



Case No.: 13-1088-EL-EEC

Mercantile Customer: Cleveland Heights - University Heights Public Library

Electric Utility: The Cleveland Electric Illuminating Company

Program Title or Description: Project 1 - High-Efficiency Lighting System

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. [10-834-EL-POR](#)

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at ee-pdr@puc.state.oh.us.

Section 1: Mercantile Customer Information

Name: Heights Knowledge and Innovation Center

Principal address: 2345 Lee Road Cleveland Heights, OH 44118

Address of facility for which this energy efficiency program applies: 2345 Lee Road Cleveland Heights, OH 44118

Name and telephone number for responses to questions: Tim Pasbrig (216) 630-8549

Electricity use by the customer (check the box(es) that apply):

- ☒ The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- ☐ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

Section 2: Application Information

A) The customer is filing this application (choose which applies):

- ☐ Individually, without electric utility participation.
- ☒ Jointly with the electric utility.

B) The electric utility is: The Cleveland Electric Illuminating Company

C) The customer is offering to commit (check any that apply):

- ☐ Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
- ☐ Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
- ☒ Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)

Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

- ☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)). **If Checked, Please see Exhibit 1 and Exhibit 2**
- ☐ Installation of new equipment to replace equipment that needed to be replaced. The customer installed new equipment on the following date(s): _____.
- ☐ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s): _____.
- ☐ Behavioral or operational improvement.

B) Energy savings achieved/to be achieved by the energy efficiency program:

- 1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) - (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: 46,096 kWh

- 2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____ kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

- 3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____ kWh

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

- 4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- ☒ Coincident peak-demand savings from the customer's energy efficiency program.
- ☐ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- ☐ Potential peak-demand reduction (check the one that applies):
 - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
 - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

3/29/2013 - See Exhibit 2A

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

See Exhibit 2A - 12 kW

Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

☒ Option 1: A cash rebate reasonable arrangement.

OR

☐ Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

☐ Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

☒ A cash rebate of \$1,763.00. (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

☐ An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for _____ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

☐ A commitment payment valued at no more than \$_____. (Attach documentation and calculations showing how this payment amount was determined.)

OR

- ☐ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

- ☐ Total Resource Cost (TRC) Test. The calculated TRC value is: _____(Continue to Subsection 1, then skip Subsection 2)
- ☒ Utility Cost Test (UCT) . The calculated UCT value is: **See Exhibit 3** (Skip to Subsection 2.)

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **See Exhibit 3**

The utility's program costs were **See Exhibit 3**

The utility's incentive costs/rebate costs were **See Exhibit 3**

Section 7: Additional Information

Please attach the following supporting documentation to this application:

- Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.
- A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:
 - 1) any confidentiality requirements associated with the agreement;
 - 2) a description of any consequences of noncompliance with the terms of the commitment;
 - 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
 - 4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
 - 5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.
- A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.



Public Utilities Commission

Application to Commit
Energy Efficiency/Peak Demand
Reduction Programs
(Mercantile Customers Only)

Case No.: -EL-EEC

State of Ohio :

Timothy J. Poshny, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Cleveland Heights - University Heights Public Library

[insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

[Signature]
Signature of Affiant & Title

Sworn and subscribed before me this 16 day of April, 2013 Month/Year

[Signature]
Signature of official administering oath

Laurie A. Marotta
Print Name and Title
H.R. Mgr

My commission expires on 6-27-2015

LAURIE A. MAROTTA
NOTARY PUBLIC • STATE OF OHIO
Recorded in Cuyahoga County
My commission expires June 27, 2015

Customer Legal Entity Name: Cleveland Heights - University Heights Public Library
Site Address: Heights Knowledge & Innovation Center
Principal Address: 2345 Lee Rd.

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	What date would you have replaced your equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	High-Efficiency Lighting System	An existing YMCA facility was re-purposed to house a new knowledge and innovation center. The existing 400 watt HID fixtures in the gym were replaced with T8 fluorescent and LED fixtures. The T12 fluorescent lighting was replaced with T5 and T8 fluorescent lighting fixtures. Incandescent track lighting in the lower levels were replased with new T5 linear fluorescent and recessed CFL fixtures. The new lighting system uses less energy and provides higher light levels.	Please see the attached lighting calculator "HKIC_Library_NonStandard_Lighting_Calculator.xls".	1 to 2 years. The decision to upgrade the lighting equipment was made to reduce energy use, improve light levels, and to reduce maintenance costs.	N/A

Docket No. 13-1088
Site: 2345 Lee Rd.

Exhibit 2

Customer Legal Entity Name: Cleveland Heights - University Heights Public Library

Site Address: Heights Knowledge & Innovation Center

Principal Address: 2345 Lee Rd.

	Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) <i>Note 1</i>
2011	1,484,440	1,484,440	1,484,440
Average	1,484,440	1,484,440	1,484,440

Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ <i>Note 2</i>	Commitment Payment \$
1	High-Efficiency Lighting System	03/29/2013	\$85,000	\$42,500	46,096	46,096	12	\$2,351	\$1,763	
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
		Total	\$85,000		46,096	46,096	12	\$2,351	\$1,763	\$0

Docket No. 13-1088

Site: 2345 Lee Rd.

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.

Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoided Cost \$/MWh (B)	Utility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	46	\$ 308	\$ 14,210	\$ 4,050	\$1,763	\$461	\$ 6,274	2.3
Total	46	\$ 308	14,210	4,050	\$1,763	\$461	6,274	2.3

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).
- (C) = (A) * (B)
- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.
- (G) = (D) + (E) + (F)
- (H) = (C) / (G)

Cleveland Heights - University Heights Public Library ~ Heights Knowledge & Innovation Center
Docket No. 13-1088

Site: 2345 Lee Rd.

Lighting Inventory Form

Applicant Name:	Cleveland Heights - University Heights Public Library
Facility Name:	Cleveland Heights Library - Lee Road Branch
Date:	3/27/2013
Lighting Zone (exterior only):	Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

[illegible]

[illegible]

Project Estimated Annual Savings Summary

Lighting

Estimated Annual kWh Savings	46,096
Total Change in Connected Load	11.98

Annual Estimated Cost Savings	\$4,609.60
Annual Operating Hours	3,435

Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$2,186.05
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard-wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$165.00
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00

Total Calculated Incentive	\$2,351.05
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Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	85
Total Lamp Quantity for retrofit Screw-In CFLs	0

Total Lamp Quantity for retrofit Hard-Wired CFLs	11
Total Fixture Quantity for retrofit LED Exit Signs	0
Total Quantity for Occupancy Sensors	0
Total Quantity for Daylight Sensors	0

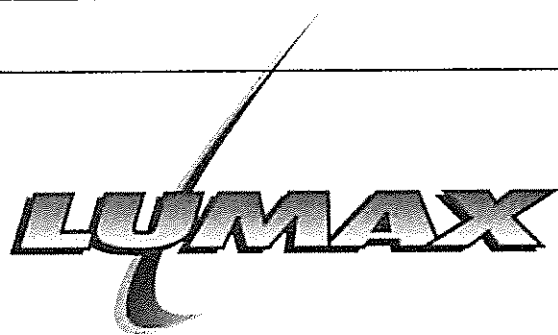
Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type "Other" indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	13.49
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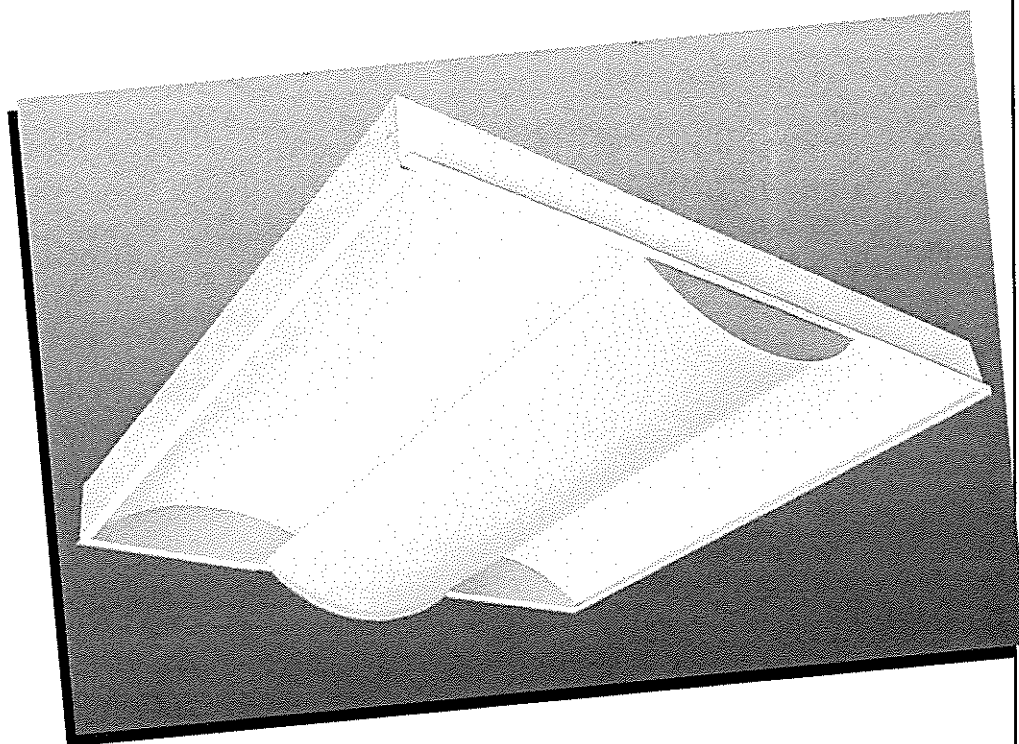
Job _____

Type _____

Catalog # _____



Luna Collection



LUMAX INDUSTRIES, INC. Chestnut Avenue & Fourth Street
Alltoona, PA 16603-0991 814-944-2637 Fax 814-944-6413
www.lumaxlighting.com

DID SERIES

"Crescent"

Softlume Recessed
Direct/Indirect Luminaire
Now available
With Opal Acrylic Basket Lens

More Efficient than Standard Perforated Basket

APPLICATION

- Direct/Indirect distribution of soft light creates superior brightness control and balanced light.
- Basket drops below ceiling level for pleasing architectural appearance.
- Low profile housing height is ideally suited for shallow plenum heights.
- Excellent for use where indirect lighting is desired, but ceiling heights are too low for suspended fixtures.
- Lobbies, corridors, or offices to complement the interior design.



CONSTRUCTION

- USA milled die-formed steel housing and ends exceed code gauge.
- Heavy duty ends securely fastened to the housing.
- Furnished with T-bar clips.
- High reflectance low glare satin white reflector provides soft, uniform indirect light distribution. High reflectance white optics optional.
- Perforated white metal basket backed with acrylic diffuser to control glare and veiling reflections.
- USA made high efficiency opal acrylic lens (OA) option available.
- Quick access plate for convenient power connection.
- Designed for NEMA Type G (grid). Consult factory for compatibility with other ceiling systems.

FINISH

- All metal parts pretreated with a phosphate bonding process and post painted with an electrostatically applied high temperature baked white enamel for superior quality and durability.

ELECTRICAL

- Standard ballast is electronic, HPE, class P and UL listed for universal voltage.
-  Listed and  listed.
- Suitable for damp locations.
- I.B.E.W. Labeled.

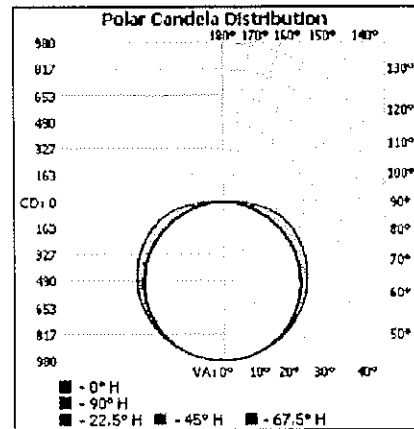


DID SERIES Recessed Direct/Indirect

PHOTOMETRIC DATA

Catalog Number: DID22422-EO90A-WO
Lamps: 2 lamp(s), rated Lumens/lamp: 1750
Total Luminaire Efficiency - 92.1%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	92.5	2.9%	90-100	22.0	0.7%
10-20	266.1	8.3%	100-110	0	0%
20-30	408.0	12.7%	110-120	0	0%
30-40	501.3	15.5%	120-130	0	0%
40-50	535.7	16.6%	130-140	0	0%
50-60	509.5	15.8%	140-150	0	0%
60-70	430.0	13.3%	150-160	0	0%
70-80	310.8	9.6%	160-170	0	0%
80-90	149.2	4.6%	170-180	0	0%



Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance: 20%																
RCC %:	80				70				50				30			
RW %:	70	50	30	0	70	50	30	0	50	30	20	10	50	30	20	10
RCR: 0	1.10	1.10	1.10	1.10	1.07	1.07	1.07	0.92	1.02	1.02	1.02	0.98	0.98	0.98	0.93	0.93
1	.98	.93	.89	.85	.96	.91	.87	.74	.87	.84	.80	.75	.83	.80	.78	.73
2	.89	.80	.73	.68	.86	.79	.72	.61	.75	.70	.65	.60	.67	.63	.60	.56
3	.81	.70	.62	.55	.78	.68	.61	.51	.66	.59	.54	.49	.57	.53	.50	.46
4	.73	.62	.53	.46	.71	.60	.52	.44	.58	.51	.45	.40	.48	.44	.42	.39
5	.67	.55	.46	.40	.65	.54	.46	.38	.52	.44	.39	.34	.43	.38	.36	.33
6	.62	.49	.41	.34	.60	.48	.40	.33	.47	.39	.34	.29	.38	.33	.31	.28
7	.58	.45	.36	.30	.56	.44	.36	.29	.42	.35	.30	.25	.34	.29	.27	.24
8	.54	.41	.32	.27	.52	.40	.32	.26	.39	.32	.27	.22	.31	.26	.24	.21
9	.50	.37	.29	.24	.49	.37	.29	.23	.35	.29	.24	.19	.28	.23	.22	.19
10	.47	.34	.27	.22	.46	.34	.27	.21	.33	.26	.22	.17	.26	.21	.20	.17

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	766.6	21.9%	23.8%
0-40	1,268.0	36.2%	39.3%
0-60	2,313.2	66.1%	71.7%
60-90	890.0	25.4%	27.6%
70-100	482.0	13.8%	14.9%
90-120	22.0	0.6%	0.7%
0-90	3,203.2	91.5%	99.3%
90-180	22.0	0.6%	0.7%
0-180	3,225.2	92.1%	100%

ORDERING GUIDE

Series	Lamps	Lamp Style	Fixture Size	Ballasts	Volts	Options
DID	2	28	14	EO	9	
DID	2	54	14	EO	9	
DID	2, 3	14	22	EO, CO	9	
DID	2, 3	24	22	EO, CO	9	
DID	2	4T	22	EO	9	
DID	2	5T	22	EO	9	
DID	2, 3	28	24	EO, CO	9	
DID	2, 3	54	24	EO, CO	9	
DID	4	4T	24	EO	9	
DID	4	5T	24	EO	9	

LAMPS:
14 - 14 Watt T5
24 - 24 Watt T5 HO
28 - 28 Watt T5
54 - 54 Watt T5HO
4T - 40 Watt Blax
5T - 50 Watt Blax

BALLASTS:
1 or 2 lamps:
EO - One ballast
3+ Lamps:
EO - Two ballasts, wired inboard/
outboard (or customer specified)
CO - One ballast

(EO option requires 3 1/4" deep housing for 2x2 fixtures with 2 ballasts.)

VOLTS:
1 - 120 Volts
4 - 277 Volts
9 - Universal Voltage(120-277)

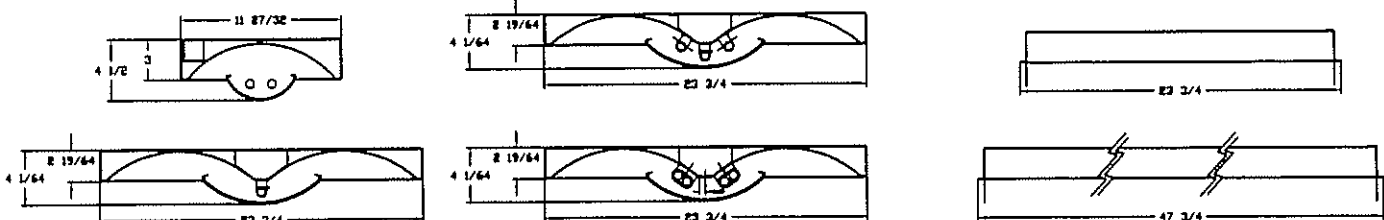
OPTIONS:
WO - White Optics
2G - 20 Gauge CRS housing

BASKET OPTIONS:
(Blank) metal perforated
OA - Opal Acrylic (2x2 & 2x4 Only)

Emergency Ballast - Please consult options page for complete listings.

DIMENSIONS

Specifications and dimensional data subject to change without notice





T5HO

ELECTRONIC FLUORESCENT BALLASTS

For 24-44W Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F24T5/HO (24W)											
1	120-277	PS	Centium	ICN-2S24	27	1.02	10	0.23-0.10	0/-18	D	73
				ICN-2S24-N						N	
				ICN-2S39	29	1.12	15	0.25-0.12		D	
				ICN-2S39-N						N	
2	120-277	PS	Centium	ICN-2S24	52	1.00	10	0.44-0.19	0/-18	D	74
				ICN-2S24-N						N	
				ICN-2S39	55	1.10	10	0.47-0.21		D	
				ICN-2S39-N						N	
F39T5/HO (39W)											
1	120-277	PS	Centium	ICN-2S24	40	0.90	10	0.34-0.15	0/-18	D	73
				ICN-2S24-N						N	
				ICN-2S39	43	1.02	10	0.36-0.16		D	
				ICN-2S39-N						N	
2	120-277	PS	Centium	ICN-2S39	87-85	1.00	10	0.73-0.31	0/-18	D	74
				ICN-2S39-N						N	
F54T5/HO (44W)											
1	120-277	PS	Centium	ICN-2S54-N	52	1.07	10	0.44-0.20	5/-15	N	73
				ICN-2S54-90C-SC	53	1.00	10	0.44-0.20		B	77
	347-480		Optanium	IOP-2PSP54-SC	46	1.00	10	0.39-0.18		L	73
			Centium	HCN-2S54-90C-WL	54	1.00	10	0.16-0.12			77
			Optanium	HOP-2PSP54-L	53	1.00	10	0.15-0.11			
2	120-277	PS	Centium	ICN-2S54-N	101	1.05	10	0.84-0.37	5/-15	N	74
				ICN-2S54-90C-SC	102-101	1.00	10	0.86-0.37		B	78
	347-480		Optanium	IOP-2PSP54-SC	91	1.00	10	0.77-0.34		L	74
			Centium	HCN-2S54-90C-WL	102	1.00	10	0.30-0.22			78
			Optanium	HOP-2PSP54-L	98	1.00	10	0.28-0.21			
3	120-277	PS	Centium	ICN-4S54-90C-2LS-G	149	1.00	10	1.25-0.54	5/-15	G	75A
			Optanium	IOP-4PSP54-2LS-G	142-140	1.00	10	1.18-0.52			80
	347-480		Centium	HCN-4S54-90C-2LS-G	152	1.00	10	0.44-0.32			75A
			Optanium	HOP-4PSP54-2LS-G	145	1.00	10	0.42-0.31			80
4	120-277	PS	Centium	ICN-4S54-90C-2LS-G	200-197	1.00	10	1.66-0.71	5/-15	G	75
			Optanium	IOP-4PSP54-2LS-G	185-182	1.00	10	1.55-0.67			79
	347-480		Centium	HCN-4S54-90C-2LS-G	200	1.00	10	0.58-0.42			75
			Optanium	HOP-4PSP54-2LS-G	192-191	1.00	10	0.56-0.41			79

Refer to page 1-35 to 1-37 for dimensions and wiring diagrams
 Refer to pages 9-23 to 9-27 for lead lengths and shipping data



Philips Lighting

T5 High Output

24W/835 Min Bipin T5 HO ALTO UNP

Philips T5 HO lamps are environmentally-responsible, ultra-slim and have extraordinary light output and longer life.

