



PacifiCorp Energy

PacifiCorp Energy
Dave Johnston Power Plant
Wyoming

Lighting Upgrade Audit/Study
November 2013



Executive Summary

PacifiCorp Energy hired Evergreen Consulting Group to conduct a lighting audit at the Dave Johnston plant located in Glenrock, Wyoming. Site visits were conducted on August 14th-16th, 2013 and the following 3-4 phase recommendations for lighting upgrades are contained in this report.

- **T12 Lighting Upgrade:** Typical 1.5" diameter fluorescent tubes (4' or 8' lengths, some U-tubes) should be replaced with longer life, high performance T8 linear fluorescent. Scope includes de-lamping most 4 and 3 lamp fixture due to the improved light output of the retrofit kits. T-12 lamps are phasing out and will be more expensive to maintain both on energy consumption and on maintenance. Project will improve "quality of light," reduce maintenance by 75 - 85 percent over current levels, and allow for some controls in areas where fixtures do not need 24-hour operation (or occupancy). LED fixtures are an option (or retrofit kits), but costs are more than the T8 technology with similar life of lamps. There are approximately 1,133 T12 fixtures recommended for this upgrade.
- **Turbine Deck:** Currently illuminated with 1,000-watt (W) metal halide lamps that have a 40 percent lamp lumen depreciation and a lamp life rated at 20,000 hours. Due to the high mounting height and long life, LED high bays are recommended. LEDs also come with long life typically at 60,000 hours or more. Due to directionality of the LED lamps, uniformity is attained beyond standard fluorescent or high intensity discharge lamps allowing for somewhat lower foot-candles but with better visibility in space. Project will improve "quality of light," reduce maintenance by 60 percent over current levels, and allow for fixture mount occupancy sensors (if required). If taking in to account life cycle cost and any incremental cost difference (between high intensity discharge and fluorescent) LED should be considered for a long life cycle solution.
- **Industrial Fixtures:** The primary fixtures are 175W metal halide or 150W high-pressure sodium industrial low bay fixtures hanging throughout the entire facility. The recommended upgrade is a LED retrofit kit where the bottom portion of the housing is changed out on existing fixture. The new LED fixture is 78W and lasts approximately 60,000 hours (L70) compared to the existing fixtures 15,000 - 24,000-hour lamp life. In addition to this specific location, these fixture types are typical at other PacifiCorp Energy power plants, and for cost savings to PacifiCorp, it is recommended that a bulk ordering agreement for the same fixture types be set up to share material orders in similar breakouts for all locations.
- **Exterior fixtures** are broken out as their own phase. This high intensity discharge fixture can be upgraded with various fixture types. Some will match the typical low bay LED retrofits (78W Type RLB1) while some will be similar to Type AL1, WP1-2, FL4-5, and RW1 fixtures. Plant personal or contractor will determine fixture mounting hardware prior to ordering as well as verify fixture types. All recommendations are for longer life LED products to save on future maintenance.



Table 1: Breakout of Lighting Upgrades for phasing purposes

Recommended Breakout	Number of light fixtures	Rough Budget \$	kWh Savings
T-12 Lighting Upgrade	1,133	\$124,100	517,785
Turbine Deck	86	\$57,100	373,956
Industrial Fixtures*	2,943	\$2,236,400	3,662,878
Exterior Lighting	345	\$294,200	339,227
Totals	4,507**	\$2,711,800	4,890,657

*Industrial fixtures represent 78W LED replacement fixtures and include lighting controls

**Estimated total does not include all light fixtures throughout the plant

Benefits of Recommendations

Why invest in lighting? The economics of the internal savings is not included in this report. PacifiCorp is unable to utilize Rocky Mountain Power’s incentive unless they are physically paying a utility bill with an eligible industrial rate. Additionally, the actual cost of energy (in lighting tool) is not the sell rate to commercial/industrial customers. So, once internal rates for power generation are applied, we don’t expect projects to net on “energy savings alone” under 2 years to make this an automatic capital investment. However, looking at the long-term benefits there are significant values for investing in these recommended lighting upgrades:

- 1) The kWh (energy units) and kW (demand) are real and can be re-sold to PacifiCorp end-users
- 2) Maintenance savings for both hard and soft costs are significant. Recommendations above should reduce 75 – 85 percent of the current lighting maintenance budget each year for the next 10 years (and nominal increases thereafter).
- 3) Reduced safety risk to maintenance staff (minimizes access to restricted access areas/heights/lifts and lighting over process equipment).
- 4) Quality of light: New technology improves the color, enhances visibility and human comfort. Existing lighting has a color accuracy of 50 – 65 percent; recommended lighting has a color accuracy of 80 – 90 percent.
- 5) Increases productivity and safety by providing clearer distinction in colors (e.g., wiring) and small details of equipment, etc.
- 6) Computer glare is reduced especially in the office areas. Additionally, current IES (illuminating Engineers Society) light level recommendations can be met in those offices.
- 7) Make power available for other equipment: These projects are base load reductions, meaning power for panels and transformers are reduced and allow mores options to be used for new connections/loads or equipment, besides reducing stress on existing panels or overload situations.
- 8) Net payback, once included cost benefits factors above (especially adding the human factors), should meet all PacifiCorp’s internal rates-of-returns to invest in all power plants. This report cannot identify the physical dollars associated to all these internal



pieces to form a final financial calculation. But based in the nature, these power plants are long-term facilities and even if basic energy savings only net paybacks look longer to invest with more expensive LED technology, the secondary benefits on maintenance and improve working environment should make these projects a high priority on capital investments. The recommended technologies also provide 15 - 20 years equipment life for new fixtures and 12 - 15 years of equipment life on retrofits (for existing fixtures) before replacements or next capital investments would need to be reconsidered.

Lighting Audit Report

The Dave Johnston Power Plant located at 1591 Tank Farm Rd, Glenrock, WY is comprised of four generating units with the total generating capability of 817+ megawatts. It has extensive interior and exterior industrial graded levels. The plant turned 46 years old in 2013. Operating hours are 24 hours a day, 365 days a year with the plant office operating from Monday-Friday.

A lighting audit for the Dave Johnston Power Plant was performed by Dan Kuhl, LC of Evergreen Consulting Group. The entire facility consists of coal conveyer belts, mechanical, service walkways, offices, labs, maintenance shops, generating units, cooling towers and other miscellaneous buildings. The lighting audit encompasses all of Units 1-4 including every common area. The majority of the facility consists of lower wattage 175W metal halide and some high-pressure sodium low bays that provide general ambient lighting. Other wattages and lamp types typical of an industrial power plant are in use but the 175W "plant standard" is the most common with approximately 2,700+ units installed. Old T12 lamps are also prevalent throughout the plant. These T12s with magnetic ballasts should be changed out in 2013 or first quarter of 2014 as replacement lamps are getting harder to find and the costs are increasing.

It was observed that most of the existing lighting equipment is at end of life and will require extensive maintenance or replacement in the near future. They have started installing some new metal halide fixtures, and while this has helped improve the overall light levels, this technology matches the existing inefficient lighting. The best option for continued replacement of the existing lights (due to light loss, CRI, lamp life and maintenance), is new (or retrofit) LED fixtures.

This facility has very significant energy savings opportunities. The savings are a good faith estimate and can change depending upon what is actually installed. Final numbers can be accounted for in the post-inspection process after installation is completed. We invite you to take full advantage of this incentive to improve the energy efficiency of your facility.

Existing Foot-candle readings:

<u>Area</u>	<u>MIN</u>	<u>MAX</u>	<u>AVG</u>
Turbine Area	12	16	13



Recommendations

Detail Lighting Survey: Appendix B contains a large spreadsheet (known as Lighting Tool) on each area baseline and proposed fixtures shown. Included in this report are five Lighting tools:

1. One - master spreadsheet with all baseline opportunities (all fixtures surveyed).
2. Four – breakout spreadsheets (sub-sets or phases) that group the T12 fixtures, low bay high intensity discharge (plant standard), turbine area, and exterior lighting.

Recommended Fixtures: Appendix C contains specification sheets of the typical fixture type being recommended. No specific manufacturer is required and any equal alternatives can be used.

- **De-lamping 4' T12 to T8 retrofit kits:** The typical 4' T12 fixtures should be replaced with 2-lamp T8 CEE high performance ballast/lamp de-lamping kits. These kits fit inside the existing fixture housing and re-position the lamp holders for the new lamps and optimizing how much light projected out of the fixture. They increase the efficiency of the fixture using reflectors and lenses to give recommended light levels as needed for each area of the offices. Plant area T12 are typical 8' slim-line or high output fixture that will either be de-lamped or retrofitted with 4' T8 lamps using a "kit" which allows for easy installation without removing the "body" of the fixture
- **Crouse Hinds** – Currently the plant has over 2,700 low bay industrial fixtures using either 175W metal halide or 150W high-pressure sodium. It is recommended to replace these with a retrofit kit that uses the existing back box when retrofitting the fixture, thereby reducing the labor time to replace. These retrofit kits are available from Dialight or Crouse-Hinds (at the time of this report). Other manufactures may have an equal product. Alternatives could be looked at as a cost saving measure only, which would be a LED screw-in retrofit hybrid kit. This would save money but not provide the "engineered" lighting pattern as described for the recommended retrofit option. Plant would need to do their due-diligence before approving the LED screw-in option (test for example).
- **LED High Bay fixtures:** We strongly recommend the plant select a high quality LED high bay fixture to replace the turbine high bay high intensity discharge lamps. Maintenance reduction, long life, safety, and lighting quality are the drivers here. Recently new fixtures designed specifically for high ceiling applications have been introduced to the market and would meet the space requirements for light levels, uniformity, and quality of light that the turbine area requires. It is recommended that the plant review multiple products before choosing a fixture for this area.
- **Exterior fixtures:** This area would receive a standard replacement with most products changing to a new LED fixture. Time will need to be spent determining the proper fixtures that use the correct optics, wattage, and fixture design. Since the market has been using LED fixtures of this type for a few years now it has matured faster than other LED sectors, driving the price down where the incremental cost difference between existing technologies and LED are minimal.
- **Why CEE/DLC:** The fixtures recommended above can be found on the Consortium for Energy Efficiency (CEE) and Design Lights Consortium (DLC) listed fixtures. The utility



programs require these listed products for lamps/ballast and LED related products. Do these not only protect the owner from lower performance products being installed but also insure that they get the best available technology in the market for their buildings. CEE uses NEMA (National Electrical Manufacturers Association) premium ballast specification and lamp standards to identify the longest lasting and higher quality linear fluorescent lamps (U-tube and 4' lamps only). By ordering CEE listed products (there are over 1000+), your lamp life and quality will be maximized while saving energy and reducing maintenance costs. Estimated costs shown do include these products. Note: For all interior T8 lamps, it is recommended to use long life 28W lamps (84,000 estimated hours). For all T8 ballasts, it is recommended to use program start in conjunction with these same lamps. Program start ballasts, besides being recommended where occupancy sensors are used, provide exact voltage and pre-heat the fluorescent lamp cathode, which extends the life of the lamp.

- DLC is a national list for LED fixtures and retrofit kits that provides minimum performance standards to help identify less desirable products in the market. Because LED is an emerging technology and has experienced early products failures, a national standard was developed.

Recommended Maintenance and Life of Lighting: The primary fixtures are shown for comparison on life of lamps compared to existing.

- Existing T12 lighting at this location have an average lamp life of **12,000 - 20,000 hours** (based on size or brand of lamps). This is typically **1.5 to 2.5 years** before replacement.
- Recommended T8 lighting: Recommended new lamps (for burn out) replacing the T12 lamps have **84,000 hours or 9 years**. Adding controls will extend these fixtures longer than 9 years if operating 24 hours a day. Paying 1 - 2 dollars more for these lamps is well worth the investment up front over the standard T8 lamps.
- Existing 175W metal halide fixtures have a lamp life of **12,000 hours or 1.5 years** before they burn out.
- Existing 150W high-pressure sodium fixtures have a lamp life of **24,000 hours or 2.8 years** before they burn out.
- Recommended LED fixtures have a useful (L70) life of **60,000+ hours or 7+ years**. Definition of "useful" is when the lumen output is at 70 percent of initial light output. LED lamps will keep burning, provide light past this useful life, and therefore offer some additional benefit over lamps that burn out; however, replacement/updates should be considered at the 70 percent mark.
- Existing 400W metal halide (high bay) fixtures have a lamp life of **20,000 hours or 2.8 years**. Metal halide lamps have multiple drawbacks: poor color rendering, short lamp life and steep lamp lumen depreciation (40% loss in light levels). Because of this, your plant is experiencing excessive maintenance (cost/time) and low light levels from existing light fixtures compared to today's technology options.



- Recommended LED high bay fixtures have **60,000 hours** typical useful life (L70). You also get a product that uses less energy to deliver useful lumens (light) on your task with better uniformity than existing high intensity discharge as well as more light with this direct source of lighting. A side benefit is that these turn on instantly rather than having a 5 to 10 minute wait for a fixture to come up to full brightness.

Costs/Budgets

Appendix D contains the detail cost breakout and shows all assumptions or logic for material and labor by fixture type.

Costs are an estimate only (budgeting) and disregard any notations to any utility incentive or dollar savings per year values in attached lighting tools. These values are only applicable if the power plant was able to participate in the Rocky Mountain Power FinAnswer Express/**wattsmart** Business incentive program. Any \$ values (savings or incentive) shown in attachments should be ignored; lighting tools are only used for calculating kW and kWh savings and identifying the fixture types by space.

Logic for cost estimates:

Most fixtures were budgeted at one hour per installation. Some will take longer but some will take less time. Labor cost was based at \$80 an hour, which is a typical hourly wage for electricians. Cost could be adjusted up or down depending on your evaluation of local labor rates and the difficulty of each installation, spreadsheets are provided to make those adjustments internally. Individual costs do not include such things as disposal, scaffolding, permitting, safety requirements, or cost of shut down if needed, but other contingency amounts were provided on a total that may be leveraged to cover some of these expenses. PacifiCorp Energy may have other contingency factors not provided for in this report that should be added as necessary based on location of site, security restriction time for contractors, and regional bidding environment of local/remote resources availability.

Cost reduction options:

For the purposes of this lighting survey/audit and ease of installation, the Crouse Hinds retrofit fixture was used for cost estimating. Other manufacturers (Dialight) have or may have a cost effective alternative that may meet the owner's needs with a lower installed cost than the Crouse Hinds fixture. It is recommended that these options be researched or Evergreen Consulting could assist in doing the research.

Upon request, we have re-designed the lighting fixture type for the main open turbine area when compared to the original Unit 1 version (preliminary copies). A 511W LED high bay fixture was recommended as it offers the best maintenance option and longer life desired by facility owners and maintenance personal.

The costs can range dramatically on a project of this size and complexity. LEDs were considered for the plant standard 175W metal halide general low bays and for most of the 1,000W metal halide high bays, as this would be the simplest and easiest to replace. Pricing is higher for this product technology but should be considered for its ease of change out and probability of substantial price reduction if pre-negotiated with the manufacturer prior to purchase for multiple plants. We recommend arranging a national purchase agreement to consolidate same fixture purchases for all power plants over a 1 - 2 year time period purchasing window.



Appendix A

Fixture Summary Page



Fixture Legend

Fixture Codes

Code	Technology	Description
FCIT9	Fluorescent	Circleline T9
FLE	Fluorescent	Linear Exit
FUT12	Fluorescent	U Tube T12
FUT8	Fluorescent	U Tube T8
FUT8CEE	Fluorescent	U Tube CEE T8
FCE	Fluorescent	Compact Exit
FCM	Fluorescent	Compact Medium Base
FCP	Fluorescent	Compact Pin Base
FCPWP	Fluorescent	Compact Pin Base Wall Pack
FCMG	Fluorescent	Compact Mogul Base
FCGU24	Fluorescent	Compact GU24
FLT8	Fluorescent	Linear T8
FLT8CEE	Fluorescent	Linear CEE T8
FLT8CEEHB	Fluorescent	Linear CEE T8 High Bay
FLT10	Fluorescent	Linear T10
FLT12	Fluorescent	Linear T12
FLT12HO	Fluorescent	Linear T12HO
FLT12VHO	Fluorescent	Linear T12VHO
FLT17	Fluorescent	Linear T17
FLT5	Fluorescent	Linear T5
FLT5HO	Fluorescent	Linear T5HO
FLT5HOHB	Fluorescent	Linear T5HO High Bay
FCCFL	Fluorescent	Cold Cathode
CMH	HID	Ceramic Metal Halide
HPS	HID	High Pressure Sodium
MV	HID	Mercury Vapor
MH	HID	Metal Halide
MHPS	HID	Metal Halide Pulse Start
ICE	Incandescent	Exit
ICH	Incandescent	Halogen
ICMB	Incandescent	Medium Base
ICMG	Incandescent	Mogul Base
INRB	Induction	Remote-Ballasted
INSB	Induction	Self-Ballasted
LEDSMC	LED	Surface Mount Canopy
LEDE	LED	Exit
LEDHB	LED	High Bay
LEDSI	LED	Integral Screw-in
LEDPM	LED	Pole Mount
LEDDL	LED	Recessed Downlight
LEDWP	LED	Wall Pack
PE	Photoluminescent	Exit

Ballast Codes

Code	Ballast Type
CEE IS	CEE Instant Start
CEE ISDIM	CEE Dimmable Instant Start
CEE PS/PRSDIM	CEE Dimmable Program Start
CEE RS/PRS	CEE Rapid Start
IS	Instant Start
IS(E)	Efficient Instant Start
RS/PRS	Rapid/Program Start
RS/PRS(E)	Efficient Rapid/Program Start
MG	Magnetic
MG(E)	Efficient Magnetic
MGPH	Magnetic Pre-Heat
CWA	Constant Wattage Autotransformer
HIDLF	HID Low Freq Ballast
INDN	Induction (Non-integral)
LR	Linear Reactor
RL	Regulated Lag
SCWA	Super CWA

Ballast Factor Codes

Code	Description
L	Low (BF ≤ 0.85)
N	Normal (0.85 < BF ≤ 1.0)
H	High (BF > 1.0)
CEE L	CEE Low (BF ≤ 0.85)
CEE N	CEE Normal (0.85 < BF ≤ 1.0)
CEE H	CEE High (BF > 1.0)

Controls/Sensor Codes

Code	Description
Integral	Integral
Occupancy	Occupancy
Daylighting	Daylighting
Ad. Daylighting	Advanced Daylighting
Time Clock	Time Clock
Dup. Occ	Duplicate Occupancy
Dup. DL	Duplicate Daylighting
Dup. Ad. DL	Duplicate Advanced Daylighting
Dup. TC	Duplicate Time Clock

Additional Information

[RMP: DLC, Energy Star, LDL Links and Information](#)
[PP: DLC, Energy Star, LDL Links and Information](#)

Dave Johnston - All Lighting

Fixture Summary & Count

Fluorescent

FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	963
FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1
FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	95
FCM-15W x 2L-MG	1
FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	9
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	109
FLT12-75W x 2L x 8'-MG(E)	0
FCM-25W-MG	2
FLT8-17W x 3L x 2'-IS(E) L	25

HID

MH-175W-CWA	0
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Induction

LED

Other

CUST: LEDHB-78W	2736
CUST: LEDPM-40W	3
CUST: LEDSI-30W	131
CUST: LEDSI-14W	85
CUST: LED HB 511W	136
CUST: LEDHB-160W	36
CUST: LEDWP-109W	38
CUST: LEDWP-47W	20
CUST: LEDPM-120W	11
CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13
CUST: LED Flood 121W	41
CUST: LEDWP-40W	3
CUST: LED Flood - 179W	34
CUST: LEDPM-105W	15

Controls

Integral	56
Occupancy	87

Dave Johnston - T12 Phase

Fixture Summary & Count

Fluorescent

FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	960
FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	95
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	40
FLT12-75W x 2L x 8'-MG(E)	0
FLT8-17W x 3L x 2'-IS(E) L	25

HID

Induction

LED

Other

CUST: FLT8CEE-28W x 2L x 4'-CEE RS/PRSDIM N	13
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Controls

Occupancy	87
Integral	6

Dave Johnston - Turbine Phase

Fixture Summary & Count

Fluorescent

FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H 10

HID

Induction

LED

LEDHB-160W 10

Other

CUST: LEDHB-511W 66

Controls

Dave Johnston - Industrial Phase

Fixture Summary & Count

Fluorescent

FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3
FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1
FCM-15W x 2L-MG	1
FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	9
FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	59
FCM-25W-MG	2

HID

MH-175W-CWA	0
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Induction

LED

LEDHB-160W	26
LEDWP-40W	3

Other

CUST: LEDHB-78W	2669
CUST: LEDPM-40W	3
CUST: LEDSI-30W	19
CUST: LEDSI-14W	76
CUST: LEDHB-511W	14
CUST: LEDWP-109W	38
CUST: LEDWP-47W	20

Controls

Integral	50
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Dave Johnston - Exterior Phase

Fixture Summary & Count

Fluorescent

HID

Induction

LED

Other

CUST: LEDSI-30W	112
CUST: LEDHB-78W	67
CUST: LEDPM-120W	11
CUST: LED Flood 121W	41
CUST: LEDSI-14W	9
CUST: LED HB 511W	56
CUST: LED Flood - 179W	34
CUST: LEDPM-105W	15

Controls

Appendix B

Lighting Tools



Survey Notes from Dave Johnston Power Plant, 9-15-13, Dan Kuhl

1. 175W MH the most common lamp/fixture type
2. Operating hours – 24/7 for plant and 12 hrs. for office
3. Customer has installed some Dialite (LED fixture/lamp) as samples, including a Dialite retrofit kit for the Crouse Hinds. Note: Dialite has a retrofit kit for the Crouse Hinds that fits on their back box. See picture
4. Crouse Hinds low bay general illumination is the most common fixture in the plant. Any retrofit product needs to fit on the Crouse Hinds back box to make it easy to install.
5. Need shielded T8 lamps mounted below 8' MH. Verify before ordering lamps.
6. Some Low bay general lights by Crouse Hinds are on 24-hour EM circuits. CFL installed in these fixtures
7. Some areas are under lit or without lights. Add LED version of Crouse Hinds or equal
8. Provide 5% extra parts as part of the fixture order. Lenses, sockets, drivers, ballast, etc... (fixture repairs during upgrades)
9. Money saving Tip: Negotiate 2 yr. buying agreement for all plant standard retrofit fixtures (types).
10. Buy new LED exits as needed and have plant self-install. Example buy qty. 25 exit and install these until all gone. Then buy another batch. Utility incentives available.
11. Buy LED outdoor wall packs same as above
12. Turbine room: 12 to 16FC.....13-14 FC average. Under lit and not at IES recommended light levels
13. Power Plant staff to verify all mounting hardware needed to install any new or retrofit fixtures.
14. Unusual amount of T12 and HID lamps not working. Appears many lamps and fixtures are at end of life. Proposed fixtures must consider maintenance factors and longer lifes.
15. Mock-up some offices to verify lamp wattage (28W or 32W T8's) and low ballast factors for appropriate light levels. Consider trying High Performance low glare retrofit kits (lensed and reflector delamping kits make fixture 80+% efficient on light output vs. the 50-60% of existing fixtures)
16. Suggest plant standardize on 28W T8 long life lamps (84,000 hours). Confirm lamp lumens are adequate for most applications. Any high Bay fixtures should use 32W T8's.



ROCKY MOUNTAIN POWER

Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Combined Project		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	<input checked="" type="checkbox"/> Acct Holder <input checked="" type="checkbox"/> Elect. User <input checked="" type="checkbox"/> Building Owner		
Business Type	Other		

Processing Information

Construction Type	Retrofit	Stage	Preliminary
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Project Cost

Material	Labor	Other	Total Project Cost
\$2,376,100.00	\$318,700.00	\$17,000.00	\$2,711,800.00

Space Type & Size

Calculation Method	Whole Building	Allowed Wattage	720,000	
1 Other		FT ² 1,200,000	0.60	W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
Other		FT ² 1,200,000	0.60	W/FT ²

Contractor Information

Contact	<input type="checkbox"/> EEA Participant
Business Name	
Address	
City, State, Zip	
Phone, Email	

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0	10.0			
Op Weeks Per Year	Tue	3.0	10.0			
	Wed	3.0	10.0			
52	Thu	3.0	10.0			
	Fri	3.0	10.0			
Add/Edit	Sat	3.0	4.0			
	Sun	3.0	0.0			
S is for 0 hrs/year X is for 8760 hrs/year Y is for 4380 hrs/year	Total	1,095	2,816			

Payee Information

Incentive Should Be Addressed To:	Installation Address
Business Name	PacifiCorp Energy
Attention	Brian Gangl
Check Reference	
Address	1591 Tank Farm Rd
City, State, Zip	Glenrock WY 82637

Eligibility Information

Business Name	
Address	
City, State, Zip	
Account #	
Meter Base #, Rate	Office Use Only

Additional Information

Import Existing Project


EEA Participant Info

Email Coordinator

Lighting Catalog

LED Policy

Report A Problem

Category		26W - CMH-20W-FI FC	<input type="button" value="Add Fixture"/>	35 W - CUST: 1 FDWP-35W	Incentive		
Fixture		125W - CMH-100W-SCWA	<input type="button" value="Remove Fixture"/>	150W - TCMB-150W			
Lamp		26W - MHPS-20W-FI FC	<input type="button" value="Clear Filter"/>	215W - MH-175W-CWA	Savings Information	Let's turn the answers on.	
Lamp (W)		189W - CMH-150W-SCWA	<input type="button" value="Build Fixture"/>	72W - TCMB-100W			
Lamp Qty		45W - CMH-39W-FI FC	<input type="button" value="Reset"/>	200W - TCMB-200W	4,890,657 kWh Saved Per Year	↓↓Project Tracking↓↓	
Ballast		272W - CMH-250W-LR		40 W - CUST: 1 FDP-40W		Preliminary	
Factor		288W - CMH-250W-SCWA		30 W - CUST: 1 FDST-30W	Lighting Power Density	Pre-Inspection	
		324W - CMH-300W-LR		14 W - CUST: 1 FDST-14W		0.60 Code 51.7%	Agreement Needed
		342W - CMH-300W-SCWA		72W - FI T12-34W x 2L x 4'-MG(F)		0.74 Existing Better Than Code LPD	
		55W - MH-50W-FI FC		70 W - CUST: 1 FDWP-70W	0.29 Proposed		
		342W - CMH-320W-LR		295W - HPS-250W			
78W - CUST: LEDHB-78W							
Custom Fixture							
Standard Incentive (16.0% of Cost Paid By Incentive)							

Preliminary Dave Johnston Power Plant - Combined Project

Line Number	247 Out Of 264 Lines Used		Existing				Proposed				Notes	
	Exterior	Schedule	Space Description	Qty	Controls	Fixture Wattage	Space Wattage	Qty	Controls	Fixture Wattage		Space Wattage
1			Unit 4									
2	X		Elevator Room	1		150	150	1		49	49	Vapor Tight -
3	X		Drum Room	2		215	430	2		78	156	Crouse Hines - Type RLB1
4	X		Penthouse	2		72	144	2	Integral	49	98	Surface Vapor Tight
5	X		RCM	3		200	600	3		40	120	Pipe Mount LED Industrial Refracture Pack- Type RLB1
6	X		West Drum Room	1		150	150	1		30	30	Jelly Jar - Type VTK
7	X		West Drum Room Level 8	1		215	215	1		73	73	Vapor Tight
8	X		Level 8 Under Boiler	5		72	360	3		14	42	LED lamp
9	X		Level 8 Jelly Jar	9		72	648	9		14	126	LED lamp
10	X		Level 8	198		215	42,570	198		78	15,444	split line in 2 so savings- Type RLB1
11	X		Level 8	200		215	43,000	200		78	15,600	would calculate
12	X		55 Conveyors, Coal MCC	50		215	10,750	50		78	3,900	Type RLB1
13	X		55 "B" Conveyor	23		215	4,945	23	Integral	78	1,794	Fixture Mount OC -Type RLB1
14	X		55 "B" Conveyor	23		215	4,945	23		78	1,794	Every Other Fixture - Type RLB1
15	X		Overall Lunch Room	3		72	216	3		49	147	Lamp and Ballast
16	X		DA - 6	4		215	860	4		78	312	Type RLB1
17			Level 5									
18	X		Old Scrubber	13		215	2,795	13		78	1,014	Type RLB1
19	X		Old Scrubber Master Level	12		72	864	12		14	168	LED lamp
20	X		Old Scrubber Master Level	3		295	885	3		78	234	Type RLB1
21	X		3 1/2 Outled, ODD Feeder Deck, Abandoned Stairs, FD & ID Fans	47		215	10,105	47		78	3,666	Type RLB1
22	X		FD & ID Fans	4		295	1,180	4		78	312	Type RLB1

23	X	# 4 Control Area	FLT12-34W x 4L x 4'-2 MG(E)	24	144	3,456	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	24	49	1,176	Lamp and Ballast	
24	X	Turbine Deck	MH-1000W-CWA	66	1,080	71,280	CUST: LED HB 511W	66	511	33,726	Type HB6	
25	X	Turbine Deck	HPS-400W	10	465	4,650	CUST: LEDHB-160W	10	160	1,600	Type HB1 - 160W	
26	X	Unit #3 Bldg	MH-1000W-CWA	6	1,080	6,480	CUST: LED HB 511W	6	511	3,066	Type HB6	
27	X	Unit #3 Bldg	MH-400W-CWA	10	458	4,580	CUST: LEDHB-160W	10	160	1,600	Type HB1 -160W	
28	X	Unit #3 Bldg	MH-175W-CWA	325	215	69,875	CUST: LEDHB-78W	325	78	25,350	Type RLB1	
29		Unit #2										
30	X	Unit #2	MH-175W-CWA	134	215	28,810	CUST: LEDHB-78W	134	78	10,452	Type RLB1	
31	X	Unit #2 & RLM	HPS-150W	63	188	11,844	CUST: LEDHB-78W	63	78	4,914	Type RLB1	
32	X	Sports Light Flood	MH-1000W-CWA	8	1,080	8,640	CUST: LED HB 511W	8	511	4,088	Type HB6	
33	X	Jelly Jars	ICMB-100W	12	72	864	CUST: LEDSI-14W	12	14	168	LED lamp	
34		Unit #1										
35	X	Unit #1	MH-175W-CWA	59	215	12,685	CUST: LEDHB-78W	59	78	4,602	Type RLB1	
36	X	Unit #1	HPS-150W	18	188	3,384	CUST: LEDHB-78W	18	78	1,404	Type RLB1	
37	X	RLM	ICMB-200W	107	200	21,400	CUST: LEDHB-78W	107	78	8,346	Type RLB1	
38	X	Jelly Jars	ICMB-150W	12	150	1,800	CUST: LEDSI-30W	12	30	360	LED lamp	
39	+ A	Star Sign	ICMB-150W	112	150	16,800	CUST: LEDSI-30W	112	30	3,360	LED lamp	
40	+ X	Coal Belt between #1 & #2	MH-175W-CWA	37	215	7,955	CUST: LEDHB-78W	37	78	2,886	Type RLB1	
41												
42	X	Sports Lights	MH-400W-CWA	6	458	2,748	CUST: LEDHB-160W	6	160	960	Type HB1-160W	
43	X	Basement	HPS-150W	300	188	56,400	CUST: LEDHB-78W	300	78	23,400	Type RLB1	
44	X	Unit #1	MH-175W-CWA	200	215	43,000	CUST: LEDHB-78W	200	78	15,600	Type RLB1	
45	X	Unit #1	MH-175W-CWA	245	215	52,675	CUST: LEDHB-78W	245	78	19,110	Type RLB1	
46	X	Unit #1	HPS-250W	26	295	7,670	CUST: LEDWP-109W	26	109	2,834	Type WP1	
47	X	Unit #1	MH-400W-CWA	10	458	4,580	CUST: LEDHB-160W	10	160	1,600	Type HB1-160W	
48	X	Unit #1	FLT12-34W x 2L x 4'-MG(E)	42	72	3,024	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	42	49	2,058	L&B TYPE BNLO1, TYPE L2	
49	X	Unit #1	FLT12HO-95W x 2L x 8'-MG(E)	12	207	2,484	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	12	99	1,188	Type SK2, BNLO2, L2	
50	X	Engineering Office	FLT12HO-95W x 2L x 8'-MG(E)	22	207	4,554	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	22	99	2,178	Type SK2, BNLO2, L2	
51	X	Shop Basement	MH-1000W-CWA	8	1,080	8,640	CUST: LEDWP-47W	8	47	376	Type WP1	
52	X	Restrooms	FLT12-34W x 4L x 4'-2 MG(E)	2	144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
53		Parking Lot-Exterior										
54	+ Y	Pole Lights-Exterior	HPS-400W	11	465	5,115	CUST: LEDPM-120W	11	120	1,320	Type RW1	
55		Mezzanine										
56	X	Switch Gear	MH-175W-CWA	5	215	1,075	CUST: LEDHB-78W	5	78	390	Type RLB1	
57	X	Generator Pit	HPS-150W	5	188	940	CUST: LEDHB-78W	5	78	390	Type RLB1	
58	X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	11	72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10	Occupancy	49	490	Wireless Ceiling OC-Lamp and Ballast.
59	X	Lunch Room	FLT12-34W x 2L x 4'-MG(E)	10	72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11	Occupancy	49	539	Wireless Ceiling OC-Lamp and Ballast
60	X	#3 Switch Gear & Lab	FLT12HO-95W x 2L x 8'-MG(E)	5	207	1,035	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	5	99	495	Type SK2, BNLO2, L2	
61	X	Lab	FLT12-34W x 4L x 4'-2 MG(E)	14	144	2,016	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	14	49	686	L&B TYPE BNLO1, TYPE L2	
62	X	Lab	FLT12-34W x 3L x 4'-2 MG(E)	2	115	230	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	49	98	L&B TYPE BNLO1, TYPE L2	
63	X	Lab	FLT12-34W x 3L x 4'-MG(E)	20	115	2,300	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	20	49	980	L&B TYPE BNLO1, TYPE L2	

64		Unit #4 Mezzanine											
65	X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	7		72	504	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	7		49	343	L&B TYPE BNLO1, TYPE L2
66	X	Switch Gear	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	29		49	1,421	L&B TYPE BNLO1, TYPE L2
67	X	Mezzanine	FLT12-34W x 2L x 4'-MG(E)	26		72	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	26		49	1,274	L&B TYPE BNLO1, TYPE L2
68	X	Mezzanine	HPS-250W	9		295	2,655	CUST: LEDWP-109W	9		109	981	Type WP2
69	X	Mezzanine	MH-175W-CWA	76		215	16,340	CUST: LEDHB-78W	76		78	5,928	Type RLB1
70	X	Mezzanine	HPS-150W	70		188	13,160	CUST: LEDHB-78W	70		78	5,460	Type RLB1
71	X	AQC Bldg	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
72	X	Floc Bldg	MH-175W-CWA	10		215	2,150	CUST: LEDHB-78W	10		78	780	Type RLB1
73	X	Insulator Shop	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
74	X	Insulator Shop	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Integral	49	294	L&B TYPE BNLO1, TYPE L2
75	X	Insulator Shop	MH-175W-CWA	4		215	860	CUST: LEDWP-47W	4		47	188	Type WP1
76	X	Training Bldg	CUST: ICMB-120W	1		120	120	FCM-15W x 2L-MG	1		30	30	LED lamp
77	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	2' X 2' U Lamps
78	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
79	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
80	X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
81	X	Utility Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
82	X	Training Library	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
83	X	Small Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
84	X	Break Area	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
85	X	Class Room A	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	12		49	588	L&B TYPE BNLO1, TYPE L2
86	X	Bob Miller Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
87	X	Tech Training	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
88	X	Sim Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
89	X	Class Room B	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	CUST: FLT8CEE-28W x 2L x 4'- CEE RS/PRSDIM N	13	Occupancy	49	637	L&B TYPE BNLO1, TYPE L2
90	X	Rob McComas	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
91	X	Store Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
92	X	Computer Training Lab	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	L&B TYPE BNLO1, TYPE L2
93	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
94	X	Mine Garage	HPS-150W	2		188	376	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	1		142	142	Remove both incandescent fixtures.

