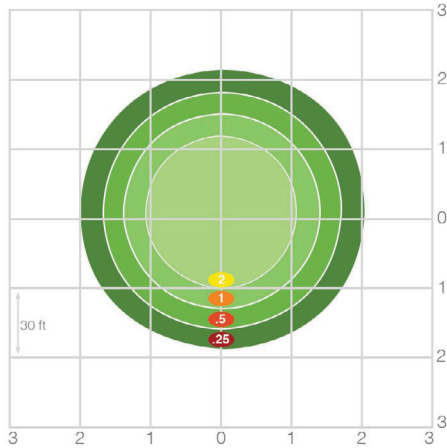


180W/210W



Due to continuous product improvements, specification and/or equipment updates may change without notice.

PHOTOMETRIC



HE 240 G2 5K

Mounting Height	20	25	30	35	40
Multiplier	2.3	1.4	1.0	0.7	0.6

PERFORMANCE COMPARISON

Product Series	Wattage	Lumens	Efficacy (Lm/W)	Replaces	Voltage	Max Mounting Height	DLC
HE 120 G2	90W	12,200 Lm	136 Lm/W	4 Lamp T8 32W	120-277V 347-480V	15-25 ft	Premium
HE 170 G2	130W	17,400 Lm	134 Lm/W	4 Lamp T5HO 54W	120-277V 347-480V	20-35 ft	Premium
HE 240 G2	180W	24,200 Lm	134 Lm/W	6 Lamp T5HO 54W	120-277V 347-480V	25-40 ft	Premium
HE 290 G2	210W	28,200 Lm	134 Lm/W	8 Lamp T5HO 54W	120-277V 347-480V	30-40 ft	Premium
HE 360 G1	270W	35,500 Lm	131 Lm/W	10 Lamp T5HO 54W	120-277V	35-45 ft	Premium
HE 400 G1	300W	39,500 Lm	132 Lm/W	10 Lamp T5HO 54W	120-277V	Up to 50 ft	Premium
HE 500 G1	370W	49,500 Lm	134 Lm/W	12 Lamp T5HO 54W	120-277V	Up to 50 ft	Premium

Due to continuous product improvements, specification and/or equipment updates may change without notice.

ELECTRICAL LOAD

		Current (A)					
		120V	208V	240V	277V	347V	480V
Series Number	Wattage						
HE 120 G2 5K	90W	0.75	0.43	0.38	0.32	0.26	0.19
HE 170 G2 5K	130W	1.08	0.63	0.54	0.47	0.37	0.27
HE 240 G2 5K	180W	1.50	0.87	0.75	0.65	0.52	0.38
HE 290 G2 5K	210W	1.75	1.01	0.88	0.76	0.61	0.44
HE 360 G1 5K	270W	2.25	1.30	1.13	0.97	0.78	0.56
HE 400 G1 5K	300W	2.50	1.44	1.25	1.08	0.86	0.63
HE 500 G1 5K	370W	3.08	1.78	1.54	1.34	1.07	0.77

PROJECTED LUMINAIRE MAINTENANCE

Ambient Temperature	Operating Hours					
	0	10,000	25,000	50,000	75,000	100,000
25°C / 77°F	1	0.98	0.95	0.86	0.79	0.72

AMBIENT TEMPERATURE RATING

Mounting	Suspended	Surface
Standard Temperature Rating	131°F / 55°C	113°F / 45°C

PROJECTED LUMINAIRE MAINTENANCE

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
5°C	41°F	1.03
10°C	50°F	1.021
15°C	59°F	1.01
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	.98
35°C	95°F	.89
40°C	104°F	.79

Due to continuous product improvements, specification and/or equipment updates may change without notice.

PROJECT: _____
 CATALOG #: _____
 FIXTURE TYPE: _____
 NOTES: _____

TSC Industrial Strip Contractor Series Gen 1



TSC 4 ft

TSC 8 ft

The *TSC Industrial Strip Contractor Series Gen 1* has die-formed housing with convertible end plates to create a continuous row of illumination. This sleek luminaire is available in two sizes 4 ft and 8 ft with a width of 3.3" that is ideal for retrofit T8 lengths or new construction applications for commercial, industrial, retail and residential.

APPLICATIONS

Warehouses, Retail stores, Utility, and Fabrication areas, etc.

REPLACEMENT

1 Lamp T8 32W, 2 Lamp T8 32W, 3 Lamp T8 32W,
 4 Lamp T8 32W, 2 Lamp T5HO 54W



DLC 5.0



PERFORMANCE INFORMATION

SERIES NUMBER	WATT	LUMENS	CCT
TSC 4 30 G1 4K	25W	3,250	4000K
TSC 4 30 G1 5K	25W	3,350	5000K
TSC 4 45 G1 4K	35W	4,550	4000K
TSC 4 45 G1 5K	35W	4,550	5000K
TSC 4 60 G1 4K	45W	5,850	4000K
TSC 4 60 G1 5K	45W	5,850	5000K
TSC 8 85 G1 4K	65W	8,450	4000K
TSC 8 85 G1 5K	65W	8,450	5000K
TSC 8 100 G1 4K	75W	9,750	4000K
TSC 8 100 G1 5K	75W	9,750	5000K