Product data

• General Characteristics

System Description	High Output
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16 mm]
Life to 10% fail	19000 hr
Preheat EL,3h	
Rated Avg. Life	24000 hr
LSF HF Preheat	99 %
2000h Rated,3h	
LSF HF Preheat	99 %
4000h Rated,3h	
LSF HF Preheat	99 %
6000h Rated,3h	
LSF HF Preheat	99 %
8000h Rated,3h	
LSF HF Preheat	99 %
12000h Rated,3h	
LSF HF Preheat	97 %
16000h Rated,3h	
LSF HF Preheat	84 %
20000h Rated,3h	

• Light Technical Characteristics

Color Code	835 [CCT of 3500K]
Color Rendering Index	85 Ra8
Color Designation	White
Color Temperature	3500 K
Luminous Flux EL	1750 Lm
25°C, Rated	
Luminous Flux EL	1750 Lm
25°C, Nominal	
Initial Lumens	1950 Lm
Lum Efficacy Rated	78 Lm/W
HF 25°C	

Lum Efficacy Rated	87 Lm/W
HF 35°C	
LLMF HF 2000h	96 %
Rated	
LLMF HF 4000h	95 %
Rated	
LLMF HF 6000h	94 %
Rated	
LLMF HF 8000h	93 %
Rated	
LLMF HF 12000h	92 %
Rated	
LLMF HF 16000h	91 %
Rated	
LLMF HF 20000h	90 %
Rated	
Design Temperature	35 C
Chromaticity Coordinate X	409 -
Chromaticity Coordinate Y	394 -

• Electrical Characteristics

Watts	24 W
Lamp Wattage EL	22.5 W
25°C, Rated	
Lamp Wattage EL	24 W
25°C, Nominal	
Lamp Wattage EL	22.5 W
35°C	
Lamp Voltage EL	77 V
25°C	
Lamp Voltage EL	75 V
35°C	
Lamp Current EL	0.295 A
25°C	

PHILIPS

sense and simplicity

T5 High Output

Lamp Current EL 0.300 A
35°C
Dimmable Yes

• Environmental Characteristics

Energy Efficiency A
Label (EEL)
Mercury (Hg) 1.4 mg
Content

• Measuring Conditions

Calibration Current 0.300 A
HF Generator Rated 150 V
Voltage
Resistor 250 ohm

• Product Dimensions

Base Face to Base 549.0 (max) mm
Face A

Insertion Length B 553.7 (min), 556.1 (max) mm
Overall Length C 563.2 (max) mm
Diameter D 17 (max) mm

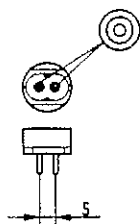
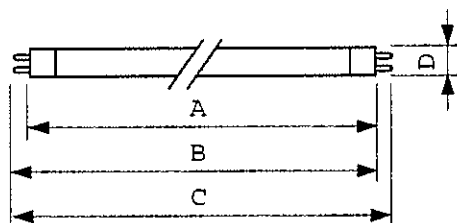
• Product Data

Product number 290205
Full product name 24W/835 Min Bipin T5 HO ALTO UNP
Short product name 24W/835 Min Bipin T5 HO ALTO UNP
Pieces per Sku 1
eop_pck_cfg 40
Skus/Case 40
Bar code on pack 46677290207
Bar code on case 50046677290202
Logistics code(s) 927992183522
tpd_ilcos_cd FDH-24/35/1B-L/P-G5-16/850
eop_net_weight_pp 54.000 gr

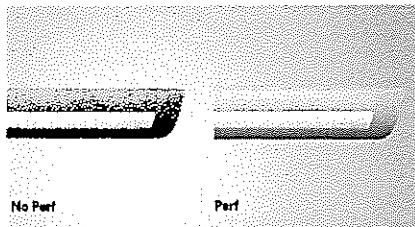
Dimensional drawing

24W/835 Min Bipin T5 HO ALTO UNP

Product	A (Max)	B (Min)	B (Max)	C (Max)	D (Max)
TLS HO F24T5/835 HO Alto	549.0	553.7	556.1	563.2	17



G5



Cerra Wall I/D

Indirect-Direct T8

Type:

Project:

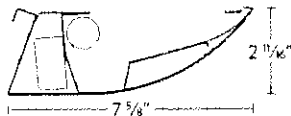
SPECIFICATIONS

Wall Mount

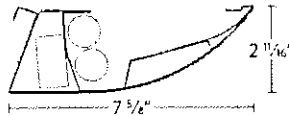
CRW4

LAMPING OPTIONS

CRW4 - 1



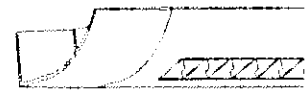
CRW4 - 2



Optional perf with sculptured end cap



No perf with optional sculptured end cap



SPECIFICATIONS

Construction

Housing is formed from one-piece cold-rolled steel. Flat end plate standard. Sculptured die-cast aluminum end cap is optional.

Reflectors

Die-formed highly reflective white or specular reflector.

Shielding

Window opening with straight blade baffle and white opal overlay.

Finish

Fine-textured, white or aluminum polyester powder paint. Custom colors available, consult factory.

Electrical

Specify 120V, 277V or 347V. Pre-wired with 16AWG fixture wires. For special circuiting or wire gauge, consult factory. Plug-in electrical connectors included. UL and C-UL listed.

Luminaire Length

Nominal 4', 8', and 12' sections form row lengths. For total run length, add 1/4" for each flat end plate or 4" for each sculptured end cap. For longer run lengths, sections are attached using internal joiners. Consult factory for 2' and 3' individual sections.

CATALOG NUMBER

Examples: CRW4132 WHR 40FT R12 277 GEB10 SCT LPB35 C210 SCEP → CRW4 2 32 SPR 32FT RB 277 GEB10 1SE EL DCT LPB35 C110

Luminaire	# of Lamps in Cross Section	Lamp Type	Reflector	Shielding	Luminaire Row Length	Maximum Section Length	Voltage	Ballast Type	# of Emergency Modules
CRW4	32	32W T8	WHR White Reflector (Standard) SPR Specular Reflector	PERF Perforated window NOPERF Without perforated window	X FT (4' increments)	RA 4' section(s) RB 8' section(s) R12 12' section(s)	120 277 347	GEB10 <10% THD Electronic DMHL3D ¹ Lutron Hi-Lume dim OSSC Osram Line or 0-10V <i>Reference Ballast Wizard on website or consult factory for other options.</i>	(Blank) None 1SE 1 section 2SE 2 sections XSE X sections

Emergency Type ²	Switching	Lamp Color	Finish	Options
(Blank) None EC Emergency circuit EL Emergency battery pack EN Emergency battery pack w/night light circuit	SCT Single circuit DCT Dual circuit	L/LP No lamp L/LPE No lamp. Wired for energy saving lamps. LPB30 3000K 80+ CRI LPB35 3500K 80+ CRI LPB41 4100K 80+ CRI <i>Reference Lamp Chart on website or consult factory for other options.</i>	C110 Painted aluminum (low gloss) C210 White white (fine-textured low gloss) C099 Custom finish	DL Lamp location label DU Dust cover ELH Emergency through wiring w/separate feed ELS Emergency through wiring w/single feed, shared neutral ELS2 Emergency through wiring w/single feed, separate neutrals GLR Fusing (fast blow) GMF Fusing (slow blow) SCEP Sculptured end cap

Notes:

- Not available in 347V
- EL and EC are installed in last 4' of luminaire sections and are not available concurrently with each other. Separate feed required for each EL or EC unless ELH is specified

Peerless®

Cerra Wall I/D

Indirect-Direct T8

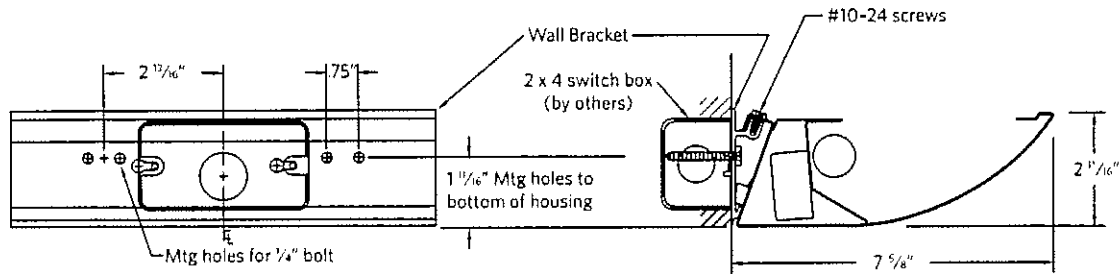
Type:

Project:

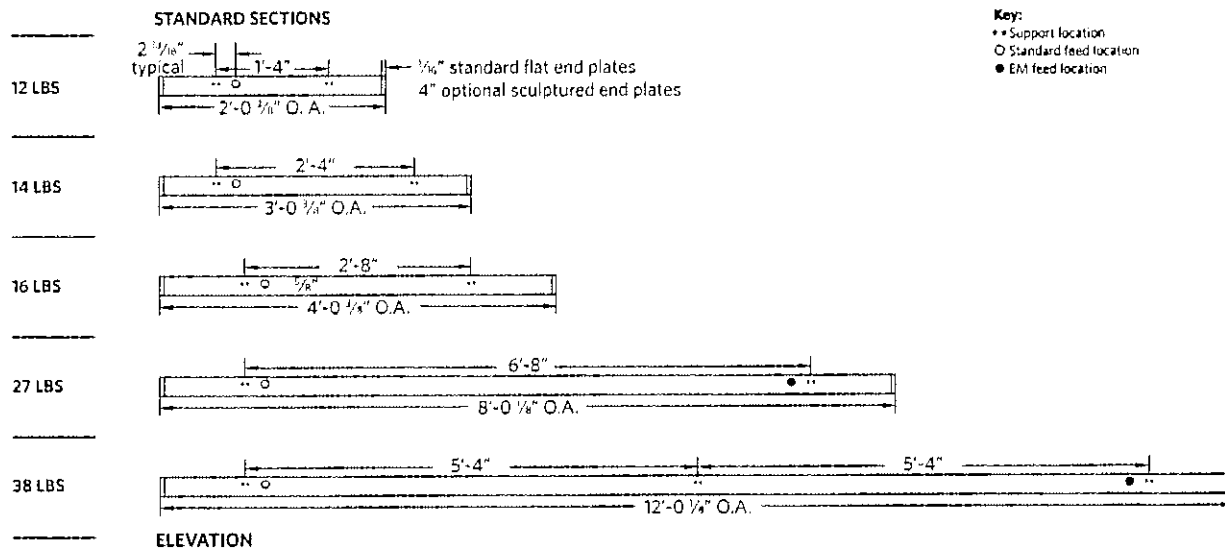
Wall Mount

CRW4

MOUNTING DETAIL



WEIGHTS & SUPPORT SPACING



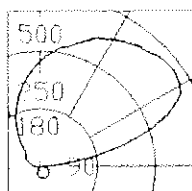
CONFIGURATIONS



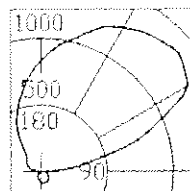
Cast aluminum tension, inside and outside "L" connectors available for wall configurations. Reference [Pattern Connector Guide](#) for additional details.

PHOTOMETRICS

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



1-LAMP T8 WITH WHITE REFLECTOR
 67.0% efficiency
 1909 delivered lumens
 93.5% up / 6.5% down



2-LAMP T8 WITH WHITE REFLECTOR
 57.5% efficiency
 3277 delivered lumens
 93.6% up / 6.4% down

2246 5th Street, Berkeley, CA 94710 • Tel: 510.845.2760 • Fax: 510.845.2776 • Email: techsupport@peerlesslighting.com • PeerlessLighting.com

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CRW4 Cerra Wall I/D
 Indirect-Direct T8 **2**



For 28W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.		
F32T8/ES (28W - 48")													
2	120-277	IS	Optanium	IOP-2P32-LW-SC	42	0.77	10	0.35-0.15	60/16	B	64		
				IOPA-2P32-LW-N						N			
				IOP-2P32-SC	48-47	0.87	10	0.41-0.18		B		*65	
				IOPA-2P32-N						N			
				IOP-2P32-HL-SC	65-64	1.19	10	0.55-0.24		B			
				IOPA-2P32HL-N						N			
				IOP-3P32-LW-SC	47	0.86	10	0.40-0.18		B			
				IOPA-3P32LW-N						N			
				IOP-3P32-SC	55-54	1.00	10	0.46-0.20		B			
				IOPA-3P32-N						N			
				IOP-3P32-HL-90C-SC	74-73	1.31	10-15	0.62-0.27		B			
				IOPA-3P32-HL-N						N			
	347	PS	Optanium	IOP-2PSP32-LW-SC	39	0.71	10	0.33-0.14	0/-18	B	77		
				IOP-2PSP32-SC	51-49	0.88	10	0.42-0.18					
				IOP-2PSP32-HL-SC	66-64	1.18	10	0.55-0.24					
				IOP-2S32-LW-SC	41-40	0.71	10	0.34-0.15	60/16		21		
				IOP-2S32-SC	49-48	0.88	10	0.41-0.18					
				GOP-2PSP32-SC	50	0.88	10	0.10	0/-18	B	77		
				GOP-2PSP32-LW-SC	TBD	0.71		TBD					
				GOPA-2P32-LW-SC	42	0.78		0.12	60/16		64		
				GOPA-2P32-SC	47	0.88		0.14					
				GOPA-3P32-LW-SC	46	0.77		0.13					
				GOPA-3P32-SC	52	1.00		0.16					
	347/480	PS	Optanium	HOP-2PSP32-HL-SC	TBD	1.18		TBD	0/-18		77		






Refer to page 1-38 and 1-39 for dimensions

Refer to page 1-40 and 1-41 for wiring diagrams

Refer to pages 9-23 to 9-27 for lead lengths and shipping data

Product Number	Ordering Code	Watts	Pack. Qty.	Color Temp. (Kelvin)	Norm. Length (In.)	Rated Average Life (Hrs.) ¹		Approx. Initial Lumens ²	Design Lumens ³	CRI	Lumen Maint.
Philips Energy Advantage T8 Lamps featuring ALTO II [®] Technology											
13781-0	F32T8/ADV830/XEW/ALTO	25	25	3000	48	30,000	36,000	2500	2425	85	97%
13782-8	F32T8/ADV835/XEW/ALTO	25	25	3500	48	30,000	36,000	2500	2425	85	97%
13783-6	F32T8/ADV841/XEW/ALTO	25	25	4100	48	30,000	36,000	2500	2425	85	97%
13784-4	F32T8/ADV850/XEW/ALTO	25	25	5000	48	30,000	36,000	2400	2330	85	97%
14732-2	F32T8/ADV830/EW/ALTO	28	25	3000	48	30,000	36,000	2725	2645	85	97%
14733-0	F32T8/ADV835/EW/ALTO	28	25	3500	48	30,000	36,000	2725	2645	85	97%
14734-8	F32T8/ADV841/EW/ALTO	28	25	4100	48	30,000	36,000	2725	2645	85	97%
14735-5	F32T8/ADV850/EW/ALTO	28	25	5000	48	30,000	36,000	2675	2595	85	97%
14771-0	F32T8/ADV830/EW/ALTO	30	25	3000	48	30,000	36,000	2850	2765	85	97%
14772-8	F32T8/ADV835/EW/ALTO	30	25	3500	48	30,000	36,000	2850	2765	85	97%
14773-6	F32T8/ADV841/EW/ALTO	30	25	4100	48	30,000	36,000	2850	2765	85	97%
14774-4	F32T8/ADV850/EW/ALTO	30	25	5000	48	30,000	36,000	2800	2715	85	97%
Philips T8 32W Extra Long Life Lamps featuring ALTO II [®] Technology											
15202-5	F32T8/TL830/XLL/ALTO	32	25	3000	48	40,000	46,000	2950	2800	85	95%
15203-3	F32T8/TL835/XLL/ALTO	32	25	3500	48	40,000	46,000	2950	2800	85	95%
15204-1	F32T8/TL841/XLL/ALTO	32	25	4100	48	40,000	46,000	2950	2800	85	95%
15205-8	F32T8/TL850/XLL/ALTO	32	25	5000	48	40,000	46,000	2850	2700	85	95%
Philips Energy Advantage T8 25W Extra Long Life Lamps featuring ALTO II [®] Technology											
15206-6	F32T8/ADV830/XLL/ALTO	25	25	3000	48	40,000	46,000	2400	2330	85	97%
15207-4	F32T8/ADV835/XLL/ALTO	25	25	3500	48	40,000	46,000	2400	2330	85	97%
15208-2	F32T8/ADV841/XLL/ALTO	25	25	4100	48	40,000	46,000	2400	2330	85	97%
15209-0	F32T8/ADV850/XLL/ALTO	25	25	5000	48	40,000	46,000	2350	2280	85	97%

Upgrade from a Standard 4' 32W T8⁴ for:

LONGER LIFE	➤		Philips PLUS T8 Lamp: 50% Longer Life ⁵	➤		Philips T8 Extra Long Life Lamp: 67% Longer Life ⁶
ENERGY SAVINGS	➤		Philips Energy Advantage T8 Lamp: Save \$21 in Energy Costs ⁷	➤		Philips Energy Advantage 25W Extra Long Life T8 Lamp: Save \$28 in Energy Costs ⁸ and 67% Longer Life ⁶
LUMEN PERFORMANCE	➤		Philips Advantage T8 Lamp: 10% More Lumens			

- 1) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 12 operating hours.
- 2) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.
- 3) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. Design lumens rated at 3 hours per start on Instant Start ballast.
- 4) Industry standard 4' T8 32W lamp with 24,000-hour rated average life (12 hours per start on instant start ballast), with 2800 lumens and 75 CRI.
- 5) 36,000 rated average life compared to industry standard 24,000 rated average life.
- 6) 40,000 rated average life compared to industry standard 24,000 rated average life.
- 7) Based on wattage savings (7w) x rated average life (30,000 hours) x kWh rate (.10).
- 8) Based on wattage savings (7w) x rated average life (40,000 hours) x kWh rate (.10).



FEATURES & SPECIFICATIONS

INTENDED USE — Suitable for applications requiring both exit sign and unit equipment. Attractive, less than 10 inches tall, streamlined design is great for above-the-door applications and other tight fits. High-output version with remote lamps are ideal for outdoor emergency egress lighting.

CONSTRUCTION — Engineering-grade thermoplastic housing is impact-resistant, scratch-resistant and corrosion-proof. UL94V-0 flame rating. UV-stable white resin resists discoloration from natural and man-made light sources.

Rugged unibody housing snaps together with no additional fasteners. Faceplate and back cover are interchangeable on housing. Positive snap-fit tabs hold faceplate securely, yet are easily removable for lamp compartment access. Universal, directional chevron inserts are easily removed and reinserted.

Two 5.4W T-5 wedge-base krypton lamps with multi-faceted reflector and acrylic lenses provide superior optical control. Unique swivel-and-point arrangement permits full-range adjustment in lamp head direction.

Uniform graphics illumination without shadows or hot spots. Letters 6" high with 3/4" stroke, with 100 ft. viewing distance rating, based upon UL924 standard.

Special wording available with Panel Face in red lettering only. See notes.

U.S. Patent No. D484,272; 5,526,251; 5,611,163; 5,797,673; 5,954,423; 6,142,648 and 6,848,798. Canada Patent No. 80,141, 2,180,495.

OPTICS — The typical life of the exit LED lamp is 10 years, based on continuous operation. Low energy consumption — **only 3.3 watts.**

ELECTRICAL — Custom microchip charger, developed by Lithonia Lighting Emergency Systems, provides increased reliability and maximizes battery life. AC/LVD reset allows battery connection before AC power is applied and prevents battery damage from deep discharge.

Battery: Sealed, maintenance free lead-calcium battery standard delivers 90 minutes capacity to emergency lamps. Nickel-cadmium battery is optional.

Two-rate regulated charger minimizes energy consumption and provides low operating costs. Filtered charger output minimizes charge voltage ripple and extends battery life. Thermal protection senses circuitry temperature and maintenance. Optional high-output battery (HO) to power up to 6-volt, 12-watt remote load. See chart on back for details.

INSTALLATION — Top, end or back mounting. Housing snaps to canopy with four positive-locking tabs. Cam locking pin secures housing to canopy.

Easily removed mounting knockouts. Conduit entry knockout for 1/2" flexible conduit. J-box pattern on back panel.

LISTING — UL listed. Damp location 60°F to 90°F (15°-32°C) standard. Meets UL 924, NFPA 101 (current Life Safety Code), NEC and OSHA Illumination standards. NEMA Premium certified.

WARRANTY — 3-year limited warranty (five-year for nickel-cadmium battery) including LED lamps.

Complete warranty terms located at

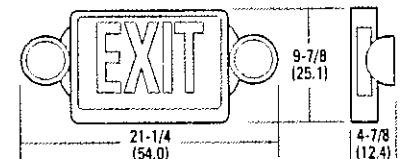
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

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

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

QUANTUM®
Thermoplastic Exit/Unit Combo



Specifications

Length: 21-1/4 (54.0)

Depth: 4-7/8 (12.4)

Height: 9-7/8 (25.1)

Weight: 7.36 (3.3 kg)

All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION

For shortest lead times, configure product using **standard options (shown in bold)**.

Example: LHQM S W 3 R

LHQM			3		
Family	Face type	Housing color	Number of faces	Letter color	Options
LHQM LED exit with two external 5.4 watt krypton lamps	S Stencil P Panel ¹	(blank) Black W White	3 Single face with extra faceplate and color panel	R Red G Green	(blank) None N Maintenance-free nickel-cadmium battery ² HO High-output lead-calcium battery ³ HO RO High-output lead-calcium battery, less lamp heads ³

Accessories: Order as separate item.