95	X	Storage	MH-175W-CWA	5	215	1,075	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
96	X	Storage	MH-250W-CWA	2	295	590	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
97	X	Repair Shop	MH-175W-CWA	2	215	430	CUST: LEDWP-47W	2		47	94	Type WP1
98	X	Repair Shop	MH-1000W-CWA	6	1,080	6,480	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series -Type EHB3
99	X	Repair Shop	HPS-400W	6	465	2,790	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
100	X	Repair Shop	MH-1000W-CWA	1	1,080	1,080	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series- Type EHB3
101	X	Repair Shop	ICMG-500W	4	500	2,000	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
102	X	Repair Shop	MH-400W-CWA	2	458	916	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1		213	213	FHE Series-Type EHB3
103	X	Repair Shop	FLT12-34W x 4L x 4'-2 MG(E)	12	144	1,728	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	9		213	1,917	FHE Series- Type EHB3
104	X	Truck Repair Bays	MH-175W-CWA	3	215	645	MH-175W-CWA	0		215	0	Remove Three 175w MH
105	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	2	123	246	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	Wire Body Kit-Type SK2, BNLO2, L2
106	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	1	123	123	FLT12-75W x 2L x 8'-MG(E)	0		123	0	Remove One 2L F96 T12
107	X	Stock Room	FLT12-34W x 2L x 4'-MG(E)	4	72	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4	Occupancy	99	396	Wireless Ceiling OC-Lamp And Ballast - TYPE BNLO2 & L2
108	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	4	72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
109	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	5	72	360	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	5	Occupancy	49	245	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
110	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	3	72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
111	X	Upstairs Break Room	FLT12-34W x 2L x 4'-MG(E)	8	72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
112	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	4	72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- L&B - TYPE BNLO1 & L2
113	+ X	Outside of Bldg- Exterior	HPS-400W	10	465	4,650	CUST: LED Flood 121W	10		121	1,210	Flood- Type FL4
114		Unit #1 & #2 Cooling Tower										
115	X	MCC Room	FLT12-34W x 2L x 4'-MG(E)	16	72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	Vapor Tight wo/ lens -Lamp and Ballast - TYPE BNLO1 & L2
116	X	Under Grate - MCC	MH-250W-CWA	3	295	885	CUST: LEDWP-109W	3		109	327	Type WP2
117	X	MCC Bldg	MH-175W-CWA	6	215	1,290	CUST: LEDWP-47W	6		47	282	Type WP1
118		Precipitator Bldg										
119	X	Unit #1 & #2	MH-175W-CWA	98	215	21,070	CUST: LEDHB-78W	98		78	7,644	Type RLB1
120	X	Penthouse	FLT12-34W x 2L x 4'-MG(E)	16	72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	L&B TYPE BNLO1, TYPE L2
121	+ Y	Penthouse - Outdoor	MH-175W-CWA	8	215	1,720	CUST: LEDHB-78W	8		78	624	Type RLB1
122	X	Penthouse - Communication	FLT12-34W x 2L x 4'-MG(E)	2	72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
123	X	Hopper Level	MH-175W-CWA	60	215	12,900	CUST: LEDHB-78W	60		78	4,680	Type RLB1
124	X	Unit #1 & #2	FLT12-34W x 2L x 4'-MG(E)	80	72	5,760	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	80		49	3,920	L&B TYPE BNLO1, TYPE L2
125	X	Ground Floor	MH-175W-CWA	18	215	3,870	CUST: LEDHB-78W	18		78	1,404	Type RLB1

126	X	Diesel Generating Room	ICMB-200W	2		200	400	ICMB-200W	0		200	0	Remove two 200w Incandescents
127	X	RLM	FLT12-75W x 8'-MG(E)	3		75	225	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Type SK2, BNLO1, L2
128	X	Diesel Fire Pump	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
129	+	Y	River Intake - Outdoors	HPS-150W	19	188	3,572	CUST: LEDHB-78W	19		78	1,482	Type RLB1
130	X	Chlorine Building	ICMB-200W	4		200	800	CUST: LEDSI-30W	4		30	120	Type VTK
131	X	Chlorine Building - Side Two RLM	ICMB-200W	2		200	400	CUST: LEDSI-30W	2		30	60	Type VTK
132	X	Fire Pump House	MH-175W-CWA	6		215	1,290	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6		213	1,278	Consider Not Changing
133	X	Turbine Shed	MH-175W-CWA	10		215	2,150	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
134	X	Turbine Shed	MH-250W-CWA	7		295	2,065	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
135		Admin Bldg - 1st Floor											
136	X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
137	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	13		49	637	L&B TYPE BNLO1, TYPE L2
138	X	Break Room - Kitchen	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
139	X	Men's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
140	X	Women's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
141	X	Paula Edberg	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
142	X	Jamie Gibson	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
143	X	Tory Gear	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
144	X	Arly Frye	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
145	X	Hallwy, Office Procurement Dept.	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
146	X	Open Office, Small Office	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
147	X	Carole Newell	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
148	X	Mark Wasinger	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
149	X	Supplies Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
150	X	Karl Eighmy	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
151	X	Testing Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4		99	396	L&B TYPE BNLO1, TYPE L2
152	X	Electrical Room	ICMB-100W	2		72	144	FCM-25W-MG	2		25	50	LED lamp
153	X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
154	X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2

155	X	Mail Room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
156	X	Gym	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
157	X	Gym	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1	Occupancy	49	49	2' X 2' U Lamps - Wireless Ceiling OC
158	X	Gym Hallway	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
159	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	L&B TYPE BNLO1, TYPE L2
160	X	Men's Locker - Uniforms	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
161	X	Men's Locker	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	24		99	2,376	L&B TYPE BNLO2, TYPE L2
162	X	Men's Locker - Showers	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	4' 2 lamp Vapor Tight surface wrap
163	X	Men's Locker Room Sink	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	Wall mounted 1 lamp wrap
164	X	Men's Locker - Electrical Room	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	4' 2 lamp Vapor Tight surface wrap
165	X	Men's Locker Room Entry	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
166	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	L&B TYPE BNLO1, TYPE L2
167		Engineering Storage - locked											Was not considered.
168	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
169	X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
170	X	Engineering Support - 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	58		144	8,352	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	58	Occupancy	49	2,842	L&B TYPE BNLO1, TYPE L2
171	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
172	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
173	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
174	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
175	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
176	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
177	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
178	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
179	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
180	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
181	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

182	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
183	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
184	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
185	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
186	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
187	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
188	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
189	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
190	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
191	+	Y Outside Flag Lights	MH-250W-CWA	2		295	590	CUST: LED Flood 121W	2		121	242	Type FL4
192	+	Y Exterior Under Canopy Lights	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED Lamp
193	X	Emergency Generator Bldg	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	L&B TYPE BNLO1, TYPE L2
194	+	Y Emergency Generator Bldg - Exterior	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
195		Maintenance Bldg											
196	X	Tool Room	FLT12-34W x 2L x 4'-MG(E)	37		72	2,664	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	37		49	1,813	L&B TYPE BNLO1, TYPE L2
197	X	Machine Shop	FLT12-75W x 2L x 8'-MG(E)	23		123	2,829	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	16		213	3,408	FHE Series- Type EHB3
198	X	Machine Shop Over Stairs	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Lamp and Ballast
199	X	Open	MH-400W-CWA	18		458	8,244	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	14		213	2,982	FHE Series- Type EHB3
200	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	L&B TYPE BNLO1, TYPE L2
201	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	12		72	864	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	7		213	1,491	FHE Series- Type EHB3
202	X	Maintenance Shop	FLT12-75W x 2L x 8'-MG(E)	14		123	1,722	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	8		213	1,704	FHE Series- Type EHB3
203	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
204	X	Bolt Room	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	43		49	2,107	L&B TYPE BNLO1, TYPE L2
205	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
206	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
207	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
208	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
209	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

210	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
211	X	Planning Room - Open Office	FLT12-34W x 4L x 4'-2 MG(E)	9	144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	Lamp and Ballast
212	X	Hallways	FLT12-34W x 2L x 4'-MG(E)	6	72	432	FLT8-17W x 3L x 2'-IS(E) L	9		40	360	2' X 2' Lamp and ballast
213	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
214	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
215	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
216	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
217	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
218	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
219	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
220	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
221	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	1	72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
222	X	EM Trucks	HPS-100W	3	130	390	CUST: LEDWP-40W	3		40	120	Type WP1
223		Main Warehouse Offices										
224	X	Entry	FLT12-34W x 2L x 4'-MG(E)	2	72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
225	X	Entry	FLT12-34W x 2L x 4'-MG(E)	16	72	1,152	FLT8-17W x 3L x 2'-IS(E) L	16		40	640	2' X 2' Lamp and ballast
226	X	Break Room / Parts	FLT12-34W x 4L x 4'-2 MG(E)	8	144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8		49	392	L&B TYPE BNLO1, TYPE L2
227	X	Conference Room	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
228	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
229	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4	144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
230	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
231	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
232	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
233	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3	144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
234	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8	72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
235	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8	72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
236	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9	72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
237	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9	72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
238	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9	72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2

239	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
240	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
241	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
242	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
243	X	Down / Parts Drawer	FLT12-75W x 2L x 8'-MG(E)	20		123	2,460	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	20		99	1,980	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO2 & L2
244	X	Down / Parts Drawer	MH-400W-CWA	9		458	4,122	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	Typ HB2
245	X	Warehouse Storage - Back	MH-400W-CWA	17		458	7,786	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	11	Integral	213	2,343	Two Outer aisles-Type HB2
246	X	Warehouse Storage - Back	MH-400W-CWA	6		458	2,748	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6	Integral	213	1,278	Center aisle-Type HB2
247	X	Supply Room	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast
248	X	Supply Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Dup. Occ	49	98	L&B TYPE BNLO1, TYPE L2
249		40 Annex Building											
250	X	Offices	FLT12-34W x 4L x 4'-2 MG(E)	11		144	1,584	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
251	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
252	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
253	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
254	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
255	+	Y	100' Pole Lights- Exterior	32		1,080	34,560	CUST: LED HB 511W	32		511	16,352	Recommend new LED High Mast Light fixture. Holophane or GE
256	+	Y	70' Pole Lights- Exterior	24		1,080	25,920	CUST: LED HB 511W	24		511	12,264	Recommend new LED High Mast Light fixture. Holophane or GE
257		Conveyor Building											
258	X	Conveyor to Appleton, etc.	HPS-150W	129		188	24,252	CUST: LEDHB-78W	129		78	10,062	Type RLB1
259	X	31, 33, 34 & 35 Sump	MH-175W-CWA	177		215	38,055	CUST: LEDHB-78W	177		78	13,806	Type RLB1
260	X	RLM 31, 33, 34 & 35 Sump	ICMB-100W	40		72	2,880	CUST: LEDSI-14W	40		14	560	LED Lamp
261	+	Y	Floods-Exterior	34		465	15,810	CUST: LED Flood - 179W	34		179	6,086	Type FL5
262	+	Y	Floods-Exterior	29		295	8,555	CUST: LED Flood 121W	29		121	3,509	Type FL4
263	+	Y	Roadway-Exterior	15		250	3,750	CUST: LEDPM-105W	15		105	1,575	Type AL1- Area Light/Pole mount - Type III Dist.
264													



Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - T12 Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	<input checked="" type="checkbox"/> Acct Holder <input checked="" type="checkbox"/> Elect. User <input checked="" type="checkbox"/> Building Owner		
Business Type	Other		

Contractor Information

Contact	<input type="checkbox"/>	EEA Participant
Business Name		
Address		
City, State, Zip		
Phone, Email		

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			
Meter Base #, Rate	Office Use Only		

Processing Information

Construction Type	Retrofit	Stage	Preliminary
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Project Cost

Material	Labor	Other	Total Project Cost
\$108,730.00	\$14,600.00	\$770.00	\$124,100.00

Space & Size

Calculation Method	Whole Building	Allowed Wattage	720,000	
1 Other		FT ² 1,200,000	0.60	W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
	Other	FT ² 1,200,000	0.60	W/FT ²

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0	10.0			
Op Weeks Per Year	Tue	3.0	10.0			
	Wed	3.0	10.0			
52	Thu	3.0	10.0			
	Fri	3.0	10.0			
Add/Edit	Sat	3.0	4.0			
	Sun	3.0	0.0			
S is for 0 hrs/year	Total	1,095	2,816			
X is for 8760 hrs/year						
Y is for 4380 hrs/year						

Additional Information

Import Existing Project	EEA Participant Info	Email Coordinator	Lighting Catalog	LED Policy	Report A Problem
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Category	26W - CMH-20W-FI FC	<input type="button" value="Add Fixture"/> <input type="button" value="Remove Fixture"/> <input type="button" value="Clear Filter"/> <input type="button" value="Build Fixture"/> <input type="button" value="Reset"/>					<p>Let's turn the answers on.</p>
Fixture	125W - CMH-100W-SCWA						
Lamp	26W - MHPS-20W-FI FC						Project Tracking
Lamp (W)	189W - CMH-150W-SCWA						Preliminary
Lamp Qty	45W - CMH-39W-FI FC						Pre-Inspection
Ballast	272W - CMH-250W-1 R						Agreement Needed
Factor	288W - CMH-250W-SCWA						Contracted
	324W - CMH-300W-1 R						Post-Inspection

		45W - CMH-39W-ELEC				Lighting Power Density 0.60 Code 90.8% 0.11 Existing Better Than Code 0.06 Proposed LPD	
		HID Ceramic Metal Halide Standard (39W x 1L) 1 Electronic					
		Standard Incentive (47.9% of Cost Paid By Incentive)					

Preliminary Dave Johnston Power Plant - T12 Phase

Line Number	155 Out Of 200 Lines Used		Existing				Proposed				Notes			
	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty		Controls	Fixture Wattage	Space Wattage
1			Unit 4											
2	X		Overall Lunch Room	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Lamp and Ballast
3	X		# 4 Control Area	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	24		49	1,176	Lamp and Ballast
4	X		Unit #1	FLT12-34W x 2L x 4'-MG(E)	42		72	3,024	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	42		49	2,058	L&B TYPE BNLO1, TYPE L2
5	X		Unit #1	FLT12HO-95W x 2L x 8'-MG(E)	12		207	2,484	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	12		99	1,188	Type SK2, BNLO2, L2
6	X		Engineering Office	FLT12HO-95W x 2L x 8'-MG(E)	22		207	4,554	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	22		99	2,178	Type SK2, BNLO2, L2
7	X		Restrooms	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
8	X		Lunch Room	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10	Occupancy	49	490	Wireless Ceiling OC-Lamp and Ballast.
9	X		Lunch Room	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11	Occupancy	49	539	Wireless Ceiling OC-Lamp and Ballast
10	X		#3 Switch Gear & Lab	FLT12HO-95W x 2L x 8'-MG(E)	5		207	1,035	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	5		99	495	Type SK2, BNLO2, L2
11	X		Lab	FLT12-34W x 4L x 4'-2 MG(E)	14		144	2,016	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	14		49	686	L&B TYPE BNLO1, TYPE L2
12	X		Lab	FLT12-34W x 3L x 4'-2 MG(E)	2		115	230	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
13	X		Lab	FLT12-34W x 3L x 4'-MG(E)	20		115	2,300	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	20		49	980	L&B TYPE BNLO1, TYPE L2
14			Unit #4 Mezzanine											
15	X		Switch Gear	FLT12-34W x 2L x 4'-MG(E)	7		72	504	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	7		49	343	L&B TYPE BNLO1, TYPE L2
16	X		Switch Gear	FLT12-34W x 2L x 4'-MG(E)	29		72	2,088	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	29		49	1,421	L&B TYPE BNLO1, TYPE L2
17	X		Mezzanine	FLT12-34W x 2L x 4'-MG(E)	26		72	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	26		49	1,274	L&B TYPE BNLO1, TYPE L2
18	X		AQC Bldg	FLT12-34W x 2L x 4'-MG(E)	11		72	792	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
19	X		Insulator Shop	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2

20	X	Insulator Shop	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Integral	49	294	L&B TYPE BNLO1, TYPE L2
21	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	10		72	720	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	2' X 2' U Lamps
22	X	Training Bldg	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
23	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
24	X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
25	X	Utility Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
26	X	Training Library	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
27	X	Small Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	L&B TYPE BNLO1, TYPE L2
28	X	Break Area	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
29	X	Class Room A	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	12		49	588	L&B TYPE BNLO1, TYPE L2
30	X	Bob Miller Office	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
31	X	Tech Training	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
32	X	Sim Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	L&B TYPE BNLO1, TYPE L2
33	X	Class Room B	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	CUST: FLT8CEE-28W x 2L x 4'- CEE RS/PRSDIM N	13	Occupancy	0	0	L&B TYPE BNLO1, TYPE L2
34	X	Rob McComas	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
35	X	Store Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
36	X	Computer Training Lab	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	L&B TYPE BNLO1, TYPE L2
37	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
38	X	Repair Shop	FLT12-34W x 4L x 4'-2 MG(E)	12		144	1,728	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	9		213	1,917	FHE Series- Type EHB3
39	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	2		123	246	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	Wire Body Kit-Type SK2, BNLO2, L2
40	X	Stock Room	FLT12-75W x 2L x 8'-MG(E)	1		123	123	FLT12-75W x 2L x 8'-MG(E)	0		123	0	Remove One 2L F96 T12
41	X	Stock Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4	Occupancy	99	396	Wireless Ceiling OC-Lamp And Ballast - TYPE BNLO2 & L2
42	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
43	X	Locker Room	FLT12-34W x 2L x 4'-MG(E)	5		72	360	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	5	Occupancy	49	245	3-Way Occ sensors wireless- Lamp and Ballast - TYPE BNLO1 & L2
44	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
45	X	Upstairs Break Room	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC -Lamp and Ballast - TYPE BNLO1 & L2
46	X	Upstairs Office	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- L&B - TYPE BNLO1 & L2

47		Unit #1 & #2 Cooling Tower											
48	X	MCC Room	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	Vapor Tight wo/ lens -Lamp and Ballast - TYPE BNLO1 & L2
49	X	Penthouse	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	16		49	784	L&B TYPE BNLO1, TYPE L2
50	X	Penthouse - Communication	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
51	X	Unit #1 & #2	FLT12-34W x 2L x 4'-MG(E)	80		72	5,760	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	80		49	3,920	L&B TYPE BNLO1, TYPE L2
52	X	RLM	FLT12-75W x 8'-MG(E)	3		75	225	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	Type SK2, BNLO1, L2
53		Admin Bldg - 1st Floor											
54	X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
55	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	13		144	1,872	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	13		49	637	L&B TYPE BNLO1, TYPE L2
56	X	Break Room - Kitchen	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
57	X	Men's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
58	X	Women's Restroom	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
59	X	Paula Edberg	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
60	X	Jamie Gibson	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
61	X	Tory Gear	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
62	X	Arly Frye	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
63	X	Hallwy, Office Procurement Dept.	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
64	X	Open Office, Small Office	FLT12-34W x 4L x 4'-2 MG(E)	10		144	1,440	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	10		49	490	L&B TYPE BNLO1, TYPE L2
65	X	Carole Newell	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
66	X	Mark Wasinger	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
67	X	Supplies Room	FLT12-34W x 4L x 4'-2 MG(E)	1		144	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
68	X	Karl Eighmy	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
69	X	Testing Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	4		99	396	L&B TYPE BNLO1, TYPE L2
70	X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
71	X	Training Room	FLT12-34W x 4L x 4'-2 MG(E)	6		144	864	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	6	Occupancy	49	294	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
72	X	Mail Room	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Wall Occ Sensor- Lamp and Ballast - BNLO1 & L2
73	X	Gym	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2

74	X	Gym	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1	Occupancy	49	49	2' X 2' U Lamps - Wireless Ceiling OC
75	X	Gym Hallway	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
76	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	2		144	288	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	2		99	198	L&B TYPE BNLO1, TYPE L2
77	X	Men's Locker - Uniforms	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Occupancy	49	98	Wireless Ceiling OC-Lamp and Ballast - TYPE BNLO1 & L2
78	X	Men's Locker	FLT12-34W x 4L x 4'-2 MG(E)	24		144	3,456	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	24		99	2,376	L&B TYPE BNLO2, TYPE L2
79	X	Men's Locker - Showers	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	4' 2 lamp Vapor Tight surface wrap
80	X	Men's Locker Room Sink	FLT12-34W x 2L x 4'-MG(E)	4		72	288	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	Wall mounted 1 lamp wrap
81	X	Men's Locker - Electrical Room	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	4' 2 lamp Vapor Tight surface wrap
82	X	Men's Locker Room Entry	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
83	X	Hallway	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4		49	196	L&B TYPE BNLO1, TYPE L2
84		Engineering Storage - locked											Was not considered.
85	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
86	X	Women's Restroom	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall mounted 1 lamp wrap
87	X	Engineering Support - 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	58		144	8,352	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	58	Occupancy	49	2,842	L&B TYPE BNLO1, TYPE L2
88	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
89	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
90	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
91	X	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
92	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
93	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
94	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
95	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
96	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
97	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
98	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
99	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
100	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

101	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
102	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
103	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
104	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
105	B	18 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
106	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
107	B	Meeting Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall mount vacancy sensor
108	X	Emergency Generator Bldg	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	L&B TYPE BNLO1, TYPE L2
109		Maintenance Bldg											
110	X	Tool Room	FLT12-34W x 2L x 4'-MG(E)	37		72	2,664	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	37		49	1,813	L&B TYPE BNLO1, TYPE L2
111	X	Machine Shop	FLT12-75W x 2L x 8'-MG(E)	23		123	2,829	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	16		213	3,408	FHE Series- Type EHB3
112	X	Machine Shop Over Stairs	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	Lamp and Ballast
113	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	3		72	216	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3		49	147	L&B TYPE BNLO1, TYPE L2
114	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	12		72	864	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	7		213	1,491	FHE Series- Type EHB3
115	X	Maintenance Shop	FLT12-75W x 2L x 8'-MG(E)	14		123	1,722	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	8		213	1,704	FHE Series- Type EHB3
116	X	Maintenance Shop	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
117	X	Bolt Room	FLT12-34W x 2L x 4'-MG(E)	43		72	3,096	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	43		49	2,107	L&B TYPE BNLO1, TYPE L2
118	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
119	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
120	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
121	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
122	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
123	X	1/2 Wayhouse 2nd Floor	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
124	X	Planning Room - Open Office	FLT12-34W x 4L x 4'-2 MG(E)	9		144	1,296	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9		49	441	Lamp and Ballast
125	X	Hallways	FLT12-34W x 2L x 4'-MG(E)	6		72	432	FLT8-17W x 3L x 2'-IS(E) L	9		40	360	2' X 2' Lamp and ballast
126	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
127	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
128	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2

129	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
130	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
131	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
132	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
133	B	8 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
134	X	Men's Restroom	FLT12-34W x 2L x 4'-MG(E)	1		72	72	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	L&B TYPE BNLO1, TYPE L2
135		Main Warehouse Offices											
136	X	Entry	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2		49	98	L&B TYPE BNLO1, TYPE L2
137	X	Entry	FLT12-34W x 2L x 4'-MG(E)	16		72	1,152	FLT8-17W x 3L x 2'-IS(E) L	16		40	640	2' X 2' Lamp and ballast
138	X	Break Room / Parts	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8		49	392	L&B TYPE BNLO1, TYPE L2
139	X	Conference Room	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
140	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
141	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	4		144	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	4	Occupancy	49	196	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
142	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
143	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
144	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
145	B	6 Small Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	Wall Mount Wireless-Lamp and Ballast - TYPE BNLO1 & L2
146	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
147	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	8		72	576	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
148	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
149	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
150	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
151	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
152	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
153	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
154	X	Down / Parts Drawer	FLT12-34W x 2L x 4'-MG(E)	9		72	648	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	9	Occupancy	49	441	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO1 & L2
155	X	Down / Parts Drawer	FLT12-75W x 2L x 8'-MG(E)	20		123	2,460	FLT8CEE-28W x 4L x 4'-CEE RS/PRS CEE N	20		99	1,980	Fixture mount Occ Sensors- Lamp and Ballast - TYPE BNLO2 & L2
156	X	Supply Room	FLT12-34W x 4L x 4'-2 MG(E)	8		144	1,152	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	8	Occupancy	49	392	Wireless Ceiling OC-Lamp and Ballast

157	X	Supply Room	FLT12-34W x 2L x 4'-MG(E)	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Dup. Occ	49	98	L&B TYPE BNLO1, TYPE L2
158		40 Annex Building											
159	X	Offices	FLT12-34W x 4L x 4'-2 MG(E)	11		144	1,584	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	11		49	539	L&B TYPE BNLO1, TYPE L2
160	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
161	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
162	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
163	X	Private Offices	FLT12-34W x 4L x 4'-2 MG(E)	3		144	432	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	3	Occupancy	49	147	L&B TYPE BNLO1, TYPE L2
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Let's turn the answers on.

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Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Turbine Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	<input type="checkbox"/> Acct Holder <input type="checkbox"/> Elect. User <input type="checkbox"/> Building Owner		
Business Type	Other		

Contractor Information

Contact		<input type="checkbox"/> EEA Participant
Business Name		
Address		
City, State, Zip		
Phone, Email		

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			
Meter Base #, Rate			Office Use Only

Processing Information

Construction Type	Retrofit	Stage	Preliminary
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Project Cost

Material	Labor	Other	Total Project Cost
\$50,030.00	\$6,710.00	\$360.00	\$57,100.00

Space Type & Size


Calculation Method	Whole Building	Allowed Wattage	720,000
1 Other		FT ² 1,200,000	0.60 W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
	Other	FT ² 1,200,000	0.60 W/FT ²

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	24.0				
Op Weeks Per Year	Tue	24.0				
	Wed	24.0				
52	Thu	24.0				
	Fri	24.0				
Add/Edit	Sat	24.0				
	Sun	24.0				
S is for 0 hrs/year	Total	8,760				
X is for 8760 hrs/year						
Y is for 4380 hrs/year						

Additional Information

Import Existing Project	EEA Participant Info	Email Coordinator	Lighting Catalog	LED Policy	Report A Problem
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Category	LED	160W - LEDHR-160W	511W - CUST-LEDHB-511W			 <p>Let's turn the answers on.</p>
Fixture						
Lamp						
Lamp (W)	160					
Lamp Qty						↓↓Project Tracking↓↓
Ballast						Preliminary
Factor						Pre-Inspection
				511W - CUST: LEDHB-511W Custom Fixture		Lighting Power Density
				Standard Incentive (15.4% of Cost Paid By Incentive)		0.60 Code 94.8%
						0.07 Existing Better Than Code
						0.03 Proposed LPD

Preliminary Dave Johnston Power Plant - Turbine Phase

Line Number	4 Out Of 75 Lines Used		Existing				Proposed				Notes		
	Exterior	Schedule	Fixture	Qty	Controls	Interior Fixture Wattage	Interior Space Wattage	Fixture	Qty	Controls		Interior Fixture Wattage	Interior Space Wattage
1													
2	X		Turbine Deck	66		1,080	71,280	CUST: LEDHB-511W	66		511	33,726	Type HB6
3	X		Turbine Deck	10		465	4,650	LEDHB-160W	10		160	1,600	Type HB1 - 160W
4													
5	X		Turbine Shed	10		215	2,150	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
6	X		Turbine Shed	7		295	2,065	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	FHE Series- Type EHB3
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
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33													
34													
35													



Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Industrial Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	<input type="checkbox"/> Acct Holder <input type="checkbox"/> Elect. User <input type="checkbox"/> Building Owner		
Business Type	Other		

Contractor Information

Contact		<input type="checkbox"/> EEA Participant
Business Name		
Address		
City, State, Zip		
Phone, Email		

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			
Meter Base #, Rate	Office Use Only		

Processing Information

Construction Type	Retrofit	Stage	Preliminary
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Project Cost

Material	Labor	Other	Total Project Cost
\$1,959,440.00	\$262,940.00	\$14,020.00	\$2,236,400.00

Space & Size


Calculation Method	Whole Building	Allowed Wattage	720,000	
1 Other		FT ² 1,200,000	0.60	W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
		FT ²		W/FT ²
	Other	FT ² 1,200,000	0.60	W/FT ²

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	12.0				
Op Weeks Per Year	Tue	12.0				
	Wed	12.0				
52	Thu	12.0				
	Fri	12.0				
Add/Edit	Sat	12.0				
	Sun	12.0				
S is for 0 hrs/year						
X is for 8760 hrs/year						
Y is for 4380 hrs/year	Total	4,380				

Additional Information

Import Existing Project	EEA Participant Info	Email Coordinator	Lighting Catalog	LED Policy	Report A Problem
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Category	LED	101W - I FDP-101W 102W - I FDP-102W 106W - I FDP-106W 108W - I FDP-108W 112W - I FDP-112W 124W - I FDP-124W 131W - I FDP-131W 138W - I FDP-138W 139W - I FDP-139W 143W - I FDP-143W 146W - I FDP-146W	<input type="button" value="Add Fixture"/> <input type="button" value="Remove Fixture"/> <input type="button" value="Clear Filter"/> <input type="button" value="Build Fixture"/> <input type="button" value="Reset"/>	78 W - CUST: I FDHR-78W 40 W - CUST: I FDP-40W 30 W - CUST: I FDSI-30W 14 W - CUST: I FDSI-14W 511 W - CUST: I FDHR-511W 109 W - CUST: I FDWP-109W 47 W - CUST: I FDWP-47W	 <p>Let's turn the answers on.</p> <p>↓↓Project Tracking↓↓</p> <p>Preliminary</p> <p>Pre-Inspection</p> <p>Agreement Needed</p> <p>Contracted</p> <p>Post-Inspection</p> <p>Final Review Needed</p> <p>↓↓Project Notes↓↓</p>
Fixture				Savings Information 3,662,878 kWh Saved Per Year	
Lamp					
Lamp (W)					
Lamp Qty					
Ballast					
Factor					

213W - FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H
Fluorescent Linear T8 CEE Highbay (32W x 6L x 4') 1 CEE Instant Start Ballast (BF > 1.0)
Standard Incentive (13.4% of Cost Paid By Incentive)

Preliminary Dave Johnston Power Plant - Industrial Phase														
Line Number	74 Out Of 200 Lines Used		Existing				Proposed							
	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	

Line Number	Exterior	Schedule	Space Description	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	
1			Unit 4											
2	X		Elevator Room	ICMB-150W	1		150	150	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	1		49	49	Vapor Tight -
3	X		Drum Room	MH-175W-CWA	2		215	430	CUST: LEDHB-78W	2		78	156	Crouse Hines - Type RLB1
4	X		Penthouse	ICMB-100W	2		72	144	FLT8CEE-28W x 2L x 4'-CEE RS/PRS CEE N	2	Integral	49	98	Surface Vapor Tight
5	X		RCM	ICMB-200W	3		200	600	CUST: LEDPM-40W	3		40	120	Pipe Mount LED Industrial Refracture Pack- Type RLB1
6	X		West Drum Room	ICMB-150W	1		150	150	CUST: LEDSI-30W	1		30	30	Jelly Jar - Type VTK
7	X		West Drum Room Level 8	MH-175W-CWA	1		215	215	FLT8CEE-32W x 2L x 4'-CEE IS CEE H	1		73	73	Vapor Tight
8	X		Level 8 Under Boiler	ICMB-100W	5		72	360	CUST: LEDSI-14W	3		14	42	LED lamp
9	X		Level 8 Jelly Jar	ICMB-100W	9		72	648	CUST: LEDSI-14W	9		14	126	LED lamp
10	X		Level 8	MH-175W-CWA	198		215	42,570	CUST: LEDHB-78W	198		78	15,444	split line in 2 so savings- Type RLB1
11	X		Level 8	MH-175W-CWA	200		215	43,000	CUST: LEDHB-78W	200		78	15,600	would calculate
12	X		55 Conveyors, Coal MCC	MH-175W-CWA	50		215	10,750	CUST: LEDHB-78W	50		78	3,900	Type RLB1
13	X		55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23	Integral	78	1,794	Fixture Mount OC -Type RLB1
14	X		55 "B" Conveyor	MH-175W-CWA	23		215	4,945	CUST: LEDHB-78W	23		78	1,794	Every Other Fixture - Type RLB1
15	X		DA - 6	MH-175W-CWA	4		215	860	CUST: LEDHB-78W	4		78	312	Type RLB1
16			Level 5											
17	X		Old Scrubber	MH-175W-CWA	13		215	2,795	CUST: LEDHB-78W	13		78	1,014	Type RLB1
18	X		Old Scrubber Master Level	ICMB-100W	12		72	864	CUST: LEDSI-14W	12		14	168	LED lamp
19	X		Old Scrubber Master Level	HPS-250W	3		295	885	CUST: LEDHB-78W	3		78	234	Type RLB1
20	X		3 1/2 Outled, ODD Feeder Deck, Abandoned Stairs, FD & ID Fans	MH-175W-CWA	47		215	10,105	CUST: LEDHB-78W	47		78	3,666	Type RLB1
21	X		FD & ID Fans	HPS-250W	4		295	1,180	CUST: LEDHB-78W	4		78	312	Type RLB1
22	X		Unit #3 Bldg	MH-1000W-CWA	6		1,080	6,480	CUST: LEDHB-511W	6		511	3,066	Type HB6
23	X		Unit #3 Bldg	MH-400W-CWA	10		458	4,580	LEDHB-160W	10		160	1,600	Type HB1 -160W
24	X		Unit #3 Bldg	MH-175W-CWA	325		215	69,875	CUST: LEDHB-78W	325		78	25,350	Type RLB1

25		Unit #2										
26	X	Unit #2	MH-175W-CWA	134	215	28,810	CUST: LEDHB-78W	134	78	10,452	Type RLB1	
27	X	Unit #2 & RLM	HPS-150W	63	188	11,844	CUST: LEDHB-78W	63	78	4,914	Type RLB1	
28	X	Sports Light Flood	MH-1000W-CWA	8	1,080	8,640	CUST: LEDHB-511W	8	511	4,088	Type HB6	
29	X	Jelly Jars	ICMB-100W	12	72	864	CUST: LEDSI-14W	12	14	168	LED lamp	
30		Unit #1										
31	X	Unit #1	MH-175W-CWA	59	215	12,685	CUST: LEDHB-78W	59	78	4,602	Type RLB1	
32	X	Unit #1	HPS-150W	18	188	3,384	CUST: LEDHB-78W	18	78	1,404	Type RLB1	
33	X	RLM	ICMB-200W	107	200	21,400	CUST: LEDHB-78W	107	78	8,346	Type RLB1	
34	X	Jelly Jars	ICMB-150W	12	150	1,800	CUST: LEDSI-30W	12	30	360	LED lamp	
35	X	Sports Lights	MH-400W-CWA	6	458	2,748	LEDHB-160W	6	160	960	Type HB1-160W	
36	X	Basement	HPS-150W	300	188	56,400	CUST: LEDHB-78W	300	78	23,400	Type RLB1	
37	X	Unit #1	MH-175W-CWA	200	215	43,000	CUST: LEDHB-78W	200	78	15,600	Type RLB1	
38	X	Unit #1	MH-175W-CWA	245	215	52,675	CUST: LEDHB-78W	245	78	19,110	Type RLB1	
39	X	Unit #1	HPS-250W	26	295	7,670	CUST: LEDWP-109W	26	109	2,834	Type WP1	
40	X	Unit #1	MH-400W-CWA	10	458	4,580	LEDHB-160W	10	160	1,600	Type HB1-160W	
41	X	Shop Basement	MH-1000W-CWA	8	1,080	8,640	CUST: LEDWP-47W	8	47	376	Type WP1	
42		Mezzanine										
43	X	Switch Gear	MH-175W-CWA	5	215	1,075	CUST: LEDHB-78W	5	78	390	Type RLB1	
44	X	Generator Pit	HPS-150W	5	188	940	CUST: LEDHB-78W	5	78	390	Type RLB1	
45		Unit #4 Mezzanine										
46	X	Mezzanine	HPS-250W	9	295	2,655	CUST: LEDWP-109W	9	109	981	Type WP2	
47	X	Mezzanine	MH-175W-CWA	76	215	16,340	CUST: LEDHB-78W	76	78	5,928	Type RLB1	
48	X	Mezzanine	HPS-150W	70	188	13,160	CUST: LEDHB-78W	70	78	5,460	Type RLB1	
49	X	Floc Bldg	MH-175W-CWA	10	215	2,150	CUST: LEDHB-78W	10	78	780	Type RLB1	
50	X	Insulator Shop	MH-175W-CWA	4	215	860	CUST: LEDWP-47W	4	47	188	Type WP1	
51	X	Training Bldg	CUST: ICMB-120W	1	0	0	FCM-15W x 2L-MG	1	30	30	CFL or LED lamp	
52	X	Mine Garage	HPS-150W	2	188	376	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	1	142	142	Remove both incandescent fixtures.	
53	X	Storage	MH-175W-CWA	5	215	1,075	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
54	X	Storage	MH-250W-CWA	2	295	590	FLT8CEEHB-32W x 4L x 4'-CEE IS CEE H	4	Integral	142	568	New -2 Lamp Strip fixture, TYPE S1 & TYPE L1
55	X	Repair Shop	MH-175W-CWA	2	215	430	CUST: LEDWP-47W	2	47	94	Type WP1	
56	X	Repair Shop	MH-1000W-CWA	6	1,080	6,480	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5	213	1,065	FHE Series -Type EHB3	
57	X	Repair Shop	HPS-400W	6	465	2,790	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5	213	1,065	FHE Series- Type EHB3	
58	X	Repair Shop	MH-1000W-CWA	1	1,080	1,080	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1	213	213	FHE Series- Type EHB3	
59	X	Repair Shop	ICMG-500W	4	500	2,000	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5	213	1,065	FHE Series- Type EHB3	
60	X	Repair Shop	MH-400W-CWA	2	458	916	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	1	213	213	FHE Series-Type EHB3	
61	X	Truck Repair Bays	MH-175W-CWA	3	215	645	MH-175W-CWA	0	215	0	Remove Three 175w MH	
62		Unit #1 & #2 Cooling Tower										
63	X	Under Grate - MCC	MH-250W-CWA	3	295	885	CUST: LEDWP-109W	3	109	327	Type WP2	
64	X	MCC Bldg	MH-175W-CWA	6	215	1,290	CUST: LEDWP-47W	6	47	282	Type WP1	
65		Precipitator Bldg										
66	X	Unit #1 & #2	MH-175W-CWA	98	215	21,070	CUST: LEDHB-78W	98	78	7,644	Type RLB1	
67	X	Hopper Level	MH-175W-CWA	60	215	12,900	CUST: LEDHB-78W	60	78	4,680	Type RLB1	
68	X	Ground Floor	MH-175W-CWA	18	215	3,870	CUST: LEDHB-78W	18	78	1,404	Type RLB1	

69	X	Diesel Generating Room	ICMB-200W	2		200	400	ICMB-200W	0		200	0	Remove two 200w Incandescents
70	X	Diesel Fire Pump	MH-175W-CWA	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
71	X	Chlorine Building	ICMB-200W	4		200	800	CUST: LEDSI-30W	4		30	120	Type VTK
72	X	Chlorine Building - Side Two RLM	ICMB-200W	2		200	400	CUST: LEDSI-30W	2		30	60	Type VTK
73	X	Fire Pump House	MH-175W-CWA	6		215	1,290	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6		213	1,278	Consider Not Changing
74		Admin Bldg - 1st Floor											
75	X	Electrical Room	ICMB-100W	2		72	144	FCM-25W-MG	2		25	50	CFL or LED lamp
76		Maintenance Bldg											
77	X	Open	MH-400W-CWA	18		458	8,244	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	14		213	2,982	FHE Series- Type EHB3
78	X	EM Trucks	HPS-100W	3		130	390	LEDWP-40W	3		40	120	Type WP1
79		Main Warehouse Offices											
80	X	Down / Parts Drawer	MH-400W-CWA	9		458	4,122	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	5		213	1,065	Typ HB2
81	X	Warehouse Storage - Back	MH-400W-CWA	17		458	7,786	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	11	Integral	213	2,343	Two Outer aisles-Type HB2
82	X	Warehouse Storage - Back	MH-400W-CWA	6		458	2,748	FLT8CEEHB-32W x 6L x 4'-CEE IS CEE H	6	Integral	213	1,278	Center aisle-Type HB2
83		Conveyor Building											
84	X	Conveyor to Appleton, etc.	HPS-150W	129		188	24,252	CUST: LEDHB-78W	129		78	10,062	Type RLB1
85	X	31, 33, 34 & 35 Sump	MH-175W-CWA	177		215	38,055	CUST: LEDHB-78W	177		78	13,806	Type RLB1
86	X	RLM 31, 33, 34 & 35 Sump	ICMB-100W	40		72	2,880	CUST: LEDSI-14W	40		14	560	LED Lamp
87													
88													
89													
90													
91													
92													
93													
94													
95													
96													
97													
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110													



Let's turn the answers on.