OPTIONS



HBP-112-L7-OEM



BRI819P-B-D



EL UNV-10W

ORDERING GUIDE							EXAMPLE: TSC 4 45 G1 5K
Luminaire Type	Size	Lumen Output	Generation	Voltage	CCT	Finish	Options
		350					
<input type="checkbox"/> TSC Industrial Strip Contractor Series	<input type="checkbox"/> 4= 4 ft	<input type="checkbox"/> 30 3,350 Lumens <input type="checkbox"/> 45 4,550 Lumens <input type="checkbox"/> 60 5,850 Lumens	<input type="checkbox"/> G1	<input type="checkbox"/> BLANK= 120-277V	<input type="checkbox"/> 4K 4000K <input type="checkbox"/> 5K 5000K	<input type="checkbox"/> BLANK= White	<input type="checkbox"/> BLANK= No Option <input type="checkbox"/> HBP-112-L7-OEM =High/Low-Bay PIR On/Off Sensor <input type="checkbox"/> BRI819P-B-D =PIR Motion/Photo Sensor, 120/277V AC, 1-10V Dimming (Choose one) <input type="checkbox"/> L1 = 360° Lens (Max. 25ft mounting height) <input type="checkbox"/> L2 = 360° Lens (Max. 40ft mounting height) <input type="checkbox"/> EL UNV-10W =Emergency Backup Controller <input type="checkbox"/> RC-TSC G1 =Row connector <input type="checkbox"/> WG-TSC 4 G1 = 4 ft wire guards
	<input type="checkbox"/> 8= 8 ft	<input type="checkbox"/> 85 8,450 Lumens <input type="checkbox"/> 100 9,750 Lumens					

Due to continuous product improvements, specification and/or equipment updates may change without notice.

SPECIFICATIONS

HOUSING

Body consists of fabricated 22ga steel

AMBIENT TEMPERATURE

Suitable for use in -20°C to 50°C (-4°F to 122°F)

MOUNTING

Surface mounting

EFFICACY

Up to 130 lumens per watt (see individual wattage data)

CCT AND CRI

4000K and 5000K CCT available; 80+CRI

OPTICS

Frosted acrylic lens.

WARRANTY

5-year limited warranty. Comprehensive warranty terms can be located on www.slgus.com.

ELECTRICAL

High quality constant-current drivers rated for 50/60Hz operation, 120-277V input. Standard 0-10V dimmer.

ENERGY DATA

Power factor above 90%.

LIFETIME

L70 > 50,000 hrs @ 25°C

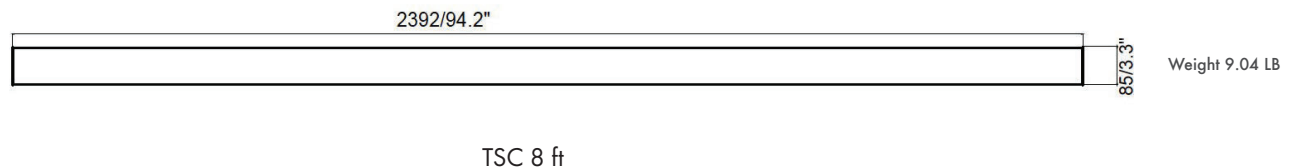
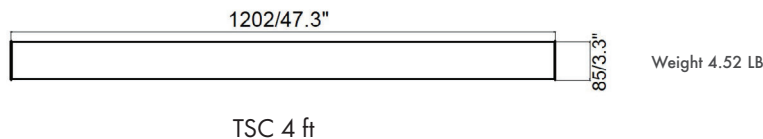
FINISH

White Polyester Powder coat with 88% reflectivity, painted after fabrication.

CERTIFICATIONS

UL Listed for damp locations. Design Lights Consortium® (DLC) Premium 5.0 qualified product. Not all versions of this product may be DLC qualified. Please visit www.slgus.com to confirm which versions are qualified.

DIMENSIONS



Due to continuous product improvements, specification and/or equipment updates may change without notice.

OPTIONS



HBP-112-L7-OEM

High/Low-Bay PIR On/Off Sensor

The **HBP-112-L7-OEM** on/off PIR motion sensor ideal for warehouses, distribution centers, gymnasiums, and other indoor applications.

Operation Voltage	Mounting Height	Coverage	Shape	Adjustable Time Delay	Operating Temperature	Applications
120V/ 277V/ 347V	15-40 ft	2.5x Height*	Cone	5/10/15/20/30 min. Default 15 min.	0°C to 70°C 32°F to 158°F	Indoor Only

*Covers a 100 ft diameter when the mounting height is 40 ft.



BRI819-P-B-D

Motion Sensor, 1-10V Dimming

The **BRI819-P-B-D** provides multi-level occupancy control with 1-10V adjustable dimming. This motion sensor can be attached externally to the fixture. Requires L1 or L2 lens depending on the mounting height.

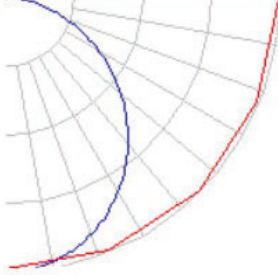
Operation Voltage	Shape	Adjustable Time Delay	Operation Temperature	Mounting Height for L1	Mounting Height for L2
120/277V	Cone	10 sec - 60 min (adjustable)	-40°F to 167°F (-40°C to 75°C)	Max 25ft*	Max 40ft**

*Covers a 30 ft diameter when the mounting height is 25 ft.

**Covers a 60 ft diameter when the mounting height is 40 ft.

Due to continuous product improvements, specification and/or equipment updates may change without notice.

PHOTOMETRIC



TSC 4 60 G1 4K

ELECTRICAL LOAD

Series Number	Wattage	Current (A)			
		120V	208V	240V	277V
TSC 4 30 G1 5K	25W	0.21	0.12	0.10	0.09
TSC 4 45 G1 5K	35W	0.29	0.17	0.15	0.13
TSC 4 60 G1 5K	45W	0.38	0.22	0.19	0.16
TSC 8 85 G1 5K	65W	0.54	0.31	0.27	0.23
TSC 8 100 G1 5K	75W	0.63	0.36	0.31	0.27

Due to continuous product improvements, specification and/or equipment updates may change without notice.