ELA MR24 K0606	Compact MR24 remote head (6W, 6V) ^{5,7}
ELA T MR24 K0606	Compact MR24 twin remote head (12W total) ^{5,7}
ELA MR24 K0906	Compact MR24 remote head (9W, 6V) ^{5,7}
ELA NX H0606	NEMA 4X, sealed-beam remote fixture (6V, 6W halogen) ^{5,8}
ELA WG3	Wireguard (back mount only) ⁶
ELA W US12	12" pendant-mount kit with white canopy ⁹

Notes

- 1 Only available in custom signage. See spec sheet, Custom Signage.
- 2 Not available with any other options.
- 3 Not available with nickel-cadmium battery option.
- 4 See spec sheet ELA-WG.
- 5 Only available with HO option.
- 6 Only available with HO RO option.
- 7 See spec sheet ELA-MR24.
- 8 See spec sheet ELA-NX.
- 9 See spec sheet ELA-Sterility. To order black canopy, replace "W" with "B". To order 24" or 36" length, replace "12" with "24" or "36".

LHQM Quantum® Thermoplastic Exit/Unit Combo

SPECIFICATIONS

ELECTRICAL

Primary Circuit

	Typical LED life ¹	Supply voltage	Max. amps	Max. watts
Red & Green LED	10 years	120	.23	3.3
		277	.23	3.3

BATTERY

	Voltage	Shelf life ¹	Typical life ²	Maintenance ³	Optimum temperature ⁴
Lead -calcium	6	12 months	5 - 7 years	none	60°-90°F (15°-32°C)
Ni-cad (NI)	6	3 years	7-9 years	none	32°-100°F (0°-37°C)

Notes:

- 1 Based on continuous operation.
- 2 At 77°F (25°C).
- 3 All life safety equipment, including emergency lighting for path of egress must be maintained, serviced, and tested in accordance with all National Fire Protection Association (NFPA) and local codes. Failure to perform the required maintenance, service, or testing could jeopardize the safety of occupants and will void all warranties.
- 4 Optimum ambient temperature range where unit will provide capacity for 90 minutes. Higher and lower temperatures affect life and capacity. Consult factory for detailed information.

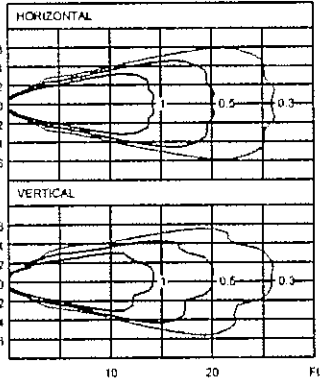
REMOTE OUTPUT CAPACITY

BATTERY

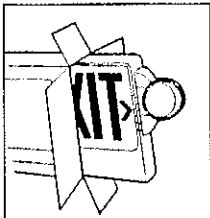
Standard combo	Combo ni-cad battery	Combo high-output battery (HO)	Combo/no heads (RO) & high-output
NA	NA	12W	24W

PHOTOMETRICS

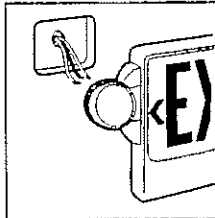
MR24 K0606
6-watts, 6.4-watts krypton



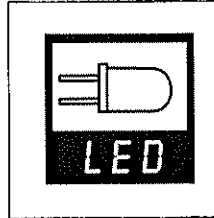
KEY FEATURES



Fully assembled at factory.



Install only one fixture instead of two.

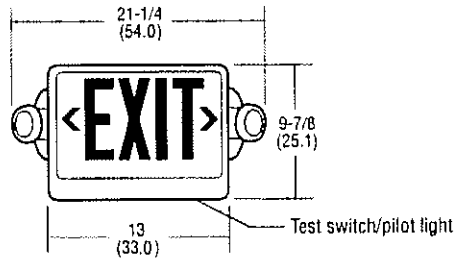


The typical life of the LED lamp is 10 years.

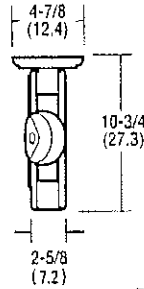
MOUNTING

All dimensions are inches (centimeters).
Shipping weight: 7.36 lbs. (3.3 kgs.).

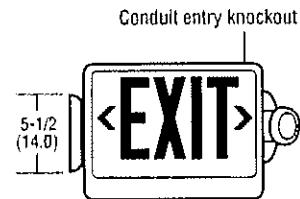
BACK



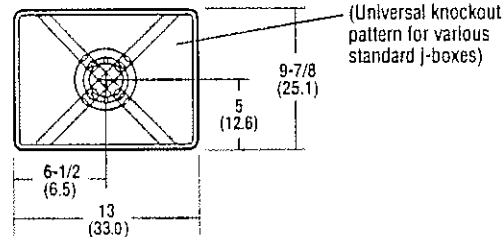
TOP



END



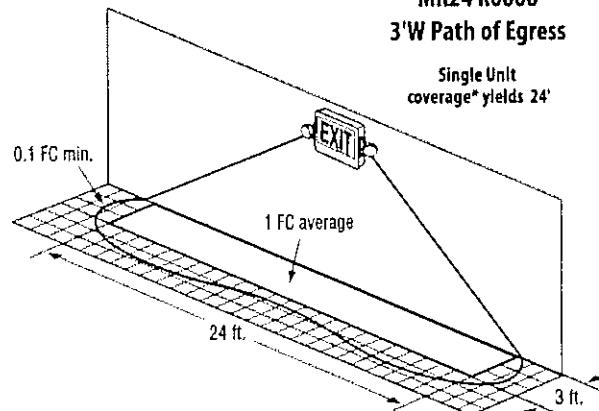
BACKPLATE



FIXTURE PERFORMANCE

MR24 K0606
3'W Path of Egress

Single Unit
coverage* yields 24'



* Meets Life Safety Code standard minimum illuminance of 0.1 FC and average illuminance of 1.0 FC. Assumes open space with no obstructions, mounting height: 7.5', ceiling height: 9', and reflectances: 80/50/20. Analysis based on independently tested photometrics.

LITHONIA LIGHTING
An Acuity Brands Company

LHQM

LITHONIA LIGHTING[®]

FEATURES & SPECIFICATIONS

INTENDED USE — Low-profile static luminaire provides general illumination for recessed applications; ideal for restricted plenum spaces.

Certain airborne contaminants can diminish integrity of acrylic. [Click here for Acrylic Environmental Compatibility table for suitable uses.](#)

ATTRIBUTES — Designed exclusively for use with T8 lamps, electronic ballasts and sockets.

CONSTRUCTION — Smooth hemmed sides and smooth, inward formed end flanges for safe handling. Lighter weight fixture allows for safe, easy installation.

Standard steel door frame has superior structural integrity with premium extruded appearance and precision flush mitered corners. Steel door allows easy lens replacement without frame disassembly (for lenses up to .156" thick). Powder painted, steel latches provide easy, secure door closure.

Superior mechanical light seal requires no foam gasketing. Integral T-bar clips secure fixture to T-bar system. Housing formed from cold-rolled steel. Acrylic shielding material 100% UV stabilized. No asbestos is used in this product.

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

ELECTRICAL — Standard ballast is electronic, thermally protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast, universal voltage and sound rated A.

Luminaire is suitable for damp locations. AWM, TFM or THHN wire used throughout, rated for required temperatures.

LISTING — Standard: UL. Optional: Canada — CSA or cUL; Mexico — NOM.

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

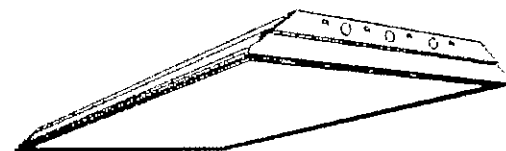
US patents: 6,210,025; 6,231,213; 2,288,471.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

General Purpose T8 Troffer

GT8 2'x4'

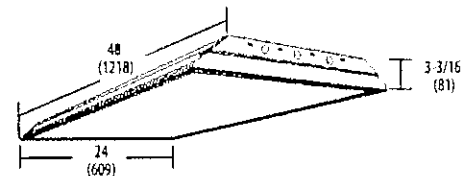


2, 3 or 4 Lamps



Specifications

Length: 48 (1218)
Width: 24 (609)
Depth: 3-3/16 (81)
Weight: 22 lbs (9.9 kg)



All dimensions are inches (millimeters).

ORDERING INFORMATION

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

Example: 2GT8 2 32 A12 MVOLT GEB10IS

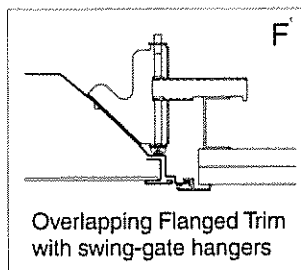
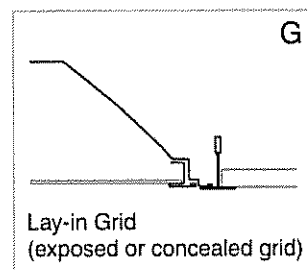
2GT8											
Series	Trim type	Number of lamps	Lamp type	Door frame	Diffuser type	Voltage	Options				
2GT8 2' wide	(blank) Grid F Overlapping flanged	2	32 32W T8 (48")	(blank)	Flush steel, white	A12	#12 pattern acrylic	120	1/4	One 4-lamp ballast	
		3		FN	Flush aluminum, natural	A12125	#12 pattern acrylic, .125" thick	277	1/3	One 3-lamp ballast	
		4		FM	Flush aluminum, matte black	A19	#19 pattern acrylic, .156" thick	347	GEB10IS	Electronic ballast, <10% THD, instant start	
		Not included		FW	Flush aluminum, white	A15	#15 pattern acrylic, .2" thick	MVOLT ¹	GEB10PS	Electronic ballast, <10% THD, programmed start	
				RN	Regressed aluminum, natural	PC1S	1/2" x 1/2" x 1/2" plastic cube louver, silver	Others available	GEB10RS	Electronic ballast, <10% THD, rapid start	
				RM	Regressed aluminum, matte black	PC2S	1-1/2" x 1-1/2" x 1" plastic cube louver, silver w/ flange ¹	EL	Emergency battery pack (nominal 300 lumens)		
				RW	Regressed aluminum, white	PC3S	3/4" x 3/4" x 1/2" plastic cube louver, silver	EL14	Emergency battery pack (nominal 1400 lumens)		
								GLR	Internal fast-blow fuse ¹		
								GMF	Internal slow-blow fuse ¹		
								LST	Tandem-wired fixture pairs (shared ballasts)		
								PWS1836	6' prewire, 3/8" dia., 18-gauge, 1 circuit		
								LP..	Lamped, specify lamp type and color		
								LP735	Lamped, 700-series, 3500K		
								LP741	Lamped, 700-series, 4100K		
								JP	Palletized and stretch-wrapped without individual cartons; grid trim only		
								CSA	CSA Certified		
								NOM	NOM Certified		

NOTES:

- Available with flush door frames only.
- MVOLT standard for 120-277V applications, 50-60 Hz operation. Some options require voltage specified.
- Must specify voltage 120V or 277V.

MOUNTING DATA

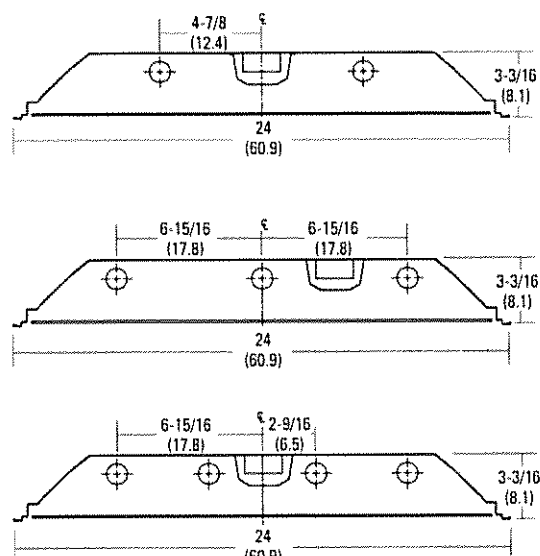
Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).



NOTE:

1 Recommended rough-in dimensions for F-trim fixtures 24"x48" (Tolerance is +1/4"-0"). Swing-gate range 1'-3/16" to 3'-15/16". Swing-gate span 23'-3/8" to 26'-11/16". Fixture swing-gate points require additional 1'-1/16" over nominal fixture height.

DIMENSIONS



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2GT8 2 32 A12

Report LTL 7424

Lumens per lamp - 2850 - Lum. eff. - 81.7%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	97	97	97	95	95	95	91	91	91
1	89	86	82	87	84	81	80	78	76
2	82	75	70	80	74	69	71	67	63
3	75	67	60	73	65	59	63	58	54
4	69	59	52	67	58	52	56	51	46
5	63	53	46	62	52	46	51	45	40
6	59	48	41	47	47	40	46	40	35
7	54	44	37	53	43	36	42	36	31
8	51	40	33	49	39	33	38	32	28
9	47	37	30	46	36	30	35	29	25
10	44	34	27	43	33	27	32	27	23

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1372	24.1	29.4
0-40	2277	39.9	48.9
0-60	3907	68.5	83.9
0-90	4658	81.7	100.0
90-180	0	0	0
0-180	4658	81.7	100.0

2GT8 3 32 A12 1/3

Report LTL 7421

Lumens per lamp - 2850 - Lum. eff. - 80.1%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	95	95	95	93	93	93	89	89	89
1	88	84	81	85	82	79	79	76	74
2	80	74	69	78	72	68	70	66	62
3	74	66	59	72	64	58	62	57	53
4	68	58	52	66	57	51	55	50	46
5	62	52	45	61	52	45	50	44	40
6	58	47	40	56	47	40	45	39	35
7	54	43	36	52	42	36	41	35	31
8	50	39	33	49	39	32	38	32	28
9	47	36	30	45	36	29	35	29	25
10	44	33	27	43	33	27	32	27	23

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2066	24.2	30.2
0-40	3412	39.9	49.8
0-60	5768	67.5	84.2
0-90	6851	80.1	100.0
90-180	0	0	0
0-180	6851	80.1	100.0

2GT8 4 32 A12 1/4

Report LTL 7425

Lumens per lamp - 2850 - Lum. eff. - 78.6%

S/MH (along) 1.2 (across) 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	94	94	94	91	91	91	87	87	87
1	86	82	79	84	81	78	77	75	73
2	79	73	68	77	71	67	68	64	61
3	72	64	58	70	63	57	61	56	52
4	66	57	51	65	56	50	54	49	45
5	61	51	45	60	51	44	49	43	39
6	57	47	40	55	46	39	44	39	34
7	53	42	36	51	42	35	40	35	31
8	49	39	32	48	38	32	37	31	27
9	46	35	29	45	35	29	34	29	25
10	43	33	27	42	32	27	32	26	22

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2718	23.8	30.3
0-40	4481	39.3	50.0
0-60	7553	66.3	84.2
0-90	8965	78.6	100.0
90-180	0	0	0
0-180	8965	78.6	100.0



For 28W-48" Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.				
F32T8/ES (28W - 48")															
2	120-277	IS	Optanium	IOP-2P32-LW-SC	42	0.77	10	0.35-0.15	60/16	B	64				
				IOPA-2P32-LW-N						N					
				IOP-2P32-SC	48-47	0.87	10	0.41-0.18		B		*65			
				IOPA-2P32-N						N					
				IOP-2P32-HL-SC	65-64	1.19	10	0.55-0.24		B					
				IOPA-2P32HL-N						N					
				IOP-3P32-LW-SC	47	0.86	10	0.40-0.18		B					
				IOPA-3P32LW-N						N					
				IOP-3P32-SC	55-54	1.00	10	0.46-0.20		B					
				IOPA-3P32-N						N					
				IOP-3P32-HL-90C-SC	74-73	1.31	10-15	0.62-0.27		B					
				IOPA-3P32-HL-N						N					
		PS		IOP-2PSP32-LW-SC	39	0.71	10	0.33-0.14	0/-18	B	77				
				IOP-2PSP32-SC	51-49	0.88	10	0.42-0.18							
				IOP-2PSP32-HL-SC	66-64	1.18	10	0.55-0.24							
	347			IOP-2S32-LW-SC	41-40	0.71	10	0.34-0.15	60/16		21				
				IOP-2S32-SC	49-48	0.88	10	0.41-0.18							
	IS	Optanium	GOP-2PSP32-SC	50	0.88	10	0.10	0/-18	B	77					
			GOP-2PSP32-LW-SC	TBD	0.71		TBD								
			GOPA-2P32-LW-SC	42	0.78		0.12								
			GOPA-2P32-SC	47	0.88		0.14	60/16		64					
			GOPA-3P32-LW-SC	46	0.77		0.13								
			GOPA-3P32-SC	52	1.00		0.16			*65					
			347/480		PS		HOP-2PSP32-HL-SC	TBD			1.18	TBD	0/-18		77

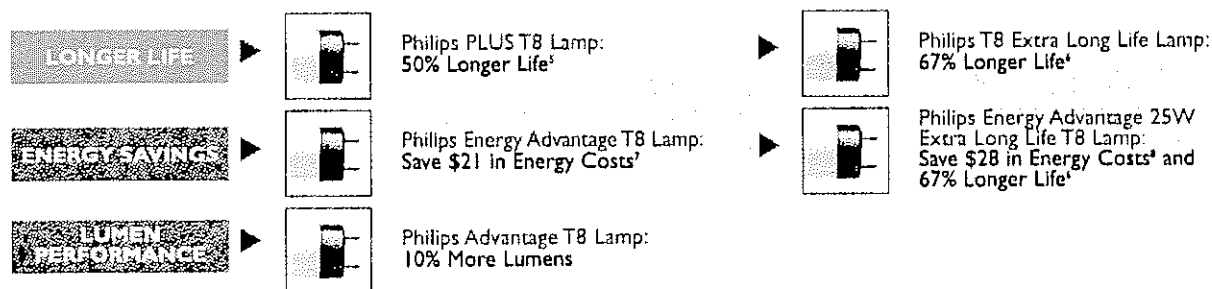
Refer to page 1-38 and 1-39 for dimensions

Refer to page 1-40 and 1-41 for wiring diagrams

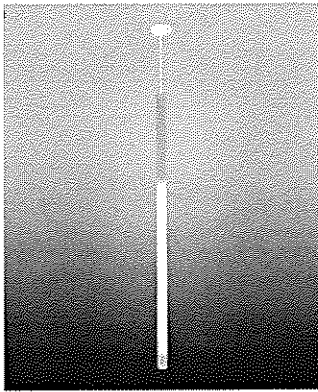
Refer to pages 9-23 to 9-27 for lead lengths and shipping data

Product Number	Ordering Code	Watts	Pack Qty.	Color Temp. (Kelvin)	Nom. Length (In.)	Rated Average Life (Hrs.) ¹		Approx. Initial Lumens ²	Design Lumens ³	CRI	Lumen Maint.
Philips Energy Advantage T8 Lamps featuring ALTO II [®] Technology											
13781-0	F32T8/ADV830/XEW/ALTO	25	25	3000	48	30,000	36,000	2500	2425	85	97%
13782-8	F32T8/ADV835/XEW/ALTO	25	25	3500	48	30,000	36,000	2500	2425	85	97%
13783-6	F32T8/ADV841/XEW/ALTO	25	25	4100	48	30,000	36,000	2500	2425	85	97%
13784-4	F32T8/ADV850/XEW/ALTO	25	25	5000	48	30,000	36,000	2400	2330	85	97%
14732-2	F32T8/ADV830/EW/ALTO	28	25	3000	48	30,000	36,000	2725	2645	85	97%
14733-0	F32T8/ADV835/EW/ALTO	28	25	3500	48	30,000	36,000	2725	2645	85	97%
14734-8	F32T8/ADV841/EW/ALTO	28	25	4100	48	30,000	36,000	2725	2645	85	97%
14735-5	F32T8/ADV850/EW/ALTO	28	25	5000	48	30,000	36,000	2675	2595	85	97%
14771-0	F32T8/ADV830/EW/ALTO	30	25	3000	48	30,000	36,000	2850	2765	85	97%
14772-8	F32T8/ADV835/EW/ALTO	30	25	3500	48	30,000	36,000	2850	2765	85	97%
14773-6	F32T8/ADV841/EW/ALTO	30	25	4100	48	30,000	36,000	2850	2765	85	97%
14774-4	F32T8/ADV850/EW/ALTO	30	25	5000	48	30,000	36,000	2800	2715	85	97%
Philips T8 32W Extra Long Life Lamps featuring ALTO II [®] Technology											
15202-5	F32T8/TL830/XLL/ALTO	32	25	3000	48	40,000	46,000	2950	2800	85	95%
15203-3	F32T8/TL835/XLL/ALTO	32	25	3500	48	40,000	46,000	2950	2800	85	95%
15204-1	F32T8/TL841/XLL/ALTO	32	25	4100	48	40,000	46,000	2950	2800	85	95%
15205-8	F32T8/TL850/XLL/ALTO	32	25	5000	48	40,000	46,000	2850	2700	85	95%
Philips Energy Advantage T8 25W Extra Long Life Lamps featuring ALTO II [®] Technology											
15206-6	F32T8/ADV830/XLL/ALTO	25	25	3000	48	40,000	46,000	2400	2330	85	97%
15207-4	F32T8/ADV835/XLL/ALTO	25	25	3500	48	40,000	46,000	2400	2330	85	97%
15208-2	F32T8/ADV841/XLL/ALTO	25	25	4100	48	40,000	46,000	2400	2330	85	97%
15209-0	F32T8/ADV850/XLL/ALTO	25	25	5000	48	40,000	46,000	2350	2280	85	97%

Upgrade from a Standard 4' 32WT8⁴ for:



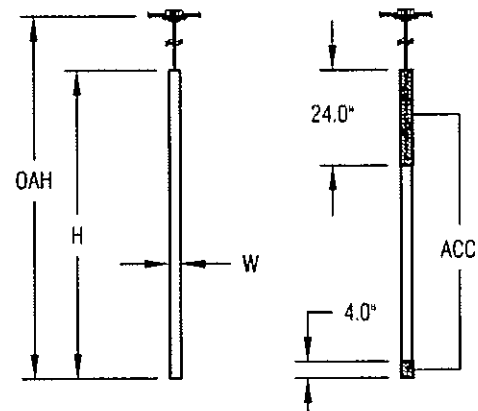
- 1) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 12 operating hours.
- 2) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of their ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.
- 3) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. Design lumens rated at 3 hours per start on instant start ballast.
- 4) Industry standard 4' T8 32W lamp with 24,000 hour rated average life (12 hours per start on instant start ballast), with 2800 lumens and 75 CRI.
- 5) 36,000 rated average life compared to industry standard 24,000 rated average life.
- 6) 40,000 rated average life compared to industry standard 24,000 rated average life.
- 7) Based on wattage savings (7w) x rated average life (30,000 hours) x kWh rate (.10).
- 8) Based on wattage savings (7w) x rated average life (40,000 hours) x kWh rate (.10).