V 070113.5.3

Wyoming FinAnswer Express Program

07/01/13 Effective Date

You Can Now Use The Project Information Tab

Project ID	
Lighting Coordinator	Dan Kuhl
Tool Prepared by	Dan Kuhl
Project Manager	
Account Manager	

Customer Information

Project Name	Dave Johnston Power Plant - Exterior Phase		
Business Name	PacifiCorp Energy		
Installation Address	1591 Tank Farm Rd		
City, State, Zip	Glenrock	WY	82637
Contact, Title	Brian Gangl		
Phone, Email	(307) 995-5193	brian.gangl@pacificorp.com	
Account, Meter, Rate			48T
Participant is:	<input checked="" type="checkbox"/> Acct Holder <input checked="" type="checkbox"/> Elect. User <input checked="" type="checkbox"/> Building Owner		
Business Type	Other		

Contractor Information

Contact		<input type="checkbox"/> EEA Participant
Business Name		
Address		
City, State, Zip		
Phone, Email		

Payee Information

Incentive Should Be Addressed To:			
Business Name			
Attention			
Check Reference			
Address			
City, State, Zip			

Eligibility Information

Business Name			
Address			
City, State, Zip			
Account #			
Meter Base #, Rate			Office Use Only

Processing Information

Construction Type	Retrofit	Stage	Preliminary
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Project Cost

Material	Labor	Other	Total Project Cost
\$257,800.00	\$34,600.00	\$1,800.00	\$294,200.00

Space Type & Size

Calculation Method	Whole Building	Allowed Wattage	720,000
1 Other		FT ² 1,200,000	0.60 W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
		FT ²	W/FT ²
Other		FT ² 1,200,000	0.60 W/FT ²

Lighting Operation Schedule

# of Holidays Closed?	Day	A	B	C	D	E
0	Mon	3.0				
Op Weeks Per Year	Tue	3.0				
52	Wed	3.0				
Add/Edit S is for 0 hrs/year X is for 8760 hrs/year Y is for 4380 hrs/year	Thu	3.0				
	Fri	3.0				
	Sat	3.0				
	Sun	3.0				
	Total		1,095			

Additional Information

Import Existing Project	EEA Participant Info	Email Coordinator	Lighting Catalog	LED Policy	Report A Problem
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Category	Fluorescent	330W - FI T5HOHR-49W x 6L x 4'-2	<input type="button" value="Add Fixture"/> <input type="button" value="Remove Fixture"/> <input type="button" value="Clear Filter"/> <input type="button" value="Build Fixture"/> <input type="button" value="Reset"/>	465W - HPS-400W	Savings Information 339,227 kWh Saved Per Year	<p>Let's turn the answers on.</p> <p>Project Tracking</p> <p>Preliminary</p> <p>Pre-Inspection</p> <p>Agreement Needed</p> <p>Contracted</p> <p>Post-Inspection</p> <p>Final Review Needed</p> <p>Project Notes</p>
Fixture		348W - FI T5HOHR-51W x 6L x 4'-2		400 W - CUST: 1 FDHR-400W		
Lamp	T5HO High Bay	351W - FI T5HOHR-54W x 6L x 4'-3		160 W - CUST: 1 FDHR-160W		
Lamp (W)				458W - MH-400W-CWA		
Lamp Qty	6			188W - HPS-150W		
Ballast			207W - FI T12HO-95W x 2L x 8'-MG	Lighting Power Density	0.60 Code 99.5%	
Factor			115W - FI T12-34W x 3L x 4'-MG(F)	0.02 Existing Better Than Code LPD	0.00 Proposed	
351W - FLT5HOHB-54W x 6L x 4'-3 RS/PRS H Fluorescent Linear T5HO High Bay (54W x 6L x 4') 3 Rapid/Program Start Ballast (0.95 < BF < 1.10) Standard Incentive (11.5% of Cost Paid By Incentive)						

Preliminary Dave Johnston Power Plant - Exterior Phase

Line Number	14 Out Of 266 Lines Used		Existing				Proposed				Notes		
	Exterior	Schedule	Fixture	Qty	Controls	Fixture Wattage	Space Wattage	Fixture	Qty	Controls		Fixture Wattage	Space Wattage
1													
2	+	A	Star Sign	112		150	16,800	CUST: LEDSI-30W	112		30	3,360	LED lamp
3	+	X	Coal Belt between #1 & #2	37		215	7,955	CUST: LEDHB-78W	37		78	2,886	Type RLB1
4			Parking Lot-Exterior										
5	+	Y	Pole Lights-Exterior	11		465	5,115	CUST: LEDPM-120W	11		120	1,320	Type RW1
6			Unit #4 Mezzanine										
7	+	X	Outside of Bldg-Exterior	10		465	4,650	CUST: LED Flood 121W	10		121	1,210	Flood- Type FL4
8			Precipitator Bldg										
9	+	Y	Penthouse - Outdoor	8		215	1,720	CUST: LEDHB-78W	8		78	624	Type RLB1
10	+	Y	River Intake - Outdoors	19		188	3,572	CUST: LEDHB-78W	19		78	1,482	Type RLB1
11	+	Y	Outside Flag Lights	2		295	590	CUST: LED Flood 121W	2		121	242	Type FL4
12	+	Y	Exterior Under Canopy Lights	9		72	648	CUST: LEDSI-14W	9		14	126	LED Lamp
13													
14	+	Y	Emergency Generator Bldg - Exterior	3		215	645	CUST: LEDHB-78W	3		78	234	Type RLB1
15			40 Annex Building										
16	+	Y	100' Pole Lights-Exterior	32		1,080	34,560	CUST: LED HB 511W	32		511	16,352	Recommend new LED High Mast Light fixture. Holophane or GE
17	+	Y	70' Pole Lights-Exterior	24		1,080	25,920	CUST: LED HB 511W	24		511	12,264	Recommend new LED High Mast Light fixture. Holophane or GE
18			Conveyor Building										
19	+	Y	Floods-Exterior	34		465	15,810	CUST: LED Flood - 179W	34		179	6,086	Type FL5
20	+	Y	Floods-Exterior	29		295	8,555	CUST: LED Flood 121W	29		121	3,509	Type FL4
21	+	Y	Roadway-Exterior	15		250	3,750	CUST: LEDPM-105W	15		105	1,575	Type AL1- Area Light/Pole mount - Type III Dist.
22													
23													
24													
25													

Appendix C

Fixture Specification Sheets



D-Series Size 2 LED Wall Luminaire



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.



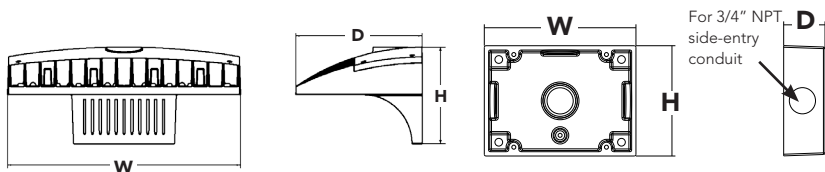
d²series

Specifications Luminaire

Width:	18-1/2" (47.0 cm)	Weight:	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	BBW Weight:	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		



Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DBBXTD

Series	Performance Package	Distribution	Voltage	Mounting	Control Options	Other Options	Finish (required)
DSXW2 LED							
DSXW2 LED	LEDs 20C 20 LEDs (two engines) 30C 30 LEDs (three engines) Drive current 350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A) Color temperature 30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT¹ 120 ¹ 208 ¹ 240 ¹ 277 ¹ 347 ² 480 ²	Shipped included (blank) Surface mounting bracket Shipped separately³ BBW Surface-mounted back box (for conduit entry)	Shipped installed PE Photoelectric cell, button type ⁴ PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) DCR Dimmable and controllable via ROAM [®] (no controls) ⁵ PIRH 180° motion/ambient light sensor, 15-30' mtg ht ⁶	Shipped installed SF Single fuse (120, 277, 347V) ⁷ DF Double fuse (208, 240, 480V) ⁷ HS House-side shield ³ Shipped separately BSW Bird-deterrent spikes ³ WG Wire guard ³ VG Vandal guard ³	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- Available with 30 LED/700mA options only (DSXW2 LED 30C 700).
- Also available as a separate accessory; see Accessories information.
- Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Specifies a ROAM[®] enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM[®] deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roomservices.net.
- Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ⁸
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ⁸
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ⁸
SC U	Shorting cap ³
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DBBXD U	Back box accessory (specify finish)



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
					20C (20 LEDs)	530	20C 530 --K	36 W	T2S	3533	1	0	1	98
T2M	3437	1	0	1					95	3755	1	0	1	104
T3S	3489	1	0	1					97	3811	1	0	1	106
T3M	3545	1	0	2					98	3873	1	0	2	108
T4M	3498	1	0	1					97	3822	1	0	1	106
TFTM	3495	1	0	1					97	3819	1	0	1	106
700	20C 700 --K	47 W	T2S	4371		1	0	1	93	4776	1	0	1	102
			T2M	4252		1	0	1	90	4647	1	0	2	99
			T3S	4316		1	0	1	92	4716	1	0	1	100
			T3M	4386		1	0	2	93	4793	1	0	2	102
			T4M	4328		1	0	1	92	4729	1	0	2	101
			TFTM	4324		1	0	1	92	4725	1	0	2	101
1000	20C 1000 --K	73 W	T2S	5914	1	0	1	81	6462	1	0	1	89	
			T2M	5754	1	0	2	79	6287	2	0	2	86	
			T3S	5839	1	0	1	80	6380	1	0	2	87	
			T3M	5935	1	0	2	81	6484	1	0	2	89	
			T4M	5855	1	0	2	80	6398	1	0	2	88	
			TFTM	5851	1	0	2	80	6393	1	0	2	88	
30C (30 LEDs)	530	30C 530 --K	54 W	T2S	5280	1	0	1	98	5769	1	0	1	107
				T2M	5137	1	0	2	95	5613	1	0	2	104
				T3S	5214	1	0	1	97	5696	1	0	1	105
				T3M	5298	1	0	2	98	5789	1	0	2	107
				T4M	5228	1	0	2	97	5712	1	0	2	106
				TFTM	5223	1	0	2	97	5707	1	0	2	106
	700	30C 700 --K	71 W	T2S	6513	1	0	1	92	7118	2	0	2	100
				T2M	6337	2	0	2	89	6925	2	0	2	98
				T3S	6431	1	0	2	91	7028	1	0	2	99
				T3M	6536	1	0	2	92	7143	2	0	3	101
				T4M	6449	1	0	2	91	7047	1	0	2	99
				TFTM	6444	1	0	2	91	7042	1	0	2	99
1000	30C 1000 --K	109 W	T2S	8697	2	0	2	80	9501	2	0	2	87	
			T2M	8462	2	0	2	78	9244	2	0	2	85	
			T3S	8588	1	0	2	79	9381	2	0	2	86	
			T3M	8728	2	0	3	80	9534	2	0	3	87	
			T4M	8611	1	0	2	79	9407	2	0	2	86	
			TFTM	8604	2	0	2	79	9399	2	0	2	86	

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C	1.02
10°C	1.01
20°C	1.00
25°C	1.00
30°C	1.00
40°C	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSXW2 LED 30C 1000 platform in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

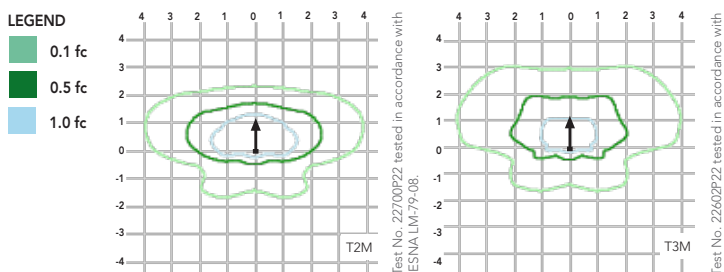
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

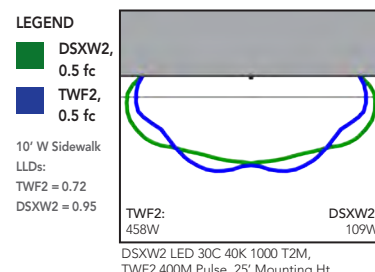
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



Distribution overlay comparison to 400W metal halide.



FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000K (80 min. CRI),

4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours. Surge protection device meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.





D-Series Size 1 LED Wall Luminaire



Catalog
Number

Notes

Type

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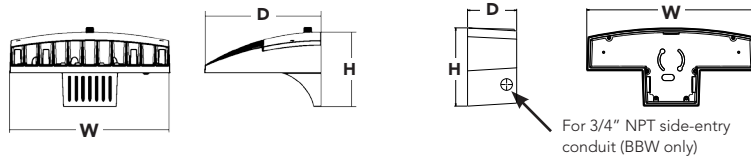
d^{series}

Specifications Luminaire

Width:	13-3/4" (34.9 cm)	Weight:	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, ELCW)

Width:	13-3/4" (34.9 cm)	BBW Weight:	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	ELCW Weight:	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		



Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

Series	Performance Package	Distribution	Voltage	Mounting	Control Options	Other Options	Finish (required)
DSXW1 LED							
DSXW1 LED	LEDs 10C 10 LEDs (one engine) 20C 20 LEDs (two engines) Drive current 350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A) Color temperature 30K 3000K 40K 4000K 50K 5000K	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT 120 ¹ 208 ¹ 240 ¹ 277 ¹	Shipped included (blank) Surface mounting bracket BBW Surface-mounted back box (for conduit entry) ²	Shipped installed PE Photoelectric cell, button type ³ DMG 0-10V dimming driver (no controls) PIR 180° motion/ambient light sensor, <15' mtg ht ^{4,6} PIRH 180° motion/ambient light sensor, 15-30' mtg ht ^{3,6} ELCW Emergency battery backup (includes external component enclosure) ⁷	Shipped installed SF Single fuse (120, 277V) ⁸ DF Double fuse (208, 240V) ⁸ HS House-side shield ⁹ Shipped separately BSW Bird-deterrent spikes ⁹ WG Wire guard ⁹ VG Vandal guard ⁹	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
- Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Specifies the Sensor Switch SBR-10-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
- Specifies the Sensor Switch SBR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard.
- Not available with 20 LED/1000 mA configuration (DSXW1 LED 20C 1000).
- Not compatible with conduit entry applications. Not available with BBW mounting option.
- Single fuse (SF) requires 120 or 277 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
- Also available as a separate accessory; see Accessories information.

Accessories

Ordered and shipped separately.

DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW1WG U	Wire guard accessory
DSXW1VG U	Vandal guard accessory



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 65 CRI)										
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW						
															T2S	1724	1	0	1	86
										T2M	1729	1	0	1	86	1812	1	0	1	91
										T3S	1709	1	0	1	85	1792	1	0	1	90
										T3M	1753	1	0	1	88	1838	1	0	1	92
										T4M	1753	1	0	1	88	1837	1	0	1	92
										TFTM	1766	1	0	1	88	1851	1	0	1	93
										T2S	2234	1	0	1	83	2341	1	0	1	87
										T2M	2241	1	0	1	83	2349	1	0	1	87
										T3S	2216	1	0	1	82	2322	1	0	1	86
										T3M	2272	1	0	1	84	2381	1	0	1	88
										T4M	2272	1	0	1	84	2381	1	0	1	88
										TFTM	2289	1	0	1	85	2399	1	0	1	89
										T2S	2992	1	0	1	75	3136	1	0	1	78
										T2M	3001	1	0	1	75	3146	1	0	1	79
										T3S	2967	1	0	1	74	3110	1	0	1	78
										T3M	3043	1	0	1	76	3189	1	0	1	80
										T4M	3043	1	0	1	76	3189	1	0	1	80
										TFTM	3066	1	0	1	77	3213	1	0	1	80
										T2S	3545	1	0	1	98	3715	1	0	1	103
										T2M	3556	1	0	1	99	3727	1	0	1	104
										T3S	3515	1	0	1	98	3685	1	0	1	102
										T3M	3606	1	0	2	100	3779	1	0	2	105
										T4M	3605	1	0	1	100	3779	1	0	1	105
										TFTM	3632	1	0	1	101	3807	1	0	1	106
										T2S	4357	1	0	1	93	4566	1	0	1	97
										T2M	4370	1	0	1	93	4580	1	0	1	97
										T3S	4320	1	0	1	92	4528	1	0	1	96
										T3M	4431	1	0	2	94	4644	1	0	2	99
										T4M	4430	1	0	1	94	4644	1	0	2	99
										TFTM	4464	1	0	1	95	4678	1	0	1	100
										T2S	5745	2	0	2	77	6020	2	0	2	80
										T2M	5763	1	0	2	77	6039	2	0	2	81
										T3S	5697	1	0	1	76	5970	1	0	2	80
										T3M	5843	1	0	2	78	6123	2	0	2	82
										T4M	5843	1	0	2	78	6123	1	0	2	82
										TFTM	5887	1	0	2	78	6169	1	0	2	82

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C	1.02
10°C	1.01
20°C	1.00
25°C	1.00
30°C	1.00
40°C	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSXW1 LED 20C 1000 platform in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.93	0.88

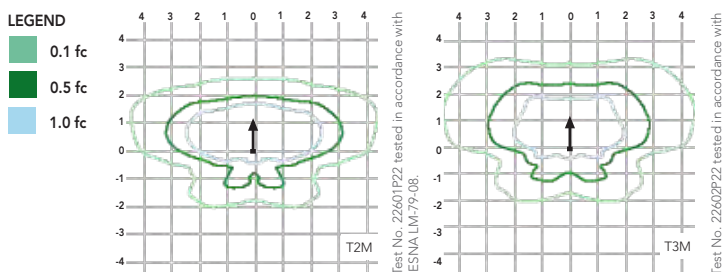
Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
10C	350	14 W	0.13	0.07	0.06	0.06	-	-
	530	20 W	0.19	0.11	0.09	0.08	-	-
	700	27 W	0.25	0.14	0.13	0.11	-	-
	1000	40 W	0.37	0.21	0.19	0.16	-	-
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	75 W	0.69	0.40	0.35	0.30	-	-

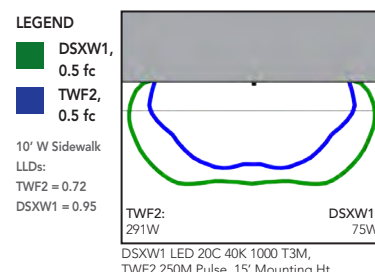
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 1 homepage.

Isofootcandle plots for the DSXW1 LED 20C 1000 40K. Distances are in units of mounting height (15').



Distribution overlay comparison to 250W metal halide.



FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 1 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000K (80 min. CRI),

4000K (70 min. CRI) or 5000K (65 min. CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L88/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours. Surge protection device meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.



FEATURES & SPECIFICATIONS

INTENDED USE - The AVRK series retrofit kits are designed to convert existing 4' and 8' fluorescent strip fixtures to state of the art energy-efficient fluorescent lamp and ballast technology along with high performance reflectors for enhanced light output. Retrofitting older fixtures can greatly reduce energy consumption and lamp replacement costs while improving light. The channels are shipped fully assembled and pre-wired to allow fast, easy installation with minimal labor. Choice of channel widths ensures compatibility with the broadest range of existing fixtures. The AVRK strip reflector conversion kit maximizes fixture efficiency and provides enhanced uniform light distribution.

CONSTRUCTION - One-piece 4' or 8' nominal channels are formed from rugged corrosion resistant aluminum for durability and light weight. All channel aluminum is painted with high-reflectance white paint. Reflectors are precision formed aluminum with highly reflective white paint or 95% reflective specular aluminum. The AVRK is available in two channel widths designed to fit most commercial fluorescent strip fixtures, and the kit installs with simple hand tools. The conversion kit includes a "quick access" aluminum ballast cover secured to the channel with captive quarter-turn fasteners. The snap-in rotary lampholders, ballasts, and ballast quick-disconnect plug are shipped prewired for quick installation. Reflector panels (4' sections) attach to channel with captive quarter-turn fasteners.

ELECTRICAL - Standard ballast is high-efficiency, CEE (Consortium for Energy Efficiency) qualified NEMA premium, instant start, <10% THD, universal voltage and sound rated A. Suggested lamps are high-lumen, long-life super T8 lamps which contribute to optimizing system performance. Optional program start and step-dim bi-level ballasts are available as well as several ballast factor options to maximize energy savings and to allow the amount of light to be balanced to the application. Rotary lampholders and ballast disconnect plug are prewired to ballast assembly.

INSTALLATION - Two channel widths are available for optimum fit to the broadest range of commercial strip fixtures. One-piece aluminum covers with snap-in rotary lampholders attach to the existing channel using provided Tek screws. Ballast is factory mounted to the "quick access" plate and pre-wired to the lampholders. After wiring connection is made to included ballast disconnect plug, ballast access plate secures to channel cover with captive quarter-turn fasteners. Reflector panels (4' sections) attach to channel with captive quarter-turn fasteners.

Installation is designed for maximum speed and simplicity.

LISTING - UL classified for luminaire conversion, retrofit.

WARRANTY — 1-year limited warranty. Complete warranty terms located at:

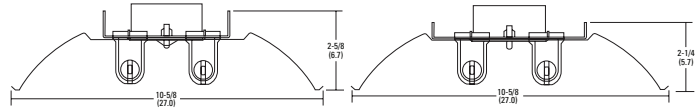
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

AVRK

Assembled Strip retrofit kit
1 or 2 Lamp
4' or 8'
Energy saving T8



ORDERING INFORMATION

For shortest lead times, configure products using **bold options**.

Example: AVRK8 2 32 CW42 1/4 BINP WHR

Series	Number of lamps	Wattage	Width	Ballast configuration	Ballast type	Reflector type
AVRK4 4' long, no uplight	1	32	CW42	AVRK4 / AVRKA4	BINP	WHR
AVRK8 8' long, no uplight	2		CW50	(blank) 1 or 2-lamp ballast	BIHP	SSR
AVRKA4 4' long, 10% uplight				AVRK8 / AVRKA8	BILP	
AVRKA8 8' long, 10% uplight				(blank) Two 2-lamp ballast	BPNP	
				1/4 One 4-lamp ballast	BPHP	
					BPLP	
					BSNP ¹	

Notes

- Not available as 1/4.
- AVRK channels and reflectors will ship separately for field installation. Example:
(qty 1) AVRK8 2 32 CW42 BINP SSR ships as
(qty 1) AVRK8 2 32 CW42 1/4 BINP L/REFL
(qty 2) AVRK 4FT SSR REFL

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal where high brightness and good illumination levels are required such as retail, light industrial and warehouses.

Attributes: Available in one lamp or two lamp configuration.

CONSTRUCTION — Heavy-duty channel, die-formed from code-gauge steel.

Sturdy channel cover secured by captive quarter-turn latch for easy access to wireway.

Combination endplate/channel connector furnished with each fixture.

Finish: Five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL — Thermally protected, resetting, Class P, UL Listed and CSA Certified ballast is standard. Sound rating depends on lamp/ballast combination.

AWM, TFN, THHN wire throughout, rated for required temperatures.

INSTALLATION — For unit or row installations, surface or suspended mounting.

LISTINGS — UL listed to US and Canadian safety standards. Optional: Mexico NOM.

Damp location listed.

Listed for 25 degree C ambient temperature.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

Actual performance may differ as a result of end-user environment and application.

Catalog Number
Notes
Type

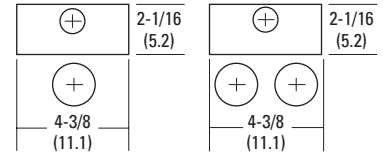


General-Purpose Strip

2', 3', 4', 6' and 8' length
1 or 2 lamps

Specifications

Length:	24" (61.0)
	36" (91.4)
	48" (121.9)
	72" (182.9)
	96" (243.8)
Width:	4-3/8" (11.1)
	Fixture Depth: 2-1/16" (5.2)



All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: C 2 32 MVOLT GEB10IS

Series	Number of lamps	Lamp type	Voltage
C General-purpose strip	1	T8	MVOLT² 120 277 347 Others available
For tandem double length unit, add prefix T. Example: TC	2 lamp not included	17 17W T8 (24")	
		25 25W T8 (36")	
		32 32W T8 (48")	
		48T8 38W T8 (48")	
		96T8 59W T8 slimline (96")	
		T12 Slimline	
		36 30W slimline (36")	
		48 38W slimline (48")	
		72 55W slimline (72")	
		96 75W slimline (96")	
		HO	
		24HO 35W T12 800mA (24") ¹	
		36HO 45W T12 800mA (36") ¹	
		48HO 60W 800mA (48")	
		48T8HO 44W T8 (48")	
		72HO 85W 800mA (72")	
		72T8HO 65W T8 (72")	
		96HO 110W 800mA (96")	
		96T8HO 86W 380mA (96")	

Options	
GEB Electronic ballasts, ≤20%THD ⁴	EL Emergency battery pack (nominal 300 lumens) ⁶
GEB10IS Electronic ballasts, ≤10%THD, instant start²	GLR Internal fast-blow fuse (add X for external) ⁶
GEB10RS Electronic ballast, ≤10%THD, rapid start ³	GMF Internal slow-blow fuse (add X for external) ⁶
GEB10PS Electronic ballast, ≤10%THD, programmed start	PLR_ Plug-in wiring; specify 1, 2, or 3 branch circuits and hot wires (A = Black, B = Red, C = Blue, AB or AC)
BILP High-efficiency ballast, .78bf (low), instant start	TILW Tandem in-line wiring
BINP T8 high-performance ballast, .88bf (normal), instant start	CSA CSA Certified (only required for 347V)
BIHP T8 high-performance ballast, 1.20bf (high), instant start	NOM NOM Certified
1/4 One four-lamp ballast ⁵	AL Aluminum housing; white enamel finish

Accessories: Order as separate catalog number.			
SQ_ Swivel stem hanger (specify length in 2" increments)	HRC1° Hooker T-bar hanger (1-1/2" from ceiling)	WGCASR48 Wireguard, 4' white for asymmetric reflector ⁷	
1B Ceiling spacer (adjusts from 1-1/2" to 2-1/2" from ceiling)	WGCSMR48 Wireguard, 4' white for symmetric reflector ⁷	CSMR 48 Symmetric reflector, 4' white, 7" aperture ⁷	
CONLGC 12" screw-on channel connector	CSMR 48 Symmetric reflector, 4' white, 7" aperture ⁷	CASR 48 Asymmetric reflector, 4' white, 5-3/4" wide ⁷	
WGCUN NST Wireguard, 4' white ⁷			
HC36 Chain hangers (1 pair, 36" long)			
HRC° Hooker T-bar hanger (flush to ceiling)			

Notes

1. Only available with AL option.
2. MVOLT standard for 120-277V applications, 50-60 mhz operation. Some options require voltage specified.
3. 347V, slimline lamps only.
4. Slimline and HO lamps only.
5. Not available in slimline.
6. Specify voltage.
7. Order two for 8' fixtures.

C General-Purpose Strip

MOUNTING DATA

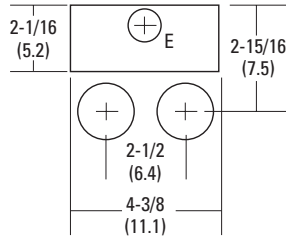
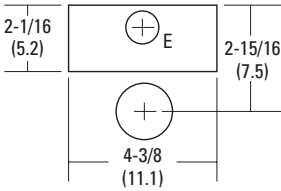
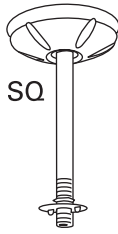
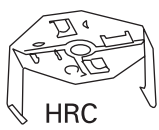
For unit or row installation, surface or suspended mounting.

Unit installation — Minimum of two hangers required.

Row installation — Two hangers per channel required one per fixture plus one per row of CONLGC installed.

Hooker® (HRC) and (HC) Hangers - minimum two per channel (unit and row).

See ACCESSORIES below for hanging devices.



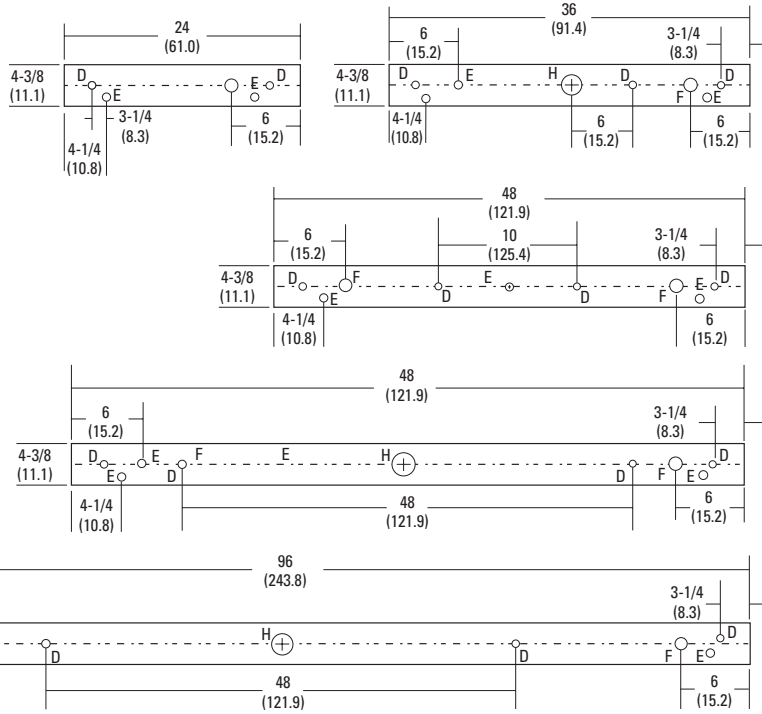
D = 11/16 (17) Dia.K.O.
E = 7/8 (22) Dia.K.O.
F = 1-1/4 (32) Dia.K.O.
H = 2 (51) Dia.K.O.

DIMENSIONS

All dimensions in inches (centimeters) unless otherwise specified. Subject to change without notice.

48", 72", and 96" have only two 7/8" K.O.'s 6" from each end.

24" and 36" have only two 7/8" K.O.'s 3-1/4" from each end.



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical.

All data based on 25°C. Full photometric data on these and other configurations available upon request.

C 2 32

TEST NO: LTL 5181

LUMENS PER LAMP: 2900

C 2 96

TEST NO: LTL 18310

LUMENS PER LAMP: 6300

RCR	Coefficients of Utilization								
	20%			50%			80%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	106	106	106	102	102	102	93	93	93
1	89	84	79	85	80	76	78	74	71
2	76	68	62	72	66	60	66	61	56
3	65	57	50	62	55	49	57	51	45
4	57	48	42	55	47	40	50	43	38
5	51	42	35	48	40	34	44	37	32
6	45	36	30	43	35	29	40	33	28
7	41	32	26	39	31	25	36	29	24
8	37	29	23	35	28	22	33	26	21
9	34	26	20	32	25	20	30	23	19
10	31	23	18	30	23	18	28	21	17

RCR	Coefficients of Utilization								
	20%			50%			80%		
	50%	30%	10%	50%	30%	10%	50%	30%	10%
0	103	103	103	98	98	98	90	90	90
1	86	82	78	82	78	74	75	72	69
2	74	67	61	70	64	59	64	59	55
3	64	56	49	61	54	48	56	49	44
4	56	47	41	53	46	40	49	42	37
5	49	41	35	47	39	34	43	37	31
6	44	36	30	42	34	29	39	32	27
7	40	32	26	38	30	25	35	28	24
8	36	28	23	35	27	22	32	25	21
9	33	25	20	32	25	20	29	23	19
10	30	23	18	29	22	18	27	21	17

Zonal Lumen Summary		
Zone	Lumens % Lamp	% Fixture
0° - 30°	842.1	14.5
0° - 40°	1435.8	24.8
0° - 60°	2810.1	48.4
0° - 90°	4362.5	75.2
90° - 180°	1021.0	17.6
0° - 180°	5383.6	92.8

Zonal Lumen Summary		
Zone	Lumens % Lamp	% Fixture
0° - 30°	1785.8	14.2
0° - 40°	3042.4	24.1
0° - 60°	5944.0	47.2
0° - 90°	9027.5	71.6
90° - 180°	2341.8	18.6
0° - 180°	11369.4	90.2

Energy (Calculated in accordance with NEMA standard LE-5)					
LER.FL	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLST FACTOR	WATTS
86.2	\$2.79	(2) T8 F32	2900	.88	55

*Comparative yearly lighting energy cost per 1000 lumens.

Energy (Calculated in accordance with NEMA standard LE-5)						
ORDERING INFORMATION	LER.FL	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
C 2 32 MVOLT GEB10IS	77.6	\$3.09	F32T8/735	2800	.88	59
C 2 32 MVOLT BILP	93.6	\$2.56	F32T8/835/HT8	3100	.78	48

*Comparative yearly lighting energy cost per 1000 lumens.

STR-LWY-2M-AA-IP-07-12

LEDway® IP66 Street Light - Type II Medium - Adjustable Arm Mount - 70-120 LEDs

Product Description

Luminaire housing is all aluminum construction. Standard luminaire utilizes terminal block for power input suitable for #2-#14 AWG wire. Adjustable mounting arm is rugged die cast aluminum and mounts to a 2" (51mm) IP, 2.375" (60mm) O.D. tenon. Two axis T-level included to ensure level installation when desired.

Performance Summary

Utilizes BetaLED® Technology
Patented NanoOptic® Product Technology
Made in the U.S.A. of U.S. and imported parts
CRI: Minimum 70 CRI
CCT: 5700K (+/- 500K) Standard, 4000K (+/- 300K)
Limited Warranty: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish
EPA and Weight: Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories	
XA-BRDSPK90 (70-90 LEDs)	XA-XSLBLS90 (70-90 LEDs)
XA-BRDSPK120 (100-120 LEDs) Bird Spikes for Light Engine	XA-XSLBLS120 (100-120 LEDs) External Backlight Shield
XA-BRDSPKHSG Bird Spikes for Housing	

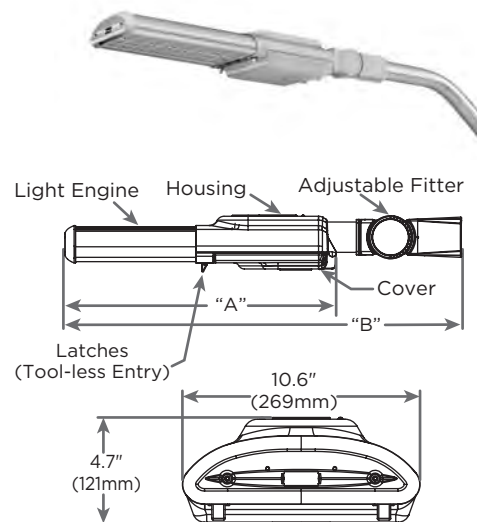
Ordering Information

Example: STR-LWY-2M-AA-07-E-UL-SV-525-IP-OPTIONS

STR-LWY	2M	AA		E				IP -
Product	Optic	Mounting	LED Count (x10)	Version	Voltage	Color Options*	Drive Current	Options
STR-LWY	2M Type II Medium	AA Adjustable Arm	07 08 09 10 11 12	E	UL Universal 120-277V UH Universal 347-480V	SV Silver (Standard) BK Black BZ Bronze PB Platinum Bronze WH White	525 525mA 700 700mA	IP IP66 Classification 40K 4000K Color Temperature - Color temperature per luminaire DIM 0-10V Dimming - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current F Fuse - Not available with all ML options. Refer to ML spec sheet for availability with ML options - When code dictates fusing, use time delay fuse HL Hi/Low (175/350/525 Dual Circuit Input) - Refer to ML spec sheet for details - Sensor not included ML Multi-Level - Refer to ML spec sheet for details N No Quick Disconnect Harness or Leveling Bubble - Standard product features unless N option is specified PD Power Door - All connections between door and luminaire are shipped unconnected from the factory; door release spring included to open door automatically when the latches are released R NEMA Photocell Receptacle - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Photocell by others - Intended for downlight applications at 0° tilt SC Door Safety Tether - Stainless steel aircraft cable UTL Utility - Includes exterior wattage label that reflects watts for the drive current selected. The ability to exceed selected drive current will be disabled

* See www.cree.com/lighting/products/warranty for warranty terms.

* Light engine portion of extrusion is not painted and will remain natural aluminum regardless of color selection.



LED Count (x10)	Dimension	Measurement
07-09	"A"	26.8" (685mm)
07-09	"B"	36.6" (930mm)
10-12	"A"	33.1" (842mm)
10-12	"B"	42.9" (1089mm)



Rev. Date 03/22/2013



Product Specifications

CONSTRUCTION & MATERIALS

- Housing is all aluminum construction
- Terminal block for power input suitable for #2-#14 AWG wire
- Adjustable mounting arm is rugged die cast aluminum and mounts to a 2" (51mm) IP, 2.375" (60mm) O.D. tenon. Two axis T-level included to ensure level installation if desired
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

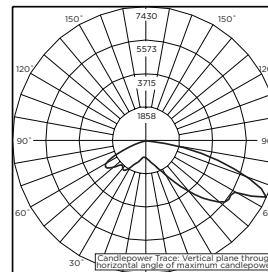
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of installation
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

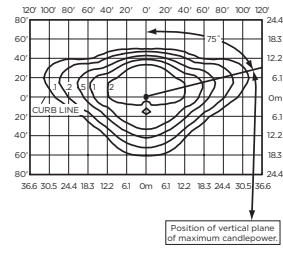
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R or ML options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium ("DLC") Qualified Products List ("QPL") when ordered without full backlight control shield
- RoHS Compliant
- Meets Buy American requirements within ARRA

Photometry

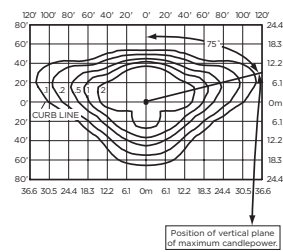
All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



CESTL Test Report #: 2013-0025
STR-LWY-2M-AA-06-E-UL-700-40K
Initial Delivered Lumens: 10,706



STR-LWY-2M-AA-09-E-UL-700
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 16,967
Initial FC at grade



STR-LWY-2M-AA-12-E-UL-700
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 22,607
Initial FC at grade

IES Files

To obtain an IES file specific to your project consult:
<http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool>

Lumen Output, Electrical, and Lumen Maintenance Data

Type II Medium Distribution													
LED Count (x10)	5700K		4000K		System Watts 120-277V	System Watts 347-480V	TOTAL CURRENT					50K Hours Projected Lumen Maintenance Factor @ 15°C (59°F)**	
	Initial Delivered Lumens	BUG Ratings* Per TM-15-11	Initial Delivered Lumens	BUG Ratings* Per TM-15-11			120V	208V	240V	277V	347V		480V
525mA @ 25°C (77°F)													
07	10,653	B2 U0 G2	10,258	B2 U0 G2	120	124	1.01	0.60	0.54	0.49	0.37	0.28	93%
08	12,120	B3 U0 G3	11,671	B3 U0 G3	139	140	1.17	0.69	0.62	0.56	0.41	0.31	
09	13,573	B3 U0 G3	13,071	B3 U0 G3	149	156	1.26	0.74	0.66	0.59	0.46	0.34	
10	15,166	B3 U0 G3	14,604	B3 U0 G3	167	172	1.41	0.83	0.73	0.65	0.50	0.38	
11	16,629	B3 U0 G3	16,013	B3 U0 G3	182	188	1.54	0.89	0.79	0.70	0.55	0.41	
12	18,086	B3 U0 G3	17,416	B3 U0 G3	197	204	1.67	0.96	0.85	0.75	0.59	0.44	
700mA @ 25°C (77°F)													
07	13,316	B3 U0 G3	12,823	B3 U0 G3	163	165	1.37	0.80	0.71	0.63	0.48	0.36	91%
08	15,150	B3 U0 G3	14,589	B3 U0 G3	182	186	1.54	0.90	0.79	0.70	0.54	0.40	
09	16,967	B3 U0 G3	16,338	B3 U0 G3	203	207	1.72	0.99	0.87	0.78	0.60	0.45	
10	18,958	B3 U0 G3	18,256	B3 U0 G3	227	229	1.92	1.11	0.97	0.86	0.67	0.49	
11	20,786	B3 U0 G3	20,016	B3 U0 G3	248	250	2.10	1.21	1.05	0.93	0.73	0.53	
12	22,607	B3 U0 G3	21,770	B3 U0 G3	267	274	2.26	1.30	1.13	1.00	0.80	0.58	

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt.
** For recommended lumen maintenance factor data see TD-13. Calculated L₈₀ based on 10,000 hours LM-80-08 testing; > 150,000 hours in accordance with guidelines describing "successors to previously tested subcomponents" (Section 5) per Sep 9, 2011 ENERGY STAR guidelines.
See http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/luminaires/ENERGY_STAR_Final_Lumen_Maintenance_Guidance.pdf.

Ideal for general high bay/low bay illumination

The Champ® Pro PVM Family

Champ® Pro PVM Series Luminaires are designed to provide full-spectrum, crisp, white light with a true IES type V distribution. Five versions of the PVM Series are available, providing ideal solutions for a wide range of applications.

Champ® Pro PVM Model	Equivalent HID Luminaire	Typical Energy Savings / Lifetime
PVM3L	70W-100W	Up to 70%
PVM5L	100W-150W	reduction in energy costs and 60,000
PVM7L	150W-175W	hours of continuous operation!
PVM9L	175W-200W	
PVM11L	200W-400W	

Certifications and Complies:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) where a warmer color is preferred and 5600K (CRI 65) where a cooler color is required
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Ordering Information:

Mounting Style	3L Series†	5L Series†	7L Series†	9L Series†	11L Series†
Luminaire Less Mounting Module	PVM3LDM2/UNV1	PVM5LDM2/UNV1	PVM7LDM2/UNV1	PVM9LDM2/UNV1	PVM11LDM1/UNV
¾" Pendant	PVM3L2ADM2/UNV1	PVM5L2ADM2/UNV1	PVM7L2ADM2/UNV1	PVM9L2ADM2/UNV1	PVM11L2ADM1/UNV
1" Pendant	PVM3L3ADM2/UNV1	PVM5L3ADM2/UNV1	PVM7L3ADM2/UNV1	PVM9L3ADM2/UNV1	PVM11L3ADM1/UNV
¾" Cone Pendant	PVM3L2BDM2/UNV1	PVM5L2BDM2/UNV1	PVM7L2BDM2/UNV1	PVM9L2BDM2/UNV1	PVM11L2BDM1/UNV
1" Cone Pendant	PVM3L3BDM2/UNV1	PVM5L3BDM2/UNV1	PVM7L3BDM2/UNV1	PVM9L3BDM2/UNV1	PVM11L3BDM1/UNV
¾" Flexible Pendant	PVM3L2HADM2/UNV1	PVM5L2HADM2/UNV1	PVM7L2HADM2/UNV1	PVM9L2HADM2/UNV1	PVM11L2HADM1/UNV
¾" Ceiling Mount Thru Feed	PVM3L2CDM2/UNV1	PVM5L2CDM2/UNV1	PVM7L2CDM2/UNV1	PVM9L2CDM2/UNV1	PVM11L2CDM1/UNV
1" Ceiling Mount Thru Feed	PVM3L3CDM2/UNV1	PVM5L3CDM2/UNV1	PVM7L3CDM2/UNV1	PVM9L3CDM2/UNV1	PVM11L3CDM1/UNV
¾" Wall Mount Thru Feed	PVM3L2TWDM2/UNV1	PVM5L2TWDM2/UNV1	PVM7L2TWDM2/UNV1	PVM9L2TWDM2/UNV1	PVM11L2TWDM1/UNV
1" Wall Mount Thru Feed	PVM3L3TWDM2/UNV1	PVM5L3TWDM2/UNV1	PVM7L3TWDM2/UNV1	PVM9L3TWDM2/UNV1	PVM11L3TWDM1/UNV
1½" Stanchion 25°	PVM3LJDM2/UNV1	PVM5LJDM2/UNV1	PVM7LJDM2/UNV1	PVM9LJDM2/UNV1	PVM11LJDM1/UNV
1½" Stanchion	PVM3LPDM2/UNV1	PVM5LPDM2/UNV1	PVM7LPDM2/UNV1	PVM9LPDM2/UNV1	PVM11LPDM1/UNV

†DesignLights Consortium approved models. Cool white only. 3L through 9L models approved at 120V only. For 120 VAC option, replace DM2/UNV1 with DM2/120*. 11L model approved at 120-277V.

For 347 VAC option, replace DM2/UNV1 with DM3/347. For 480 VAC option, replace DM2/UNV1 with DM4/480. **NOTE: Requires additional enclosure for use with 11L series.**

For warm white color temperature, use W designation after luminaire style (Example: PVM3LWDM2/UNV1). **NOTE: Not available for 9L series.**

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.

Standard Materials:

- Lamp housing and adapter – die cast aluminum with Corro-free™ epoxy powder coat
- Lens – heat- and impact-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required



Drivers:

Model	3L - 9L	11L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC	100-240, 277 VAC
Option 1	347 VAC Model	347 VAC Kit Available
Option 2	480 VAC Model	480 VAC Kit Available

Electrical Ratings:

	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Voltage Range, VAC	100-277V	100-277V	100-277V	100-277V	100-240, 277V
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Input Power	46 Watts	60 Watts	78 Watts	94 Watts	134 Watts
Input Amps (Max.)	0.5	0.7	0.8	0.98	1.7
Voltage Range, VDC	108-250	108-250	108-250	108-250	Not Available
Power Factor	>0.90	>0.90	>0.90	>0.90	>0.90

Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

2L

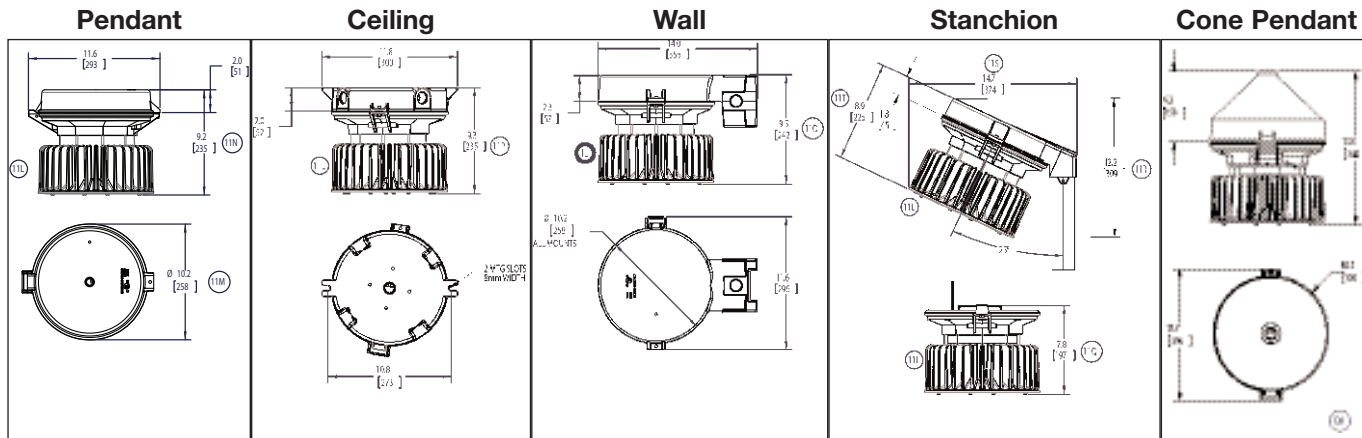
Ideal for general high bay/low bay illumination

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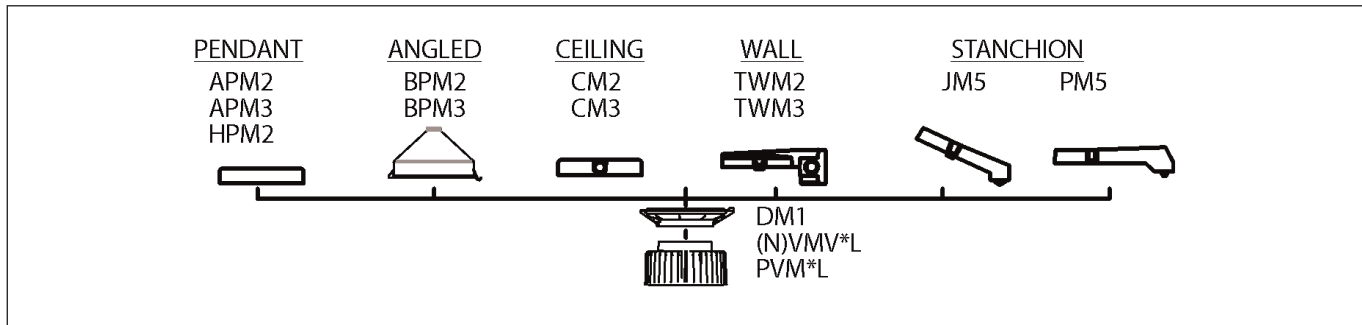
Description

Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on lens for additional shatter protection	S896
Polycarbonate lens available in applications where glass is prohibited	S903

Dimensions:



Family Tree:



Weights:

Net Luminaire Weight: 17.8 lb. 8.07 kg.

Mounting Module add (lb.)

Pendant	1.25	0.57
Cone Pendant	4.00	1.81
Flexible Pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angle Stanchion	3.50	1.59
Straight Stanchion	4.50	2.04

Ambient Temperature:

Champ® Pro PVM Model	Max. Temp. °C
PVM3L	55
PVM5L	55
PVM7L	55
PVM9L	55
PVM11L	40

2L

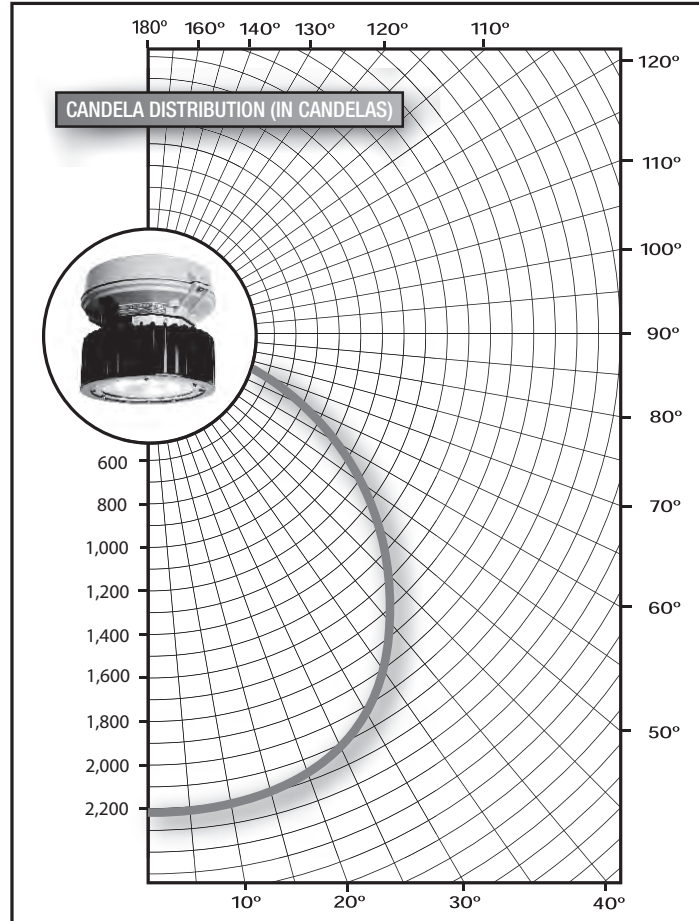
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

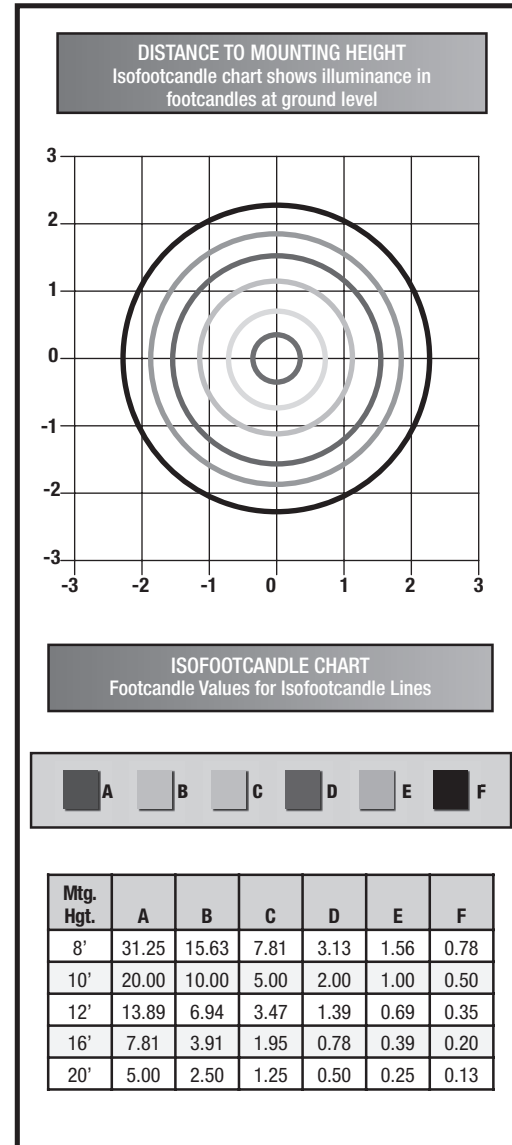
Ideal for general high bay/low bay illumination

Photometric Data:

Champ® Pro 78 Watt* - PVM7L



CANDELAS		ZONAL LUMENS		
VERTICAL ANGLE	FRONT SIDE	ZONE	WITH LUMENS	% LUMEN
0	2245	0-10	212	4%
5	2234	10-20	612	10%
15	2167	20-30	941	15%
25	2041	30-40	1155	18%
35	1846	40-50	1207	19%
45	1566	50-60	1077	17%
55	1207	60-70	764	12%
65	775	70-80	286	5%
75	251	80-90	13	0%
85	0	90-100	0	0%
90	0	100-120	0	0%
		Total	6267	100%



LUMEN OUTPUT FOR CHAMP® LED LUMINAIRES

Luminaire Series	System Watts	Lumens
PVM3L	46	3748
PVM5L	60	4654
PVM7L	78	6267
PVM9L	94	7085
PVM11L	134	8880

*Testing performed in accordance with IES LM-79-08.

Ideal for general high bay/low bay illumination

The Champ® Pro PVM Family

Champ® Pro PVM Series Luminaires are designed to provide full-spectrum, crisp, white light with a true IES type V distribution. Five versions of the PVM Series are available, providing ideal solutions for a wide range of applications.

Champ® Pro PVM Model	Equivalent HID Luminaire	Typical Energy Savings / Lifetime
PVM3L	70W-100W	Up to 70%
PVM5L	100W-150W	reduction in energy costs and 60,000
PVM7L	150W-175W	hours of continuous operation!
PVM9L	175W-200W	
PVM11L	200W-400W	

Certifications and Complies:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) where a warmer color is preferred and 5600K (CRI 65) where a cooler color is required
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions

Ordering Information:

Mounting Style	3L Series†	5L Series†	7L Series†	9L Series†	11L Series†
Luminaire Less Mounting Module	PVM3LDM2/UNV1	PVM5LDM2/UNV1	PVM7LDM2/UNV1	PVM9LDM2/UNV1	PVM11LDM1/UNV
¾" Pendant	PVM3L2ADM2/UNV1	PVM5L2ADM2/UNV1	PVM7L2ADM2/UNV1	PVM9L2ADM2/UNV1	PVM11L2ADM1/UNV
1" Pendant	PVM3L3ADM2/UNV1	PVM5L3ADM2/UNV1	PVM7L3ADM2/UNV1	PVM9L3ADM2/UNV1	PVM11L3ADM1/UNV
¾" Cone Pendant	PVM3L2BDM2/UNV1	PVM5L2BDM2/UNV1	PVM7L2BDM2/UNV1	PVM9L2BDM2/UNV1	PVM11L2BDM1/UNV
1" Cone Pendant	PVM3L3BDM2/UNV1	PVM5L3BDM2/UNV1	PVM7L3BDM2/UNV1	PVM9L3BDM2/UNV1	PVM11L3BDM1/UNV
¾" Flexible Pendant	PVM3L2HADM2/UNV1	PVM5L2HADM2/UNV1	PVM7L2HADM2/UNV1	PVM9L2HADM2/UNV1	PVM11L2HADM1/UNV
¾" Ceiling Mount Thru Feed	PVM3L2CDM2/UNV1	PVM5L2CDM2/UNV1	PVM7L2CDM2/UNV1	PVM9L2CDM2/UNV1	PVM11L2CDM1/UNV
1" Ceiling Mount Thru Feed	PVM3L3CDM2/UNV1	PVM5L3CDM2/UNV1	PVM7L3CDM2/UNV1	PVM9L3CDM2/UNV1	PVM11L3CDM1/UNV
¾" Wall Mount Thru Feed	PVM3L2TWDM2/UNV1	PVM5L2TWDM2/UNV1	PVM7L2TWDM2/UNV1	PVM9L2TWDM2/UNV1	PVM11L2TWDM1/UNV
1" Wall Mount Thru Feed	PVM3L3TWDM2/UNV1	PVM5L3TWDM2/UNV1	PVM7L3TWDM2/UNV1	PVM9L3TWDM2/UNV1	PVM11L3TWDM1/UNV
1½" Stanchion 25°	PVM3LJDM2/UNV1	PVM5LJDM2/UNV1	PVM7LJDM2/UNV1	PVM9LJDM2/UNV1	PVM11LJDM1/UNV
1½" Stanchion	PVM3LPDM2/UNV1	PVM5LPDM2/UNV1	PVM7LPDM2/UNV1	PVM9LPDM2/UNV1	PVM11LPDM1/UNV

†DesignLights Consortium approved models. Cool white only. 3L through 9L models approved at 120V only. For 120 VAC option, replace DM2/UNV1 with DM2/120*. 11L model approved at 120-277V.

For 347 VAC option, replace DM2/UNV1 with DM3/347. For 480 VAC option, replace DM2/UNV1 with DM4/480. **NOTE: Requires additional enclosure for use with 11L series.**

For warm white color temperature, use W designation after luminaire style (Example: PVM3LWDM2/UNV1). **NOTE: Not available for 9L series.**

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions.

Standard Materials:

- Lamp housing and adapter – die cast aluminum with Corro-free™ epoxy powder coat
- Lens – heat- and impact-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required



Drivers:

Model	3L - 9L	11L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC	100-240, 277 VAC
Option 1	347 VAC Model	347 VAC Kit Available
Option 2	480 VAC Model	480 VAC Kit Available

Electrical Ratings:

	PVM3L	PVM5L	PVM7L	PVM9L	PVM11L
Voltage Range, VAC	100-277V	100-277V	100-277V	100-277V	100-240, 277V
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Input Power	46 Watts	60 Watts	78 Watts	94 Watts	134 Watts
Input Amps (Max.)	0.5	0.7	0.8	0.98	1.7
Voltage Range, VDC	108-250	108-250	108-250	108-250	Not Available
Power Factor	>0.90	>0.90	>0.90	>0.90	>0.90

Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

2L

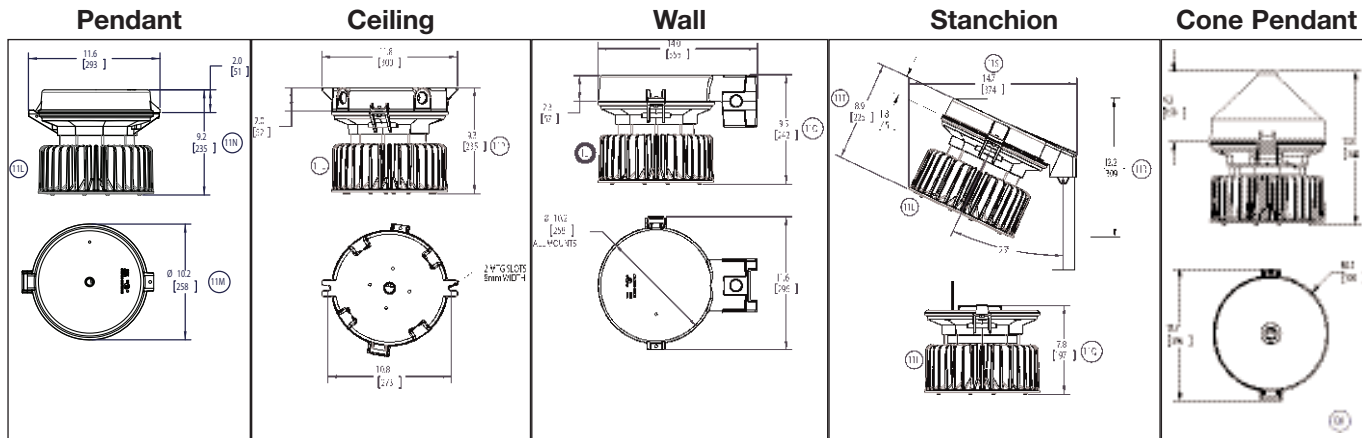
Ideal for general high bay/low bay illumination

Options:

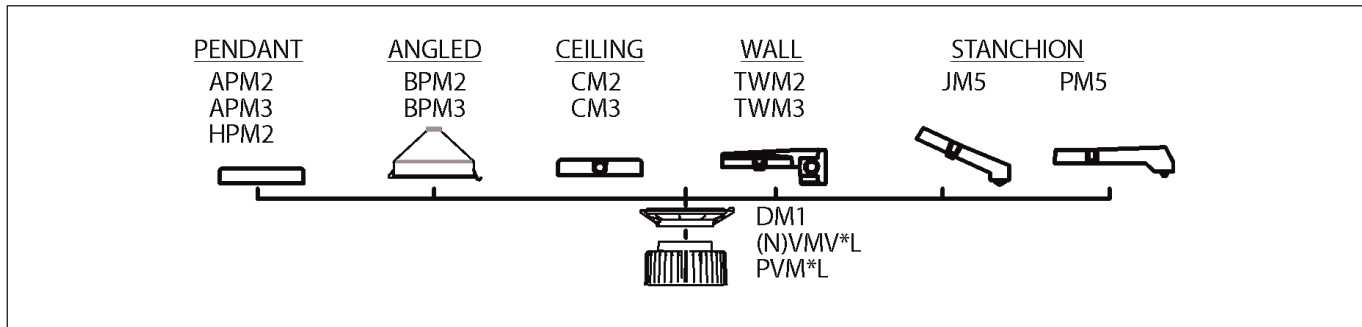
Description

Wire guard with captive mounting hardware	P3001
Trunnion mount with redundant pin locking mechanism	S812 K1
Quick Clip for quick installation	S890
Diffused lens reduces glare in applications where the user may have direct visual contact with the light source	S891
Teflon coating on lens for additional shatter protection	S896
Polycarbonate lens available in applications where glass is prohibited	S903

Dimensions:



Family Tree:



Weights:

Net Luminaire Weight: 17.8 lb. 8.07 kg.

Mounting Module add (lb.)

Pendant	1.25	0.57
Cone Pendant	4.00	1.81
Flexible Pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angle Stanchion	3.50	1.59
Straight Stanchion	4.50	2.04

Ambient Temperature:

Champ® Pro PVM Model	Max. Temp. °C
PVM3L	55
PVM5L	55
PVM7L	55
PVM9L	55
PVM11L	40

2L

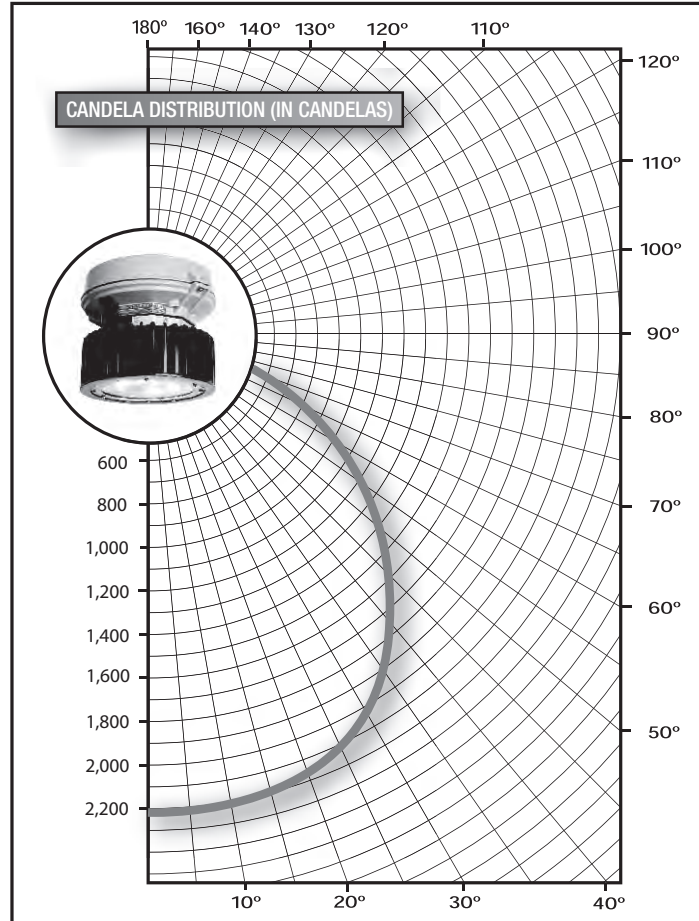
Champ® Pro PVM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

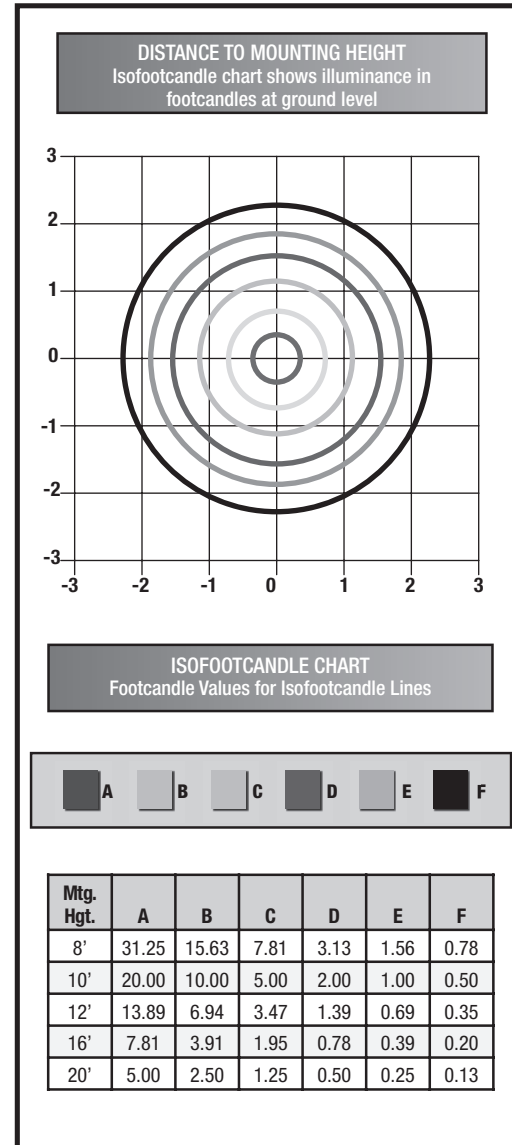
Ideal for general high bay/low bay illumination

Photometric Data:

Champ® Pro 78 Watt* - PVM7L



CANDELAS		ZONAL LUMENS		
VERTICAL ANGLE	FRONT SIDE	ZONE	WITH LUMENS	% LUMEN
0	2245	0-10	212	4%
5	2234	10-20	612	10%
15	2167	20-30	941	15%
25	2041	30-40	1155	18%
35	1846	40-50	1207	19%
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55	1207	60-70	764	12%
65	775	70-80	286	5%
75	251	80-90	13	0%
85	0	90-100	0	0%
90	0	100-120	0	0%
		Total	6267	100%



LUMEN OUTPUT FOR CHAMP® LED LUMINAIRES

Luminaire Series	System Watts	Lumens
PVM3L	46	3748
PVM5L	60	4654
PVM7L	78	6267
PVM9L	94	7085
PVM11L	134	8880

*Testing performed in accordance with IES LM-79-08.

2L

OCTRON® 800 XP® XL ECOLOGIC®3

EXtended Performance EXtended Life Fluorescent Lamps



SYLVANIA OCTRON 800 XP XL ECOLOGIC3 lamps feature eXtended Life benefits of up to 75,000 hours life on instant start ballasts and 84,000 hours life on programmed rapid start ballasts. The life ratings reflect up to 88% longer life than T8 XP or XV lamps, which is the equivalent of an additional 8 years of maintenance-free lighting for typical operating cycles of 4,000 hours per year.

OCTRON 800 XP XL 32W lamps deliver 14% more light than standard 700 series T8 lamp on normal ballast factor, instant start electronic ballasts. OCTRON 800 XP XL SUPERSAVER lamps provide up to 22% energy savings over standard 32 watt OCTRON lamps. Combining these lamps with QUICKTRONIC high efficiency instant start, low power ballasts will result in up to 42% energy savings over energy saving T12 magnetically ballasted fluorescent systems. Pair with QUICKTRONIC electronic ballast for the industry's first and most comprehensive QUICK 60+® System Warranty.

Key Features & Benefits

- Available in full wattage (32W) and reduced wattage SUPERSAVER® types
- Energy savings compared to standard 32W T8 lamp
 - Up to 12.5% with the 28W XP/XL/SS
 - Up to 22% with the 25W XP/XL/SS
- Up to 96% mean lumens
- Dimmable (see application note 4)
- Lead-free and RoHS compliant
- Made in USA
- Retrofit lamp for existing T8 instant start systems
 - Up to 75,000 hours average life @ 12 hours per start
- Operate 800 XP XL SUPERSAVER lamps on SYLVANIA's QUICKTRONIC® PROStart® programmed rapid start ballasts
 - 84,000 hours average life @ 12 hours per start
- SUPERSAVER 25W and 28W types meet CEE reduced wattage T8 specifications



SYLVANIA OCTRON T8 ECOLOGIC3 fluorescent lamps pass the Federal Toxicity Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states².

ECOLOGIC3 represents a more comprehensive approach to sustainability encompassing high efficiency, long life and RoHS/TCLP compliance.

Complies with European Union Restriction of Hazardous Substances Directive (Directive 2002/95/EC)

1. TCLP test results are based on NEMA LL Series standards and are available on request.
2. Lamp disposal regulations may vary; check your local & state regulations.

Product Offering

Lamp Type	Wattage	CCT
OCTRON 800 XP XL		
FO32/800/XP/XL/ECO3	32	3500K, 4100K & 5000K
OCTRON 800 XP XL SUPERSAVER		
FO28/800XP/XL/SS/ECO3	28	3000K, 3500K, 4100K & 5000K
FO32/25W/800/XP/XL/SS/ECO3	25	3500K & 4100K

Application Information

Applications

- Education
- Healthcare
- Industrial
- Office
- Retail

Application Notes

1. SUPERSAVER (SS) lamps are recommended to be used on T8 F32 Instant or Programmed Rapid Start ballasts with minimum open circuit voltage of 550V RMS at the lamp.
 - a. Electronically ballasted fixture configurations which operate lamps remotely, such as Master/Satellite applications, can cause reduction of lamp open circuit voltage, in the remote fixture, below the minimum required for reliable lamp starting. For more information, please call 1-800-LIGHTBULB and ask for Ballast Technical Assistance or call your fixture manufacturer.
 - b. Not recommended to be used: (1) in remotely ballasted fixtures with lamp open circuit voltages below 550V, (2) in air handling fixtures, (3) on low power factor ballasts or (4) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for SUPERSAVER (SS) lamps. Any of the above situations could result in lamp starting and stabilization problems, or system compatibility issues.
2. If a 28W SUPERSAVER lamp is exposed to drafts and/or the ambient temperature falls below 60°F (70°F for 25W lamp), striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.
3. Fixture must conform to ANSI C78.81 – 2005 requirements for luminaire design.
4. Contact OSRAM SYLVANIA for approved dimming ballasts.

Specification Data

Fixture Description:	Type
Project/Job:	
SYLVANIA lamp:	
SYLVANIA ballast:	
Notes:	

Ordering Information

Item Number	Ordering Abbreviation	Watts	Bulb	Base	Initial Lumens	Mean Lumens ¹	lm/W	Avg. Rated Life				CCT	CRI
								Instant Start 3 hrs/ start	Instant Start 12 hrs/ start	Programmed Rapid Start 3 hrs/ start	Programmed Rapid Start 12 hrs/ start		
21576	F032/835/XP/XL/EC03	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	3500K	85
21577	F032/841/XP/XL/EC03	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	4100K	85
22002	F032/850/XP/XL/EC03	32	T8	Med Bi-Pin	2950	2830	92	36,000	52,000	65,000	67,000	5000K	81
22166	F028/835/XP/XL/SS/EC03	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	3500K	85
22167	F028/841/XP/XL/SS/EC03	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	4100K	85
22326	F028/850/XP/XL/SS/EC03	28	T8	Med Bi-Pin	2600	2470	93	50,000	75,000	80,000	84,000	5000K	81
22349	F032/25W/830/XP/XL/SS/EC03	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	3000K	85
22222	F032/25W/835/XP/XL/SS/EC03	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	3500K	85
22223	F032/25W/841/XP/XL/SS/EC03	25	T8	Med Bi-Pin	2400	2280	96	50,000	75,000	80,000	84,000	4100K	85

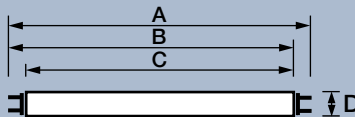
1. Measured at 40% of rated life.

Ordering Guide

FO	28	/	8	41	XP/XL	/	SS	/	EC03
Fluorescent	Wattage		CRI ≥ 81	Color	EXtended		SUPERSAVER		ECOLOGIC3
OCTRON	25, 28, 32			Temperature	Performance				
				30 = 3000K	EXtended				
				35 = 3500K	Life				
				41 = 4100K					
				50 = 5000K					

Lamp Dimensions

	(A) Max. Overall Length (in.)	(B) Base Face to Opposite Pin (in.)	(C) Max. Base Face to Base Face (in.)	(D) Max. Outside Diameter (in.)
F032, F028, F032/25W	47.78"	Min. 47.41" Max. 47.5"	47.22"	1.1"



Related Literature

For maximum energy savings consider pairing with the following electronic ballasts:

Ballast Technology Applications & Specification Guide (Literature Code: ECS-SPECGUIDE2013)

QUICKTRONIC® High Efficiency NEMA Premium Guide (Literature Code: ECS112)

QUICK 60+ System Warranty (Literature Code: ECS140)

[/sylvania](#) [/sylvania](#)

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Sample Specification

Lamp(s) shall be OCTRON® XP® XL (32W, SUPERSAVER® XL 28W, SUPERSAVER XL 25W) ECOLOGIC®3 4-foot lamp(s) having medium bi-pin bases. Lamp(s) shall be designed to pass the Federal TCLP test in force at the time of manufacture. Lamp(s) shall have an average rated life of (36,000 - 67,000 hrs on 32W and 50,000 - 84,000 hrs on 28W and 25W) at 3 hours per start when operated on T8 (instant start, programmed start ballasts), (2950, 2600, 2400) initial lumens, 96% lumen maintenance on the 32W and 95% lumen maintenance on the 28 and 25W a correlated color temperature of (3000K, 3500K, 4100K, 5000K) and a CRI of (85, 81). The OCTRON ECOLOGIC3 lamp(s) shall be operated on QUICKTRONIC® electronic, high frequency ballasts with complete system warranty from the manufacturer covering lamps and ballast.

United States

OSRAM SYLVANIA

100 Endicott Street
Danvers, MA 01923
1-800-LIGHTBULB

Trade

Phone: 800-255-5042
Fax: 800-255-5043

National Accounts

Phone: 800-562-4671
Fax: 800-562-4674

OEM/Special Markets

Phone: 800-762-7191
Fax: 800-762-7192

Retail

Phone: 800-842-7010
Fax: 800-842-7011

SYLVANIA Lighting Services

Phone: 800-323-0572
Fax: 800-537-0784

Display/Optic

Phone: 888-677-2627
Fax: 855-543-1043

Canada

OSRAM SYLVANIA LTD.

2001 Drew Road
Mississauga, ON L5S 1S4
1-800-LIGHTBULB

Trade

Phone: 800-263-2852
Fax: 800-667-6772

OEM/Special Markets/Display/Optic

Phone: 800-265-2852
Fax: 800-667-6772

Retail

Phone: 800-720-2852
Fax: 800-667-6772

SYLVANIA Lighting Services

Phone: 800-663-4268
Fax: 866-239-1278

Mexico

OSRAM MEXICO

Tultitlan/Edo de Mexico
Phone: 011-52-55-58-99-18-50

ENCELIUM Technologies

United States

Phone: 201-928-2400
Fax: 201-928-4028

Canada

Phone: 905-731-7678
Fax: 905-731-1401

OCTRON® XPS® ECOLOGIC®3

EXtended Performance Super Fluorescent Lamps



SYLVANIA OCTRON Extended Performance Super ECOLOGIC3 (XPS) lamps deliver the highest performance of all OCTRON lamps with initial and mean lumens that are up to 11% higher and substantially longer lamp life than standard T8 fluorescent lamps. These lamps are available in 2, 3, and 4-foot lengths, in a choice of correlated color temperatures with high lumen maintenance of 94%.

When OCTRON XPS ECOLOGIC lamps are operated on existing instant start ballasts as a retrofit lamp, they deliver higher lumen output than the installed system. In new installations paired with QUICKTRONIC PSX ballasts, 2-lamp systems deliver light levels comparable to 3-lamp 700 series T8 lamps, while maximizing energy savings and lamp life.

Key Features & Benefits

- Highest lumen 4-foot OCTRON T8 lamps
- Also available in 2-foot (FO17) and 3-foot (FO25) sizes
- Longer lamp life than standard T8 lamps
 - 40,000 hours rated life @ 12 hrs/start on instant start ballast
 - 42,000 hours rated life @ 12 hrs/start on programmed rapid start ballasts
- 94% Lumen maintenance
- TCLP compliant
- Lead free glass
- Made in USA
- QUICK 60+® system warranty when paired with QUICKTRONIC® electronic ballasts
- Meets CEE Standards



SYLVANIA OCTRON 800 XPS ECOLOGIC3 fluorescent lamps are designed to satisfy the Federal Toxicity Characteristic Leaching Procedure (TCLP¹) criteria for classification as non-hazardous waste in most states.²

ECOLOGIC3 represents a more comprehensive approach to sustainability encompassing high efficiency, long life and RoHS/TCLP compliance.

¹ TCLP test results are based on NEMA LL Series standards and are available on request.

² Regulations may vary. Check your local and state regulations.