PAVO INTERIOR PENDANT
SIP11575

Minimalist form meets functional lighting with the Pavo pendant. A sleek 2.5 inch diameter acrylic lens encloses two T5 lamps and an integral ballast. Power cord suspension adds to the Pavo's minimalist flair by eliminating unnecessary aircraft cables or stems. The Pavo works great in high ceiling applications such as churches, stairwells, and atriums. A splash of color or metal finish can be added to the fixture with the optional tube cover accessory.

JOB NAME

TYPE



Dimensions

W

2.5 in

6.4 cm

Weight

Hanging weight: 25.0 lb (11.4 kg).

Features

- Aluminum construction provides durable protection for internal components and is recyclable.
- Opal acrylic diffuser lens enhances a space with filtered illumination.
- External fasteners are not visible, providing a clean fixture design.
- Fixture design allows relamping without the use of tools, simplifying maintenance.
- Standard thermoset polyester powder coat paint provides durable protection in a palette of color options. Custom colors available upon request.
- Electronic ballast increases energy savings and performance.
- Integral ballast simplifies installation by eliminating the need to locate, mount and wire a remote ballast.

Technical Notes

Electrical

- 48" white power cord standard.
- Class "A" sound rated ballast for use in low ambient noise applications.
- Meets NEC 410.73 double-ended, fluorescent lamp ballast disconnect requirements.
- ETL listed to UL standards (US and Canada) for use in damp locations. Not recommended for exterior applications.

Lamping/Lamp

- Lamps not included.

Mounting

- The white plastic canopy fits over a standard 4" octagonal junction box.
- CAS versions include a 48" painted white stem (PT02).




Additional Documents

Color Chart (http://www.specStile.com/PDFs/stile_color_chart.pdf)

STILE SPECIFICATION SHEET

MODEL NUMBER	LAMPING	FINISH	VOLTAGE	LAMP OPTIONS	OPTIONS	ACCENT	ACCENT FINISH
SIP11575							

Not all options are available in all configurations, consult factory for details.

Lamping	Photometry	Voltage	Options
2F14 ¹	 ² 2F14WT5/Mini Bipin	120V 120 Volt	ANG Adjustable Angle Mount
2F21 ³	 ² 2F21WT5/Mini Bipin	277V 277 Volt	CAS 5" Canopy & 48" Stem
2F28 ⁴	 ² 2F28WT5/Mini Bipin	ITL66875	DM Dimming
		Lamp Options	MBP Metal Braided Power Cord
		F Fusing	
			Accent
			ACC Decorative Accents

¹ H=47.5in (120.6cm) OAH=96.5in (245.1cm)
² T5 & T8 Fluorescent Linear Lamp(s) Not Included
³ H=59.3in (150.6cm) OAH=108.3in (275.1cm)
⁴ H=71.0in (180.3cm) OAH=120.0in (304.8cm)

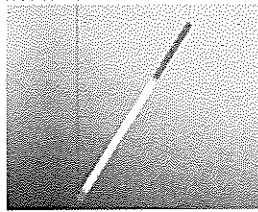
Painted Finishes

PT01 SuperWhite	PT07 Light Taupe	PT13 Warm Gray	PT19 Blue	PT29 Red Brass	PT42 Sky Blue	PT48 Brass
PT02 White	PT08 Medium Taupe	PT14 Light Gray	PT20 Dark Green	PT31 Medium Bronze	PT43 Teal	PT49 Bronze
PT03 Morning Light	PT09 Medium Gray	PT15 Sage	PT21 Pearl White	PT32 Dark Bronze	PT44 Green	
PT04 Warm White	PT10 Dark Gray	PT16 Spruce	PT22 Platinum	PT33 Dark Blue	PT45 Purple	
PT05 Putty	PT11 Black	PT17 Red	PT27 Deep Copper	PT40 Yellow	PT46 Aluminum	
PT06 Warm Beige	PT12 Dark Chocolate	PT18 Deep Red	PT28 Dark Stainless	PT41 Orange	PT47 Deep Red Brass	

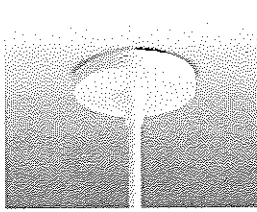
Metal and Plated Finishes

BAL Brushed Aluminum

Kit Details



ANG
Adjustable Angle Mount



CAS
5" Canopy & 48" Stem

**T5****ELECTRONIC FLUORESCENT BALLASTS**

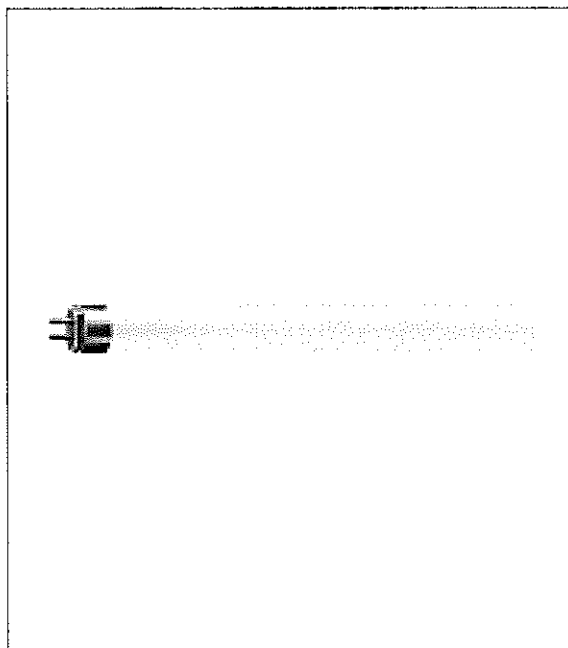
For 14-35W Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F14T5 (14W)											
1	120-277	PS	Centium	ICN-2S28	19	1.07	20	0.16-0.07	0/-18	D	73
				ICN-2S28-N	17	1.07	10	0.14-0.07		N	
			Optanium	IOP-2S28-115-SC	19	1.15	15	0.15-0.08		B	
2	120-277	PS	Centium	ICN-2S28	34	1.06	10	0.29-0.13	0/-18	D	74
				ICN-2S28-N	33	1.04	10	0.27-0.12		N	
				ICN-3S14-D	36	1.10	10	0.31-0.13		D	
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11		B	74
				IOP-2S28-115-SC	37	1.15	10	0.30-0.14			
				ICN-3S14-D	50	1.00	10	0.42-0.18			
3	120-277	PS	Centium	ICN-3S14-D	50	1.00	10	0.42-0.18	0/-18	D	171
F21T5 (21W)											
1	120-277	PS	Centium	ICN-2S28	26	1.03	15	0.21-0.10	0/-18	D	73
				ICN-2S28-N	25	1.06	10	0.22-0.10	0/-18	N	73
			Optanium	IOP-2S28-95-SC	23	0.95	15	0.19-0.08	0/-18	B	73
				IOP-2S28-115-SC	27	1.15	15	0.22-0.10			
2	120-277	PS	Centium	ICN-2S28	48	1.02	10	0.40-0.17	0/-18	D	74
				ICN-2S28-N	47-46	1.00	10	0.39-0.17	0/-18	N	74
			Optanium	IOP-2S28-95-SC	44	0.95	10	0.37-0.16	0/-18	B	74
				IOP-2S28-115-SC	52	1.15	10	0.44-0.19			
F28T5 (25W)											
1	120-277	PS	Centium	ICN-2S28	30	1.05	10	0.25-0.11	0/-18	D	73
				ICN-2S28-N						N	
			Optanium	IOP-2S28-95-SC	27	0.95	10	0.22-0.10	0/-18	B	74
				IOP-2S28-115-SC	33	1.15	10	0.27-0.12			
2	120-277	PS	Centium	ICN-2S28	58-57	1.00	10	0.49-0.21	0/-18	D	74
				ICN-2S28-N						N	
			Optanium	IOP-2S28-95-SC	54	0.95	10	0.45-0.20		B	
				IOP-2S28-115-SC	64-63	1.15	10	0.54-0.23			
F28T5 (28W)											
1	120-277	PS	Centium	ICN-2S28	33	1.04	10	0.28-0.12	0/-18	D	73
				ICN-2S28-N	31	1.05	10	0.29-0.12		N	
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11	0/-18	B	73
				IOP-2S28-115-SC	36	1.15	10	0.30-0.13			
2	120-277	PS	Centium	ICN-2S28	64-63	1.03	10	0.55-0.23	0/-18	D	74
				ICN-2S28-N	64-62	1.03	10	0.53-0.23		N	
			Optanium	IOP-2S28-95-SC	59-58	0.95	15	0.55-0.22	0/-18	B	74
				IOP-2S28-115-SC	71-69	1.15	10	0.60-0.26			
F35T5 (35W)											
1	120-277	PS	Centium	ICN-2S28	41	1.01	10	0.34-0.15	0/-18	D	73
				ICN-2S28-N	40	1.01	10	0.34-0.15		N	
			Optanium	IOP-2S28-95-SC	37	0.95	10	0.31-0.14	0/-18	B	74
				IOP-2S28-115-SC	44	1.15	10	0.37-0.17			
2	120-277	PS	Centium	ICN-2S28	80-77	1.00	10	0.67-0.28	0/-18	D	74

Refer to page 1-35 to 1-37 for dimensions and wiring diagrams
 Refer to pages 9-23 to 9-27 for lead lengths and shipping data



28W/835 Min Bipin T5 HE ALTO UNP

Product family description

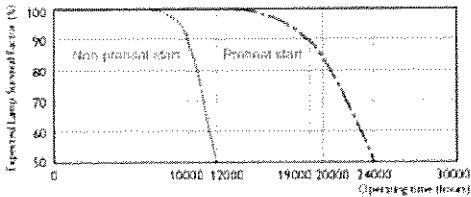
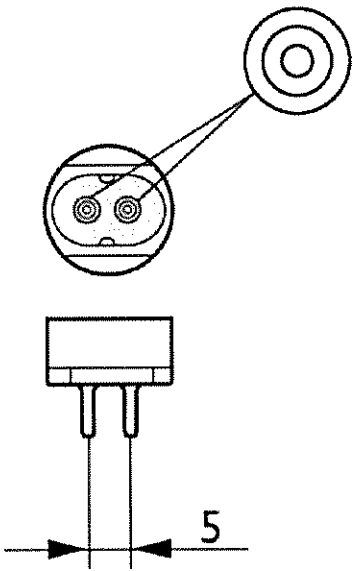
Product data	
Product Number	230854
Full product name	28W/835 Min Bipin T5 HE ALTO UNP
Ordering Code	F28T5/835/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677230852
EAN2US	
Case Bar Code	50046677230857
Successor Product number	
System Description	High Efficiency
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16mm]
Packing Type	UNP [Unpacked]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	na
Feature	na [Not Applicable]
Ordering Code	F28T5/835/ALTO
Pack UPC	046677230852
Case Bar Code	50046677230857
Watts	28W
Dimmable	Yes
Color Code	835 [CCT of 3500K]
Color Rendering Index	85 Ra8
Color Designation	White

PHILIPS

Product data	
Color Description	835 White
Color Temperature	3500 K
Initial Lumens	- Lm
Overall Length C	1163.2 mm
Diameter D	17 mm
Special packing	ALTO
Product Number	230854

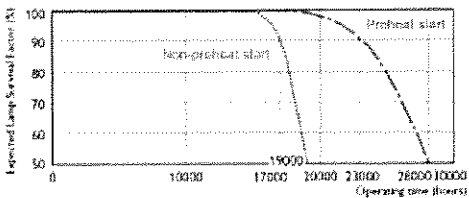


TL5 HE



Life Expectancy 3h cycle
TL5 HE

Base Miniature Bipin



Life Expectancy 12h cycle
TL5 HE

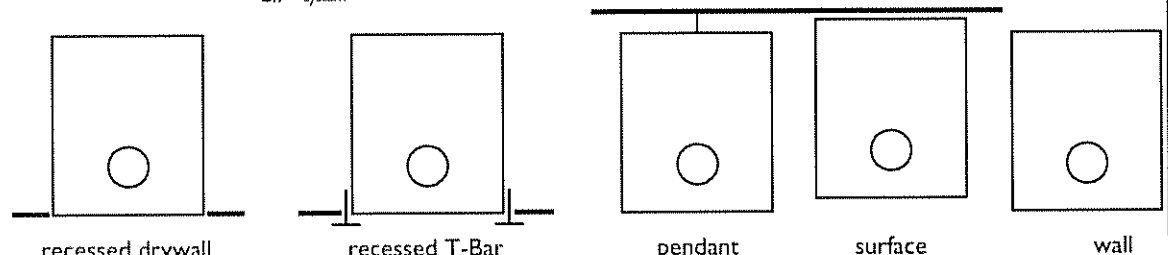


mid
BEAM₃

axis

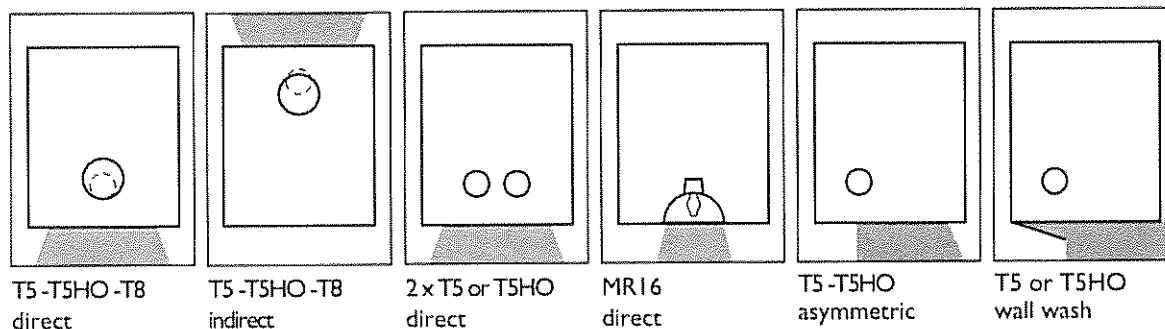
PRODUCT ORDERING CODE

PRODUCT ORDERING CODE															sample		
product id	optics	optics position	length/ft	lamp	lamp config	MR16	finish	voltage	ballast	circuits	mounting	other	controls	custom	ordering options		
BMR S RG 8 T5 IS M0 W 120 E I DF																	
BMR BMD BMI BMS +W +V	recessed pendant direct pendant indirect surface wall horizontal wall vertical	FL RG	flush regressed (satin/frosted lens only)	T5 T5HO T8 (1 lamp only)	M# MR16 quantity (add 9" per lamp)	W A C	white aluminum custom	UNV 120 277 347	I 2 +E +M	electronic rapid start dimming (specify details)	DF D DB DS TB ST TG CA# CT# SA #	drywall flanged drywall (flangeless) slip-through bracket drywall spackle flange T-Bar Screw Slot T-Bar Regular cable (36" std) cable / t-bar stem (18" std) (length / inch) Surface drywall ceiling Surface T-Bar ceiling	DS OS DOS	daylight sensor occ. sensor daylight / occ. sensor	B# F CP D E	batt. pack (quant./4" sections) fuse (one per ballast) chicago plenum Dust cover end mount power feed	C description (include sketch)
S F PL SB A WW SW	satin lens frosted lens semi spec para. louver white louver asymmetric reflector wall wash satin wall wash	2 3 4 5 6 8 12 S#	0 1 2 +S	zero lamps one lamp two lamps staggered							S SB				system		



* See individual spec sheets for details

LAMP CONFIGURATIONS



CANDLEPOWER DISTRIBUTION

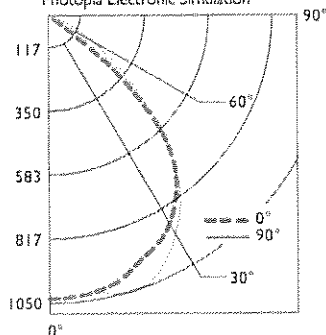
Mid Beam Direct Para. Louvers

Test Lamps: 1 x F28T5 Fluorescent

code: **BMD-PL-FL-4-T5-I-**

Efficiency: 70%

Photopia Electronic Simulation



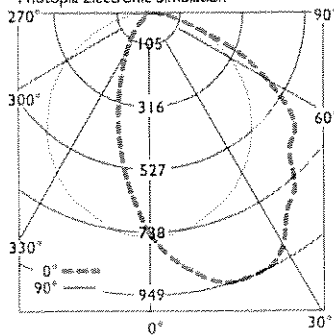
Mid Beam Direct Asymmetric

Test Lamps: 1 x F28T5 Fluorescent

code: **-BMD-A-FL-4-T5-I-**

Efficiency: 63%

Photopia Electronic Simulation



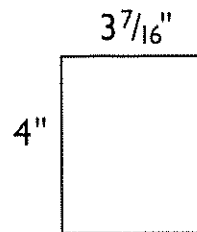
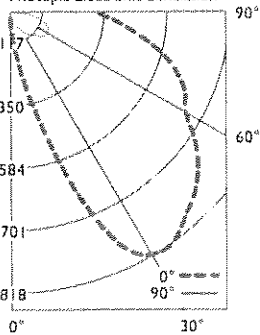
Mid Beam Direct Wall Wash

Test Lamps: 1 x F28T5 Fluorescent

code: **-BMD-WW-FL-4-T5-I-**

Efficiency: 58%

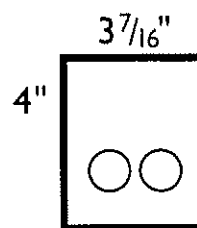
Photopia Electronic Simulation



PHOTOMETRICS

Site specific lighting calculations and electronic photometric data are available at www.axislighting.com

Product design and development is an on going process at Axis Lighting. We reserve the right to change specifications. Contact Axis for latest product information.



ARCHITECTURAL DESIGN

With its clean, simple design and narrow profile, the **Mid Beam** fixture can fit easily into many environments including offices, hospitals, and institutions.

The **Mid Beam** can hold up to four lamps creating an increase in candlepower and enhancing any architectural space with sleek, unobtrusive lines of light.

ALUMINUM PROFILE

The square **Mid Beam** profile is made of precisely fabricated high grade aluminum, ensuring straight linear fixtures in both short and long system runs.

DIE-CAST END CAPS

Mid Beam die-cast zinc end caps are precision fabricated with invisible fasteners.

OPTICS

Mid Beam can hold up to two T5, T5HO and one T8 lamp in any installment including T-Bar ceilings.

Either optic can be ordered flush with the ceiling plane, or 'regressed' 3/4" above the ceiling.

For added lighting effects, inset MR16 halogen spots are also available.

A variety of optical options are offered by the **Mid Beam** including semi-specular parabolic louvers, white louvers, asymmetric and wall wash reflectors, frosted virgin acrylic extruded lenses and our new satin lens.