Product Offering

Ordering Abbreviation	Watts	Nominal Length (in)	CCT
F017/800/XPS/ECO3	17	24	3000K, 3500K, 4100K
F025/800/XPS/ECO3	25	36	3000K, 3500K, 4100K
F032/800/XPS/ECO3	32	48	3000K, 3500K, 4100K, 5000K, 6500K

Application Information

Applications

- Hospitals
- Industrial
- Office
- Retail
- Schools

Application Notes

1. Minimum lamp starting temperature determined by ballast.
2. Operation below 50°F may affect lumen output or lamp operation.
3. For cold temperature applications, use in enclosed fixtures or use tube guards to maximize lamp performance.
4. Good ballast to socket to lamp contact essential for correct operation of system.
5. Actual lamp life dependent on ballast type, switching cycle and hours of operation per start.
6. These lamps may help facilitate compliance with national energy codes such as ASHRAE/IES 90.1 or IECC and state energy codes such as California Title 24. For more information contact your local building inspection office.



Ordering Information

Item Number	Ordering Abbreviation	Nominal Length (in)	Initial Lumens	Mean Lumens ¹	Lumens per Watt	Average Rated Life				CCT	CRI	
						Instant Start 3 hrs/ start	Instant Start 12 hrs/ start	Programmed Rapid Start 3 hrs/ start	Programmed Rapid Start 12 hrs/ start			
22150	F017/830/XPS/EC03	17	24	1400	1316	82	24,000	40,000	40,000	42,000	3000K	85
22151	F017/835/XPS/EC03	17	24	1400	1316	82	24,000	40,000	40,000	42,000	3500K	85
22152	F017/841/XPS/EC03	17	24	1400	1316	82	24,000	40,000	40,000	42,000	4100K	85
22153	F025/830/XPS/EC03	25	36	2200	2068	88	24,000	40,000	40,000	42,000	3000K	85
22154	F025/835/XPS/EC03	25	36	2200	2068	88	24,000	40,000	40,000	42,000	3500K	85
22155	F025/841/XPS/EC03	25	36	2200	2068	88	24,000	40,000	40,000	42,000	4100K	85
21680	F032/830/XPS/EC03	32	48	3100	2914	97	24,000	40,000	40,000	42,000	3000K	85
21697	F032/835/XPS/EC03	32	48	3100	2914	97	24,000	40,000	40,000	42,000	3500K	85
21681	F032/841/XPS/EC03	32	48	3100	2914	97	24,000	40,000	40,000	42,000	4100K	85
21660	F032/850/XPS/EC03	32	48	3100	2914	97	24,000	40,000	40,000	42,000	5000K	81
21659	F032/865/XPS/EC03	32	48	3000	2820	94	24,000	40,000	40,000	42,000	6500K	81

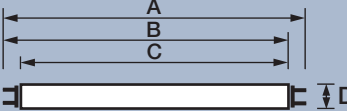
1. Measured at 40% of rated life.

Ordering Guide

FO	32	/	8	35	XPS	/	EC03
Fluorescent OCTRON®	Wattage: 17, 25, or 32 watts		8 = 81-85 CRI	30 = 3000K 35 = 3500K 41 = 4100K 50 = 5000K 65 = 6500K	EXtended Performance Super		ECOLOGIC3

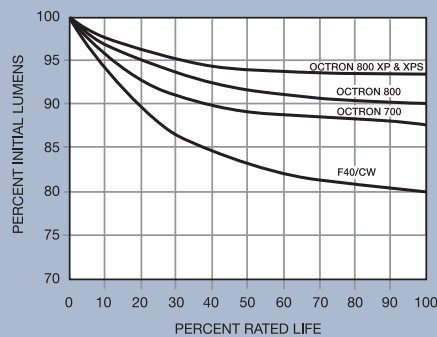
Lamp Dimensions

Item Number	(A) Max. Overall Length (in.)	(B) Base Face to Opposite Pin (in.)		(C) Max. Base Face to Base Face (in.)	(D) Max. Outside Diameter (in.)
		Min.	Max.		
F017	23.78	23.41	23.50	23.22	1.1
F025	35.78	35.40	35.50	35.22	1.1
F032	47.78	47.41	47.50	47.22	1.1



Technical Information

Lumen Maintenance OCTRON XP, OCTRON XPS, OCTRON & F40/CW



Related Literature

For optimum system performance and warranty pair with these QUICKTRONIC® Systems:

High Efficiency NEMA Premium QUICKTRONIC® T8 Brochure (Literature Code: ECS112)

Ballast Technology Applications & Specification Guide (Literature Code: ECS-ELECTRONIC2009)

QUICK 60+® System Warranty (Literature Code: ECS140)

Specification Data

Fixture Description

Type

Project/Job

SYLVANIA lamp

SYLVANIA ballast

Notes

Sample Specification

Lamp(s) shall be (a) OCTRON® EXtended Performance Super XPS®/EC03 2-foot, 3-foot, or 4-foot lamp(s) having medium bi-pin bases. Lamps shall pass the existing Federal TCLP limits. Lamp(s) shall have initial lumens of (1400, 2200, 3100, 3000), an average rated life of (24,000, 40,000) hours on (instant start, programmed rapid start) ballasts, a CRI of (85, 81), 94% lumen maintenance and a correlated color temperature of (3000K, 3500K, 4100K or 6500K). Lamps shall be operated on QUICKTRONIC ballasts with complete system warranty from the manufacturer covering lamps and ballasts.

United States

OSRAM SYLVANIA

100 Endicott Street
Danvers, MA 01923

Trade

Phone: 1-800-255-5042

Fax: 1-800-255-5043

National Accounts

Phone: 1-800-562-4671

Fax: 1-800-562-4674

OEM/Special Markets

Phone: 1-800-762-7191

Fax: 1-800-762-7192

Display/Optic

Phone: 1-888-677-2627

Fax: 1-800-762-7192

Canada

OSRAM SYLVANIA LTD.

2001 Drew Road
Mississauga, ON L5S 1S4

Trade

Phone: 1-800-263-2852

Fax: 1-800-667-6772

OEM/Special Markets/Display/Optic

Phone: 1-800-265-2852

Fax: 1-800-667-6772

Lutron® energy-saving light controls for your home or office



Maestro® occupancy sensing switch

Lutron® Sensor Solutions

simple. affordable. energy-saving.

www.lutron.com



World Headquarters 1.610.282.3800
Technical Support 1.800.523.9466 (Available 24/7)
Customer Service 1.888.LUTRON1 (1.888.588.7661)

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save
energy
with
Lutron™ 



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save
energy
with
Lutron™ 

Lutron® sensor solutions

simple. affordable. energy-saving.

Turn lights off in unoccupied spaces . . .

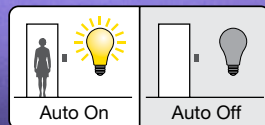


Save energy and money!

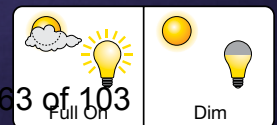


Lutron offers occupancy/vacancy and daylight sensors to save energy.

Occupancy sensors: Turn lights on automatically as an occupant enters the room and turns lights off when the room is unoccupied.



Daylight sensors: Take advantage of available daylight by lowering or turning off electric lights when sufficient daylight is available.



In-wall occupancy/vacancy sensors

Maestro®



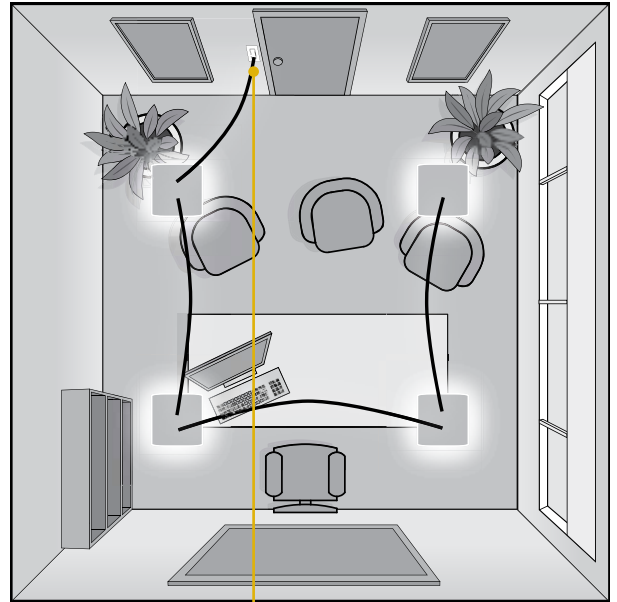
Features:

- Four versions available
 - 2 Amp, single-pole 120 V switch
 - 5 Amp, 3-way/multi-location 120 V switch
 - dual-voltage commercial-grade 120 V/277 V switch
 - 600 W, single-pole/multi-location 120 V dimmer
- Reliable XCT detection technology ensures lights stay on in occupied rooms
- Switches work with all load types
- Easy installation—no neutral wire, shallow backbox

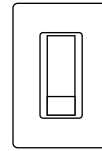


Specifications:

- 180° sensor field-of-view
- Up to 900 ft² major motion and 400 ft² minor motion coverage
- 1, 3, 5, 15, or 30 minute timeout options
- 120 V switches and dimmer; 120 V/277 V switch available
- See coverage diagram on page 8



Private Office

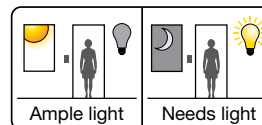


Colors and finishes:

- In-wall sensors* and Claro® wallplates available in gloss colors and Satin Colors®

2 Amp and 5 Amp sensors also include **learnable ambient light detection**.

- Turns lights on only when needed
- Learns user behavior for when lights should stay on or turn off



* BL, GR, BR, and Satin Colors will be available 3/1 for 2 Amp and 5 Amp sensors

Wireless occupancy/vacancy sensors

Radio Powr Savr™



wall-mount sensors:

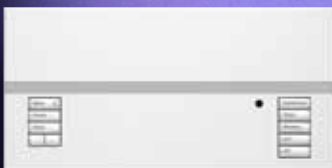
- 180° wall-mount sensor for spaces with ceiling obstructions or higher than 12-foot ceilings
- 90° corner-mount sensor
- Hallway sensor for spaces requiring longer coverage



ceiling-mount sensor:

- 360° sensing for spaces with 8 to 12-foot ceilings

Works with:



GRAFIK Eye® QS wireless



Maestro Wireless®



PowPak™

Features:

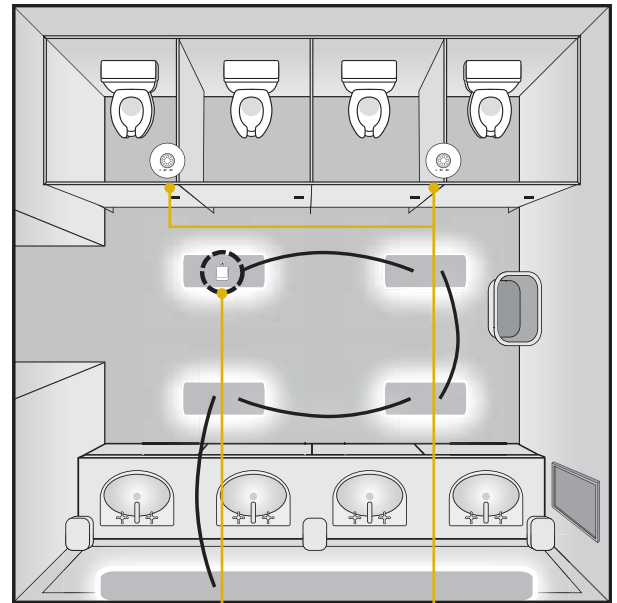
- No wiring required—eliminates power pack and wiring expenses
- Wall controls remain fully operable during automatic shut-off by sensor
- Operates in occupancy or vacancy mode
- Vacancy only available to meet California Title 24 Section 119 (j) requirements and NYC Energy Code Local Law 48
- Test mode assists in verifying the ideal sensor location

Specifications:

- Use up to three sensors per compatible control for maximum coverage; one sensor can control up to 10 compatible dimmers/switches for spaces with additional zones of light
- Timeout options include 1, 5, 15, and 30 minutes
- Battery included (10 year battery life)
- See coverage diagrams on page 8

Colors and finishes:

- Ceiling-mount and wall-mount sensors available in white (WH)



Bathroom

Radio Powr Savr occ/vac sensors used with PowPak ceiling-mount modules are easy to retrofit, and save energy in spaces like bathrooms.

- **Easy installation** saves labor, time, and money
- Wireless products **upgrade existing spaces with little disruption** during installation

Wireless daylight sensor

Radio Powr Savr™



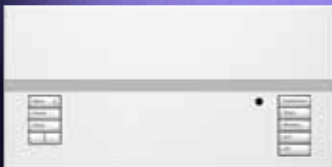
Features:

- Decreases or turns off electric light when sufficient daylight is available
- Increases electric light when insufficient daylight is available
- No wiring required

Maximize energy savings:

Combine occupancy/vacancy sensing with daylighting to maximize energy savings. Together, they can save 30% of lighting energy in a building. Use dimming where appropriate to save an additional 20%.

Works with:



GRAFIK Eye® QS wireless



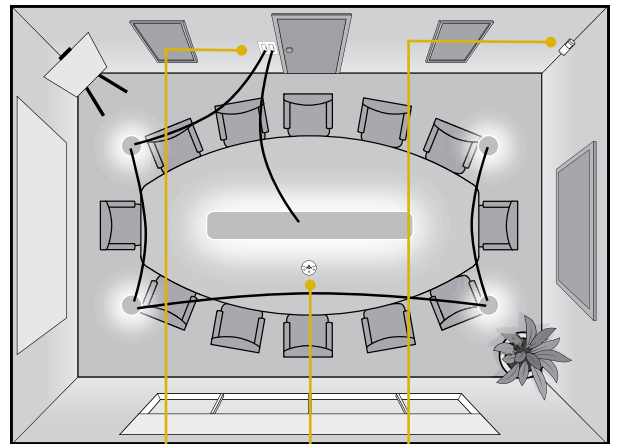
Maestro
Wireless®



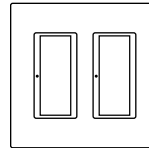
PowPak™

Specifications:

- Use one daylight sensor per compatible control
- One sensor can control up to 10 compatible dimmers/switches for spaces with additional zones of light
- Battery included (10-year battery life)



Conference room



Colors and finishes:

- Daylight sensors available in white (WH)

Combine the Radio Powr Savr **occupancy sensors and daylight sensor** to maximize energy savings in spaces like conference rooms.

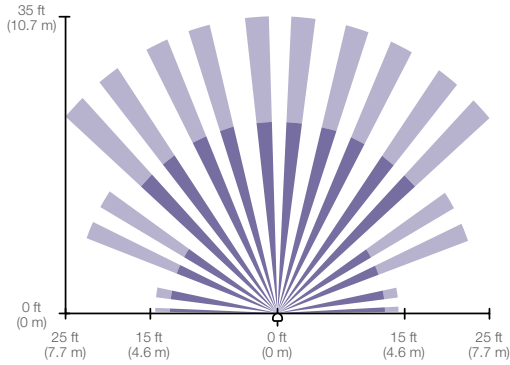
- **Save more energy** by reducing the usage of electric lights when daylight is available
- Wireless products **reconfigure easily** based on space layout changes

Lutron® Sensor Coverage

In-wall, 180°

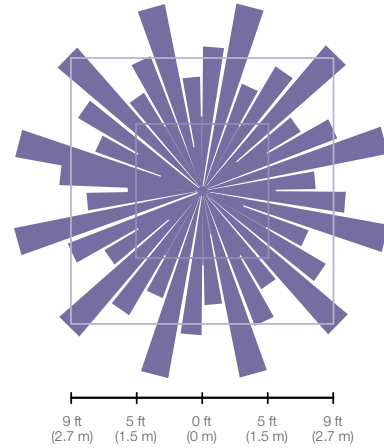
400 ft² — minor motion

900 ft² — major motion



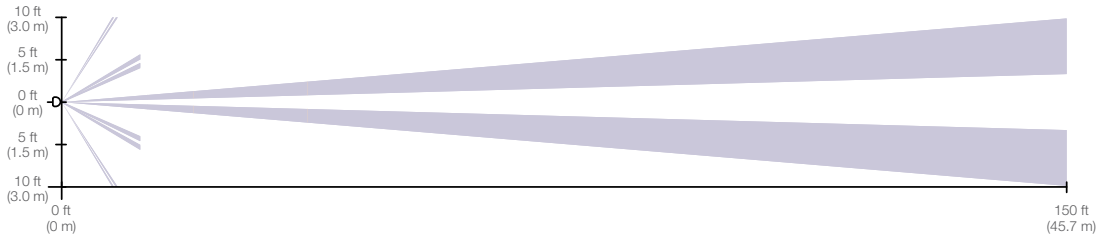
Ceiling-mount, 360°

Coverage varies by ceiling height





Hallway, long narrow field of view

Coverage varies by hallways with and length



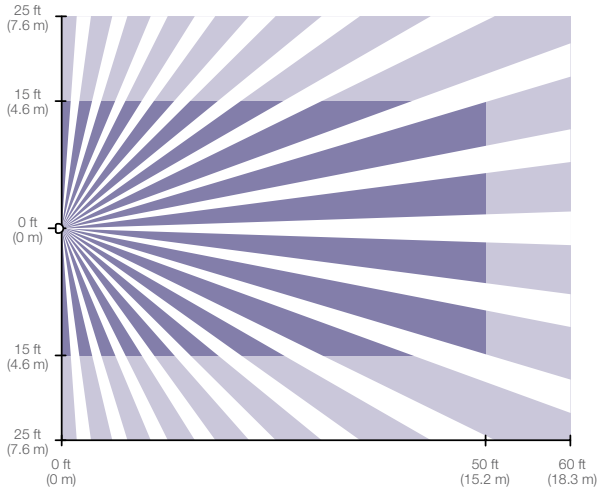
Key:

 minor motion

 major motion

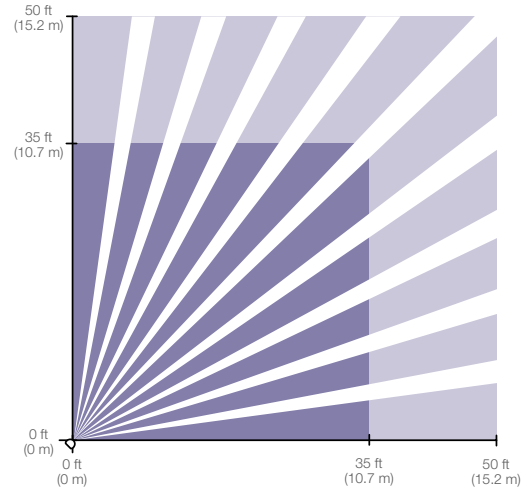
Wall-mount, 180°

1,500 ft²—minor motion
3,000 ft²—major motion



Corner-mount, 90°

1,223 ft²—minor motion
2,500 ft²—major motion



XCT™ Technology:


- This **exclusive, reliable sensing technology** enhances sensors' ability to **detect fine motions**
- Lights stay on when a room is occupied and stay off when a room is unoccupied

Clear Connect™ RF Technology:

- All Lutron wireless sensors operate on a quiet frequency band
- **Ensures flawless communication** free of interference, so lights work every time

Model Numbers

Maestro® occupancy sensors

Model number	Control type
MS-OPS2-XX ¹	single-pole switch with occupancy/vacancy sensor, 120 V, 2 A light, inc/halogen, MLV, ELV, CFL, LED, magnetic/electronic ballasts
MS-OPS5M-XX ¹	single-pole/3-way/multi-location switch with occupancy/vacancy sensor, 120 V, 5 A light, inc/halogen, MLV, ELV, CFL, LED, magnetic/electronic ballasts, 3 A fan
 MS-OPS6M-DV-XX ¹	single-pole/multi-location switch with occupancy/vacancy sensor, 120 V/277 V, 6 A light, inc/halogen, MLV, ELV, non-dim fluorescent ballasts, 3 Amp fan
MS-OP600M-XX ¹	single-pole/multi-location dimmer with occupancy/vacancy sensor, 120 V, 600 W incandescent/halogen

 Spec grade product

XX Color suffix

¹ Vacancy only models also available. Replace the "O" in the model number with a "V" to order.

Colors and finishes:

- In-wall sensors* available in gloss colors and Satin Colors®

Radio Powr Savr™ sensors

Model number	Control type
LRF2-OCRB2-P-WH	360° ceiling-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OWLB-P-WH	180° wall-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OKLB-P-WH	90° corner-mounted occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-OHLB-P-WH	wall-mounted hallway occupancy/vacancy sensor, auto-on/auto-off or manual on/auto-off settings
LRF2-DCRB-WH	ceiling-mounted daylight sensor

PowPak™ modules

Model number	Control type
RMJ-ECO32-DV-B	dimming module with EcoSystem, 120 V/277 V
RMJ-16R-DV-B	switching module with SoftSwitch, 16 A general purpose switch, 120 V/277 V

Colors and finishes:

- Ceiling-mount, wall-mount, corner-mount, and hallway occupancy/vacancy sensors available in white (WH)
- Daylight sensor available in white (WH)

* BL, GR, BR, and Satin Colors will be available 3/1 for 2 Amp and 5 Amp sensors

Maestro Wireless® load controllers

Model number Control type

MRF2-600M-XX single-pole/multi-location dimmer
120V, 600W inc/halogen

MRF2-10D-120-XX single-pole/multi-location dimmer
120V, 1000W inc/halogen,
magnetic low voltage

MRF2-6ND-120-XX single-pole/multi-location
neutral wire dimmer
120V, 600W inc/halogen,
magnetic low voltage

MRF2-8S-DV-XX single-pole/multi-location
non-neutral switch
120V/277V, 8A light, inc/halogen,
MLV, ELV, non-dim fluorescent
ballasts, does not require a neutral
wire connection

MRF2-3LD-XX plug-in lamp dimmer
300W, inc/halogen
for table or floor lamps

MRF2-3PD-3-XX plug-in module
300W dimming/switching

The colors of Lutron

Gloss colors:

white (WH)
ivory (IV)
almond (AL)
light almond (LA)

gray (GR)
brown (BR)
black (BL)

Satin Colors®:

hot (HT)
merlot (MR)
plum (PL)
turquoise (TQ)
sea glass (SG)
midnight (MN)
sienna (SI)
terracotta (TC)
greenbriar (GB)
bluestone (BG)

taupe (TP)
eggshell (ES)
biscuit (BI)
snow (SW)
palladium (PD)
mocha stone (MS)
goldstone (GS)
desert stone (DS)
stone (ST)
limestone (LS)



Colors and finishes:

- Dimmers and switches available in gloss colors and Satin Colors®
- Plug-in lamp dimmer available in gloss white (WH), black (BL)
- Plug-in module available in gloss white (WH), black (BL), and brown (BR)

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal one-for-one replacement of conventional high bay systems such as HID and fluorescent. Applications include warehousing, manufacturing and other large indoor spaces with mounting heights up to 60'. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Die-formed aluminum alloy chassis with integrated fins for superior cooling through natural convection. The channel is made of heavy-duty code gauge (20-gauge) steel which is powder coated after fabrication. The assembly is rigidly designed to resist twisting and bowing. Access plate on the back of the channel housing allows quick and easy wiring.

OPTICS — Narrow and wide distributions available to meet both horizontal and vertical light level requirements. Reflectors feature precision-formed optics utilizing reflective Alanod® MIRO-5° aluminum. Semi-diffuse lens optional to provide glare control and LED protection.

ELECTRICAL — 89% lumen maintenance at 60,000 hours; predicted life of more than 100,000 hours. Thermally protected driver standard with 0-10V dimming.

LISTINGS — CSA Certified to U.S. and Canadian safety standards. Damp location listed. Suitable for ambient temperatures from -40°F (-40°C) to 131°F (55°C). Patent pending.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Actual performance may differ as a result of end-user environment and application.

Actual wattage may differ by +/-1% when operating between 120-277V +/-10%.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type



LED High Bay

IBL

Unlensed (standard)
9-24L pictured



Patent Pending

Lensed (optional)
36-48L pictured



ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: IBL 18L WD LP740 DLC

IBL Series	Lumens	Distribution	Lens	Voltage	Color temperature ²
IBL	9L 9,000 lumens	WD Wide	(blank) No shielding	(blank) MVOLT; 120-277V	LP740 DLC 70 CRI, 4000K CCT
	12L 12,000 lumens	ND Narrow	SD125 Semi-diffuse acrylic	HVOLT 347V-480V	LP750 DLC 70 CRI, 5000K CCT
	18L 18,000 lumens			120 120V 277 277V	LP740 70 CRI, 4000K CCT LP750 70 CRI, 5000K CCT
Options					Finish
GLR	Internal fast-blow fuse ^{3,4}	Cord sets: ⁹	Motion sensors:		(blank) Gloss white with textured dark gray accents
OUTCTR	Wiring leads pulled through back center of fixture	CS1W Straight plug, 120V ¹⁰	MSE360 360° motion sensor embedded, high bay ^{11,12}		DWH Gloss white
OCS	RELOC® OnePass® 5' installed ³	CS3W Twist-lock, 120V ¹⁰	MSE360LB 360° motion sensor embedded, low bay ^{11,12}		
IMP	Integrated modular plug ^{5,6}	CS7W Straight plug, 277V ¹⁰	MSIPEP Aisle motion sensor, photo sensor, pre-wired ³		
I2412	IOTA emergency LED battery pack for 32°F to 104°F (0°C to 40°C) ambient ^{7,8}	CS11W Twist-lock, 277V ¹⁰	MSI360PED 360° motion sensor, photo sensor, pre-wired ³		
SPD	Surge protector ³	CS25W Twist-lock, 347V ¹⁰	MSI Aisle motion sensor, pre-wired ³		
WGX	Standard wire guard, installed	CS97W Twist-lock, 480V ¹⁰	MSI360 360° motion sensor, pre-wired ³		
		CS93W 600 SO white cord, no plug (no voltage required)	MSID Aisle motion sensor, pre-wired, HI/LO dimming control ³		
			MSI360D 360° motion sensor, pre-wired, HI/LO dimming control ³		
			NMSI nLight, aisle motion sensor, pre-wired ³		
			NMSI360 nLight enabled, 360° motion sensor, pre-wired ³		
			nEPP5D nLight dimming module ^{3,13}		

Accessories: Order as separate catalog number.

Mounting:

IBAC120 M20	Aircraft cable 10' with hook (one pair)
IBAC240 M20	Aircraft cable 20' with hook (one pair)
IBHMP	Hook monopoint
ZACVH	Aircraft 10' V hanger (one pair) ⁹
IBLPMP	Pendant monopoint splice box, includes side covers for use with 9L-24L
IBLPMPHB	Pendant monopoint splice box, includes side covers (3/4" hub) for use with 9L-24L.
IBLPMP48	Pendant monopoint splice box, includes side covers for use with 36L and 48L
IBLPMPHB48	Pendant monopoint splice box, includes side covers (3/4" hub) for use with 36L and 48L
HC36	Hanger chain, 36" ^{9,8}
THUN	Tong hanger bracket (one pair) ^{9,14}

Cord sets and sensors for IMP option:

CS1WIMP	Straight plug, 120V ^{9,10,15}
CS3WIMP	Twist-lock, 120V ^{9,10,15}
CS7WIMP	Straight plug, 277V ^{9,10,15}
CS11WIMP	Twist-lock, 277V ^{9,10,15}
CS25WIMP	Twist-lock 347V ^{9,10,15}
CS93WIMP	600V SO white cord, no plug (no voltage required) ^{9,15}
CS97WIMP	Twist-lock 480V ^{9,10,15}
MSIIMP	Aisle sensor ^{6,15}
MSI360IMP	360° sensor ^{6,15}

Field-installable door and lens assemblies:

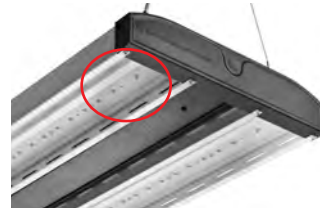
DLIBL SD125	Semi-diffuse acrylic lens for use 9L - 24L
DLIBL48 SD125	Semi-diffuse acrylic lens for use with 36L and 48L
Wire guards:	
WGIBL	Wire guard for use with 9L - 24L
WGIBL48	Wire guard for use with 36L and 48L

See footnotes on page 2.

IBL LED High Bay

Notes

- 1 Fixtures more than 24" wide can interfere with the operation of some fire sprinkler systems. Verify specific installation requirements with local fire official and insurance carrier. Emergency battery packs are not available with 36L or 48L.
- 2 Select product configurations are Design Lights Consortium (DLC) qualified; does not apply to 9L packages or 12 ND SD125 LP740 configuration.
- 3 Specify voltage.
- 4 Not available with 347 voltage.
- 5 Must be factory-installed.
- 6 Must have "IMP" power cord to power fixture.
- 7 Must specify voltage. 120V or 277V only. Not available with cordset w/plug or OUTCTR option.
- 8 Not available with 36L or 48L lumen package. When using THUN option maximum ambient temperature is 35°C.
- 9 All cord sets are 18/3, 6', white.
- 10 Cord sets are voltage specific. Specify voltage. Other configurations available. Consult factory.
- 11 Specify voltage; 120, 277 or 347 only.
- 12 Not available with battery pack.
- 13 Consult factory for dimming of 208, 347 or 480V fixtures.
- 14 95°F (35°C) maximum ambient temperature when using the THUN.
- 15 Must have IMP option on fixture.



9L, 18L, and 36L lumen packages

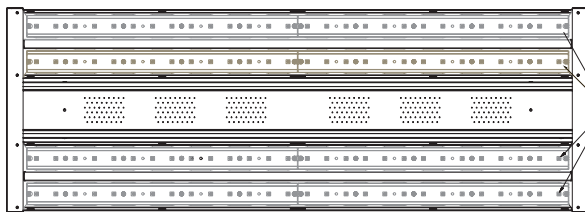


12L, 24L, and 48L lumen packages

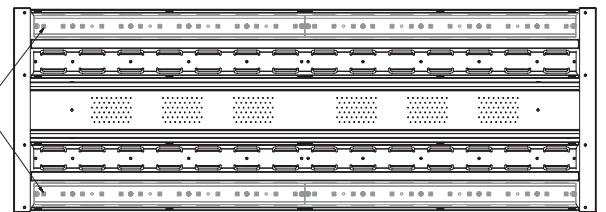
To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

DIMENSIONS

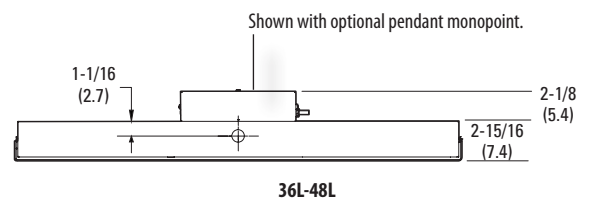
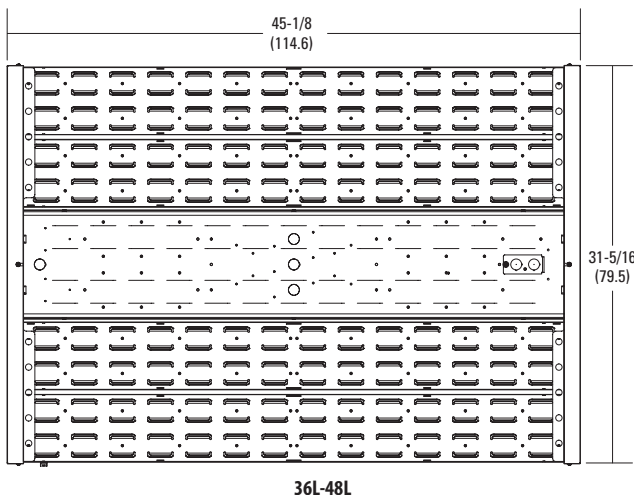
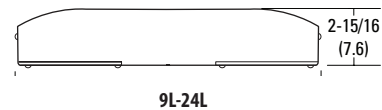
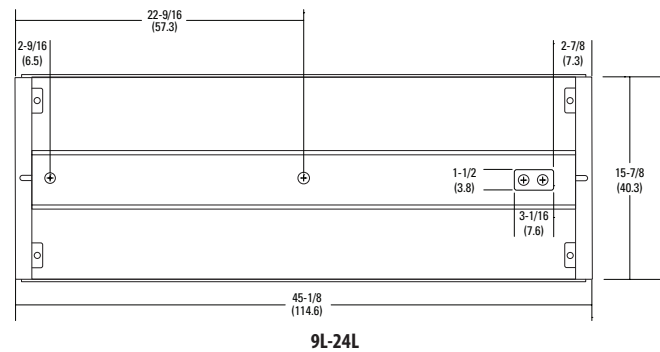
Dimensions may vary with options or accessories.



18L, and 24L utilize two drivers wired inboard/outboard
 36L and 48L (not shown) utilize four drivers wired inboard/outboard



9L and 12L utilize one driver



OPERATIONAL DATA

Lumen Package	Ambient Rating (120V - 277V)	Ambient Rating (347V / 480V)	Distribution	Delivered Lumens 5000K CCT @ 77°F (25°C) Ambient Temperature	Delivered Lumens 4000K CCT @ 77°F (25°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient Temperature	Lumen Multiplier @ 104°F (40°C) Ambient w/SD125 Lens Kit
9L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	10,039	9,794	0.98	0.901
			ND	8,888	8,671	0.98	0.950
12L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	13,055	11,702	0.98	0.901
			ND	11,558	10,360	0.98	0.950
18L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	19,893	19,406	0.98	0.901
			ND	17,612	17,181	0.98	0.950
24L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	24,052	23,463	0.98	0.901
			ND	21,294	20,772	0.98	0.950
36L	-40°F to 131°F (-40°C to 55°C)	-40°F to 104°F (-40°C to 40°C)	WD	36,805	36,480	0.98	0.901
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			ND	45,320	44,920	0.98	0.950

CHARACTERISTICS

Lumen Package	Wattage				Length	Width	Depth	Weight without Lens (Lens kit adds approx. 7 lbs.)	Comparable Light Source
	120V	277V	347V	480V					
	Dimensions are shown in inches (centimeters) unless otherwise noted.								
9L	103	98	107	106	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	2-lamp T5HO
12L	134	131	142	141	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	12.5 lbs. (5.7 kg)	4-lamp T8, 250W HID
18L	213	199	213	211	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	4-lamp T5HO, 6-lamp T8, 400W HID
24L	262	258	284	281	45 (114.3)	15-3/4 (40.0)	3-1/4 (8.3)	17.5 lbs. (7.9 kg)	6-lamp T5HO, 8-lamp T8
36L	423	417	459	454	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	8-lamp T5HO, 750 HID
48L	531	511	562	557	45 (114.3)	31-1/3 (79.5)	3-1/4 (8.3)	35 lbs. (15.9 kg)	10-lamp T5HO, 1000W HID

PROJECTED LUMEN MAINTENANCE

Operating Hours	0	10,000	20,000	25,000	35,000	50,000	60,000	75,000	100,000
Lumen Maintenance Factor	1	0.96	0.95	0.94	0.93	0.91	0.89	0.87	0.84

LUMENS VS. AMBIENT TEMPERATURE

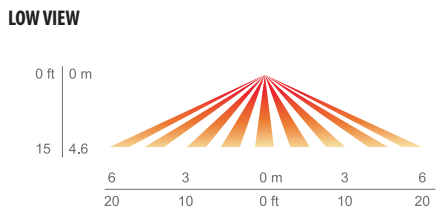
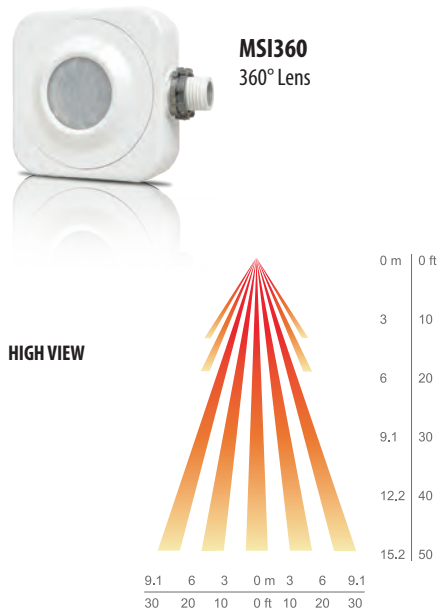
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10	50	1.01
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30	86	0.995
35	95	0.985
40	104	0.98
45	113	0.97
50	122	0.965
55	131	0.96

PHOTOMETRICS

See www.lithonia.com.

SENSORS AND CONTROLS

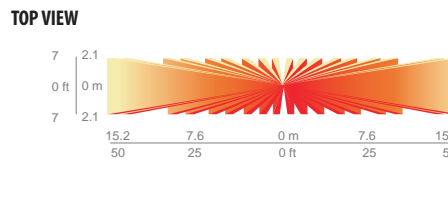
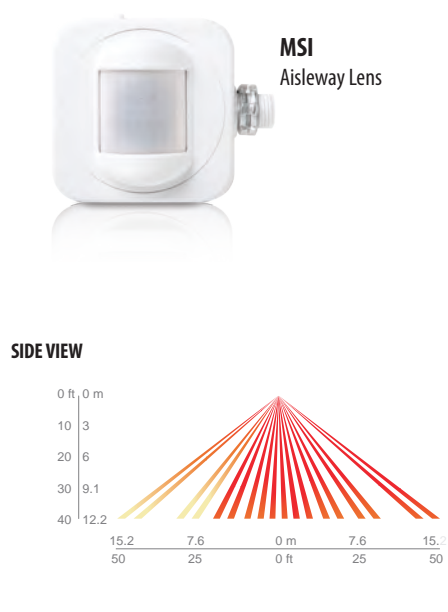
Sensors are an excellent way to maximize the return on your high bay lighting investment. I-BEAM LED fixtures can be equipped with an occupancy sensor, photocell, nLight® or nWiFi™. These devices are factory-installed and require minimal labor to set up during fixture installation.



MSI360: The Sensor Switch CMRB 6 open-area sensor has 360° coverage and can be integrated with a photocell (PE) for further energy savings.

Mounting Location: End Plate

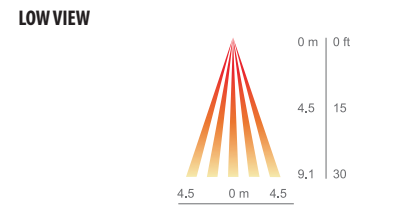
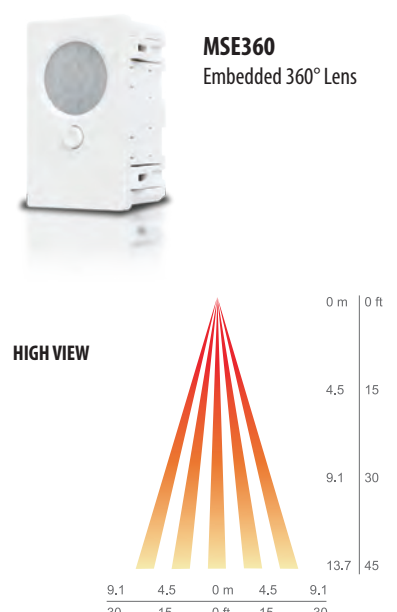
- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture



MSI: The Sensor Switch CMRB 50 aisleway sensor offers a dedicated sensor and extended range, compared to competitive products.

Mounting Location: End Plate

- Provides 50° bi-directional and 10° wide coverage pattern
- 1.2x mounting height equals approximate detection range in either direction
- Sensor lens turret rotates 90° in order to easily adjust the direction of the view pattern



MSE360: The Sensor Switch SFR 5 open-area sensor is embedded in the fixture, making it less intrusive than traditional sensors.

Mounting Location: Center Channel

- Recommended for fixtures that have a 1.0 spacing-to-mounting height ratio or less
- Use provided masking kit to mask off a portion of the view pattern for end-of-aisle applications or, to trim sensor's side viewing to create a rectangular pattern for center-of-aisle viewing only.



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nWiFi for nLight adds conventional WiFi technology to nLight devices, such as occupancy sensors and relays, enabling them to seamlessly communicate with both wired and wireless nLight lighting control zones. This powerful new nLight technology further simplifies installation and reduces hardware costs.

OPTIONS AND ACCESSORIES

The I-BEAM LED fixture offers numerous options for almost every electrical and optical component, including a long list of field-installable accessories.



REFLECTORS

Wide distribution is formed with 93% reflective white paint. Narrow distribution is formed with Alanod® MIRO®.



INTEGRATED ELECTRICAL OPTIONS

Channel sized to accept emergency components, surge protector, fusing and embedded sensors.



WIRE GUARD (external)

Field- or factory-installed. Protects light engine from impact. Mounting hardware included.

Factory-installed option:
WGX

Field-installed options:
WGIBL
WGIBL48



DIFFUSER

Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

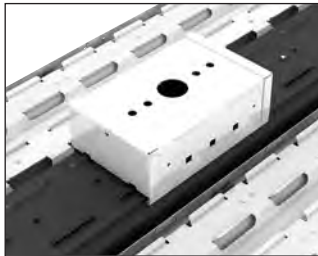
Field-installed option:
DLIBL SD125
DLIBL48 SD125



EMBEDDED OCCUPANCY SENSOR

Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

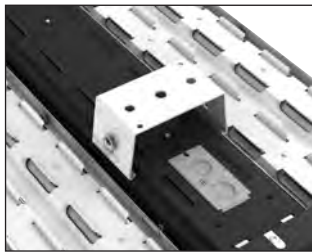
Factory-installed option:
MSE360



PENDANT MONOPOINT BRACKET

Accepts 3/4" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

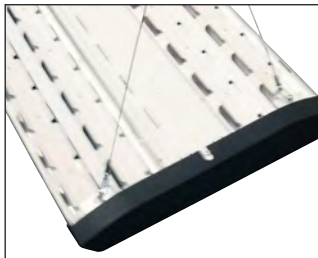
Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



SURFACE MOUNT BRACKET

Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

Order as:
THUN (not for use in ambient temperatures exceeding 95°F (35°C), or on the 36L or 48L)



HANGERS

Several lengths of aircraft cables and chains available; with or without V-hooks.

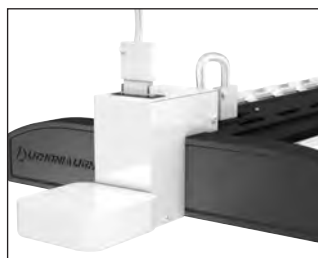
Order as:
IBAC120 M20
IBHMP
For others, see accessories on page 1.



CORD SETS

Available in several lengths with or without molded plug. White is standard.

For available options, see ordering information on page 1.



INTEGRATED MODULAR PLUG (IMP)

Must be factory-installed and allows for field installation of various modular accessories including cordsets, motion sensors, photocells and LC&D X-point™ relays.

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal one-for-one replacement of conventional high bay systems such as HID and fluorescent. Applications include warehousing, manufacturing and other large indoor spaces with mounting heights up to 60'. **Certain airborne contaminants can diminish integrity of acrylic.**

[Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — Die-formed aluminum alloy chassis with integrated fins for superior cooling through natural convection. The channel is made of heavy-duty code gauge (20-gauge) steel which is powder coated after fabrication. The assembly is rigidly designed to resist twisting and bowing. Access plate on the back of the channel housing allows quick and easy wiring.

OPTICS — Narrow and wide distributions available to meet both horizontal and vertical light level requirements. Reflectors feature precision-formed optics utilizing reflective Alanod® MIRO-5° aluminum. Semi-diffuse lens optional to provide glare control and LED protection.

ELECTRICAL — 89% lumen maintenance at 60,000 hours; predicted life of more than 100,000 hours. Thermally protected driver standard with 0-10V dimming.

LISTINGS — CSA Certified to U.S. and Canadian safety standards. Damp location listed. Suitable for ambient temperatures from -40°F (-40°C) to 131°F (55°C). Patent pending.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Actual performance may differ as a result of end-user environment and application.

Actual wattage may differ by +/-1% when operating between 120-277V +/-10%.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type



LED High Bay

IBL

Unlensed (standard)
9-24L pictured



Patent Pending

Lensed (optional)
36-48L pictured



ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: IBL 18L WD LP740 DLC

IBL Series	Lumens	Distribution	Lens	Voltage	Color temperature ²
IBL	9L 9,000 lumens	WD Wide ND Narrow	(blank) No shielding SD125 Semi-diffuse acrylic	(blank) MVOLT; 120-277V HVOLT 347V-480V 120 120V 277 277V	LP740 DLC 70 CRI, 4000K CCT
	24L 24,000 lumens				LP750 DLC 70 CRI, 5000K CCT
	12L 12,000 lumens	36L 36,000 lumens ¹			LP740 70 CRI, 4000K CCT
	18L 18,000 lumens	48L 48,000 lumens ¹			LP750 70 CRI, 5000K CCT

Options				Finish
GLR	Internal fast-blow fuse ^{3,4}	Cord sets: ⁹	Motion sensors:	(blank) Gloss white with textured dark gray accents
OUTCTR	Wiring leads pulled through back center of fixture	CS1W Straight plug, 120V ¹⁰	MSE360 360° motion sensor embedded, high bay ^{11,12}	DWH Gloss white
OCS	RELOC® OnePass® 5' installed ³	CS3W Twist-lock, 120V ¹⁰	MSE360LB 360° motion sensor embedded, low bay ^{11,12}	
IMP	Integrated modular plug ^{5,6}	CS7W Straight plug, 277V ¹⁰	MSIPEP Aisle motion sensor, photo sensor, pre-wired ³	
I2412	IOTA emergency LED battery pack for 32°F to 104°F (0°C to 40°C) ambient ^{7,8}	CS11W Twist-lock, 277V ¹⁰	MSI360PED 360° motion sensor, photo sensor, pre-wired ³	
SPD	Surge protector ³	CS25W Twist-lock, 347V ¹⁰	MSI Aisle motion sensor, pre-wired ³	
WGX	Standard wire guard, installed	CS97W Twist-lock, 480V ¹⁰	MSI360 360° motion sensor, pre-wired ³	
		CS93W 600 SO white cord, no plug (no voltage required)	MSID Aisle motion sensor, pre-wired, HI/LO dimming control ³	
			MSI360D 360° motion sensor, pre-wired, HI/LO dimming control ³	
			NMSI nLight, aisle motion sensor, pre-wired ³	
			NMSI360 nLight enabled, 360° motion sensor, pre-wired ³	
			nEPP5D nLight dimming module ^{3,13}	

Accessories: Order as separate catalog number.

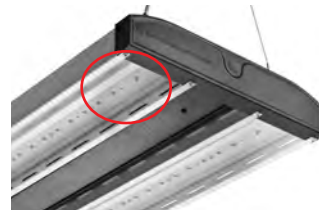
Mounting:	Cord sets and sensors for IMP option:	Field-installable door and lens assemblies:
IBAC120 M20 Aircraft cable 10' with hook (one pair)	CS1WIMP Straight plug, 120V ^{9,10,15}	DLIBL SD125 Semi-diffuse acrylic lens for use 9L - 24L
IBAC240 M20 Aircraft cable 20' with hook (one pair)	CS3WIMP Twist-lock, 120V ^{9,10,15}	DLIBL48 SD125 Semi-diffuse acrylic lens for use with 36L and 48L
IBHMP Hook monopoint	CS7WIMP Straight plug, 277V ^{9,10,15}	<u>Wire guards:</u>
ZACVH Aircraft 10' V hanger (one pair) ⁹	CS11WIMP Twist-lock, 277V ^{9,10,15}	WGIBL Wire guard for use with 9L - 24L
IBLPMP Pendant monopoint splice box, includes side covers for use with 9L-24L	CS25WIMP Twist-lock 347V ^{9,10,15}	WGIBL48 Wire guard for use with 36L and 48L
IBLPMPHB Pendant monopoint splice box, includes side covers (3/4" hub) for use with 9L-24L.	CS93WIMP 600V SO white cord, no plug (no voltage required) ^{9,15}	
IBLPMP48 Pendant monopoint splice box, includes side covers for use with 36L and 48L	CS97WIMP Twist-lock 480V ^{9,10,15}	
IBLPMPHB48 Pendant monopoint splice box, includes side covers (3/4" hub) for use with 36L and 48L	MSIIMP Aisle sensor ^{6,15}	
HC36 Hanger chain, 36" ^{9,8}	MSI360IMP 360° sensor ^{6,15}	
THUN Tong hanger bracket (one pair) ^{9,14}		

See footnotes on page 2.

IBL LED High Bay

Notes

- 1 Fixtures more than 24" wide can interfere with the operation of some fire sprinkler systems. Verify specific installation requirements with local fire official and insurance carrier. Emergency battery packs are not available with 36L or 48L.
- 2 Select product configurations are Design Lights Consortium (DLC) qualified; does not apply to 9L packages or 12 ND SD125 LP740 configuration.
- 3 Specify voltage.
- 4 Not available with 347 voltage.
- 5 Must be factory-installed.
- 6 Must have "IMP" power cord to power fixture.
- 7 Must specify voltage. 120V or 277V only. Not available with cordset w/plug or OUTCTR option.
- 8 Not available with 36L or 48L lumen package. When using THUN option maximum ambient temperature is 35°C.
- 9 All cord sets are 18/3, 6', white.
- 10 Cord sets are voltage specific. Specify voltage. Other configurations available. Consult factory.
- 11 Specify voltage; 120, 277 or 347 only.
- 12 Not available with battery pack.
- 13 Consult factory for dimming of 208, 347 or 480V fixtures.
- 14 95°F (35°C) maximum ambient temperature when using the THUN.
- 15 Must have IMP option on fixture.



9L, 18L, and 36L lumen packages

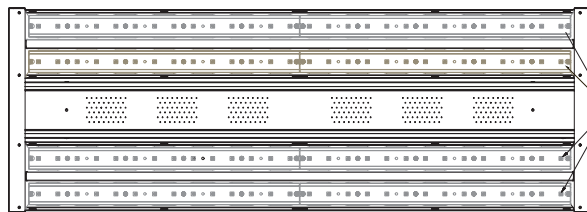


12L, 24L, and 48L lumen packages

To create the 9L, 18L, and 36L lumen packages, the PCBA (LED board) is depopulated from the endcaps inward. The first LED is 5-1/2" from the end cap on those units, compared to 1-1/8" on the 12L, 24L, and 48L product.

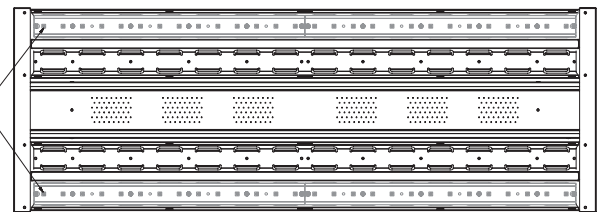
DIMENSIONS

Dimensions may vary with options or accessories.

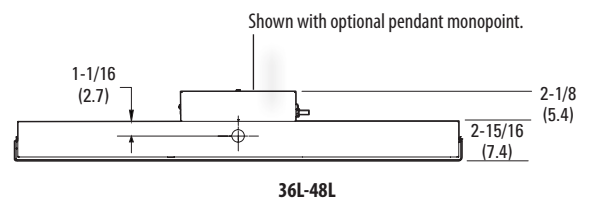
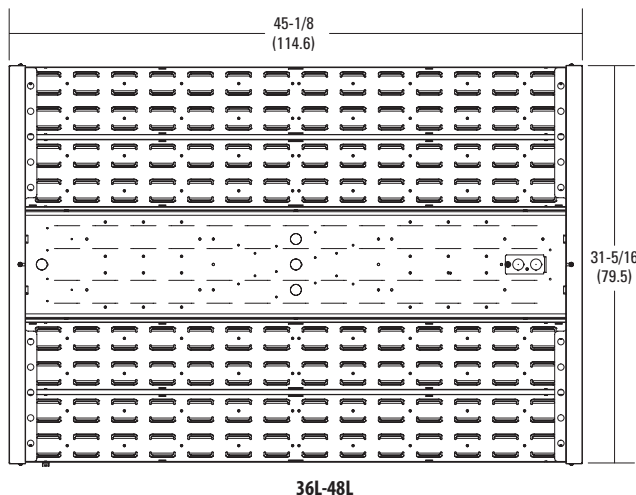
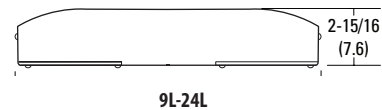
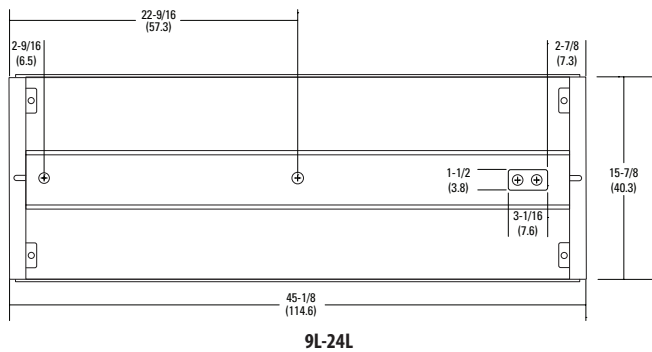


18L, and 24L utilize two drivers wired inboard/outboard
36L and 48L (not shown) utilize four drivers wired inboard/outboard

24L & 18L HAS 4 ROWS OF LEDs
12L & 9L HAS 2 ROWS OF LEDs
36L AND 48L (NOT SHOWN) HAVE 8 ROWS OF LEDs



9L and 12L utilize one driver



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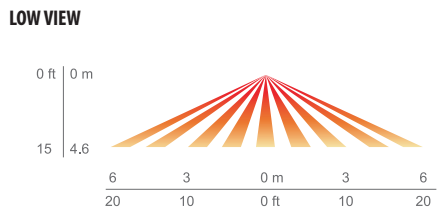
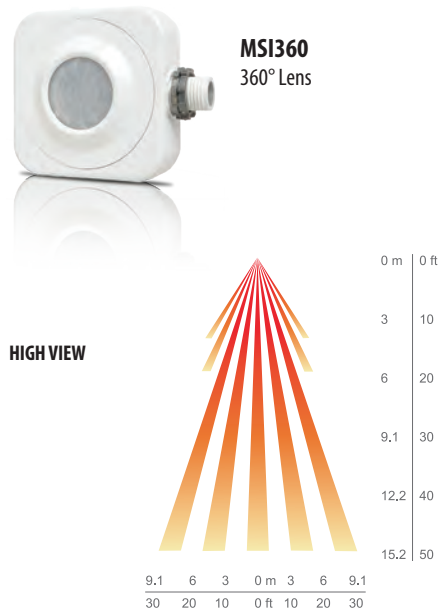
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SENSORS AND CONTROLS

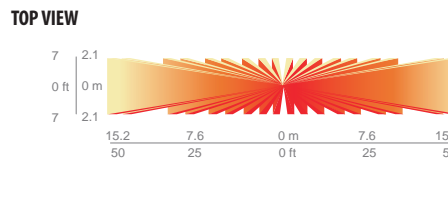
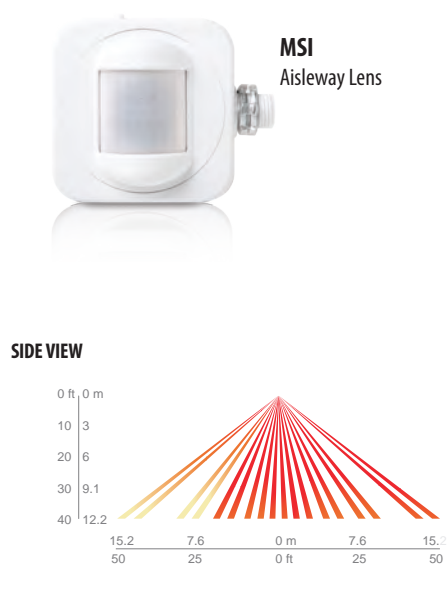
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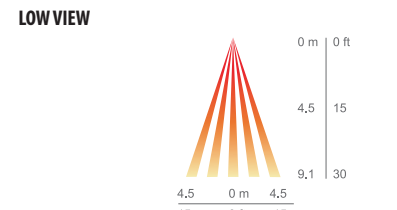
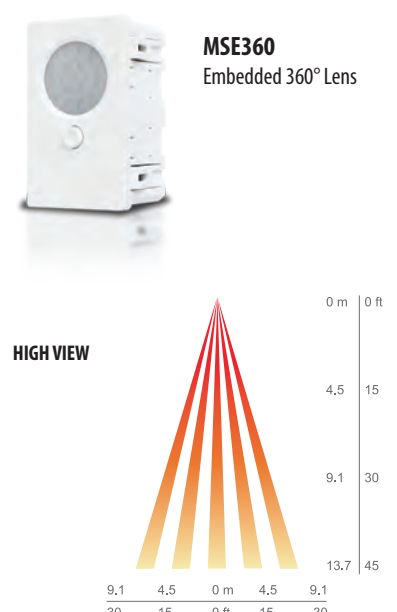
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- Use provided masking kit to mask off a portion of the view pattern for end-of-aisle applications or, to trim sensor's side viewing to create a rectangular pattern for center-of-aisle viewing only.



All I-BEAM LED fixtures can be equipped with nLight. nLight is an exclusive and revolutionary system that cost-effectively combines time-based and sensor-based lighting controls. The digital interface allows for quick, easy modifications to time delays, photocell sensitivity and light levels at the individual fixture level.

nWiFi for nLight adds conventional WiFi technology to nLight devices, such as occupancy sensors and relays, enabling them to seamlessly communicate with both wired and wireless nLight lighting control zones. This powerful new nLight technology further simplifies installation and reduces hardware costs.

OPTIONS AND ACCESSORIES

The I-BEAM LED fixture offers numerous options for almost every electrical and optical component, including a long list of field-installable accessories.



REFLECTORS

Wide distribution is formed with 93% reflective white paint. Narrow distribution is formed with Alanod® MIRO®.



INTEGRATED ELECTRICAL OPTIONS

Channel sized to accept emergency components, surge protector, fusing and embedded sensors.



WIRE GUARD (external)

Field- or factory-installed. Protects light engine from impact. Mounting hardware included.

Factory-installed option:
WGX

Field-installed options:
WGIBL
WGIBL48



DIFFUSER

Field- or factory-installed. Available in semi-diffuse acrylic. Mounting hardware included.

Factory-installed option:
SD125

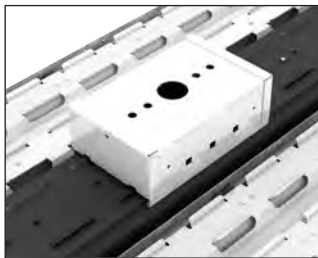
Field-installed option:
DLIBL SD125
DLIBL48 SD125



EMBEDDED OCCUPANCY SENSOR

Can be placed in the channel cover which reduces the risk of sensor damage compared to non-embedded sensors.

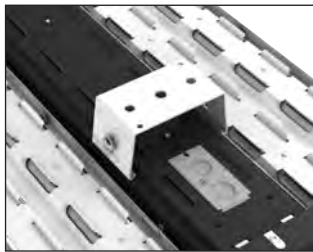
Factory-installed option:
MSE360



PENDANT MONOPOINT BRACKET

Accepts 3/4" rigid conduit for single-point mounting. The bracket can be adjusted to help counterbalance fixture to offset weight variance from end to end.

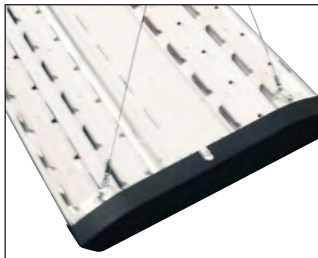
Order as:
IBLPMP
IBLPMPHB
IBLPMP48
IBLPMPHB48



SURFACE MOUNT BRACKET

Rigidly attach I-BEAM LED to a hard ceiling. Can be placed anywhere along fixture.

Order as:
THUN (not for use in ambient temperatures exceeding 95°F (35°C), or on the 36L or 48L)



HANGERS

Several lengths of aircraft cables and chains available; with or without V-hooks.

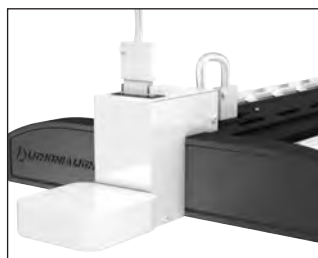
Order as:
IBAC120 M20
IBHMP
For others, see accessories on page 1.



CORD SETS

Available in several lengths with or without molded plug. White is standard.

For available options, see ordering information on page 1.



INTEGRATED MODULAR PLUG (IMP)

Must be factory-installed and allows for field installation of various modular accessories including cordsets, motion sensors, photocells and LC&D X-point™ relays.

Perfect for outdoor/indoor flood illumination

UL/cUL Listed
NEMA 4X
IP66

Type FL5
PFM13L CY/UNV1 76

The Champ® Pro PFM Family

Champ® Pro PFM Series Floodlights are designed to provide full-spectrum, crisp, white light. Five versions of the Champ PFM LED are available, providing ideal solutions for a wide range of applications.

Champ® Pro PFM Model	Equivalent MH HID Lamp	Energy Savings
PFM5L	100W-150W	Up to 62%!
PFM7L	150W-175W	
PFM9L	175W-250W	
PFM11L	250W-400W	
PFM13L	400W	

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

Drivers:

Model	5L - 13L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC
Option 1	347 VAC Model
Option 2	480 VAC Model

Standard Materials:

- Housing – copper-free aluminum with Corro-free™ epoxy powder coat
- Lens – shatter-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) and 5600K (CRI 65) options available
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions



Electrical Ratings:

	PFM5L	PFM7L	PFM9L	PFM11L	PFM13L
Voltage Range, VAC	100-277V 50-60 Hz 347 / 480V 60 Hz				
Voltage Range, VDC	108-250	108-250	108-250	108-250	108-250
Input Power (Nom.)	64	89	121	149	179
Input Amps (Max.)	0.550	0.800	1.083	1.608	1.608
Power Factor	>0.85	>0.85	>0.85	>0.85	>0.85

Ordering Information:

Color Temperature	5L Series	7L Series	9L Series	11L Series	13L Series
Cool Color Temperature	PFM5LCY/UNV1 76	PFM7LCY/UNV1 76	PFM9LCY/UNV1 76	PFM11LCY/UNV1 76	PFM13LCY/UNV1 76
	PFM5LCY/120 76*	PFM7LCY/120 76*	PFM9LCY/120 76*	PFM11LCY/120 76*	PFM13LCY/120 76*
Warm Color Temperature	PFM5LWY/UNV1 76	PFM7LWY/UNV1 76	PFM9LWY/UNV1 76	PFM11LWY/UNV1 76	PFM13LWY/UNV1 76

For 347 VAC option, replace /UNV1 with /347. For 480 VAC option, replace /UNV1 with /480.

To order fixture without optics, remove '76' from the end of the catalog number.

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions. DesignLights Consortium approved models. Cool white only.

Options:

Description	Suffix
Fused (only applies to UNV1 model, not available for 347V or 480V; NOT marine or cUL Listed)	S658
Two conduit/cable glands of like thread installed	S886

Accessories:

Description	Catalog No. Sold Separately
Bolt-on visor (sold separately)	DSV1
Bolt-on wire guard (sold separately)	P61
Floodlight slipfitter (sold separately)	SFA6
Slipfitter wall mount adapter (sold separately)	SWB6

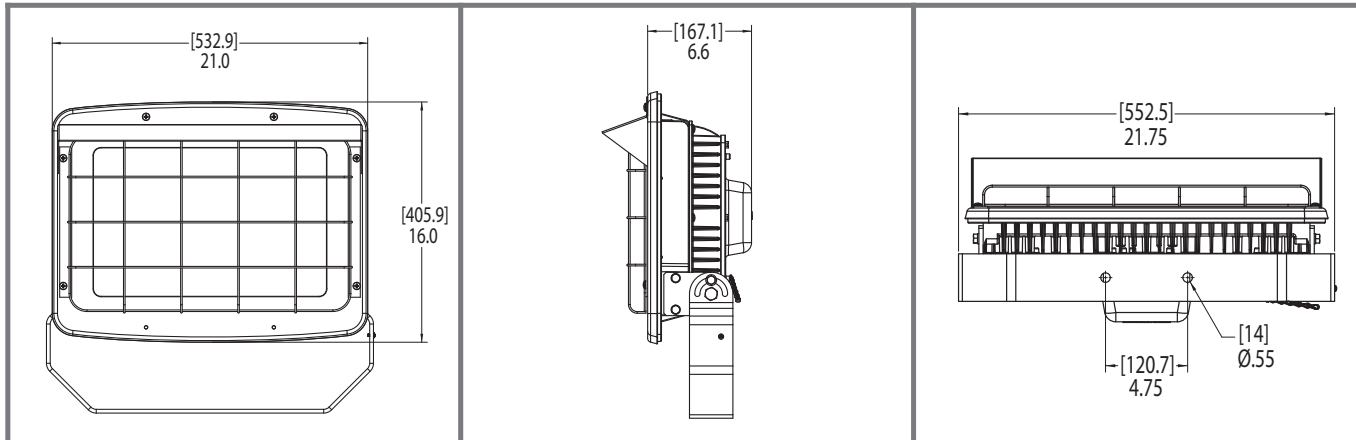
Champ® Pro PFM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

2L

Perfect for outdoor/indoor flood illumination

Dimensions:



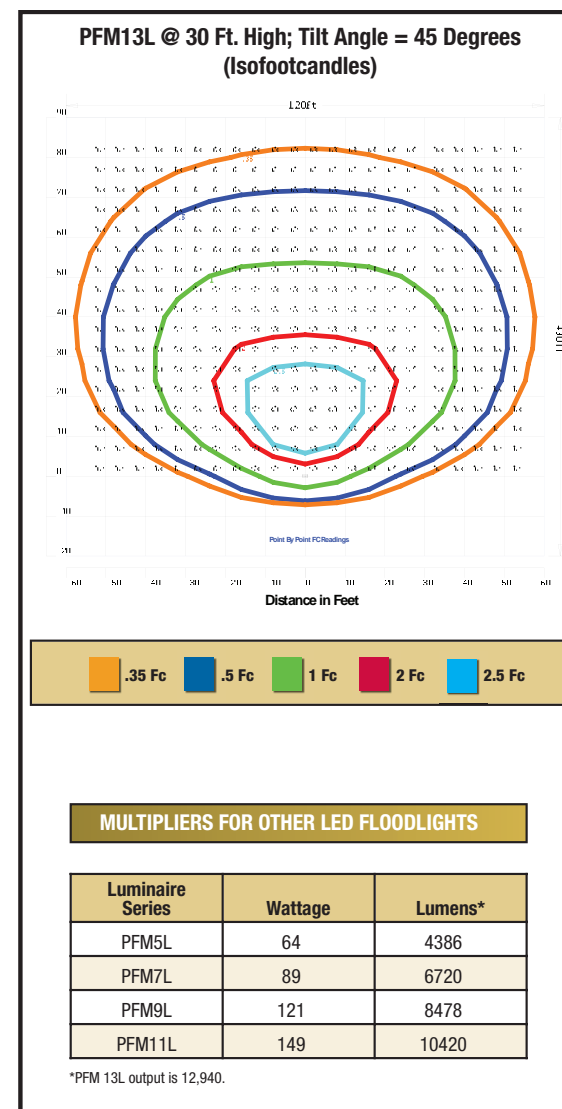
Weights:

Model	Lbs.
5L	39.11
7L	39.16
9L	39.73
11L	40.35
13L	40.35

Ambient Temperature:

Champ® Pro PFM Model	Max. Temp. °C
PFM5L	55
PFM7L	55
PFM9L	55
PFM11L	40
	55
PFM13L	40
	55

Photometric Data:



2L

Perfect for outdoor/indoor flood illumination

UL/cUL Listed
NEMA 4X
IP66

Type FL4
PFM9L CY/UNV1 76

The Champ® Pro PFM Family

Champ® Pro PFM Series Floodlights are designed to provide full-spectrum, crisp, white light. Five versions of the Champ PFM LED are available, providing ideal solutions for a wide range of applications.

Champ® Pro PFM Model	Equivalent MH HID Lamp	Energy Savings
PFM5L	100W-150W	Up to 62%!
PFM7L	150W-175W	
PFM9L	175W-250W	
PFM11L	250W-400W	
PFM13L	400W	

Certifications and Compliances:

- UL1598
- UL1598A
- cUL
- NEMA 4X; IP66
- DesignLights Consortium® approved for select models (refer to Ordering Information for details)

Drivers:

Model	5L - 13L
Standard	90-305 VAC, 50 / 60 Hz; 108-250 VDC
Option 1	347 VAC Model
Option 2	480 VAC Model

Standard Materials:

- Housing – copper-free aluminum with Corro-free™ epoxy powder coat
- Lens – shatter-resistant glass
- Gaskets – silicone
- External hardware – stainless steel
- Factory-sealed, no external seals required

LED System:

- High brightness light emitting diode (LED) arrays
- Color temperature: 3000K (CRI 82) and 5600K (CRI 65) options available
- Advanced heat sink design ensures LED does not exceed manufacturer's temperature ratings across all specified ambient conditions



Electrical Ratings:

	PFM5L	PFM7L	PFM9L	PFM11L	PFM13L
Voltage Range, VAC	100-277V 50-60 Hz 347 / 480V 60 Hz				
Voltage Range, VDC	108-250	108-250	108-250	108-250	108-250
Input Power (Nom.)	64	89	121	149	179
Input Amps (Max.)	0.550	0.800	1.083	1.608	1.608
Power Factor	>0.85	>0.85	>0.85	>0.85	>0.85

Ordering Information:

Color Temperature	5L Series	7L Series	9L Series	11L Series	13L Series
Cool Color Temperature	PFM5LCY/UNV1 76	PFM7LCY/UNV1 76	PFM9LCY/UNV1 76	PFM11LCY/UNV1 76	PFM13LCY/UNV1 76
	PFM5LCY/120 76*	PFM7LCY/120 76*	PFM9LCY/120 76*	PFM11LCY/120 76*	PFM13LCY/120 76*
Warm Color Temperature	PFM5LWY/UNV1 76	PFM7LWY/UNV1 76	PFM9LWY/UNV1 76	PFM11LWY/UNV1 76	PFM13LWY/UNV1 76

For 347 VAC option, replace /UNV1 with /347. For 480 VAC option, replace /UNV1 with /480.

To order fixture without optics, remove '76' from the end of the catalog number.

*5 year limited warranty. Refer to page 2 of the D-0413 authorized distributor price book for Cooper Crouse-Hinds standard Terms and Conditions. DesignLights Consortium approved models. Cool white only.

Options:

Description	Suffix
Fused (only applies to UNV1 model, not available for 347V or 480V; NOT marine or cUL Listed)	S658
Two conduit/cable glands of like thread installed	S886

Accessories:

Description	Catalog No. Sold Separately
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Bolt-on wire guard (sold separately)	P61
Floodlight slipfitter (sold separately)	SFA6
Slipfitter wall mount adapter (sold separately)	SWB6

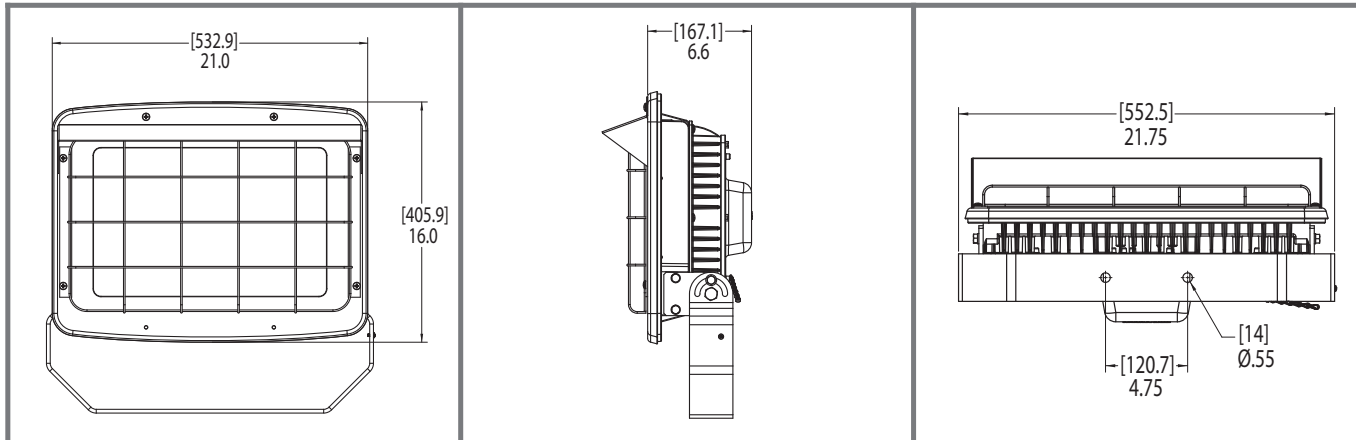
Champ® Pro PFM Series Luminaires

UL/cUL Listed
NEMA 4X
IP66

2L

Perfect for outdoor/indoor flood illumination

Dimensions:



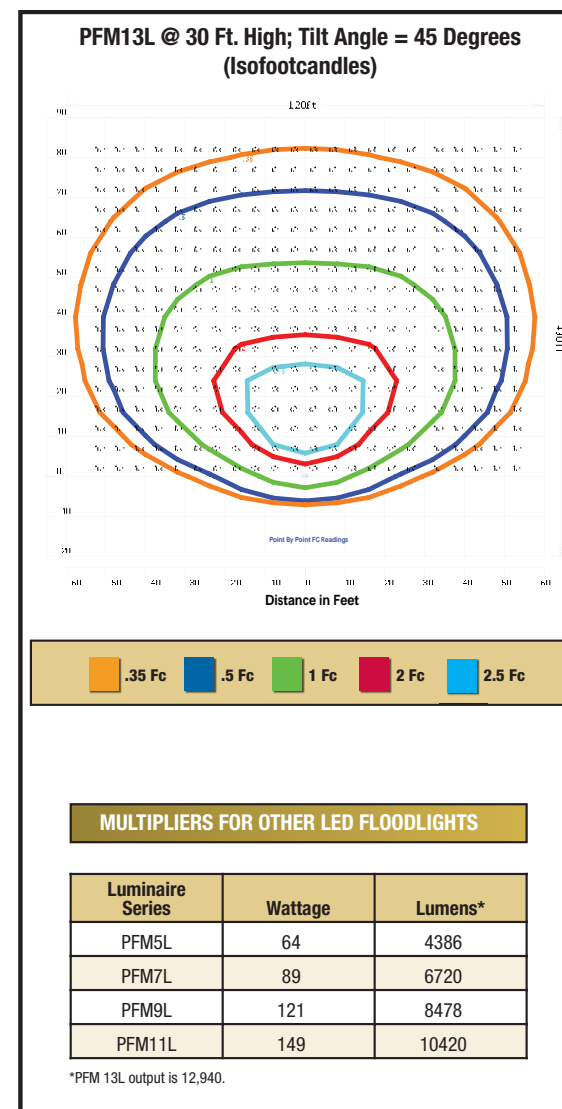
Weights:

Model	Lbs.
5L	39.11
7L	39.16
9L	39.73
11L	40.35
13L	40.35

Ambient Temperature:

Champ® Pro PFM Model	Max. Temp. °C
PFM5L	55
PFM7L	55
PFM9L	55
PFM11L	40
	55
PFM13L	40
	55

Photometric Data:



2L

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for use in food processing, manufacturing, industrial, schools, gymnasiums and exterior retail environments. Fiberglass enclosure protects fixture while remaining easy to service and clean. **Certain airborne contaminants can diminish integrity of acrylic.** [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

CONSTRUCTION — One-piece 5VA rated fiberglass housing with continuous poured-in-place, closed-cell gasket. Tool-less ballast and wiring access.

OPTICS — Injection-molded, impact-resistant clear acrylic diffuser with frosted ends and side lineal prisms is standard (.080" thick), securely tethered to fixture for ease of maintenance. UV stabilized polycarbonate diffuser option also is available (.080" thick). Stainless steel latches (12) included. Reflectors are precision-formed, high-performance, segmented optics utilizing premium specular aluminum. Provides 95% reflectivity and warranted for 25 years.

ELECTRICAL — Ballasts: Thermally protected, resetting, Class P, HPF, Sound Rating A+. UL listed wire, rated for required temperatures, used throughout. T8 ballast starting temperature is -18°C (0°F) and T5HO starting temperature is -29°C (-20°F).

Lamps: 4100K lamps standard. Secured with rotary locking lampholders for ease of re-lamping and to minimize disconnection due to vibration or incidental contact.

INSTALLATION — Surface conduit entry provisions with watertight plugs are standard. Stainless steel universal hanging clips included for suspension with aircraft cable (cable not included). Optional stainless steel V-hooks available for chain hanging (chain not included).

LISTINGS — UL/C-UL listed to US and Canadian Safety Standard. NOM Certified (see Options). UL listed for 40°C ambient (except six-lamp 54T5HO, which is UL listed at 35°C ambient). Suitable for wet location. IP65, IP66 and IP67 rated and certified to meet NSF Splash Zone 2. NEMA 4X. 1500 PSI hose-down.

WARRANTY — 1-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.

Actual performance may differ as a result of end-user environment and application.