FINISH

The **Mid Beam** is finished with either an anodized aluminum finish, a powder coated highly reflective white finish or custom color.

BALLAST & ELECTRICAL

Only easily accessible, high quality, electrical components are used for added safety, convenience, long term cost and ecological savings.

We offer electronic, dimming and emergency ballasts with voltages of 120, 277 and 347 volts.

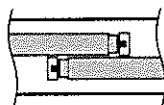
Mid Beam is UL listed to meet U.S. and Canadian standards

SATIN LENS

Available in any configuration, our new satin lens is made from a blend of highly transmissive material and a diffusing compound creating a smooth lens with an even glow.

STAGGERED LAMPING

A new staggered lamping option has been introduced which allows for a seamless line of light with minimal to no light fall off.



WALL WASH OPTICS

In addition to asymmetric optics, we now offer a wall washing optic ensuring a more pronounced and even spread of light in one direction.

SENSOR INTEGRATION



Daylight and Occupancy sensors can now be mounted on a blank sheet of extruded aluminum, easily integrating into any of our **Mid Beam** fixture configurations.

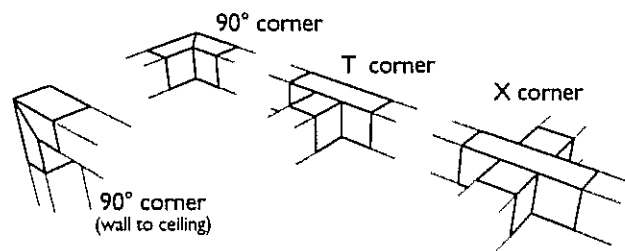
LINEAR SYSTEMS

Mid Beam linear systems are available in linear systems of 3' and 4' increments, continuously lit with no maximum length.

CORNERS

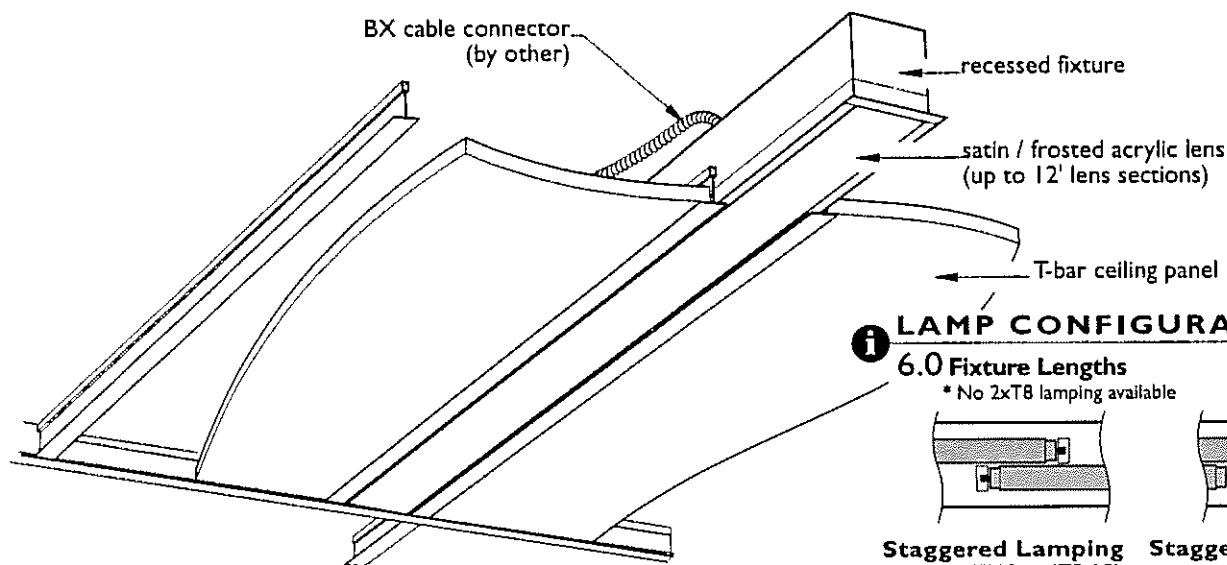
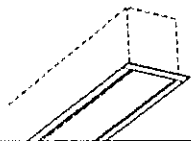
Mid Beam features a multitude of layout patterns with the use of a variety of corners. In addition to these corners we are now offering Lit 90° Corners including Wall to Ceiling.

Custom corners include:



VERTICAL MOUNTING

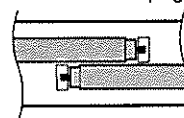
Vertical Wall and Drywall recess mounting are now available!



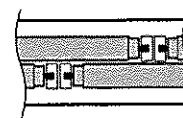
i LAMP CONFIGURATIONS

6.0 Fixture Lengths

* No 2xT8 lamping available



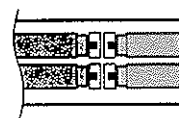
Staggered Lamping
1xT5 / T5HO (T5-1S)
1xT8 (T8-1S)



Staggered Lamping
2xT5 / T5HO (T5-2S)



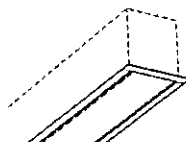
End to End Lamping
1xT5 / T5HO (T5-1)
1xT8 (T8-1)



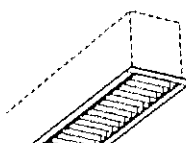
End to End Lamping
2xT5 / T5HO (T5-2)

OPTICS

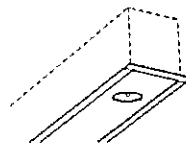
i 4.0 Optics



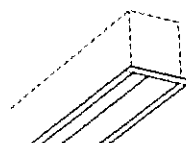
**SATIN LENS
FROSTED LENS**
(acrylic snap-in lens)
satin: 68% transmissive - frosted: 85% transmissive



LOUVERS
(semi-spec. parabolic louver or white louver)
5/8" deep blades - 3/4" spacing - 64 blades per 4'

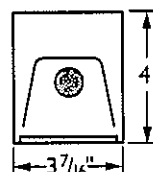


BLANK with MRI 6
(9" blank aluminum sections)
* See Mid Beam MRI 6 Spec sheet.



ASYMMETRIC
(asymmetric reflector)
* See Mid Beam Asymmetric Spec sheet.

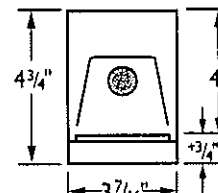
OPTICS POSITIONS



Flush

↑ (Optics Option: FL)

* Optics option Flush is not compatible with T8 lamping with T-Bar Mounting

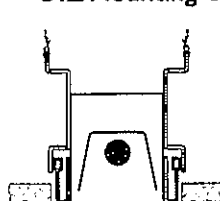


Regressed

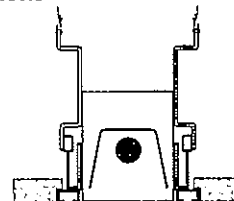
(Optics Option: RG)

i MOUNTING

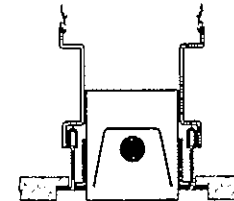
3.2 Mounting Options



T-bar
(Mounting Option: TB)



Screw Slot T-bar
(Mounting Option: ST)



Tegular
(Mounting Option: TG)

i DETAILED INFORMATION

for more detailed information, please refer to the info sheets noted above

**T5****ELECTRONIC FLUORESCENT BALLASTS**

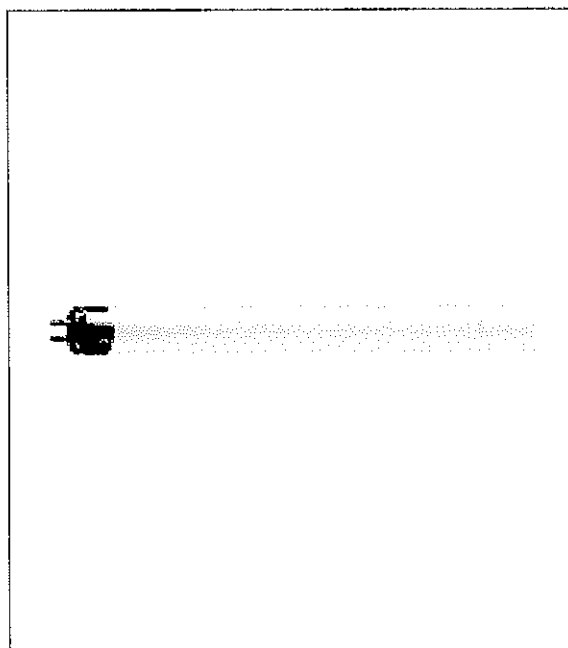
For 14-35W Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.	
F14T5 (14W)												
1	120-277	PS	Centium	ICN-2S28	19	1.07	20	0.16-0.07	0/-18	D	73	
				ICN-2S28-N	17	1.07	10	0.14-0.07		N		
			Optanium	IOP-2S28-115-SC	19	1.15	15	0.15-0.08		B		
2	120-277	PS	Centium	ICN-2S28	34	1.06	10	0.29-0.13	0/-18	D	74	
				ICN-2S28-N	33	1.04	10	0.27-0.12		N		
				ICN-3S14-D	36	1.10	10	0.31-0.13		D		172
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11		B	74	
				IOP-2S28-115-SC	37	1.15	10	0.30-0.14				
3	120-277	PS	Centium	ICN-3S14-D	50	1.00	10	0.42-0.18	0/-18	D	171	
F21T5 (21W)												
1	120-277	PS	Centium	ICN-2S28	26	1.03	15	0.21-0.10	0/-18	D	73	
				ICN-2S28-N	25	1.06	10	0.22-0.10	0/-18	N	73	
			Optanium	IOP-2S28-95-SC	23	0.95	15	0.19-0.08	0/-18	B	73	
				IOP-2S28-115-SC	27	1.15	15	0.22-0.10				
2	120-277	PS	Centium	ICN-2S28	48	1.02	10	0.40-0.17	0/-18	D	74	
				ICN-2S28-N	47-46	1.00	10	0.39-0.17	0/-18	N	74	
			Optanium	IOP-2S28-95-SC	44	0.95	10	0.37-0.16	0/-18	B	74	
				IOP-2S28-115-SC	52	1.15	10	0.44-0.19				
F28T5 (25W)												
1	120-277	PS	Centium	ICN-2S28	30	1.05	10	0.25-0.11	0/-18	D	73	
				ICN-2S28-N						N		
			Optanium	IOP-2S28-95-SC	27	0.95	10	0.22-0.10		0/-18	B	74
				IOP-2S28-115-SC	33	1.15	10	0.27-0.12				
2	120-277	PS	Centium	ICN-2S28	58-57	1.00	10	0.49-0.21	0/-18	D	74	
				ICN-2S28-N						N		
			Optanium	IOP-2S28-95-SC	54	0.95	10	0.45-0.20		0/-18	B	74
				IOP-2S28-115-SC	64-63	1.15	10	0.54-0.23				
F28T5 (28W)												
1	120-277	PS	Centium	ICN-2S28	33	1.04	10	0.28-0.12	0/-18	D	73	
				ICN-2S28-N	31	1.05	10	0.29-0.12		N		
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11		0/-18	B	73
				IOP-2S28-115-SC	36	1.15	10	0.30-0.13				
2	120-277	PS	Centium	ICN-2S28	64-63	1.03	10	0.55-0.23	0/-18	D	74	
				ICN-2S28-N	64-62	1.03	10	0.53-0.23		N		
			Optanium	IOP-2S28-95-SC	59-58	0.95	15	0.55-0.22		0/-18	B	74
				IOP-2S28-115-SC	71-69	1.15	10	0.60-0.26				
F35T5 (35W)												
1	120-277	PS	Centium	ICN-2S28	41	1.01	10	0.34-0.15	0/-18	D	73	
				ICN-2S28-N	40	1.01	10	0.34-0.15		N		
			Optanium	IOP-2S28-95-SC	37	0.95	10	0.31-0.14		0/-18	B	74
				IOP-2S28-115-SC	44	1.15	10	0.37-0.17				
2	120-277	PS	Centium	ICN-2S28	80-77	1.00	10	0.67-0.28	0/-18	D	74	

Refer to page 1-35 to 1-37 for dimensions and wiring diagrams
 Refer to pages 9-23 to 9-27 for lead lengths and shipping data



28W/835 Min Bipin T5 HE ALTO UNP

Product family description

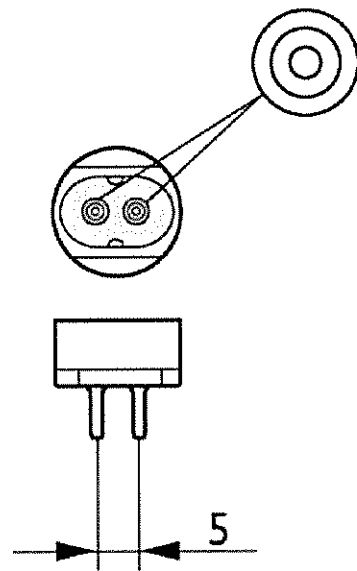
Product data	
Product Number	230854
Full product name	28W/835 Min Bipin T5 HE ALTO UNP
Ordering Code	F28T5/835/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677230852
EAN2US	
Case Bar Code	50046677230857
Successor Product number	
System Description	High Efficiency
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16mm]
Packing Type	UNP [Unpacked]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	na
Feature	na [Not Applicable]
Ordering Code	F28T5/835/ALTO
Pack UPC	046677230852
Case Bar Code	50046677230857
Watts	28W
Dimmable	Yes
Color Code	835 [CCT of 3500K]
Color Rendering Index	85 Ra8
Color Designation	White

PHILIPS

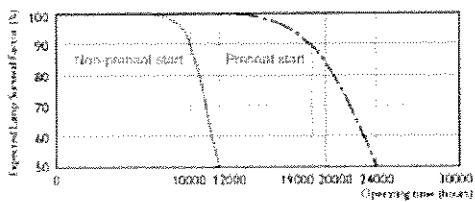
Product data	
Color Description	835 White
Color Temperature	3500 K
Initial Lumens	- Lm
Overall Length C	1163.2 mm
Diameter D	17 mm
Special packing	ALTO
Product Number	230854



TL5 HE

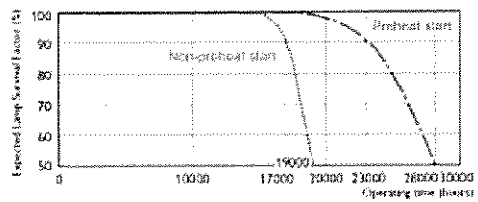


Base Miniature Bipin



Life Expectancy 3h cycle

TL5 HE



Life Expectancy 12h cycle

TL5 HE

PHILIPS



FEATURES & SPECIFICATIONS

INTENDED USE

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

ATTRIBUTES

Fixture can be assembled with snap together components and requires no tools. 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 SYSTEM

MVOLT ballasts are NEMA Premium®/CEE qualified ballasts. Full light output - reduced energy. Less than 10% THD. Multi-volt operation, 120-277V. 120V ballasts are thermally protected, resetting, Class P, LPF, non-PCB, UL Listed, CSA Certified. Rapid-start ballasts are sound rated A.

INSTALLATION

For unit or row installations, surface or suspended mounting.

LISTING

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

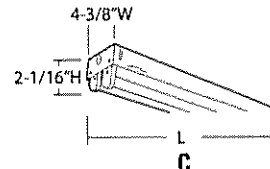
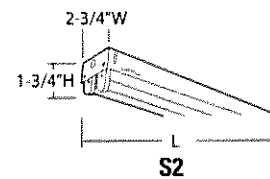
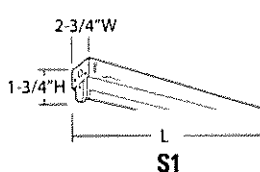
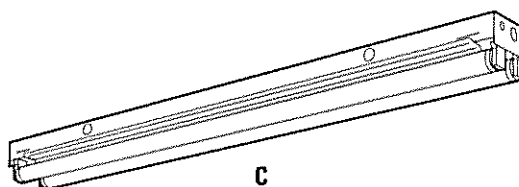
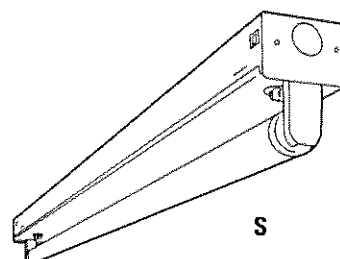
WARRANTY

Fixtures, including ballasts, are covered by Lithonia Lighting 24-month warranty against mechanical defects in manufacture.

Specifications subject to change without notice.

Catalog Number	
Notes	Type

Strip Lights



ORDERING INFORMATION

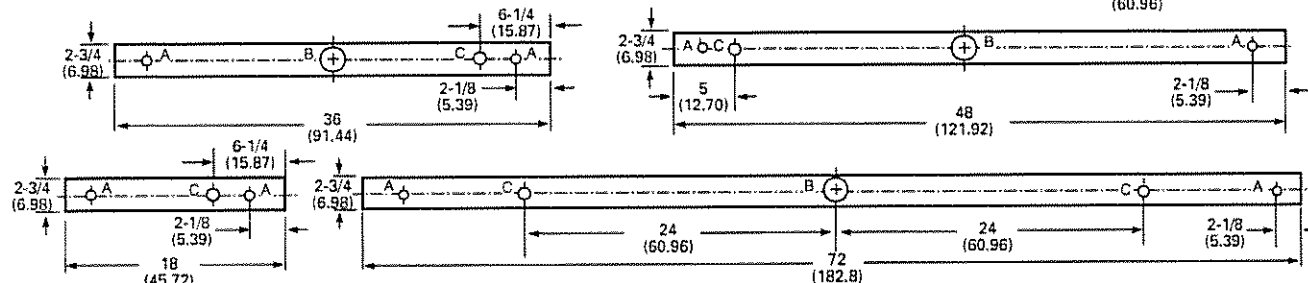
Catalog Number	UPC	Description	# of Lamps	Length	Wattage	Voltage	Ballast Type	ENERGY STAR® Qualified	Lamp Included	Pallet Qty.	Standard Carton Qty.
C232 MV	745975079711	T8 general-purpose strip	2	48"	32	120-277	NEMA Premium, instant start	N	N	99	1
TC232 MV	745975080809	T8 general-purpose strip	4	96"	32	120-277	NEMA Premium, instant start	N	N	99	1
C225 MV	745975081219	T8 general-purpose strip	2	36"	25	120-277	NEMA Premium, instant start	N	N	99	1
C217 MV	745975081493	T8 general-purpose strip	2	24"	17	120-277	NEMA Premium, instant start	N	N	198	1
C296	745973789766	T12 general-purpose strip	2	96"	75	120	Electronic, rapid start	N	N	99	1
S232 MV	745975276318	T8 narrow strip	2	48"	32	120-277	NEMA Premium, instant start	N	N	144	1
YS232 MV	745975276325	T8 narrow strip	4	96"	32	120-277	NEMA Premium, instant start	N	N	144	1
S225 MV	745975276295	T8 narrow strip	2	36"	25	120-277	NEMA Premium, instant start	N	N	168	1
S217 MV	745975276271	T8 narrow strip	2	24"	17	120-277	NEMA Premium, instant start	N	N	288	1
S132 MV	745975080755	T8 narrow strip	1	48"	32	120-277	NEMA Premium, instant start	N	N	144	1
TS132 MV	745975081158	T8 narrow strip	2	96"	32	120-277	NEMA Premium, instant start	N	N	144	1
S125 MV	745975081677	T8 narrow strip	1	36"	25	120-277	NEMA Premium, instant start	N	N	168	1
S117 MV	745975081516	T8 narrow strip	1	24"	17	120-277	NEMA Premium, instant start	N	N	288	1
S115	745973962992	T12 narrow strip	1	18"	15	120	Electronic, rapid start	N	N	288	1
S120	745973790212	T12 narrow strip	1	24"	20	120	Electronic, rapid start	N	N	288	1
S130	745973962985	T12 narrow strip	1	36"	30	120	Electronic, rapid start	N	N	168	1
S140	745973790250	T12 narrow strip	1	48"	40	120	Electronic, rapid start	N	N	144	1

Strip Lights

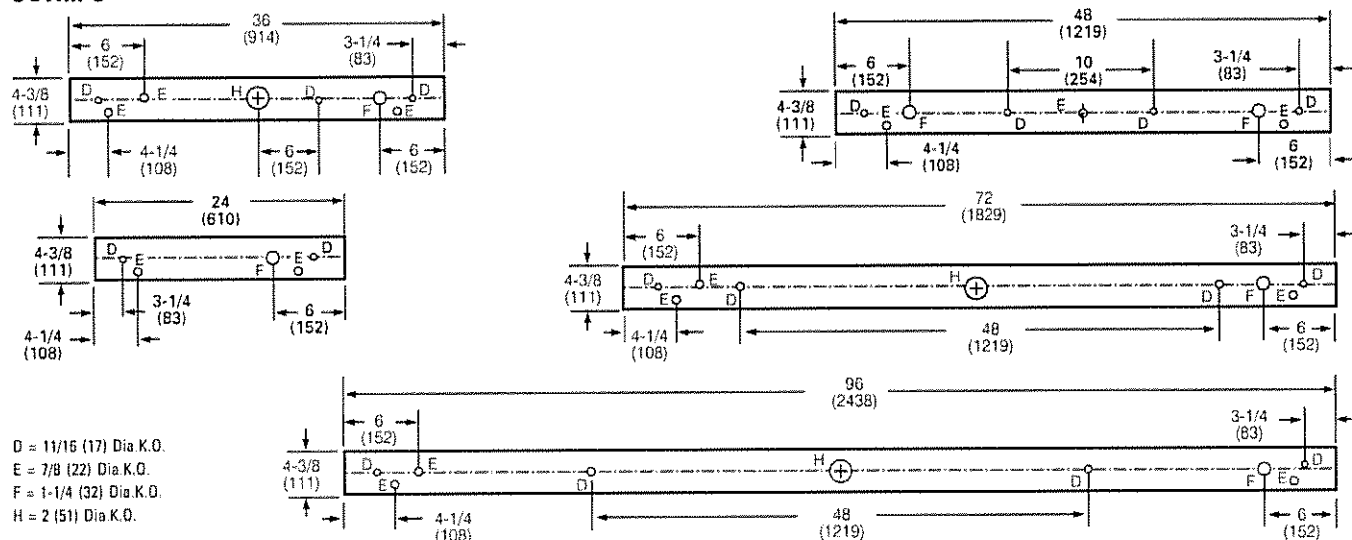
DIMENSIONS

Inches (millimeters). Subject to change without notice.
48", 72" and 96" have only two 7/8" K.O.'s from each end
24" and 36" have only two 7/8" K.O.'s 3-1/4" from each end

SSTRIPS



CSTRIPS



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.