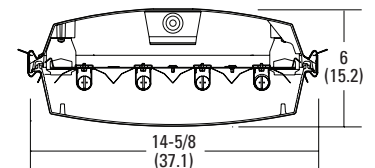
Catalog Number
Notes
Type



High-Pressure Hose-Down

FHE

FOOD PROCESSING
2-, 3-, 4- or 6-lamp, T5HO, T5 or T8



Specifications

Length: 52.0 (132.0)
Width: 14-5/8 (37.1)
Depth: 6 (15.2)
Weight: 26.2 lbs. (11.88 kg)

All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: FHE 454L 1/4

FHE	Lamp type ¹			Shielding	Distribution	Voltage	Ballast configuration ▶▶▶
FHE 15"X4'	T5HO lamps	T5 lamps	T8 lamps	(blank) Clear acrylic	White ballast cover	(blank) MVOLT;	(blank) All two-lamp ballasts
	254L 2 lamps, 54W	228T5L 4 lamps, 28W	232L 2 lamps, 32W	PCL Clear polycarbonate	(blank) General distribution	120-277V	1/3 One, three-lamp ballast ²
	354L 3 lamps, 54W	328T5L 3 lamps, 28W	332L 3 lamps, 32W		Specular reflector	HVOLT 347-480V ²	1/4 One, four-lamp ballast ²
	454L 4 lamps, 54W	428T5L 4 lamps, 28W	432L 4 lamps, 32W		ND Narrow distribution		2/3 Two, three-lamp ballasts ²
	654L 6 lamps, 54W	628T5L 6 lamps, 28W	632L 6 lamps, 32W		SD Spread distribution		1/41/2 One, four-lamp and one, two-lamp ballast ²

Ballast	Options ³	Lamps installed ¹²
T5/T5HO	CS89 6' white cord, 16/3, no plug, wet location	(blank) 85 CRI, 841
(blank) 1.0 BF, PRS	CS89L12 12' white cord, 16/3, no plug, wet location	LP830 85 CRI, 830
ACRP 1.0 BF, Advance cool running plus	CS88 6' Brad Harrison 16/3 cord and straight blade plug set ⁴	LP835 85 CRI, 835
T8	OCS Reloc OnePass 5' installed ⁵	LP850 85 CRI, 850
(blank) 1.18 BF, IS	EL14DW Emergency lighting (1400 lumens) ^{4,6}	Energy-saving T5 49W lamps
GEB10IS .88 BF, IS	MHKB Stainless steel V-hook and brackets	P841E49 F54T5HO/841
GEB10ISL .76 BF, IS	SMB Surface mounting bracket	P835E49 F54T5HO/835
GEB10PS .88 BF, PRS	EMK End mount suspension bracket	P850E49 F54T5HO/850

Accessories: Order as separate catalog number.	
MHKB	Stainless steel V-hook and brackets
MHCH36	3' double chain ¹³
FHEACT120	10' adjustable aircraft cable, Y, 2-toggle
MHHK120	10' adjustable aircraft cable, single hook ¹⁴
RK1 T10DRV	Torx® T10 screwdriver for TRS option

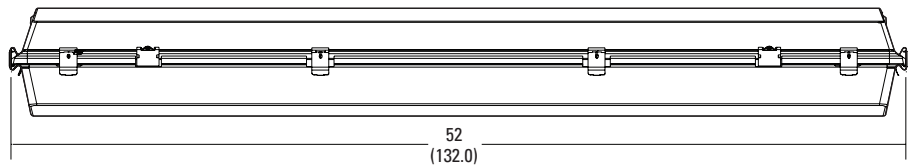
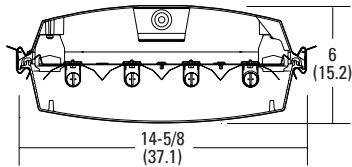
Notes

- To order fixtures WITHOUT lamps, remove the "L" from the description (EX: FHE 454).
- Not available with 28T5.
- For additional options consult factory.
- Must specify voltage.
- Requires DL option
- 900 lumens for T5HO. UL listed for 55°C. Output in emergency mode varies with ambient temperature (approx. 944 lumens at 25°C and 911 lumens at 45°C. Single-lamp operation only. Not available with HVOLT.
- Housing pre-drilled with WLF in center; additional support cables required.
- For mounting up to 20', specify MS120; for mounting up to 40', specify MS140. IP65 rated but not recommended for high pressure hose down.
- GEB10PS recommended.
- Stainless steel Torx® T10 screws with center reject pin.
- Use RIF1 for one filter per fixture & RIF2 for one filter per ballast.
- Alternate lamp color need only be specified if pre-installed lamps are provided.
- For use with MHKB option.
- For use with EMK option.

FHE Fluorescent High-Pressure Hose-Down, T5, T5HO and T8

DIMENSIONS

Inches (centimeters). Subject to change without notice.



Thermal Factor to Apply in Illuminance Calculations*							
Fixture	# Lamps	34°F		0°F		-20°F	
		F54T5HO	F32T8	F54T5HO	F32T8	F54T5HO	F32T8 ¹
FHE	4 lamp	1.14	1.10	0.97 ¹	0.90 ¹	0.63 ¹	0.51
FHE	6 lamp	1.13	1.12	1.28	1.15	1.11 ²	1.02

* Also apply appropriate factors for lumen depreciation, dirt and ballast factor.

* Factors for F32T8 are based upon 32-watt lamps using high ballast factor ballasts, so an appropriate high ballast factor (typically 1.12 to 1.20) should be used.

* For F32T8 lamps, use manufacturer's rated lumens (initial) per lamp.

* For F54T5HO lamps, use 4450 lumens (initial) per lamp.

1 Not recommended.

2 For continuous operation only

PHOTOMETRICS

Consult factory for photometric information.

TEST NO: ABA200972

LUMINAIRE CATALOG NO.: FHE 654L ND

LUMENS PER LAMP: 4450

RCR	pf pc pw	Coefficients of Utilization								
		80%			70%			50%		
		50%	30%	10%	50%	30%	10%	50%	30%	10%
0	77	77	77	75	75	75	71	71	71	
1	67	64	61	65	62	60	62	59	57	
2	58	53	49	57	52	49	54	50	47	
3	51	45	41	50	45	41	47	43	40	
4	45	39	35	44	39	35	42	38	34	
5	41	35	30	40	34	30	38	33	29	
6	37	31	26	36	30	26	34	29	26	
7	33	28	23	33	27	23	31	27	23	
8	30	25	21	30	25	21	29	24	21	
9	28	23	19	27	22	19	27	22	19	
10	26	21	17	25	21	17	25	20	17	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	4789.4	17.9	27.4
0° - 40°	7621.2	28.5	43.5
0° - 60°	12733.3	47.7	72.7
0° - 90°	16817.2	63.0	96.0
90° - 180°	691.9	2.6	4.0
0° - 180°	17509.1	65.6	100.0

TEST NO: ABA200975

LUMINAIRE CATALOG NO.: FHE 454L ND

LUMENS PER LAMP: 4450

RCR	pf pc pw	Coefficients of Utilization								
		80%			70%			50%		
		50%	30%	10%	50%	30%	10%	50%	30%	10%
0	93	93	93	90	90	90	86	86	86	
1	80	77	74	78	75	73	75	72	70	
2	71	65	61	69	64	60	66	62	58	
3	62	56	51	61	55	51	58	54	49	
4	56	49	44	55	48	43	52	47	43	
5	50	43	38	49	43	38	47	42	37	
6	45	39	34	45	38	34	43	37	33	
7	41	35	30	41	34	30	39	34	30	
8	38	32	27	37	31	27	36	31	27	
9	35	29	25	35	29	25	34	28	24	
10	33	26	22	32	26	22	31	26	22	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	4370.5	24.6	31.4
0° - 40°	6760.0	38.0	48.6
0° - 60°	10724.0	60.2	77.1
0° - 90°	13579.4	76.3	97.6
90° - 180°	338.7	1.9	2.4
0° - 180°	13918.1	78.2	100.0

TEST NO: ABA200978

LUMINAIRE CATALOG NO.: FHE 632L ND

LUMENS PER LAMP: 2950

RCR	pf pc pw	Coefficients of Utilization								
		80%			70%			50%		
		50%	30%	10%	50%	30%	10%	50%	30%	10%
0	90	90	90	88	88	88	83	83	83	
1	78	74	71	76	73	70	72	69	67	
2	68	62	57	66	61	57	63	58	55	
3	59	53	48	58	52	47	55	50	46	
4	52	45	40	51	45	40	49	43	39	
5	47	40	34	46	39	34	44	38	33	
6	42	35	30	41	34	30	39	34	29	
7	38	31	26	37	31	26	36	30	26	
8	35	28	24	34	28	23	33	27	23	
9	32	25	21	31	25	21	30	25	21	
10	29	23	19	29	23	19	28	23	19	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	3399.9	19.2	25.1
0° - 40°	5527.2	31.2	40.8
0° - 60°	9869.8	55.8	72.9
0° - 90°	13023.2	73.6	96.2
90° - 180°	508.1	2.9	3.8
0° - 180°	13531.3	76.4	100.0

TEST NO: ABA200981

LUMINAIRE CATALOG NO.: FHE 432L ND

LUMENS PER LAMP: 2950

RCR	pf pc pw	Coefficients of Utilization								
		80%			70%			50%		
		50%	30%	10%	50%	30%	10%	50%	30%	10%
0	104	104	104	101	101	101	96	96	96	
1	90	86	82	88	84	81	83	80	78	
2	78	72	67	76	71	66	73	68	64	
3	69	62	56	67	61	55	64	59	54	
4	61	54	48	60	53	47	57	51	46	
5	55	47	41	54	46	41	52	45	40	
6	50	42	36	49	41	36	47	40	35	
7	45	37	32	44	37	32	43	36	31	
8	41	34	29	41	34	29	39	33	28	
9	38	31	26	37	31	26	36	30	26	
10	35	28	24	35	28	24	33	27	23	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	2914.9	24.7	28.2
0° - 40°	4642.9	39.3	44.8
0° - 60°	7769.6	65.8	75.1
0° - 90°	10026.8	85.0	96.9
90° - 180°	325.4	2.8	3.1
0° - 180°	10352.3	87.7	100.0

QUICKTRONIC® POWERSENSE® T8 Universal Voltage Dimming Systems



Fluorescent Controllable
Lighting Systems

High Efficiency Series

Lamp / Ballast Guide

- 32W T8 - SYLVANIA OCTRON® lamps
- 1-lamp QTP1x32T8/UNV DIM
- 2-lamp QTP2x32T8/UNV DIM
- 3-lamp QTP3x32T8/UNV DIM
- 4-lamp QTP4x32T8/UNV DIM

Primary Lamp Types
F032, FB032 & FB031

Also operates:
F030/SS, F028/SS, F025/SS, F025,
F017, FB024 & FB016

Key System Features

- Industry's first ballast that combines dimming inputs from 0-10V and/ or two-wire AC dimming providing maximum flexibility
- Compatible with low voltage and power line fluorescent dimmers
- High Efficiency**
- NEMA Premium Electronic Ballast Program compliant
- Lamp Detection Technology
- Universal voltage (120-277V)
- 100 - 5% Dimming Range
- PROStart® Programmed Rapid Start
- Anti-flash circuitry - turns on in dimmed mode
- Operates at >42kHz
- QUICK 60+ ballast and lamp warranty
- RoHS compliant
- Lead-free solder and manufacturing process



Application Information

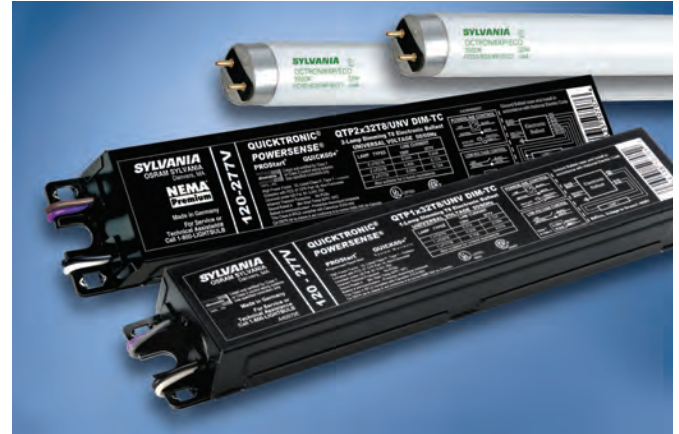
SYLVANIA QUICKTRONIC POWERSENSE ballasts

are ideally suited for:

- Occupancy sensors
- Daylight harvesting
- Energy management
- Load shedding
- New construction
- Retrofit

SYLVANIA QUICKTRONIC High Efficiency, POWERSENSE T8 electronic ballasts offer several advantages:

- Wide Dimming Range:** operate linear fluorescent T8 lamps over a 100-5% dimming range and provide true versatility in controls selection.
- Industry's Most Adaptable Dimming Ballast:** ballasts feature micro-controller technology for compatibility with:
 - low voltage controls
 - power line fluorescent dimmers
 - any line voltage from 120V to 277V
- Unmatched Performance:** patented lamp detection technology that virtually eliminates variations in brightness from lamp-to-lamp and provides uniform lighting throughout the dimming range. At light levels of >75% unnecessary lamp-coil power is turned off, delivering energy efficiencies comparable to non-dimming Instant start electronic ballast. This technology also eases installation and troubleshooting by recognizing failed lamps, faulty wiring or loose connections, and shutting down.



POWERSENSE
T8 DIM

When the problem is corrected, the system restarts automatically.

- NEMA Premium Electronic Ballast Program compliant.** This program promotes the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: www.cee1.org or www.nema.org

These ballasts are RoHS compliant and feature lead-free solder and manufacturing process.

Setting the standard for quality, QUICKTRONIC POWERSENSE ballasts are covered by the QUICK 60+® warranty, the first and most comprehensive lamp & ballast system warranty in the industry.

System Information

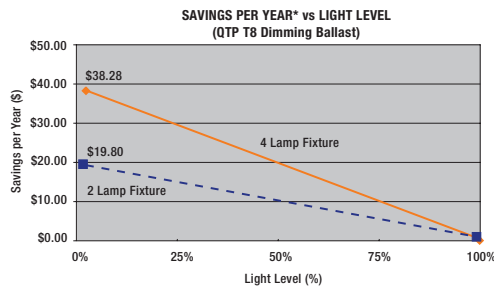
QUICKTRONIC POWERSENSE ballasts operate from standard low voltage (0-10VDC) fluorescent controllers or compatible 2-wire power line fluorescent dimmers, making them ideal for individual office lighting or automated building applications, both in new construction and retrofit projects.

For the individual office or conference room, installation can be streamlined by using a 2-wire power line fluorescent dimmer; eliminating the need for additional control wires.

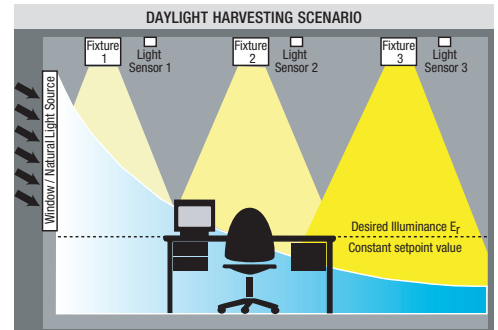
For more advanced systems, such as daylight harvesting or building automation applications, standard low voltage devices

(0-10VDC, Class 1 or 2) are used to control the lighting system. In this daylight harvesting example, each lighting fixture (or fixture row) is controlled by its own photosensor; regulating the light output to compensate for changes in natural daylight. Depending upon the specific application, energy savings of up to 60% compared to fixed output T8 electronic systems can be realized.

All QUICKTRONIC POWERSENSE ballasts include a line voltage protection circuit, which protects the ballast in the event that line voltage is inadvertently applied to the low voltage control inputs.



* F032/XP lamps with QUICKTRONIC T8 POWERSENSE ballast
* Based on 4000 hrs/yr, \$0.11/kWh, and 120W operation
* Savings per Year (@Light Level) = Cost of operation (100% Light Level) - Cost of operation (@Light Level)



SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

QUICKTRONIC® POWERSENSE® Controls Information

Controls Manufacturer	Fluorescent Powerline Controllers	0-10 VDC Controllers	Photo Cells	Occupancy Sensors	Building Management Systems
Sylvania www.sylvania.com/controls	X	X	X	X	X
Acuity Brand Controls www.acuitybrandscontrols.com	X	X	X	X	X
Blue Ridge Technologies www.brntint.com	X	X	X	X	X
Cooper Greengate http://greengate.coopercontrol.com		X	X	X	X
Encelium www.encelium.com		X	X	X	X
Hunt Dimming www.huntdimming.com	X	X			X
Lehigh Electric Products www.lehighdim.com	X	X			X
Leviton www.leviton.com	X	X	X	X	
Sensor Switch www.sensorswitch.com			X	X	
Siemens Building Technology http://sbt.siemens.com					X
Starfield Controls www.starfieldcorp.com		X	X	X	X
Watt Stopper www.wattstopper.com	X	X	X	X	X

Please contact controls manufacturer to order/specify controls. For the latest controls list go to www.sylvania.com
Also, for more information, refer to the LCA (Lighting Controls Association) site: <http://lightingcontrolsassociation.org>

Dimensions:

1 & 2 lamp enclosure

Overall: 9.5" L x 1.68" W x 1.0" H (241 x 43 x 25 mm)

Mounting: 8.90" (226 mm)

Weight: 1.1 lbs each (500 g)

3 & 4 lamp enclosure

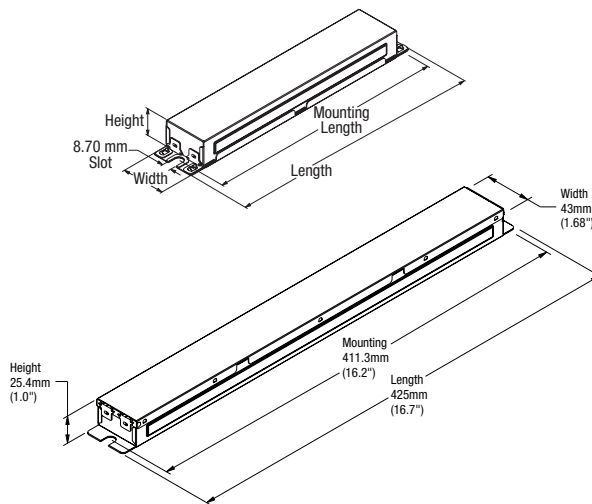
Overall: 16.7" L x 1.68" W x 1.0" H (425 x 43 x 25 mm)

Mounting: 16.2" (411 mm)

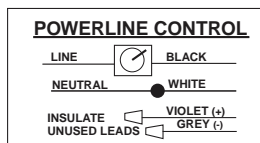
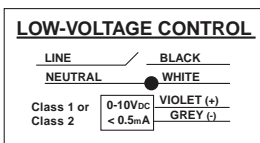
Weight: 2.1 lbs each (950 g)

Wiring:

Leads Only



Input & Control Wiring Options:



Control Specifications/model numbers may change.
Please consult manufacturers listed for their latest control models and to order their controls.

T8 POWERSENSE
High Efficiency

Controls Guide



Warning

Install and wire these ballast and controls in accordance with the National Electrical Code (NEC), all applicable Federal, State and local electrical codes, as well as the specific instructions provided with the compatible control that you purchased. Installation should be performed by qualified personnel only.

These instructions are guidelines only. Installation may vary for different controls/fixtures/applications. Be sure to follow the control instructions and all applicable codes and standards when installing dimming systems.

Please contact controls manufacturer listed in the OSRAM SYLVANIA Inc. controls cross reference for compatible controls and instruction wiring.

NOTES:

1. Dimming ballasts source < 0.5mA (0-10VDC control input).
2. Powerline controls must be rated for the type (e.g. Fluorescent Phase-control) and size (e.g. 600W, 1000W, 1500W & 2000W etc.) of the connected load. Do NOT use incandescent powerline controls; incandescent dimmers are not rated for fluorescent loads and are NOT compatible with POWERSENSE ballasts.

OSRAM SYLVANIA
National Customer
Service and Sales Center
 1-800-LIGHTBULB
 (1-800-544-4828)
www.sylvania.com

Specifications subject to change without notice.

SPECIFICATION DATA

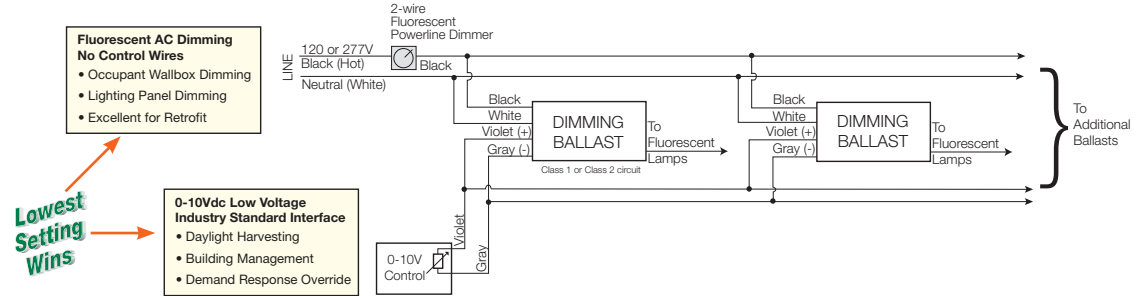
Catalog #	Date	Type
Project	Prepared by	
Comments		

T8 POWERSENSE
High Efficiency

QUICKTRONIC® POWERSENSE® T8 Dimming UNV - Dimming Control Wiring Examples

Industry's 1st Ballast That Allows POWERLINE Fluorescent Control AND 0-10Vdc Control Input Simultaneously

2-wire Powerline AND 0-10Vdc Control with POWERSENSE Ballasts



Fluorescent AC Dimming No Control Wires

- Occupant Wallbox Dimming
- Lighting Panel Dimming
- Excellent for Retrofit

Lowest Setting Wins

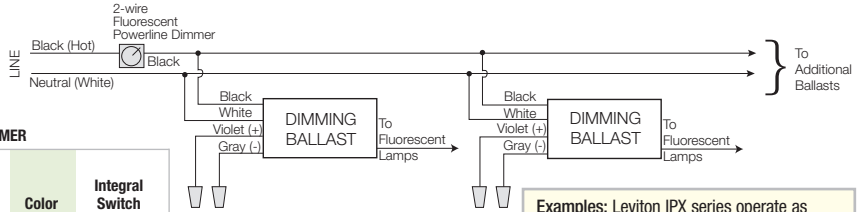
0-10Vdc Low Voltage Industry Standard Interface

- Daylight Harvesting
- Building Management
- Demand Response Override

Wallbox Style 2-wire Powerline Control Wiring Example

Powerline Control Specs:
Specification-grade controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phase-control) and size (e.g. 600W) of the connected load.

2-wire Powerline Control with POWERSENSE Ballasts



ELOGIC™ MANUAL CONTROL SLIDE FLUORESCENT PHASE CUT DIMMER

Item Number	OSRAM SYLVANIA Description	Maximum Input Current (A)			Input Voltage (V)	Color	Integral Switch
		Single	Double	Triple			
45045	ELMC-SL-FLPCWALL/120-WH	5.0A	4.5A	4.0A	120	White	Single Pole
45046	ELMC-SL-FLPCWALL/277-WH	2.2A	2.0A	1.7A	277	White	

CAUTION:
For 2-wire Powerline wiring, individually insulate (cap-off) all unused Violet & Gray leads as shown.

Examples: Leviton IPX series operate as single pole or 3-way models. Available in 120V and 277V models. Leviton 6668-1W (white) 120V single pole fluorescent dimmer.

Wallbox Style 0-10V Control with Power Switch Wiring Example

0-10V DC Control with POWERSENSE Ballasts

Examples: Lithonia model ISD BC or Leviton IP 710 Series (These 0-10V dc, 120/277V models can be wired for single pole application (shown); these models can also be wired for 3-way applications.)

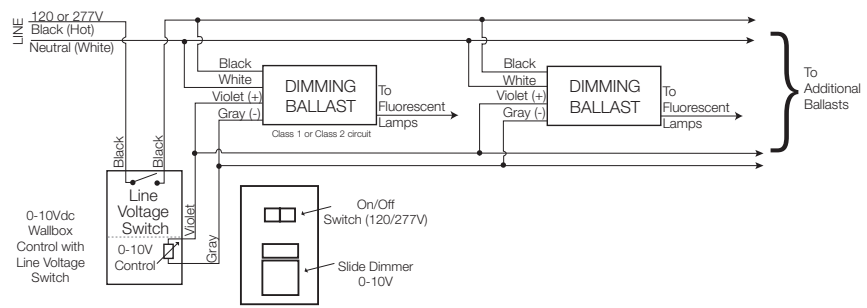
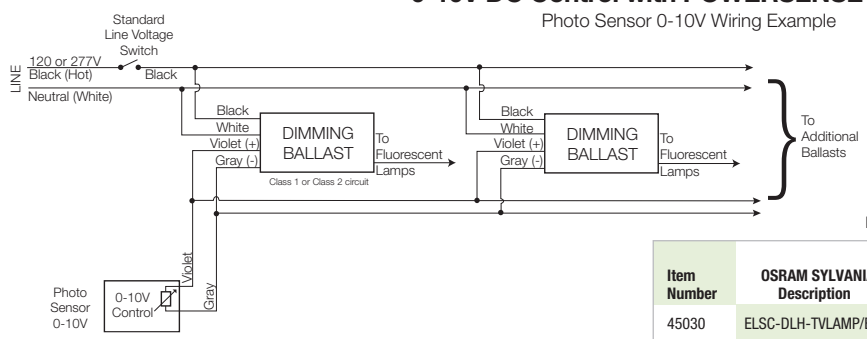


Photo Sensor 0-10V Wiring Example

0-10V DC Control with POWERSENSE Ballasts

Photo Sensor 0-10V Wiring Example



ELOGIC DAYLIGHT SENSOR ORDERING INFORMATION

Item Number	OSRAM SYLVANIA Description	Type	Ballast Control Method	Output Voltage (VDC)	Max. Input Current (mA)	Lamp Type
45030	ELSC-DLH-TVLAMP/BUS	Sensor & Control for Daylight Harvesting	Analog	0-10V	6	T8 or T5 or T5HO

POWERSENSE WIRING & CONTROLS

SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

T8 POWERSENSE®
High Efficiency
Performance Guide

High Efficiency, T8 Controllable Lighting Systems, UNV (120-277V)



Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Power (W)		System ¹ Efficacy (lm/W)	BEF ²
									120V	277V		
50705	QTP 1x32T8/UNV DIM-TC	0.27/0.12	F032XP	3000	1	0.88 0.05	2640 150	2480 140	30 8	30 8	88	2.93
			F030/SS	2850	1	0.88 0.05	2510 145	2360 135	28 8	28 8	90	3.14
			F028/SS	2725	1	0.88 0.05	2400 135	2255 130	25 8	25 8	96	3.52
			F025/SS	2475	1	0.88 0.05	2180 125	2045 115	23 7	23 7	95	3.83
50707	QTP 2x32T8/UNV DIM-TC	0.51/0.24	F032XP	3000	2	0.88 0.05	5280 300	4965 280	59 14	57 14	93	1.54
			F030/SS	2850	2	0.88 0.05	5015 285	4715 270	55 14	53 14	95	1.66
			F028/SS	2725	2	0.88 0.05	4795 275	4510 255	51 13	49 13	98	1.80
			F025/SS	2475	2	0.88 0.05	4355 250	4095 235	45 13	44 13	99	2.00
50714	QTP 3x32T8/UNV DIM-TCL	0.73/0.30	F032XP	3000	3	0.88 0.05	7920 450	7445 425	87 20	84 20	94	1.05
			F030/SS	2850	3	0.88 0.05	7525 430	7075 400	81 20	78 20	96	1.13
			F028/SS	2725	3	0.88 0.05	7195 410	6760 385	73 19	72 19	100	1.22
			F025/SS	2475	3	0.88 0.05	6535 370	6140 350	67 19	66 19	99	1.33
50716	QTP 4x32T8/UNV DIM-TCL	0.96/0.40	F032XP	3000	4	0.88 0.05	10,560 600	9925 565	114 27	110 27	96	0.80
			F030/SS	2850	4	0.88 0.05	10,030 570	9430 535	107 26	104 26	96	0.85
			F028/SS	2725	4	0.88 0.05	9590 545	9015 510	98 25	95 25	101	0.93
			F025/SS	2475	4	0.88 0.05	8710 495	8190 465	91 24	89 24	98	0.99

Data based on SYLVANIA OCTRON® lamps shown. QUICKTRONIC® POWERSENSE ballasts are also compatible with other manufacturers equivalent lamp types that meet ANSI specifications, including F17, F25, F32, U-Bend equivalent lamps and SUPERSAVER lamps.

Specifications
Data based on F32T8

Starting Method: Programmed Rapid Start
Circuit Type: Series
Lamp Frequency: >40 kHz
Lamp CCF: Less than 1.7
Starting Temp: 50°F/10°C minimum for OCTRON T8 lamps
Input Voltage: 120-277V, ±10%
Input Frequency: 50/60 Hz
THD: <10% @ Full Output
Power Factor: >98% @ Full Output
 UL Listed Class P, Type 1 Outdoor
 CSA or C/UL Certified
 70°C Max Case Temperature
 FCC 47CFR Part 18 Non-Consumer
 Class A Sound Rating
 RoHS compliant³
 ANSI C62.41 Cat. A Transient Protection
 Remote mounting (Max. wire length from ballast case to lampholder)

- up to 8ft for full wattage T8s
- no remote mounting for SUPERSAVER

³ Complies with European Union Restriction of Hazardous Substances Directive (Directive EC 2002/95)

Control Information

QUICKTRONIC POWERSENSE ballasts are compatible with a wide range of low voltage (0-10VDC) and power line fluorescent controllers available from various manufacturers.
 Low Voltage Control Specs: Ballast will source up to 0.5mA for 0-10VDC control purposes. May be wired as a Class 1 or Class 2 circuit-consult Local and National Electrical Codes.
 Power Line Control Specs: Specification-grade fluorescent controls are available for 120V or 277V operation of controllable analog electronic fluorescent ballasts. Controls must be suitably rated for both the type (e.g. Fluorescent Phasecontrol) and size (e.g. 600W) of the connected load.

System Life / Warranty

QUICKTRONIC products are covered by the QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to the QUICK 60+ warranty bulletin.

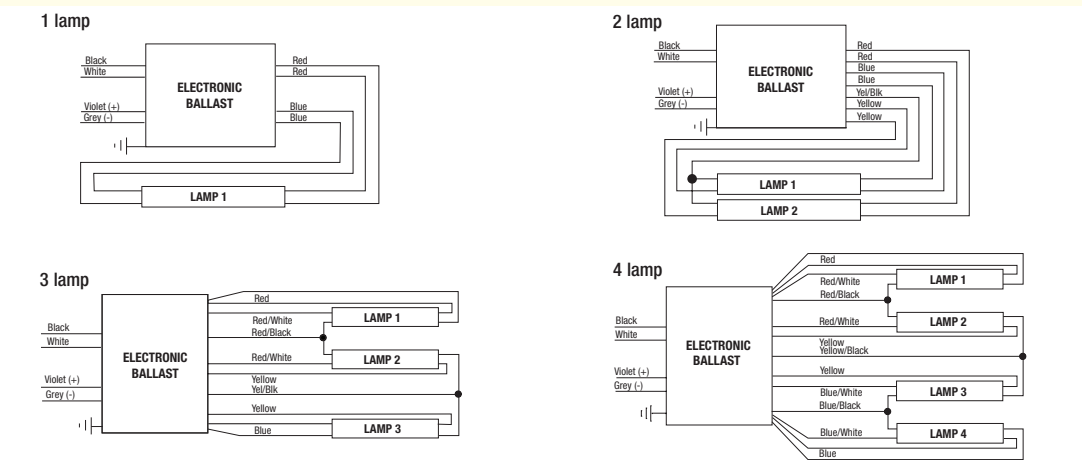
OSRAM SYLVANIA National Customer Service and Sales Center
 1-800-LIGHTBULB (1-800-544-4828)
 www.sylvania.com

Specifications subject to change without notice.

Products are all 10-pack. **Striation might occur with SUPERSAVER lamps.*
 1: System Efficacy calculation based on lowest input power value.
 2: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

Wiring Diagrams

Output Wiring: Lamp wiring for dimming ballasts can differ significantly from non-dimming ballasts and from other manufacturers dimming ballasts. Take care to connect lamp lead wires as shown on the applicable ballast diagram. **Lamp Seasoning:** For optimal performance, fluorescent lamps may require seasoning for up to 12 hours prior to low temperature starting & low level dimming. Refer to NEMA LSD 23-2002 Lighting Systems Division: Recommended Practice — Lamp Seasoning for Fluorescent Dimming Systems



Item Number	50707	QTP 2	x 32T8 / UNV DIM-TC	System Type - DIMMING/Case Size
QUICKTRONIC				Line Voltage (120-277V)
Number of Lamps (1, 2, 3, 4)				Primary Lamp Wattage

SYLVANIA, the system solution, QUICK60+, POWERSENSE, See the World in a New Light, PROstart, OCTRON and SUPERSAVER are registered trademarks of OSRAM SYLVANIA Inc. ELOGIC is a trademark of OSRAM SYLVANIA Inc. QUICKTRONIC is a registered trademark of OSRAM AG. NEMA Premium is a registered trademark of National Electrical Manufacturers Association.

POWERSENSE T8 DIM

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QUICKTRONIC® PROStart® PSN T8 Universal Voltage Systems

Professional Series



Normal Ballast Factor

QTP T8 PSN

Lamp / Ballast Guide

Primary Systems

- 32W T8 OCTRON® lamps
- 1-lamp QTP1x32T8/UNV PSN-TC
- 2-lamp QTP2x32T8/UNV PSN-TC
- 3-lamp QTP3x32T8/UNV PSN-SC
- 4-lamp QTP4x32T8/UNV PSN-SC

Also operates:

- FB032, FB031, F025, FB024, F017, FB016, F030/SS, FB030/SS (30W), FB029/SS, F028/SS (28W) & F025/SS (25W)

Key System Features

- PROStart® Programmed Rapid Start
 - Increase lamp life
 - Ideal for occupancy sensors
- NEMA Premium Electronic Ballast Program compliant
- Low profile enclosures:
 - 1.00" high "Thin Can"
 - 1.18" high "Small Can"
- Min. Starting Temp:
 - 0°F (-18°C) for T8 lamps
 - 60°F (16°C) for Energy Saving T8 lamps
- Operates at >40kHz to avoid interference with infrared control systems
- Universal Input Voltage (120-277V)
- RoHS compliant
- Lead-free solder, printed circuit board and manufacturing process



Application Information

SYLVANIA QUICKTRONIC PROStart T8 ballasts

are ideally suited for:

- Any applications where extended lamp life is required to reduce maintenance costs
- Energy retrofits
- Occupancy sensors
- Building control systems

SYLVANIA QUICKTRONIC PROStart programmed rapid start electronic ballasts operate linear U-bend SUPERSAVER® equivalent T8 lamps in applications where extended lamp life is required.

QUICKTRONIC PROStart ballasts utilize a micro-controller based circuit to apply a precise amount of cathode heat prior to starting the lamp. This ensures that the cathodes have reached optimum temperature before the lamp is started. Once the lamp has ignited, the ballast eliminates the cathode voltage which optimizes system efficiencies similar to instant start ballasts.

QUICKTRONIC PROStart ballasts are NEMA Premium Electronic Ballast Program compliant. The program promotes the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: www.cee1.org or www.nema.org

System Information

QUICKTRONIC PROStart ballasts provide optimum starting conditions to provide over 100,000 switching cycles for occupancy sensor and building control system applications.

QUICKTRONIC PSN UNV operates from 120V through 277V, eliminating "wrong voltage" wiring errors and reducing the number of models in inventory by half.

In addition to substantial energy savings, QUICKTRONIC PSN ballasts deliver an optimized programmed start which extends lamp life. This advanced starting process drastically reduces the amount of cathode sputtering, resulting in improved lamp life in all applications including short start cycles.

QUICK 60+® warranty coverage is included when you use SYLVANIA lamps and ballasts together as a system. See the QUICK 60+ warranty bulletin for complete details.

The QUICKTRONIC PROStart ballasts are ideally suited for applications requiring extended lamp life. In short cycle applications, our PROStart ballasts will deliver three times the number of start cycles compared to electronic Instant Start ballasts.



All SYLVANIA Professional Series (QTP) electronic ballasts feature high power quality (<10% THD), lightweight, low profile designs.

This product is also offered in new banded packaging and pallet packs.

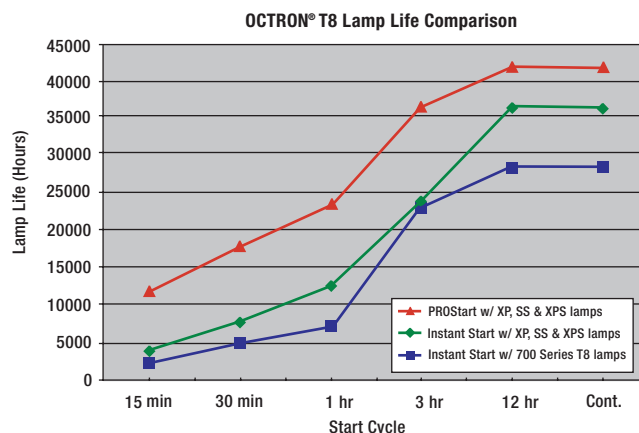
- Distributor-friendly for easy stocking

and individual ballast sales

- Reduced waste
- Easy removable bands
- No tangled wires

These ballasts are also RoHS compliant and feature lead-free solder, printed circuit boards and manufacturing process.