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.

S132 MV

Report LTL 5725

S/MH (along) 1.2 (across) 1.6

Coefficient of Utilization

Ceiling	80%				70%				50%			
	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%
1	97	91	86	82	87	82	79	75	72			
2	87	77	70	67	74	67	67	61	56			
3	78	67	58	54	64	56	58	52	46			
4	71	59	50	47	56	48	51	44	38			
5	65	51	42	41	49	41	45	37	32			
10	43	30	22	21	28	21	26	20	15			

Zonal Lumens Summary

Zone	Lumens	% Lamp	% Fixture
0-30	388	13.4	13.9
0-40	660	22.8	23.7
0-60	1307	45.1	46.9
0-90	2176	75.0	78.1
90-180	609	21.0	21.9
0-180	2786	96.1	100.0

C232 MV

TEST NO: LTL 5181
LUMENS PER LAMP: 2900

pf	pc	Coefficients of Utilization											
		20%				50%				80%			
		50%	30%	10%	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				

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0° - 30°	842.1	14.5	15.6
0° - 40°	1435.8	24.8	26.7
0° - 60°	2810.1	48.4	52.2
0° - 90°	4362.5	75.2	81.0
90° - 180°	1021.0	17.6	19.0
0° - 180°	5383.6	92.8	100.0

C296

TEST NO: LTL 18310
LUMENS PER LAMP: 6300

pf	pc	Coefficients of Utilization											
		20%				50%				80%			
		50%	30%	10%	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°	1785.8	14.2	15.7
0° - 40°	3042.4	24.1	26.8
0° - 60°	5944.0	47.2	52.3
0° - 90°	9027.5	71.6	79.4
90° - 180°	2341.8	18.6	20.6
0° - 180°	11369.4	90.2	100.0



An Acuity Brands Company

Sheet #: Strip-Lights

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Lithonia Lighting

Fluorescent

One Lithonia Way, Conyers, GA 30012

Phone: 770-922-9000, 800-315-4963, Fax: 770-602-1531

www.lithonia.com



For 28W-48" Lamps

HIGH POWER FACTOR SOUND RATED A



No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (*F/*C)	Dim.	Wiring Dia.		
F32T8/ES (28W - 48")													
2	120-277	IS	Optanium	IOP-2P32-LW-SC	42	0.77	10	0.35-0.15	60/16	B	64		
				IOPA-2P32-LW-N						N			
				IOP-2P32-SC	48-47	0.87	10	0.41-0.18		B		*65	
				IOPA-2P32-N						N			
				IOP-2P32-HL-SC	65-64	1.19	10	0.55-0.24		B			
				IOPA-2P32HL-N						N			
				IOP-3P32-LW-SC	47	0.86	10	0.40-0.18		B			
				IOPA-3P32LW-N						N			
				IOP-3P32-SC	55-54	1.00	10	0.46-0.20		B			
				IOPA-3P32-N						N			
				IOP-3P32-HL-90C-SC	74-73	1.31	10-15	0.62-0.27		B			
				IOPA-3P32-HL-N						N			
		PS		IOP-2PSP32-LW-SC	39	0.71	10	0.33-0.14	0/-18	B	77		
				IOP-2PSP32-SC	51-49	0.88	10	0.42-0.18					
				IOP-2PSP32-HL-SC	66-64	1.18	10	0.55-0.24					
	IOP-2532-LW-SC			41-40	0.71	10	0.34-0.15	60/16	21				
	IOP-2532-SC			49-48	0.88	10	0.41-0.18						
	347			IS	Optanium	GOP-2PSP32-SC	50	0.88	10	0.10	0/-18	B	77
			GOP-2PSP32-LW-SC			TBD	0.71	TBD					
			GOPA-2P32-LW-SC			42	0.78	0.12		60/16	64		
			GOPA-2P32-SC			47	0.88	0.14					
			GOPA-3P32-LW-SC			46	0.77	0.13					
			GOPA-3P32-SC			52	1.00	0.16					*65
			347/480			PS	HOP-2PSP32-HL-SC	TBD		1.18	TBD		0/-18

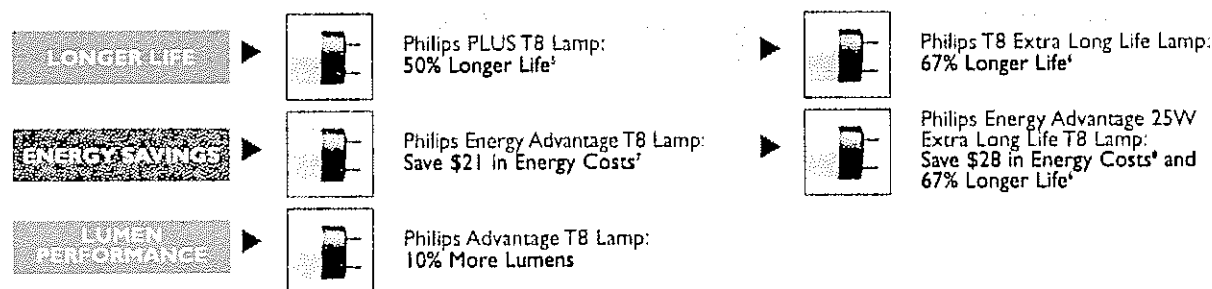
Refer to page I-38 and I-39 for dimensions

Refer to page I-40 and I-41 for wiring diagrams

Refer to pages 9-23 to 9-27 for lead lengths and shipping data

Product Number	Ordering Code	Watts	Pack. Qty.	Color Temp. (Kelvin)	Nom. Length (In.)	Rated Average Life (Hrs.) ¹⁾		Approx. Initial Lumens ²⁾	Design Lumens ³⁾	CRI	Lumen Maint.
						12-hr on Ins. Start	12-hr on Prog. Start				
Philips Energy Advantage T8 Lamps featuring ALTO II [®] Technology											
13781-0	F32T8/ADV830/XEW/ALTO	25	25	3000	48	30,000	36,000	2500	2425	85	97%
13782-8	F32T8/ADV835/XEW/ALTO	25	25	3500	48	30,000	36,000	2500	2425	85	97%
13783-6	F32T8/ADV841/XEW/ALTO	25	25	4100	48	30,000	36,000	2500	2425	85	97%
13784-4	F32T8/ADV850/XEW/ALTO	25	25	5000	48	30,000	36,000	2400	2330	85	97%
14732-2	F32T8/ADV830/EW/ALTO	28	25	3000	48	30,000	36,000	2725	2645	85	97%
14733-0	F32T8/ADV835/EW/ALTO	28	25	3500	48	30,000	36,000	2725	2645	85	97%
14734-8	F32T8/ADV841/EW/ALTO	28	25	4100	48	30,000	36,000	2725	2645	85	97%
14735-5	F32T8/ADV850/EW/ALTO	28	25	5000	48	30,000	36,000	2675	2595	85	97%
14771-0	F32T8/ADV830/EW/ALTO	30	25	3000	48	30,000	36,000	2850	2765	85	97%
14772-8	F32T8/ADV835/EW/ALTO	30	25	3500	48	30,000	36,000	2850	2765	85	97%
14773-6	F32T8/ADV841/EW/ALTO	30	25	4100	48	30,000	36,000	2850	2765	85	97%
14774-4	F32T8/ADV850/EW/ALTO	30	25	5000	48	30,000	36,000	2800	2715	85	97%
Philips T8 PLW Extra Long Life Lamps featuring ALTO II [®] Technology											
15202-5	F32T8/TL830/XLL/ALTO	32	25	3000	48	40,000	46,000	2950	2800	85	95%
15203-3	F32T8/TL835/XLL/ALTO	32	25	3500	48	40,000	46,000	2950	2800	85	95%
15204-1	F32T8/TL841/XLL/ALTO	32	25	4100	48	40,000	46,000	2950	2800	85	95%
15205-8	F32T8/TL850/XLL/ALTO	32	25	5000	48	40,000	46,000	2850	2700	85	95%
Philips Energy Advantage T8 25W Extra Long Life Lamps featuring ALTO II [®] Technology											
15206-6	F32T8/ADV830/XLL/ALTO	25	25	3000	48	40,000	46,000	2400	2330	85	97%
15207-4	F32T8/ADV835/XLL/ALTO	25	25	3500	48	40,000	46,000	2400	2330	85	97%
15208-2	F32T8/ADV841/XLL/ALTO	25	25	4100	48	40,000	46,000	2400	2330	85	97%
15209-0	F32T8/ADV850/XLL/ALTO	25	25	5000	48	40,000	46,000	2350	2280	85	97%

Upgrade from a Standard 4' 32W T8⁴⁾ for:



- 1) Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 12 operating hours.
- 2) Approximate initial lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life when the output is measured during operation on a reference ballast under standard laboratory conditions. For expected lamp lumen output, commercial ballast manufacturers can advise the appropriate ballast factor for each of these ballasts when they are informed of the designated lamp. The ballast factor is a multiplier applied to the designated lamp lumen output.
- 3) Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. Design lumens rated at 2 hours per start on Instant Start ballast.
- 4) Industry standard 4' T8 32W lamp with 24,000 hour rated average life (12 hours per start on Instant start ballast), with 2800 lumens and 75 CRI.
- 5) 36,000 rated average life compared to industry standard 24,000 rated average life.
- 6) 40,000 rated average life compared to industry standard 24,000 rated average life.
- 7) Based on wattage savings (7w) x rated average life (30,000 hours) x kWh rate (.10).
- 8) Based on wattage savings (7w) x rated average life (40,000 hours) x kWh rate (.10).



FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for applications requiring attractive, quick installation exit signs and low energy consumption.

CONSTRUCTION — Engineering-grade thermoplastic housing is impact-resistant, scratch-resistant and corrosion-proof. UL94V-0 flame rating. UV-stable resin resists discoloration from natural and man-made light sources.

Rugged unibody housing snaps together with no additional mechanical fasteners. Faceplate and back cover are interchangeable on housing. Positive snap-fit tabs hold faceplate securely, yet are easily removed for lamp compartment access.

Universal directional chevron inserts are easily removed and reinserted. Uniform illumination without shadows or hot spots. Reinforced, impact-resistant color panels. Letters 6" high with 3/4" stroke, with 100 ft. viewing distance rating, based upon UL924 standards.

U.S. Patent No. 5,526,251; 5,611,163; 5,954,423; 5,988,825; 6,152,581; 6,502,044; D383,501 and D495,751. Other patents pending.

OPTICS — LEDs mounted on printed circuit boards. The typical life of the exit LED lamp is 10 years. Low energy consumption — less than one watt.

INSTALLATION — Universal (top, end or back) mounting. Easily removed mounting knockouts. J-box pattern on back panel. Housing snaps to canopy with four positive-locking tabs. Cam-locking pin tightly secures housing to canopy.

LISTINGS — UL damp location listed 50°-104°F (10°-40°C) standard. NOM Certified (see Options). Meets UL924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards. NEMA Premium certified.

WARRANTY — Five-year limited warranty, including the LED lamps.

Complete warranty terms located at:

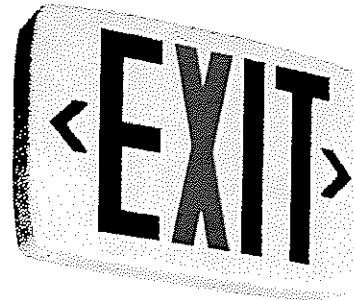
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

All life safety equipment, including emergency lighting for path of egress must be maintained, serviced, and tested in accordance with all National Fire Protection Association (NFPA) and local codes. Failure to perform the required maintenance, service, or testing could jeopardize the safety of occupants and void all warranties.

Note: Specifications subject to change without notice.

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

Catalog Number
Notes
Type



QUANTUM[®]

Thermoplastic Exits

LQM

LED LAMPS



NEMA
Premium

Specifications

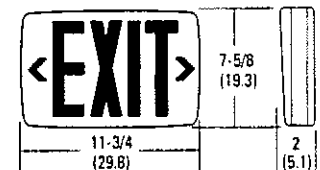
Length: 11-3/4 (29.8)

Depth: 2 (5.1)

Height: 7-5/8 (19.3)

Weight: 2.6 lbs (1.2 kgs)

All dimensions are inches (centimeters)
unless otherwise specified.



ORDERING INFORMATION

For shortest lead times, configure product using **standard options (shown in bold)**.

Example: LQM SW 3 R 120/277

LQM			3		120/277	
Family	Face type	Housing color	Number of faces	Letter color	Input voltage	Options
LQM	S Stencil P Panel ¹	(blank) Black W White	3 Single face with extra faceplate and color	R Red G Green	120/277 Dual voltage	(blank) None X2 Primary and secondary AC inputs provided NOM NOM certified for Mexico ²

Accessories: Order as separate item.³

ELA WG1	Back-mount wireguard
ELA WGEXT	Top-mount wireguard
ELA WGEXE	End-mount wireguard
ELA LQMUS12	12" Stem Kit ⁴

Notes

- 1 Only available in custom signage. See spec sheet, Custom Signage.
- 2 Available with Stencil or Panel faces in white housing and red letters only.
- 3 See spec sheet ELA WG.
- 4 See spec sheet ELA Stemkits.

SPECIFICATIONS

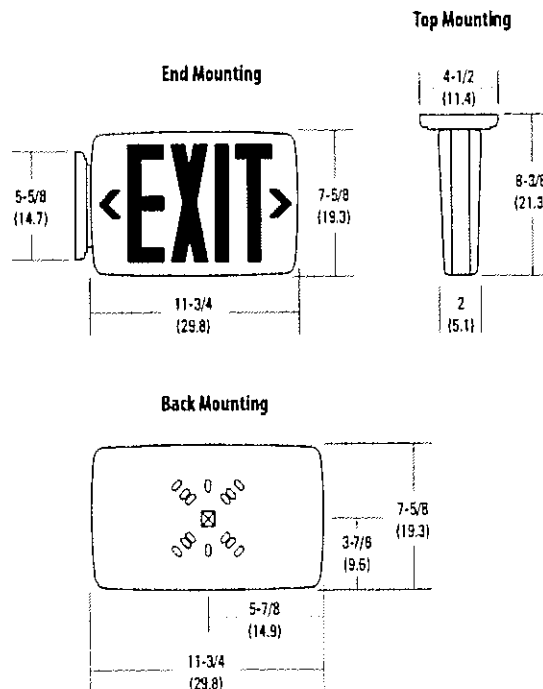
ELECTRICAL				
Primary Circuit				
Type	Typical LED life ¹	Supply voltage	Input watts	Max. amps
Red LED	10 years	120	.62	.05
		277	.69	.06
		347	.77	.05
Green LED	10 years	120	.62	.05
		277	.74	.06

Notes

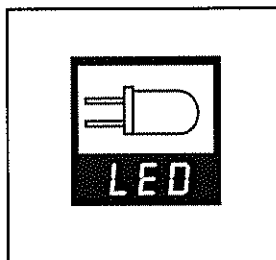
1 Based on continuous operation. The typical life of the exit LED lamp is 10 years.

MOUNTING

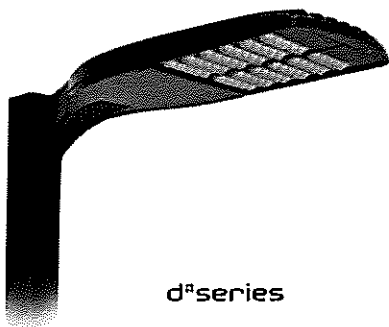
All dimensions are inches (centimeters) unless otherwise specified.
Shipping weight: 2.6 lbs. (1.2 kgs.)



KEY FEATURES



The typical life of the exit LED lamp is 10 years.



D-Series Size 1 LED Area Luminaire



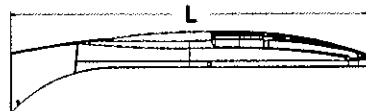
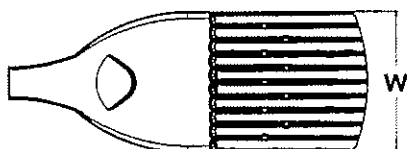
DESIGNLIGHTS
CONSORTIUM



d^aseries

Specifications

EPA:	0.8 ft ² (0.07 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)



Catalog
Number

Notes

Type

For more information on Designlights Consortium, visit www.designlightsconsortium.com

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.

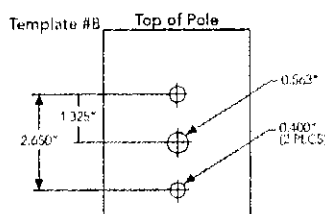
Ordering Information

EXAMPLE: DSX1 LED 2 30B700/40K SR3 MVOLT SPA DDBXD

DSX1 LED

Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options	Finish	
DSX1 LED	1 One engine (30 LEDs)	530 mA options: 30B530/30K 3000K 30B530/40K 4000K 30B530/50K 5000K	SR2 Type II	MVOLT ²	Shipped Included	Shipped installed	DDBXD Dark bronze	
			SR3 Type III	120 ²			SPA Square pole mounting	PER NEMA twist-lock receptacle only (no controls)
	2 Two engines (60 LEDs)	700 mA options: 30B700/30K 3000K 30B700/40K 4000K 30B700/50K 5000K	SR4 Type IV	208 ²	RPA Round pole mounting	DMG 0-10V dimming driver (no controls) ⁶ DCR Dimmable and controllable via ROAM™ (no controls) ⁷ HS House-side shield ⁸ SF Single fuse (120, 277, 347V) ⁹ DF Double fuse (208, 240, 480V) ⁹ WTB Utility terminal block TLS Tool-less entry trigger latch DS Dual switching ¹⁰ PIR Motion sensor, <15' mounting height ¹¹ PIRH Motion sensor, 15-30' mounting height ¹¹	DNAXD Natural aluminum	
			SR5 Type V	240 ²			WBA Wall bracket	DWHXD White
			FT Forward throw	277 ²				DDBTXD Textured dark bronze
				347 ¹				DBLBXD Textured black
			480 ¹		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.

DM1BAS	Single unit	DM2BAS	2 at 90°
DM2BAS	2 at 180°	DM3BAS	3 at 90°
DM4BAS	4 at 90°	DM32AS	3 at 120°*

Example: SSA 20 4C DM1BAS DDBXD

Visit LithoniaLighting.com to see our wide selection of poles, accessories and educational tools.

Tenon Mounting Slipfitter*

	2 3/8"	AS120-190	AS120-280	AS120-290	AS120-320	AS120-390	AS120-490
2-7/8"	AS125-190	AS125-280	AS125-290	AS125-320	AS125-390	AS125-490	
4"	AS135-190	AS135-280	AS135-290	AS135-320	AS135-390	AS135-490	

* For round pole mounting (RPA) only.

NOTES

- 1 Configured with 4000K (/40K) provides the shortest lead times. Consult factory for 3000K (/30K) and 5000K (/50K) lead times.
- 2 MVOLT driver operates on any line voltage from 120-277V (50/60Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
- 3 Not available with single board, 530 mA product (1 30B530).
- 4 Not available with 347 or 480V.
- 5 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@roamservices.net.
- 6 Also available as a separate accessory; see Accessories information at left.
- 7 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- 8 Provides 50% dimming capability via two independent drivers, each operating half the luminaire. N/A with PER, DCR, DMG or WTB.
- 9 Requires an additional switched line.
- 10 Dimming driver standard, 120 or 277V only. Not available with DCR or WTB.
- 11 Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Accessories

Ordered and shipped separately.

DSX124N 1 S 10E U	PhotoCell - SSL twist-lock (120-277V) ¹¹
REN277-NIM1 U	ROAM [®] node (277V) ¹¹
SC U	Shorting cap ¹¹
DSX1HS U	House-side shield (one per light engine)
SPA19/MR2 DDBXD U	Square pole DM19 to DM19AS adapter (specify finish)
RPA19/MR2 DDBXD U	Round pole DM19 to DM19AS adapter (specify finish)

For more control options, visit LithoniaLighting.com and www.dseriesonline.com.



One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com
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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 performance may differ as a result of end-user environment and application. Contact factory for performance data on any configurations not shown here.

Light Engines	Drive Current (mA)	Performance Package	System Watts	LED Type	400K (4000K, 67 CRI)					500K (5000K, 67 CRI)				
					Lumens	lm	ft	lm	lm	Lumens	lm	ft	lm	lm
1 (30 LEDs)	530	30B530/-K	55W	SR2	4634	1	0	1	84	5056	1	0	1	92
				SR3	4695	1	0	2	85	5123	1	0	2	93
				SR3 HS	3425	0	0	1	61	3737	0	0	1	68
				SR4	4694	1	0	2	85	5122	1	0	2	93
				SR4 HS	3459	0	0	1	62	3774	0	0	1	69
				SR5	4696	3	0	1	85	5124	3	0	1	93
				FT	4694	1	0	1	85	5122	1	0	1	93
	700	30B700/-K	73W	SR2	5679	1	0	1	77	6223	2	0	2	85
				SR3	5835	1	0	2	79	6394	2	0	2	88
				SR3 HS	4239	0	0	2	58	4645	0	0	2	64
				SR4	5798	1	0	2	79	6354	1	0	2	87
				SR4 HS	4294	0	0	2	58	4706	0	0	2	64
				SR5	5769	3	0	1	79	6322	3	0	1	87
2 (50 LEDs)	530	30B530/-K	106W	SR2	9109	2	0	2	86	9929	2	0	2	93
				SR3	9257	2	0	2	87	10,010	2	0	3	94
				SR3 HS	6717	0	0	2	64	7302	0	0	2	69
				SR4	9204	2	0	2	87	10,010	2	0	2	94
				SR4 HS	6800	0	0	2	64	7446	0	0	2	70
				SR5	9223	4	0	2	87	10,198	4	0	2	96
	700	30B700/-K	143W	FT	9183	2	0	2	87	10,020	2	0	2	95
				SR2	11,170	2	0	2	78	12,312	3	0	3	86
				SR3	11,391	2	0	3	80	12,462	2	0	3	87
				SR3 HS	8285	0	0	2	58	9047	0	0	2	63
				SR4	11,332	2	0	2	79	12,358	2	0	3	86
				SR4 HS	8318	0	0	2	58	9149	0	0	2	64
	700	30B700/-K	143W	SR5	11,723	4	0	2	82	12,435	4	0	2	87
				FT	11,662	2	0	3	82	12,531	2	0	3	87

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°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	0.99
50°C	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSX1 LED 2 30B700 platform in a 40°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 LM, 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

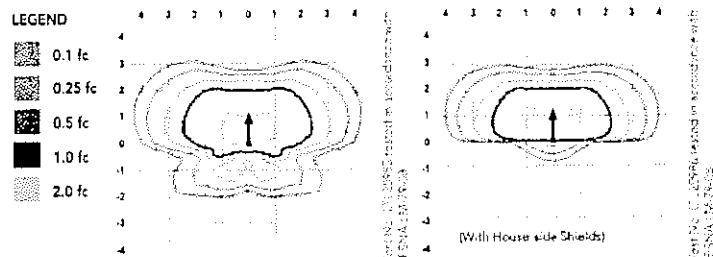
Electrical Load

Light Engines	Drive Current (mA)	System Watts	Current (A)					
			120	208	240	277	347	480
1	530	55W	0.46	0.26	0.23	0.20	0.16	0.11
	700	73W	0.61	0.35	0.30	0.26	0.21	0.15
2	530	106W	0.89	0.51	0.44	0.38	0.31	0.22
	700	143W	1.19	0.69	0.60	0.52	0.41	0.30

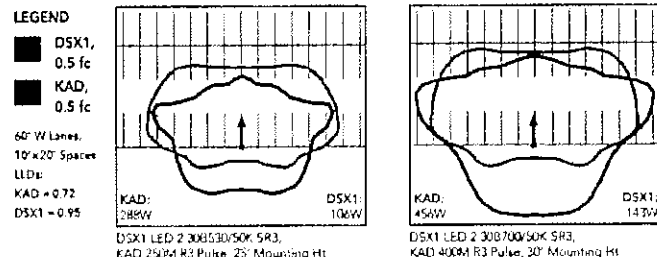
Photometric Diagrams

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 2 30B700/50K SR3. Distances are in units of mounting height (20').



Distribution overlay comparisons to 250W and 400W metal halide.



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 (0.8 ft³) 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 (67 CRI) or optional 3000K (60 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(s) consist of 30 high-efficiency LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L87). Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable 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 photocoupler receptacle are also available.

LISTINGS

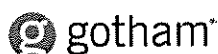
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. and international patents pending.

WARRANTY

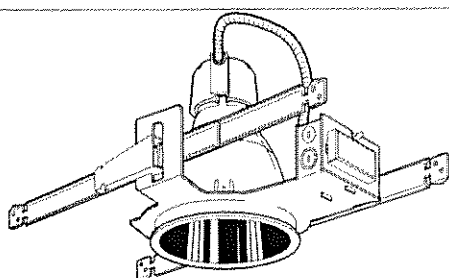
Five year limited warranty. Full warranty terms located at www.lithonia.com or www.lithonia.com.

Notes: Specifications subject to change without notice.





Luminaire Type:
Catalog Number
(autopopulated):



Gotham Architectural Downlighting
Compact Fluorescent Downlights

6" AFV Open Reflector

Vertical Lamp
Double Twin-Tube or Triple-Tube

FEATURES

OPTICAL SYSTEM

- Self-flanged, semi-specular or matte-diffuse reflector. Patented Vertisys® - Bounding Ray™ Optical Principle design (US Patent No. 5,800,050).

MECHANICAL SYSTEM

- 16-gauge galvanized steel construction; maximum 1-5/8" ceiling thickness.
- Telescopic mounting bars maximum of 32" and minimum of 15", preinstalled, 4" vertical adjustment.
- Toolless post-installation adjustments.
- Junction box capacity: 8 (4 in, 4 out) 12AWG rated for 90°C.

ELECTRICAL SYSTEM

- Rugged aluminum lampholder housing.
- Vertically mounted, positive-latch, thermoplastic socket.
- Class P, thermally protected, high-power-factor electronic ballast mounted to the junction box.
- SIMPLY5™ technology available.

LISTING

- Fixtures are UL Listed for thru-branch wiring, non-IC recessed mounting and damp locations. Listed and labeled to comply with Canadian standards.

WARRANTY

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

ORDERING INFORMATION

EXAMPLE: AFV 32TRT 6AR MVOLT WLP

Series	Wattage/Lamp	Aperture/Trim color	Finish	Lens type	Voltage	Ballast ³
AFV	13DTT	6AR Clear	(blank) Semi-specular	(blank) No lens	MVOLT ²	(blank) Electronic ballast
	18DTT	6PR Pewter	LD Matte-diffuse	CGL Clear glass lens	120	ECOS ^{2,4} Lutron® EcoSystem® electronic dimming ballast. Minimum dimming level 5%.
	26DTT	6WTR Wheat		CAL Clear acrylic lens	277	ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
	13TRT	6WR ¹ White painted		PCL Clear polycarbonate lens	347	ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
	18TRT	6MB ¹ Black baffle		T73 Tempered prismatic lens		ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
	26TRT	6WB ¹ White baffle				ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
	32TRT					ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
	42TRT					ADZ ^{4,5} Advance Mark 10® electronic dimming ballast. Minimum dimming level 5%.
						S5 ⁵ SIMPLY5™ system ballast. Minimum dimming level 3%.

Options

EL ^{3,7}	Emergency battery pack with integral test switch	GLR ⁸	Single, fast-blow fuse	HW	Hardwire for S5 system; replaces RELOC®
ELR ^{3,7}	Emergency battery pack with remote test switch	TRW	White painted flange (standard on MB and WB)	CP ¹⁰	Chicago plenum
ELHL ^{3,7}	High-lumen-output emergency battery pack with integral test switch	TRBL	Black painted flange	BDP ^{10,11}	Ballast disconnect plug
ELRHL ^{3,7}	High-lumen-output emergency battery pack with remote test switch	GSKT	Foam gasketing	NSD ¹²	Sensor Switch® nLight® dimming relay
GMF ⁸	Single, slow-blow fuse	WLP	With 3500 K lamp (shipped separately)	WL	Wet location; lens required
		LRC ⁹	Provides compatibility with Lithonia RELOC® System. Access above ceiling required.	WRL ¹³	Wattage restriction label
				TWS	Twist lock socket

ACCESSORIES order as separate catalog numbers (shipped separately)

SCA6	Sloped ceiling adapter. Degree of slope must be specified (10D, 15D, 20D, 25D, 30D). Ex: SCA6 10D.
CTA4-8 YK	Ceiling thickness adapter. (Extends mounting frame to accommodate ceiling thickness up to 4-1/4" DTT and 3-1/4" TRT)



6" AFV

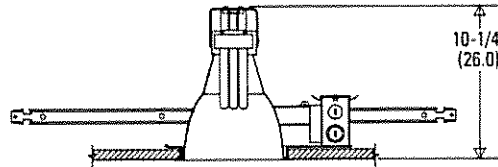
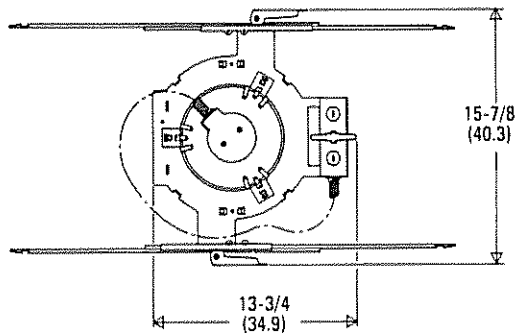
Open Reflector

Vertical Lamp, Double Twin-Tube or Triple-Tube



DIMENSIONAL DATA

All dimensions are inches (centimeters) unless otherwise noted.



Aperture: 6-1/4 (15.9)
Ceiling opening: 7-1/8 (18.1)
Overlap trim: 7-1/2 (19.1)
Lens recess: 1-1/2 (3.8)

DIMENSIONAL NOTES

- Maximum height depends on lamp wattage/type, dimensions range from 10-3/4" for 18DTT, 26DTT and 42 TRT; 9-3/8" for 13DTT, 18TRT, 26TRT and 32TRT

ELECTRICAL

ENERGY (Calculated in accordance with NEMA standard LE-5A)

LER.DOH	Annual* Energy Cost	Lamps	Lamp Lumens	Ballast Factor	Input Watts
32	\$7.44	(1) 26W DTT	1800	1.0	20
39	\$6.12	(1) 26W TRT	1800	1.0	28
38	\$6.34	(1) 32W TRT	2400	0.98	36

*Comparative yearly lighting energy cost per 1000 lumens

NOTES

ORDERING NOTES

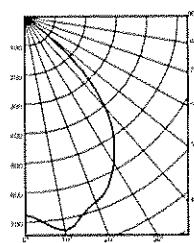
- Not available with finishes.
- Multi-volt electronic ballast capable of operating on any voltage from 120V through 277V, 50 or 60 Hz.
- For additional ballast types, refer to [TECH-250](#).
- Not available with 13W.
- Available in 120V or 277V only.
- SIMPLY5 includes 9' S5 MLC RELOC wiring system (shipped separately). Available in 120V or 277V only. Not available in 13W or 18W. See [simply5.net](#) for more information.
- For dimensional changes, refer to [TECH-140](#).
- Not available with MVOLT; must specify voltage
- For compatible RELOC systems, refer to [TECH-110](#).
- Not available with EL or ELR option.
- Meets codes that require in-fixture disconnect.
- One 5A relay with one 0-10 VDC dimming output, shipped installed. Requires additional nLight bus power supply (nPS80).
- Must specify wattage: Ex.: WRL32



Distribution Curve Distribution Data Output Data Coefficient of Utilization Illuminance: Single Luminaire 30" Above Floor

AFV 26TRT 6AR

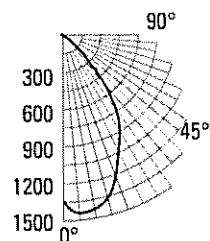
(1) PL-T 26W/30/4P LAMP, 1800 RATED LUMENS, 1.2 S/MH, TEST NO. 94021501



From 0°	Ave	Lumens	Zone	Lumens	%lamp	pt pc pw	80% 50% 30%	20% 70% 30%	50% 30% 10%	Mount height	Initial fc at beam center	50% beam angle 63.7° Beam diameter	fc at beam edge	10% beam angle 93.3° Beam diameter	fc at beam edge
0°	676		0°-30°	559.4	31.1	1	66 65	65 63	62 61						
5°	706	69	0°-40°	871.9	48.4	2	61 58	60 57	58 56						
15°	704	199	0°-60°	1085.5	60.3	3	56 53	55 52	53 51						
25°	639	292	0°-90°	1085.7	60.3	4	51 48	51 47	49 46						
35°	505	312	90°-180°	0	0.0	5	47 43	47 43	46 42						
45°	269	198	0°-180°	1085.7	60.3*	6	44 40	43 39	42 39						
55°	4	16				7	41 36	40 36	39 36						
65°	0	0				8	38 34	37 33	37 33						
75°	0	0				9	35 31	35 31	34 31						
85°	0	0				10	33 29	32 29	32 28						
90°	0	0													

AFV 32TRT 6AR

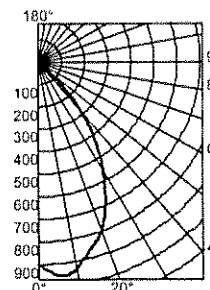
(1) PL-T 32W/30/4P LAMP, 2400 RATED LUMENS, 1.1 S/MH, TEST NO. 17111



From 0°	Ave	Lumens	Zone	Lumens	%lamp	pt pc pw	80% 50% 30%	20% 70% 30%	50% 30% 10%	Mount height	Initial fc at beam center	50% beam angle 54.6° Beam diameter	fc at beam edge	10% beam angle 89.4° Beam diameter	fc at beam edge
0°	1146		0°-30°	787.2	54.7	1	66 64	65 63	62 61						
5°	1150	108	0°-40°	1177.5	49.1	2	61 58	60 57	58 56						
15°	1012	285	0°-60°	1430.1	59.6	3	56 53	55 52	53 51						
25°	861	394	0°-90°	1438.3	59.9	4	52 48	51 47	49 47						
35°	631	390	90°-180°	0	0.0	5	48 44	47 43	46 43						
45°	308	226	0°-180°	1438.3	59.9*	6	44 40	44 40	43 39						
55°	20	27				7	41 37	41 37	40 36						
65°	6	6				8	38 34	38 34	37 34						
75°	2	2				9	36 32	35 32	35 31						
85°	0	0				10	33 29	33 29	33 29						
90°	0	0													

AFV 32TRT 6MB

(1) PL-T 32W/30/4P LAMP, 2400 RATED LUMENS, 1.0 S/MH, TEST NO. 2196071001



From 0°	Ave	Lumens	Zone	Lumens	% Lamp	pt pc pw	80% 50% 30%	20% 70% 30%	50% 30% 10%	Mount height	Initial fc at beam center	50% beam angle 53.6° Beam diameter	fc at beam edge	10% beam angle 84.2° Beam diameter	fc at beam edge
0°	903		0°-30°	643	26.8	0	50 50 50	49 49 49	47 47 47						
5°	951	90	0°-40°	906	37.7	1	46 45 44	45 45 44	44 43 42						
15°	861	242	0°-60°	1007	42.0	2	43 41 40	42 41 39	41 40 38						
25°	682	310	0°-90°	1007	42.0	3	40 38 36	39 37 36	38 37 35						
35°	428	263	90°-180°	0	0.0	4	37 35 33	37 34 33	36 34 32						
45°	134	101	0°-180°	1007	42.0	5	35 32 30	34 32 30	33 31 30						
55°	0	0				6	32 30 28	32 30 28	31 29 28						
65°	0	0				7	30 28 26	30 27 26	29 27 26						
75°	0	0				8	28 26 24	28 26 24	28 25 24						
85°	0	0				9	27 24 22	26 24 22	26 24 22						
90°	0	0				10	25 22 21	25 22 21	24 22 21						

PHOTOMETRY NOTES

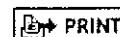
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Consult factory or IES file for microgroove baffle, black cone or other photometric reports.



Product Catalog

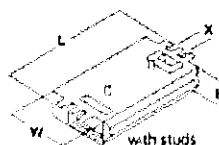
for professionals

Lighting System Specifications



71434 -- GE CFL Multi-Volt ProLine™ Electronic Program / Rapid Start Ballast

Lamp Type	CFTR26W/4P
# of Lamps	1
Line Voltage	277
System Watts	28
Nominal line current	0.10
System ballast factor	1.00
Ballast efficacy factor	3.57
Power factor	>0.95
Crest factor	<1.6
THD %	<12
Min. starting temp	-20 °F



When the following GE lamps are combined with this ballast, you should get these results:

Product Code	Description	System Watts	System Initial Lumens	System Mean Lumens	System LPW	Color Temp	Color Rendering Index (CRI)
97617	F26TBX/841/A/ECO	28	1800	1530	64	4100.0	82.0
97616	F26TBX/835/A/ECO	28	1800	1530	64	3500.0	82.0
97615	F26TBX/830/A/ECO	28	1800	1530	64	3000.0	82.0
97618	F26TBX/827/4P/ECO	28	1800	1530	64	2700.0	82.0
97614	F26TBX/827/A/ECO	28	1800	1530	64	2700.0	82.0

[Return To Top](#)



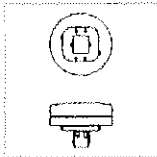
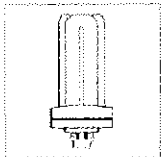
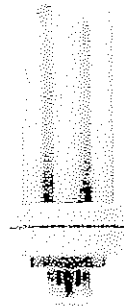
GE
Lighting

97616 - F26TBX/835/A/ECO

GE Ecolux® Biax® T4 - Facilities; Retail Display; Hospitality; Office;
Restaurant; Warehouse



High Color Rendering
Energy Savings



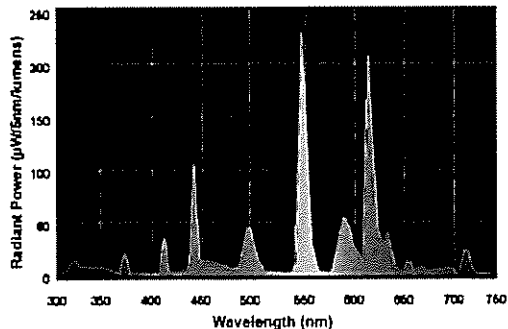
CAUTIONS & WARNINGS

Caution

- Lamp may shatter and cause injury if broken.
- Remove and install by grasping only plastic portion of the lamp.

GRAPHS & CHARTS

Graphs_Spectral Power Distribution



NOTES

- 4-Pin lamp minimum starting temperature is a function of the ballast. Most ballasts are rated with a minimum starting temperature of 50 degrees F (10 C). Ballasts are also available that provide reliable starting to 0 degrees F (-18C) and -20 F (-29C).
- Amalgam product experience stable brightness over a wider temperature range and in various operating positions.
- Based on 60Hz reference circuit.
- Fluorescent lamp lumens decline during life.