Lamp & Ballast Type	Input Power (W)	Initial Lumens	Initial LPW	Mean System Lumens	Relative Mean Light Output	% Energy Savings	% Lamp Life
2-F032/700 QTP 2x32 ISN	59	4930	84	4435	Baseline	Baseline	Baseline
2-F032/800/XP QTP 2x32 ISN	59	5280	89	4965	112%	0%	100%
2-F032/800/XP QTP 2x 32 PSN	59	5280	89	4965	112%	0%	150%
2-F028/SS QTP 2x32 PSN	52	4800	92	4510	102%	12%	150%



SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

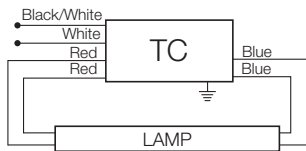
PROStart® Programmed Rapid Start Systems UNV (120-277V)



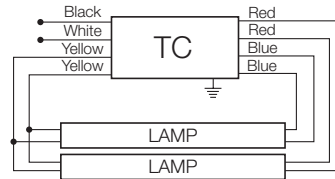
Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Wattage (W)	System Efficacy (lm/W)	BEF ¹
51399	QTP 1x32T8/UNV PSN-TC Banded Pack	0.26/0.11	F032/700	2800	1	0.88	2465	2220	31/30	79/82	2.93
		0.26/0.11	F032/XP	3000	1	0.88	2640	2480	31/30	85/88	2.93
		0.24/0.10	F030/SS	2850	1	0.88	2510	2360	29/28	87/90	3.14
		0.23/0.09	F028/SS	2725	1	0.88	2400	2255	27/26	89/92	3.38
51401	Pallet Pack	0.20/0.09	F025/SS	2475	1	0.88	2175	2045	24/23	91/95	3.83
51402	QTP 2x32T8/UNV PSN-TC Banded Pack	0.50/0.21	F032/700	2800	2	0.88	4930	4435	59/56	84/88	1.57
		0.50/0.21	F032/XP	3000	2	0.88	5280	4965	59/56	89/94	1.57
		0.47/0.20	F030/SS	2850	2	0.88	5015	4715	55/53	91/95	1.66
		0.45/0.19	F028/SS	2725	2	0.88	4800	4510	52/49	92/98	1.80
		0.39/0.17	F025/SS	2475	2	0.88	4355	4095	46/44	95/99	2.00
51405	10-Pack										
51406	Pallet Pack										
51403	QTP 3x32T8/UNV PSN-SC Banded Pack	0.74/0.31	F032/700	2800	3	0.88	7390	6655	88/85	84/87	1.04
		0.74/0.31	F032/XP	3000	3	0.88	7920	7445	88/85	90/93	1.04
		0.70/0.29	F030/SS	2850	3	0.88	7525	7075	83/80	91/94	1.10
		0.65/0.27	F028/SS	2725	3	0.88	7195	6760	77/75	93/96	1.17
		0.58/0.25	F025/SS	2475	3	0.88	6535	6140	69/68	95/96	1.29
51410	10-Pack										
51411	Pallet Pack										
51404	QTP 4x32T8/UNV PSN-SC Banded Pack	0.99/0.41	F032/700	2800	4	0.88	9855	8870	118/113	83/87	0.78
		0.99/0.41	F032/XP	3000	4	0.88	10,560	9925	118/113	90/94	0.78
		0.93/0.39	F030/SS	2850	4	0.88	10,030	9430	111/106	90/95	0.83
		0.88/0.36	F028/SS	2725	4	0.88	9590	9015	104/99	92/97	0.89
		0.77/0.32	F025/SS	2475	4	0.88	8710	8190	92/90	95/97	0.98
51415	10-Pack										
51416	Pallet Pack										

Banded Pack, (add "B" to Description). Banded Pack and 10-Pack contain 10 pieces each. Pallet Pack contains 840 pieces, (add "-PAL" to Description).
 1: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

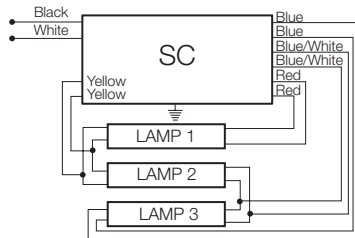
1 lamp



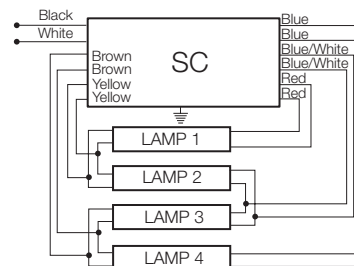
2 lamp



3 lamp



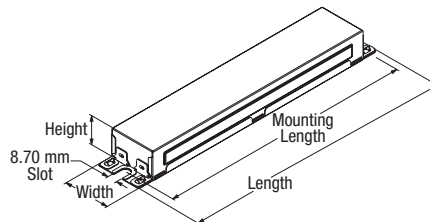
4 lamp



Dimensions "TC & SC" Enclosure:

"SC" Overall: 9.5" L x 1.68" W x 1.18" H
 "TC" Overall: 9.5" L x 1.68" W x 1.00" H
 Mounting: 8.90"
 Weight: 1.6 lbs each

Wiring:
 Leads only
 (no connectors provided)



Item Number	51402	QTP	2	x	32T8	/	UNV	PSN	TC	Enclosure Type (TC or SC)
QUICKTRONIC PROFESSIONAL										Starting Type/Ballast Factor – PROStart/Normal BF
Number of Lamps (1, 2, 3, 4)										Line Voltage (120-277V)
Primary Lamp Type (F32T8)										

Normal Ballast Factor

T8 PROStart® PSN UNV

Professional Series

Performance Guide

Data based upon SYLVANIA OCTRON® lamps shown. QUICKTRONIC® QTP PROStart ballasts are also compatible with other lamp manufacturers equivalent lamp types that meet ANSI specifications. QTP PROStart ballasts will also operate F17 & F25, SUPERSAVER® & U-Bend equivalent T8 lamps. Complete performance data is available in the QUICKSYSTEMS section of the SYLVANIA Ballast Technology & Specification Guide.

Specifications

Data based on F32T8

- Starting Method: Programmed Rapid-Start
- Ballast Factor: 0.88
- Circuit Type: Series
- Lamp Frequency: >40 kHz
- Lamp CCF: Less than 1.6
- Starting Temp:²
 - 0°F (-18°C) for OCTRON T8 lamps;
 - 60°F (16°C) for SUPERSAVER® T8 lamps
- Input Frequency: 50/60 Hz
- Low THD: <10%
- Power Factor: >98%
- Voltage Range: ±10% of 120-277V rated line (108-305V)

- UL Listed Class P, Type 1, Outdoor CSA Certified
- 70°C Max Case Temp.
- FCC 47CFR Part 18 Non-Consumer Class A Sound Rating
- RoHS Compliant³
- NEMA Premium Electronic Ballast Program compliant
- ANSI C62.41 Cat A. Transient GFCI compatible
- Emergency ballast compatible
- Remote Mounting (Max. wire length from ballast case to lamp holder):
 - 20 ft: full wattage T8s
 - 10 ft: energy saving T8s
 - 4 ft: 25W energy saving T8s
 (keep blue wires short, ie. lamp(s) attached to the blue leads to remain in the fixture that houses the ballast).

² Operation below 50°F (10°C) may affect light output or lamp operation – see "Low Temp. Starting" definition.

³ Complies with European Union Restriction of Hazardous Substances Directive (Directive EC 2002/95)

System Life / Warranty

QUICKTRONIC products are covered by the QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to the QUICK 60+ warranty bulletin.

OSRAM SYLVANIA National Customer Service and Sales Center
 1-800-LIGHTBULB
 (1-800-544-4828)
 www.sylvania.com

Specifications subject to change without notice.

QUICKTRONIC® PROStart® T8 High Ambient Temperature



Type CC, Lamp Striation Control
& Parallel Operation
High Ballast Factor

High Efficiency Series

QHE T8 PSH

Lamp / Ballast Guide

Primary Systems
32W T8 - OCTRON®
2-lamp QHE2x32T8/UNV PSH-HT
3-lamp QHE3x32T8/UNV PSH-HT
4-lamp QHE4x32T8/UNV PSH-HT

Also operates:
FB032, FB031, F030/SS (30W),
F028/SS (28W), F025/SS (25W),
FB030/SS (30W), FB029/SS (29W),
F025, FB024, F017 & FB016

Key System Features

- **High Efficiency Systems** over 90% efficient
- NEMA Premium Ballast compliant
- PROStart Programmed Rapid Start
 - Extends lamp life
- High ballast factor: 1.15
- **Parallel operation**, (one lamp out, remaining lamps stay lit)
- 90°C maximum case temp.
- UL Type CC
- LSC (Lamp Striation Control)
- Universal input voltage (120-277V)
- Min. Starting Temp:
 - 0°F/-18°C for T8 lamps
 - 60°F/16°C for Energy Saving T8 lamps



Application Information

SYLVANIA QUICKTRONIC PROStart T8 is ideally suited for:

- High bay
- Warehouses
- Applications where extended lamp life is required to reduce maintenance costs
- Areas where frequent switching is desired
- Occupancy sensor usage
- Building control systems
- Areas that are underlit

SYLVANIA QUICKTRONIC PROStart

programmed rapid start electronic T8 ballasts offer eight major advantages:

1. **Operate 32W linear and U-bend equivalent T8 lamps** at High Efficiency and high ballast factor which increases light levels while optimizing system performance.
2. **Longer Lamp Life:** System PSH, (Programmed Start High Ballast Factor) is the first SYLVANIA high ballast factor model to extend lamp life which is ideal for applications where long lamp life is desired to reduce maintenance costs.
3. **High Ambient Temperature:** specifically designed for those applications where the ballast is subjected to higher ambient temperatures, such as high bays in industrial installations.
4. **Parallel Circuitry:** keeps remaining lamps lit if one or more go out. First SYLVANIA PROStart ballast to offer parallel lamp operation.
5. **Available in 2, 3 & 4-lamp models** which allows great flexibility for various light levels in high bay applications to replace HID or T12HO lighting systems.
6. **NEMA Premium Ballast (NPB) program compliant.** The NPB program promotes



the use of high efficiency T8 electronic ballasts by meeting or exceeding the Ballast Efficiency Factors, (BEF) established by the CEE, (Consortium for Energy Efficiency). For additional information on this program go to: www.cee1.org or www.nema.org

7. **UL Type CC compliant:** ballasts utilize a micro-controller based circuit to reduce arcing caused by loose connections or improper lamp pin to socket connections.

8. **Lamp Striation Control (LSC):** T8 energy saving lamps should be operated above 60°F, but under certain conditions the lamps may striate. LSC circuitry may minimize or eliminate this condition; however there are limited applications where LSC circuitry may not entirely mitigate lamp striations. (Please consult lamp manufacturers for additional details.)

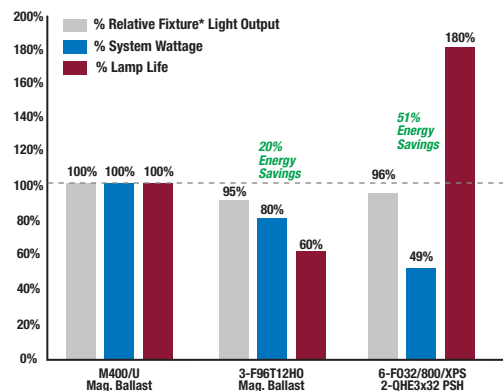
System Information

SYLVANIA QUICKTRONIC High Efficiency (QHE) System advantages:

- Operate from 120V through 277V
 - Eliminates "wrong voltage" errors
 - Reduces inventory by 50%
- Utilizes Programmed Rapid Start operation for:
 - Highest System Efficacy
 - Longer Life
 - Over 100,000 switching cycles for occupancy sensor and building control systems applications.
- Operate at >42Hz to reduce potential interference with infrared control systems

Lamp & Ballast Type	Input Power (W)	Initial LPW	Mean Fixture* Lumens	Relative Fixture* Output	% Energy Savings	% Lamp Life @3hrs/start
M400/U Magnetic Ballast	452	61	17,784	Baseline	Baseline	Baseline
3-F96T12HO Magnetic Ballast	360	58	16,875	95%	20%	60%
6-F032/800/XPS 2-QHE3x32 PSH	220	83	17,090	96%	51%	180%

*Based on Fixture Efficiency: 76% for M400/U and 85% for T12HO and F032T8 lamps.



SPECIFICATION DATA

Catalog #	Date	Type
Project	Prepared by	
Comments		

High Efficiency Type CC, Lamp Striation Control & High Ambient (120-277V)



Item Number	OSRAM SYLVANIA Description	Input Current (AMPS)	Lamp Type	Rated Lumens (lm)	No. of Lamps	Ballast Factor (BF)	System Lumens	Mean Lumens	Input Power (W)	System Efficacy (lm/W)	BEF ¹
49450 49459	QHE2x32T8/UNV-PSH-HT Banded Pack Pallet Pack	0.60/0.27	F032/700	2800	2	1.15	6440	5795	72/70	89/92	1.64
		0.60/0.27	F032/XP	3000	2	1.15	6900	6485	72/70	96/99	1.64
		0.57/0.25	F030/SS	2850	2	1.15	6555	6160	69/67	95/98	1.72
		0.53/0.23	F028/SS	2725	2	1.15	6270	5890	63/62	100/101	1.85
		0.47/0.20	F025/SS	2475	2	1.15	5695	5350	56/55	102/104	2.09
		0.46/0.20	F025/XP	2175	2	1.16	5045	4740	55	92	2.11
49453 49460	QHE3x32T8/UNV-PSH-HT Banded Pack Pallet Pack	0.94/0.40	F032/700	2800	3	1.15	9660	8695	110/108	88/89	1.06
		0.94/0.40	F032/XP	3000	3	1.15	10,350	9730	110/108	94/96	1.06
		0.88/0.37	F030/SS	2850	3	1.15	9835	9245	104/101	95/97	1.14
		0.81/0.34	F028/SS	2725	3	1.15	9400	8835	95/93	99/101	1.24
		0.72/0.31	F025/SS	2475	3	1.15	8540	8025	85/84	100/102	1.37
		0.70/0.30	F025/XP	2175	3	1.17	7635	7175	83/82	92/93	1.43
49455 49470	QHE4x32T8/UNV-PSH-HT Banded Pack Pallet Pack	1.22/0.53	F032/700	2800	4	1.15	12,880	11,590	143/141	90/91	0.82
		1.22/0.53	F032/XP	3000	4	1.15	13,800	12,970	143/141	97/98	0.82
		1.13/0.49	F030/SS	2850	4	1.15	13,110	12,325	132/130	99/101	0.88
		1.06/0.46	F028/SS	2725	4	1.15	12,535	11,785	124/123	101/102	0.93
		0.95/0.41	F025/SS	2475	4	1.15	11,385	10,700	112/110	102/104	1.05
		0.91/0.40	F025/XP	2175	4	1.17	10,180	9570	107/106	95/96	1.10
		0.63/0.28	F017/XP	1375	4	1.18	6490	6100	73	89	1.62

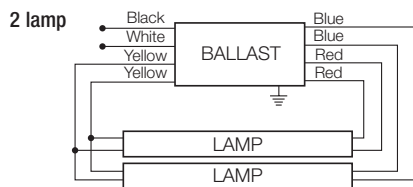
Banded pack contains 10 pieces, (add "-B" to Description). Pallet Pack contains 500 pieces, (add "-PAL" to Description).
 1: Ballast Efficiency Factor (BEF) shown = (Ballast Factor x 100) divided by Input Power (Note: calculation based on lowest wattage value).

QHE T8 PSH

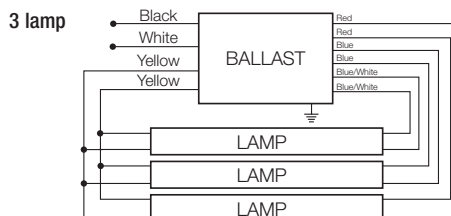
Specifications
Data based on F32T8

Starting Method: Programmed Rapid-Start
 Ballast Factor: 1.15
 Circuit Type: Parallel
 Lamp Frequency: >40 kHz
 Lamp CCF: Less than 1.7
 Starting Temp:²
 0°F (-18°C) for OCTRON T8 lamps;
 60°F (16°C) for SUPERSAVER® T8 lamps
 Input Frequency: 50/60 Hz
 THD: <10%
 Power Factor: >98%
 Voltage Range: ±10% of 120-277V rated line (108-305V)

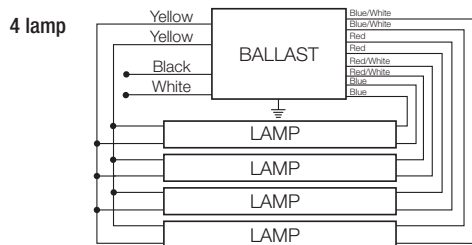
UL Listed Class P, Type 1 Outdoor
 UL Type CC Rated
 Lamp Striation Control (LSC)
 CSA Certified
High Ambient Applications:
 90°C Max. Case Temp. (3 yr. warranty)
Standard Ambient Applications:
 70°C Max. Case Temp. (5 yr. warranty)
 FCC 47CFR Part 18 Non-Consumer
 Class A Sound Rating
 ANSI C62.41 Cat A. Transient Protection
 GFCI compatible
 Emergency ballast compatible
 Remote Mounting (Max. wire length from ballast case to lampholder):
 • 20 ft: full wattage T8s
 • 10 ft: energy saving T8s
 • 4 ft: 25W energy saving T8s
 2 Operation below 50°F (10°C) may affect light output or lamp operation – see "Low Temp. Starting" definition.



QUICKTRONIC 2x32

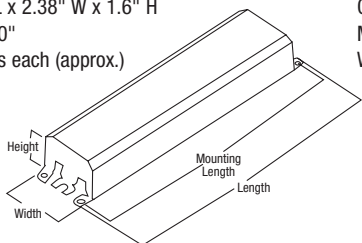


QUICKTRONIC 3x32

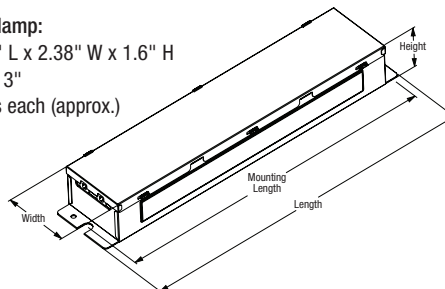


QUICKTRONIC 4x32

Dimensions 2 & 3-lamp:
 Overall: 9.5" L x 2.38" W x 1.6" H
 Mounting: 8.90"
 Weight: 1.6 lbs each (approx.)



Dimensions 4-lamp:
 Overall: 11.75" L x 2.38" W x 1.6" H
 Mounting: 11.13"
 Weight: 2.9 lbs each (approx.)



System Life / Warranty

QUICKTRONIC products are covered by our QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to our QUICK 60+ warranty bulletin.

OSRAM SYLVANIA
 National Customer Service and Sales Center
 1-800-LIGHTBULB
 (1-800-544-4828)
 www.sylvania.com

Item Number	49450 QHE 2 x 32T8 / UNV PSH HT	High Case Temp. Rating
QUICKTRONIC High Efficiency		Starting Type/Ballast Factor
Number of Lamps (2, 3, 4)		Line Voltage (120-277V)
Primary Lamp Wattage		



D-Series Size 1 LED Area Luminaire

DESIGNLIGHTS
CONSORTIUM



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

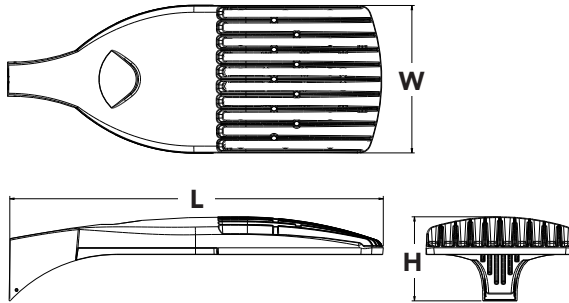
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.

The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing 100 – 400W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	1.2 ft ² (0.11 m ²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)

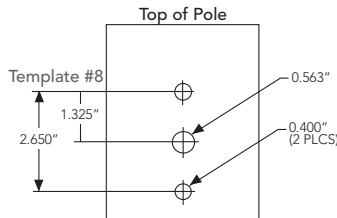


Ordering Information

EXAMPLE: DSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Control options	Other options	Finish (required)
DSX1 LED	30C 30 LEDs (one engine) 40C 40 LEDs (two engines) 60C 60 LEDs (two engines)	530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000K (80 CRI min.) 40K 4000K (70 CRI min.) 50K 5000K (67 CRI)	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short T5S Type V short T5M Type V medium T5W Type V wide	MVOLT² 120 ² 208 ² 240 ² 277 ² 347 480 ³	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket	Shipped installed PER NEMA twist-lock receptacle only (no controls) DMG 0-10V dimming driver (no controls) ⁴ DCR Dimmable and controllable via ROAM® (no controls) ⁵ DS Dual switching ^{6,7} PIR Motion sensor, 8-15' mounting height ⁸ PIRH Motion sensor, 15-30' mounting height ⁹ BL30 Switched dimming, 30% ^{7,10} BL50 Switched dimming, 50% ^{7,10}	Shipped installed HS House-side shield ¹¹ WTB Utility terminal block ¹² SF Single fuse (120, 277, 347V) ¹³ DF Double fuse (208, 240, 480V) ¹³ TLS Tool-less entry trigger latch L90 Left rotated optics ¹⁴ R90 Right rotated optics ¹⁴	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Drilling



DSX1 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

DM19AS	Single unit	DM29AS	2 at 90°
DM28AS	2 at 180°	DM39AS	3 at 90°
DM49AS	4 at 90°	DM32AS	3 at 120°*

Example: SSA 20 4C DM19AS DDBXD

Visit Lithonia Lighting's **POLES CENTRAL** to see our wide selection of poles, accessories and educational tools.

Tenon Mounting Slipfitter *

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

For more control options, visit [DTL](#) and [ROAM](#) online.

* For round pole mounting (RPA) only.

NOTES

- Configured with 4000K (40K) provides the shortest lead times. Consult factory for 3000K (30K) and 5000K (50K) lead times.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
- Not available with single board, 530mA product (30C 530).
- Not available with 347 or 480V.
- Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roomservices.net. Not available with PIRH.
- Requires 40C or 60C. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER, DCR, DMG or WTB.
- Requires an additional switched line.
- Specifies the [SensorSwitch SBR-10-ODP](#) control; see [Motion Sensor Guide](#) for details. Dimming driver standard. Not available with DCR or WTB.
- Specifies the [SensorSwitch SBR-6-ODP](#) control; see [Motion Sensor Guide](#) for details. Dimming driver standard. Not available with DCR or WTB.
- Dimming driver standard. MVOLT only. Not available with DCR or WTB.
- Also available as a separate accessory; see Accessories information.
- WTB not available with BL30, BL50, DS, PIR or PIRH.
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Available with 60 LEDs (60C option) only.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	30K (3000K, 80 minimum CRI)					40K (4000K, 70 minimum CRI)					50K (5000K, 67 CRI)								
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW				
					30C	700 mA	30C 700 --K	68 W	T1S	5,290	1	0	1	78	6,524	2	0	2	96	7,053	2	0	2
(30 LEDs)	1000 mA	30C 1000 --K	105 W	T2S	5,540	1	0	1	81	6,833	2	0	2	100	7,387	2	0	2	109				
				T2M	5,360	1	0	2	79	6,611	2	0	2	97	7,147	2	0	2	105				
				T3S	5,479	1	0	1	81	6,757	1	0	2	99	7,305	2	0	2	107				
				T3M	5,452	1	0	2	80	6,724	2	0	2	99	7,269	2	0	2	107				
				T4M	5,461	1	0	2	80	6,736	2	0	2	99	7,282	2	0	2	107				
				TFTM	5,378	1	0	2	79	6,633	1	0	2	98	7,171	1	0	2	105				
				TSVS	5,708	2	0	0	84	7,040	3	0	0	104	7,611	3	0	1	112				
				T5S	5,639	2	0	0	83	6,955	2	0	0	102	7,519	3	0	0	111				
				T5M	5,710	3	0	1	84	7,042	3	0	1	104	7,613	3	0	2	112				
				T5W	5,551	3	0	1	82	6,847	3	0	2	101	7,401	3	0	2	109				
				T1S	7,229	2	0	2	69	9,168	2	0	2	87	9,874	2	0	2	94				
				T2S	7,572	2	0	2	72	9,603	2	0	2	91	10,342	2	0	2	98				
				T2M	7,325	2	0	2	70	9,291	2	0	2	88	10,005	2	0	3	95				
				T3S	7,488	2	0	2	71	9,496	2	0	2	90	10,227	2	0	2	97				
				T3M	7,451	2	0	2	71	9,450	2	0	2	90	10,177	2	0	2	97				
				T4M	7,464	2	0	2	71	9,467	2	0	2	90	10,195	2	0	2	97				
				TFTM	7,351	1	0	2	70	9,323	2	0	2	89	10,040	2	0	3	96				
				TSVS	7,801	3	0	1	74	9,894	3	0	1	94	10,655	3	0	1	101				
T5S	7,803	3	0	2	74	9,774	3	0	1	93	10,526	3	0	1	100								
T5M	7,707	3	0	0	73	9,897	3	0	2	94	10,658	4	0	2	102								
T5W	7,586	3	0	2	72	9,621	4	0	2	92	10,363	4	0	2	99								
40C	700 mA	40C 700 --K	89 W	T1S	6,876	2	0	2	77	8,639	2	0	2	97	9,345	2	0	2	105				
				T2S	7,202	2	0	2	81	9,049	2	0	2	102	9,788	2	0	2	110				
				T2M	6,968	2	0	2	78	8,755	2	0	2	98	9,469	2	0	3	106				
				T3S	7,122	2	0	2	80	8,948	2	0	2	101	9,679	2	0	2	109				
				T3M	7,088	2	0	2	80	8,905	2	0	2	100	9,632	2	0	2	108				
				T4M	7,100	2	0	2	80	8,920	2	0	2	100	9,649	2	0	2	108				
				TFTM	6,992	1	0	2	79	8,785	2	0	2	99	9,502	2	0	2	107				
				TSVS	7,421	3	0	0	83	9,323	3	0	1	105	10,085	3	0	1	113				
				T5S	7,331	2	0	0	82	9,210	3	0	1	103	9,962	3	0	1	112				
				T5M	7,423	3	0	2	83	9,326	3	0	2	105	10,087	4	0	2	113				
				T5W	7,216	3	0	2	81	9,066	4	0	2	102	9,807	4	0	2	110				
				(40 LEDs)	1000 mA	40C 1000 --K	138 W	T1S	9,521	2	0	2	69	11,970	2	0	2	87	12,871	3	3	0	93
								T2S	9,972	2	0	2	72	12,558	3	0	3	91	13,481	3	0	3	98
								T2M	9,648	2	0	3	70	12,149	3	0	3	88	13,043	3	0	3	95
								T3S	9,862	2	0	2	71	12,418	2	0	2	90	13,331	2	0	2	97
								T3M	9,814	2	0	2	71	12,358	3	0	3	90	13,267	3	0	3	96
								T4M	9,831	2	0	2	71	12,379	2	0	3	90	13,290	2	0	3	96
								TFTM	9,681	2	0	2	70	12,191	2	0	3	88	13,087	2	0	3	95
TSVS	10,275	3	0					1	74	12,937	3	0	1	94	13,890	4	0	1	101				
T5S	10,150	3	0					1	74	12,782	3	0	1	93	13,721	3	0	1	99				
T5M	10,278	4	0					2	74	12,942	4	0	2	94	13,894	4	0	2	101				
T5W	9,991	4	0					2	72	12,582	4	0	2	91	13,507	4	0	2	98				
60C	700 mA	60C 700 --K	131 W					T1S	10,226	2	0	2	78	12,871	3	0	3	98	13,929	3	0	3	106
								T2S	10,711	2	0	2	82	13,481	3	0	3	103	14,589	3	0	3	111
								T2M	10,363	2	0	3	79	13,043	3	0	3	100	14,115	3	0	3	108
								T3S	10,592	2	0	2	81	13,331	2	0	2	102	14,427	3	0	3	110
								T3M	10,541	2	0	2	80	13,267	3	0	3	101	14,357	3	0	3	110
								T4M	10,559	2	0	2	81	13,290	2	0	3	101	14,382	3	0	3	110
								TFTM	10,398	2	0	3	79	13,087	2	0	3	100	14,163	2	0	3	108
				TSVS	11,036	3	0	1	84	13,890	4	0	4	106	15,032	4	0	1	115				
				T5S	10,902	3	0	1	83	13,721	3	0	1	105	14,849	4	0	1	113				
				T5M	11,039	4	0	2	84	13,894	4	0	2	106	15,036	4	0	2	115				
				T5W	10,732	4	0	2	82	13,507	4	0	2	103	14,617	4	0	2	112				
				(60 LEDs)	1000 mA	60C 1000 --K	209 W	T1S	14,017	3	0	3	67	17,632	3	0	3	84	19,007	3	0	3	91
								T2S	14,681	3	0	3	70	18,467	3	0	3	88	19,908	3	0	3	95
								T2M	14,204	3	0	3	68	17,867	3	0	3	85	19,260	3	0	3	92
								T3S	14,518	3	0	3	69	18,262	3	0	3	87	19,687	3	0	3	94
								T3M	14,448	3	0	3	69	18,173	3	0	4	87	19,591	3	0	4	94
								T4M	14,473	3	0	3	69	18,205	3	0	3	87	19,625	3	0	4	94
								TFTM	14,253	2	0	3	68	17,928	3	0	4	86	19,326	3	0	4	92
TSVS	15,127	4	0					1	72	19,028	4	0	1	91	20,512	4	0	1	98				
T5S	14,943	4	0					1	71	18,797	4	0	1	90	20,263	4	0	1	97				
T5M	15,131	4	0					2	72	19,033	4	0	2	91	20,517	5	0	3	98				
T5W	14,710	4	0					2	70	18,503	5	0	3	89	19,946	5	0	3	95				



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.99

Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
30	530	52	0.52	0.30	0.26	0.23	0.18	--
	700	68	0.68	0.39	0.34	0.30	0.24	0.17
	1000	105	1.03	0.59	0.51	0.45	0.36	0.26
40	530	68	0.67	0.39	0.34	0.29	0.23	0.17
	700	89	0.89	0.51	0.44	0.38	0.31	0.22
	1000	138	1.35	0.78	0.67	0.58	0.47	0.34
60	530	99	0.97	0.56	0.48	0.42	0.34	0.24
	700	131	1.29	0.74	0.65	0.56	0.45	0.32
	1000	209	1.98	1.14	0.99	0.86	0.69	0.50

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

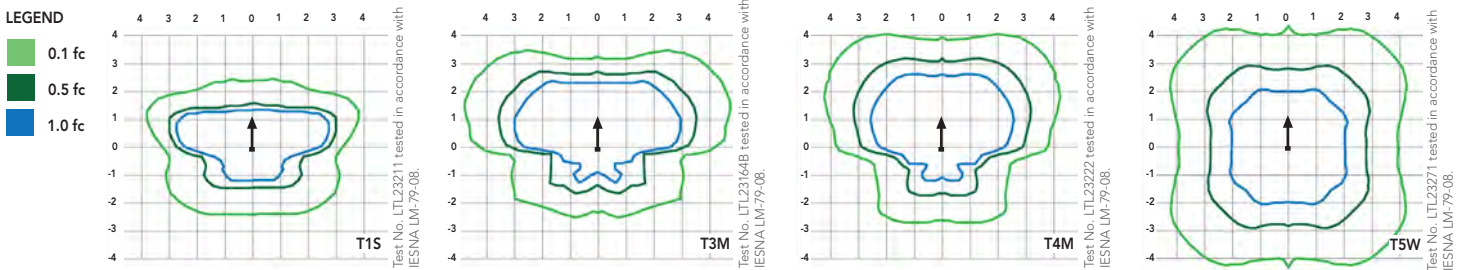
To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	DSX1 LED 60C 1000			
	1.0	0.95	0.93	0.88
	DSX1 LED 60C 700			
	1.0	0.99	0.98	0.96

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.2 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 4000K (70 minimum CRI) or optional 3000K (80 minimum CRI) or 5000K (67 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of 30, 40 or 60 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L96/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV or 6kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern. Optional terminal block, tool-less entry, and NEMA photocontrol receptacle are also available.

LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

WARRANTY

Five-year limited warranty. Full warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Specifications subject to change without notice.



Appendix D

Budget Breakout



PacifiCorp Power Plant Projects Fixture Schedule

Fixture Type	Manufacturer	Catalog Number	Description
AL1	Lithonia	DSX1 LED 30C 1000 40K T3M MVOLT SPA DDBXD	105w LED area light - type III
BNLO1	Osram Sylvania	QTP2x32T8/UNV PSN-TC # 51402	2L program start NLO Ballast
BNLO2	Osram Sylvania	QTP4x32T8/UNV PSN-SC # 51404	4L program start NLO Ballast
BHLO1	Osram Sylvania	QHE 2x32T8/UNV PSH-HT # 49450	2L program start HLO Ballast
BHLO2	Osram Sylvania	QHE 4x32T8/UNV PSH-HT # 49455	4L program start HLO Ballast
DBNLO1	Osram Sylvania	QTP2x32T8/UNV DIM-TC	2L prog. st. NLO Dimming Ballast
EHB3	Lithonia	FHE 632L	6L HPT8 enclosed high bay
FL4	Crouse Hinds	PFM9L CY/UNV1 76	121w LED flood light
FL5	Crouse Hinds	PFM13L CY/UNV1 76	179w LED flood light
HB1	Lithonia	IBL 18L WD LP740 DLC	213w LED high bay
HB6	Lithonia	IBL 48L WD LP740 DLC	515w LED high bay
L1	Osram Sylvania	FO32/841/XPS/ECO3 # 21681	21681 HPT8 lamp 32w
L2	Osram Sylvania	FO28/841/XP/XL/ECO3 # 22167	22167 HPT8 lamp 28w
RLB1	Crouse Hinds	PVM7LDM2/UNV1	78W Retrofit low bay-Indust
RLB3	Crouse Hinds	PVM3LDM2/UNV1	46W Retrofit low bay-Indust
RW1	Cree	STR-LWY 2M AA 07 E UL SV 525 IP	120w LED roadway
SK2	Lithonia	AVRK8 2 32 CW42 1/4 BINP WHR	HPT8 strip kit with reflector
WP1	Lithonia	DSXW1 LED 20C 700 40K T3M MVOLT DDBXD	47w LED wall pack
WP2	Lithonia	DSXW2 LED 30C 1000 40K T3M MVOLT DDBXD	109w LED wall pack
T8-17W			2 foot linear T8 17W 2'x2' kit (FLT8-17W x 3L x 2'-IS(E) L)
CFL-25			25W compact fluorescent-screw-in (FCM-25W-MG)
CFL-15			15W compact fluorescent screw-in (FCM-15W x 2L-MG)
LED-30			30W screw-in LED (CUST: LEDSI-30W)
LED-14			14W screw-in LED (CUST: LEDSI-14W)
IC			integral occupancy sensor
W-OCC			Wireless occupancy sensor

Lighting Calculator Code	Fixture Type	Description	Qty	lamp/fix. qty	lamp/fix cost	total lamp/fix cost	ballast / fix cost	measure cost (no mark-up)	Distributor Net Cost (no mark-up)	Mark up (%)	Marked Up Total (per unit)	Measure total	Unit Labor rate (\$)	Total Labor (\$)	Other Costs/Contingency (\$)
FLT8CEE-28W x 2L X 4'-CEE RS/PRS CEE N	BNLO1 & L2	2L PRS NLO	963	2	\$6	\$13	\$20	\$33	\$32,155	122%	\$41	\$39,229	\$ 40	\$ 38,520	\$ 1,000
FLT8CEE-32W x 2L X 4'-CEE IS CEE H	BHLO1 & L1	2L IS HLO	1	2	\$5	\$9	\$22	\$31	\$31	125%	\$39	\$39	\$ 40	\$ 40	\$ -
FLT8CEE-28W x 4L X 4'-CEE RS/PRS CEE N	BNLO2 & L2	4L PRS NLO	95	4	\$6	\$26	\$19	\$45	\$4,281	122%	\$55	\$5,222	\$ 40	\$ 3,800	\$ -
FCM-15W x 2L-MG	CFL-15	2 Lamp CFL 15W each	1	2	\$8	\$16	\$10	\$26	\$26	125%	\$33	\$33	\$ 20	\$ 20	\$ -
FLT8CEEHB-32W x 4L X 4'-CEE IS CEE H	BHLO2 & L1	4L IS HLO	9	4	\$5	\$19	\$10	\$29	\$258	125%	\$36	\$322	\$ 80	\$ 720	\$ 500
FLT8CEEHB-32W x 6L X 4'-CEE IS CEE H	EHB3 & L1	6L IS HLO	109	6	\$5	\$28	\$186	\$214	\$23,327	122%	\$261	\$28,459	\$ 80	\$ 8,720	\$ 500
FCM-25W-MG	CFL-25	25W CFL	2	1	\$15	\$15		\$15	\$30	125%	\$19	\$38	\$ 10	\$ 20	\$ -
FLT8-17W x 3L x 2'-IS(E) L	T8-17W	2L 2x2 F17W T8	25	2	\$6	\$12	\$75	\$87	\$2,175	125%	\$109	\$2,719	\$ 80	\$ 2,000	\$ -
CUST: LEDHB-78W	RLB1	78w LED high bay	2736	1	\$618	\$618		\$618	\$1,690,848	120%	\$742	\$2,029,018	\$ 80	\$ 218,880	\$ 10,000
CUST: LEDPM-40W	RLB3	40w LED pendant	3	1	\$618	\$618		\$618	\$1,854	120%	\$742	\$2,225	\$ 80	\$ 240	\$ 500
CUST: LEDSI-30W	LED-30	30w LED screw in	131	1	\$30	\$30		\$30	\$3,930	125%	\$38	\$4,913	\$ 20	\$ 2,620	\$ -
CUST: LEDSI-14W	LED-14	14w LED screw in	85	1	\$25	\$25		\$25	\$2,125	125%	\$31	\$2,656	\$ 20	\$ 1,700	\$ -
CUST: LEDHB-511W	HB6	511w LED high bay	136	1	\$600	\$600		\$600	\$81,600	120%	\$720	\$97,920	\$ 120	\$ 16,320	\$ 2,000
CUST: LEDHB-160W	HB1	160w LED high bay	36	1	\$347	\$347		\$347	\$12,474	122%	\$423	\$15,218	\$ 120	\$ 4,320	\$ 500
CUST: LEDWP-109W	WP2	109w LED wall pack	38	1	\$420	\$420		\$420	\$15,960	122%	\$512	\$19,471	\$ 80	\$ 3,040	\$ -
CUST: LEDWP-47W	WP1	47w LED wall pack	20	1	\$325	\$325		\$325	\$6,500	122%	\$397	\$7,930	\$ 80	\$ 1,600	\$ -
CUST: LEDPM-120W	RW1	120w LED pendant	11	1	\$809	\$809		\$809	\$8,899	120%	\$971	\$10,679	\$ 120	\$ 1,320	\$ 500
CUST: FLT8CEE-28W x 2L X 4'-CEE RS/PRSDIM N	DBNLO1 & L2	2L PRS NLO DIM	13	2	\$5	\$9	\$59	\$68	\$888	125%	\$85	\$1,110	\$ 80	\$ 1,040	\$ -
CUST: LED Flood 121w	FL4	121w LED Flood	41	1	\$820	\$820		\$820	\$33,620	120%	\$984	\$40,344	\$ 80	\$ 3,280	\$ -
CUST: LEDWP-40W	WP1	40w LED wall pack	3	1	\$325	\$325		\$325	\$975	122%	\$397	\$1,190	\$ 80	\$ 240	\$ -
CUST: LED Flood 179w	FL5	179w LED Flood	34	1	\$1,057	\$1,057		\$1,057	\$35,938	120%	\$1,268	\$43,126	\$ 80	\$ 2,720	\$ 1,000
CUST: LEDPM-105W	AL1	105w LED pendant	15	1	\$620	\$620		\$620	\$9,300	120%	\$744	\$11,160	\$ 80	\$ 1,200	\$ 500
Integral controls		ordered with fixture	56	1	\$60	\$60		\$60	\$3,360	122%	\$73	\$4,099	\$ 20	\$ 1,120	\$ -
Occupancy controls		Wireless	87	1	\$85	\$85		\$85	\$7,395	122%	\$104	\$9,022	\$ 60	\$ 5,220	\$ -

* Contingency and other costs include lifts, scaffolding, or other misc. materials/spares.

\$1,886,472 DNC	\$2,376,140 with markup	\$ 318,700 Labor total	\$ 17,000 Other total
material price shown in lighting tool (rounded)		\$2,376,100	Rounded Labor \$ 318,700 \$ 17,000

Grand Total all phases all bugetted costs = \$ 2,711,800