GENERAL CHARACTERISTICS

Lamp Type	Compact Fluorescent - Plug-In
Bulb	T4
Base	GX24q-3
Equivalent Wattage	100.0 W
Rated Life	17000.0 hrs
Starting Temperature (MIN)	0.0 °C
Cathode Resistance	2.7 Ohm
LEED-EB MR Credit	115 picograms Hg per mean lumen hour
Rated Life (rapid start) @ Time	17000.0 @ 3.0/20000.0 @ 12.0 h
Additional Info	Dimmable with appropriate dimming ballast./End of Life Protection (EOL)/TCLP compliant
Primary Application	Facilities;Retail Display;Hospitality;Office;Restaurant;Warehouse

PHOTOMETRIC CHARACTERISTICS

Initial Lumens	1800.0
Mean Lumens	1530.0
Nominal Initial Lumens per Watt	69
Color Temperature	3500.0 K
Color Rendering Index (CRI)	82.0

ELECTRICAL CHARACTERISTICS

Wattage	26.0
Voltage	120.0
Current (max)	5.25 A
Open Circuit Voltage (after preheating) (MAX)	265.0 V
Open Circuit Voltage Across Starter (MIN)	198.0 V
Lamp Current	0.325 A
Preheat Voltage (MIN)	4.25 V
Current Crest Factor (MAX)	1.7
Supply Current Frequency	20.0 Hz

DIMENSIONS

Maximum Overall Length (MOL)	5.2000 in(132.1 mm)
Nominal Length	5.200 in(132.1 mm)
Base Face to Top of Lamp	4.600 in(116.8 mm)

PRODUCT INFORMATION

Product Code	97616
Description	F26TBX/835/A/ECO
ANSI Code	60901-IEC-3426-1
Standard Package	Case
Standard Package GTIN	10043168976166
Standard Package Quantity	10
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	10
UPC	043168976169



FEATURES & SPECIFICATIONS

INTENDED USE — The new Z series straight-blade louver (SBL) products offer engineers and specifiers a contemporary designed lighting fixture which provides the ideal balance of appearance, performance and efficiency. Versatile for a wide range of spaces from retail, commercial, merchandising and task applications, this new low-profile SBL series provides the perfect solutions for general and reduced-space areas.

CONSTRUCTION — All metal components are constructed of code-gauge cold-rolled steel and are painted with a 92% reflective enamel powder paint finish. Precision-designed blade assemblies are positively retained to the housing with safety cables for ease of cleaning and re-lamping. Conveniently located top access plate and KOs provide contractors easy wiring connections.

Finish: All parts are painted after fabrication with a high-gloss, white enamel finish (white standard). Five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance. Similar to the Z strip, three additional paint finishes are available; black (MB), smoke gray (SKGY) and galvanized (GALV). For RAL finishes; consult factory.

OPTICS — Straight-blade louvers available in 48" and 46" increments, either solid or perforated versions. Housing design is offered in solid and two different uplight offerings (8% and 5%). Special uplight versions are available; consult factory.

ELECTRICAL — Thermally protected, resetting, Class P, HPF non-PCB, UL listed. Suitable for damp locations. AWM, TFM or THHN wire used throughout, rated for required temperatures.

INSTALLATION — All SBL versions come fully assembly in a tab lock carton for simple, easy installation. Additionally for continuous-row application, each SBL includes our patented three-point row connector and housing clips for straighter, faster row mounting.

This product series can be surface or stem mounted.

LISTINGS — Listed for 25° 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.

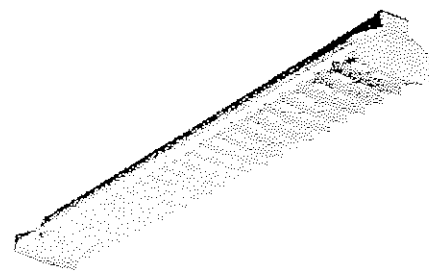
Catalog Number
Notes
Type



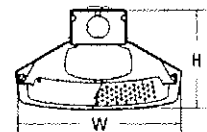
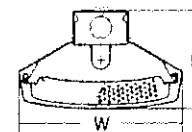
Low-Profile Straight-Blade Louver

Z-SBL

T8 or T5 Linear Lamps
1 or 2 Lamps



Specifications	
Length - T8:	48 (121.9) or 96 (243.8)
Length - T5:	46 (116.8) or 92 (233.7)
Width:	6-9/16 (16.7)
Depth:	3-15/16 (10)



All dimensions are inches (centimeters) unless otherwise noted.

ORDERING INFORMATION

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

Example: Z 1 32 SBL MVOLT GEB10IS

Z											
Series	Number of lamps	Lamp type		Louver		Voltage	Ballast		Options		Finish
Z Low profile <i>For tandem double-length unit, add prefix "T". Ex: T2</i>	1	28T5	28W T5 (46")	SBL	Solid-blade louver	MVOLT	GEB10IS	T8 electronic ballast, <10% THD, instant start (T8 only)	SSR	MIRO* 4 specular insert	(blank) White
	2 <i>Not included.</i>	32	32W T8 (48")	SBLP	Perforated-blade louver	347	GEB10RS	T8 electronic ballast, 10% THD, rapid start	GLR	Internal fast-blow fuse (add X for external) ¹	MB Black
				SBLA8	Solid-blade louver, 8% uplight	Others available.			GMF	Internal slow-blow fuse (add X for external) ¹	GALV Galvanized
				SBLA5	Solid-blade louver, 5% uplight	PLR_			Plug-in wiring; specify number of branch circuits and hot wires (A=black; B=red; C=blue; AB or AC)	SKGY Smoke gray	
				SBLPA8	Perforated-blade louver, 8% uplight	TILW			Tandem in-line wiring		
				SBLPA5	Perforated-blade louver, 5% uplight	EL55			Emergency battery pack (nominal 390-700 lumens); consult factory for additional battery packs ^{1,2}		
							OS10PS	OSRAM* T5 electronic ballast, <10% THD, programmed start	EL65	Emergency battery pack (nominal 390-700 lumens) ^{1,4}	
							BLP	High-efficiency .78 bf (low)	CSA	CSA Certified	
							BIHP	High-efficiency, 1.20 bf (high)	NOM	NOM Certified	
									MSI	Aisle motion sensor ³	
								MSI360	360° motion sensor ¹		
									MSE360LBZ	360° motion sensor; for mounting within row or at end of row	

Accessories: Order as separate catalog number.

HC36	Hanger chain, 36"	HC36	Hanger chain, 36"	ZAC120	Aircraft cable, 120"
SC_	Swivel-stem hanger (specify length in 2" increments)	ZACVH	Aircraft cable with hook	ZACF120	Aircraft cable with feed, 120"
1B	Ceiling spacer; spaces fixture 1-1/2" to 2-1/2" from ceiling ¹	ZAC72	Aircraft cable, 72"	ZAC144	Aircraft cable, 144"
ZSPRG	Tong and T-grid hanger (for 15/16" T-grid)	ZACF72	Aircraft cable with feed, 72"	ZACF144	Aircraft cable with feed, 144"

Notes

- Specify voltage (available with 120/277V).
- Not available with CSA Certified.
- For unit mounting, order two per fixture. For row mounting, order one per fixture plus one per row.

Z-SBL Straight-blade Louver Striplight

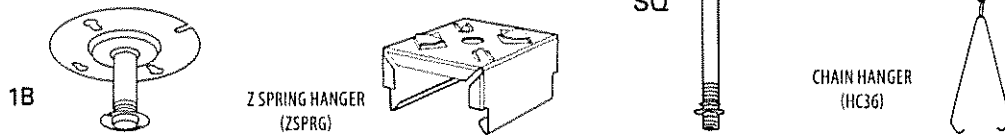
MOUNTING DATA

For unit or row installation; surface or stem mounting.

Unit installation — Minimum of two hangers required.

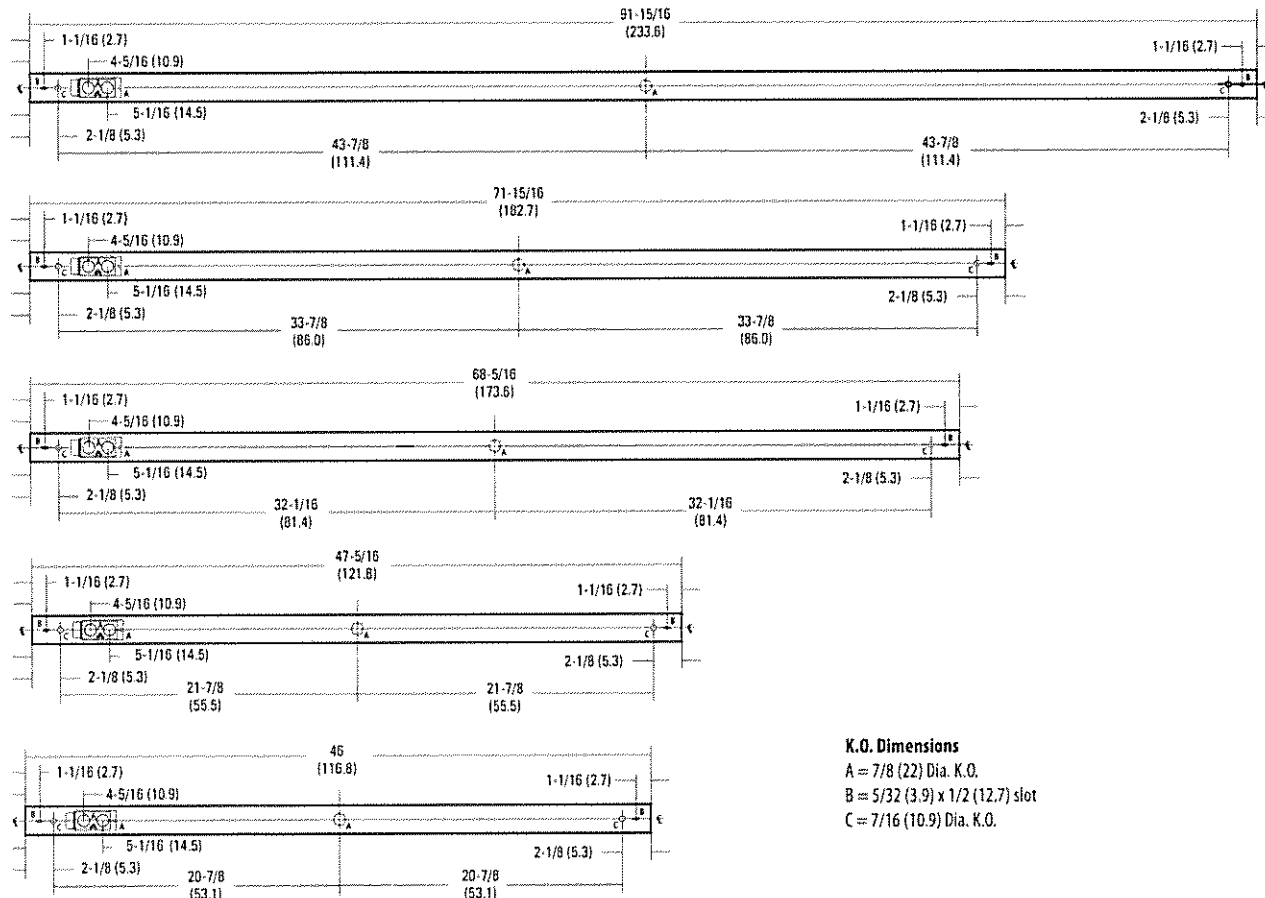
Row installation — One hanger per channel plus one per row required.

Review local codes when installing any product, as the minimum of 1 hanger per fixture may not satisfy your local building code.



DIMENSIONS

All dimensions are inches (centimeters).

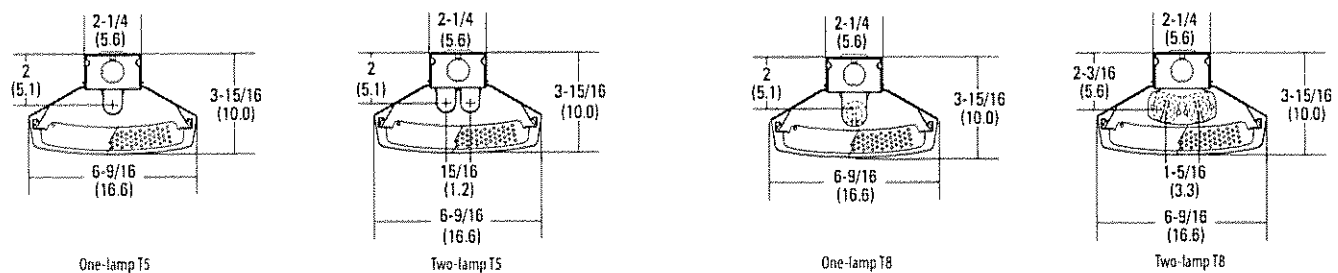


K.O. Dimensions

A = 7/8 (22) Dia. K.O.

B = 5/32 (3.9) x 1/2 (12.7) slot

C = 7/16 (10.9) Dia. K.O.



PHOTOMETRICS

Consult factory.



Z-SBL-T8T5

**T5****ELECTRONIC FLUORESCENT BALLASTS**

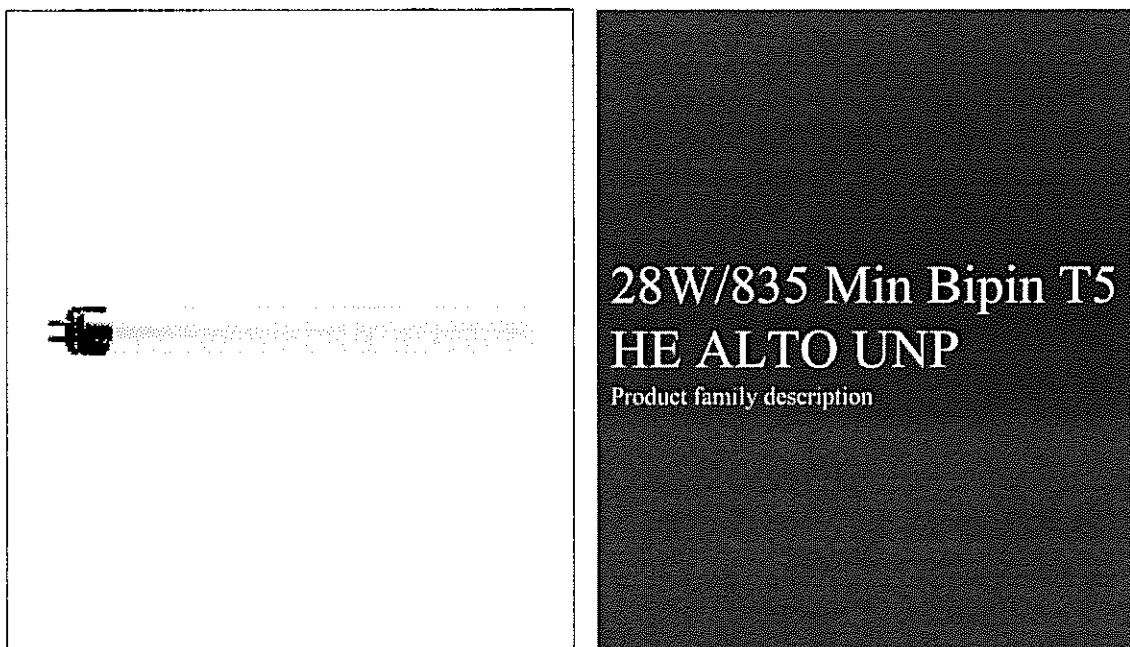
For 14-35W Lamps

HIGH POWER FACTOR SOUND RATED A

Electronic
Fluorescent Ballasts

No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Input Power ANSI (Watts)	Ballast Factor	Max. THD %	Line Current (Amps)	Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
F14T5 (14W)											
1	120-277	PS	Centium	ICN-2S28	19	1.07	20	0.16-0.07	0/-18	D	73
				ICN-2S28-N	17	1.07	10	0.14-0.07		N	
			Optanium	IOP-2S28-115-SC	19	1.15	15	0.15-0.08		B	
2	120-277	PS	Centium	ICN-2S28	34	1.06	10	0.29-0.13	0/-18	D	74
				ICN-2S28-N	33	1.04	10	0.27-0.12		N	
				ICN-3S14-D	36	1.10	10	0.31-0.13		D	172
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11		B	74
				IOP-2S28-115-SC	37	1.15	10	0.30-0.14			
3	120-277	PS	Centium	ICN-3S14-D	50	1.00	10	0.42-0.18	0/-18	D	171
F21T5 (21W)											
1	120-277	PS	Centium	ICN-2S28	26	1.03	15	0.21-0.10	0/-18	D	73
				ICN-2S28-N	25	1.06	10	0.22-0.10	0/-18	N	73
			Optanium	IOP-2S28-95-SC	23	0.95	15	0.19-0.08	0/-18	B	73
				IOP-2S28-115-SC	27	1.15	15	0.22-0.10			
2	120-277	PS	Centium	ICN-2S28	48	1.02	10	0.40-0.17	0/-18	D	74
				ICN-2S28-N	47-46	1.00	10	0.39-0.17	0/-18	N	74
			Optanium	IOP-2S28-95-SC	44	0.95	10	0.37-0.16	0/-18	B	74
				IOP-2S28-115-SC	52	1.15	10	0.44-0.19			
F28T5 (25W)											
1	120-277	PS	Centium	ICN-2S28	30	1.05	10	0.25-0.11	0/-18	D	73
				ICN-2S28-N						N	
			Optanium	IOP-2S28-95-SC	27	0.95	10	0.22-0.10	0/-18	B	74
				IOP-2S28-115-SC	33	1.15	10	0.27-0.12			
2	120-277	PS	Centium	ICN-2S28	58-57	1.00	10	0.49-0.21	0/-18	D	74
				ICN-2S28-N						N	
			Optanium	IOP-2S28-95-SC	54	0.95	10	0.45-0.20		B	
				IOP-2S28-115-SC	64-63	1.15	10	0.54-0.23			
F28T5 (28W)											
1	120-277	PS	Centium	ICN-2S28	33	1.04	10	0.28-0.12	0/-18	D	73
				ICN-2S28-N	31	1.05	10	0.29-0.12		N	
			Optanium	IOP-2S28-95-SC	30	0.95	15	0.25-0.11	0/-18	B	73
				IOP-2S28-115-SC	36	1.15	10	0.30-0.13			
2	120-277	PS	Centium	ICN-2S28	64-63	1.03	10	0.55-0.23	0/-18	D	74
				ICN-2S28-N	64-62	1.03	10	0.53-0.23		N	
			Optanium	IOP-2S28-95-SC	59-58	0.95	15	0.55-0.22	0/-18	B	74
				IOP-2S28-115-SC	71-69	1.15	10	0.60-0.26			
F35T5 (35W)											
1	120-277	PS	Centium	ICN-2S28	41	1.01	10	0.34-0.15	0/-18	D	73
				ICN-2S28-N	40	1.01	10	0.34-0.15		N	
			Optanium	IOP-2S28-95-SC	37	0.95	10	0.31-0.14	0/-18	B	74
				IOP-2S28-115-SC	44	1.15	10	0.37-0.17			
2	120-277	PS	Centium	ICN-2S28	80-77	1.00	10	0.67-0.28	0/-18	D	74

Refer to page 1-35 to 1-37 for dimensions and wiring diagrams
 Refer to pages 9-23 to 9-27 for lead lengths and shipping data



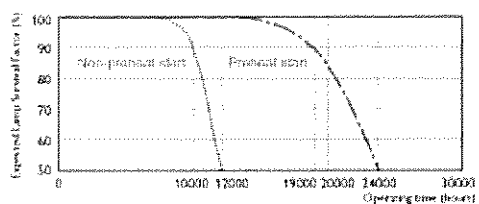
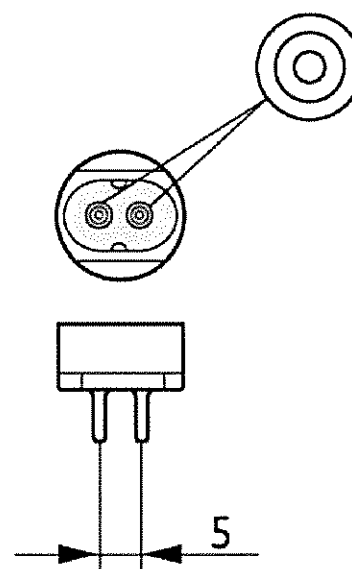
Product data	
Product Number	230854
Full product name	28W/835 Min Bipin T5 HE ALTO UNP
Ordering Code	F28T5/835/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677230852
EAN2US	
Case Bar Code	50046677230857
Successor Product number	
System Description	High Efficiency
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16mm]
Packing Type	UNP [Unpacked]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	na
Feature	na [Not Applicable]
Ordering Code	F28T5/835/ALTO
Pack UPC	046677230852
Case Bar Code	50046677230857
Watts	28W
Dimmable	Yes
Color Code	835 [CCT of 3500K]
Color Rendering Index	85 Ra8
Color Designation	White

PHILIPS

Product data	
Color Description	835 White
Color Temperature	3500 K
Initial Lumens	- Lm
Overall Length C	1163.2 mm
Diameter D	17 mm
Special packing	ALTO
Product Number	230854



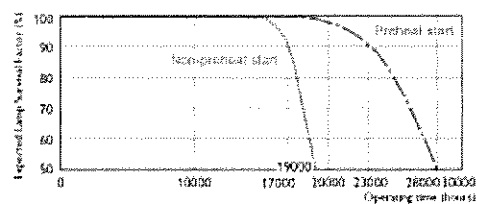
TL5 HE



Life Expectancy 3h cycle

TL5 HE

Base Miniature Bipin



Life Expectancy 12h cycle

TL5 HE

PHILIPS

Mercantile Customer Project Commitment Agreement
Cash Rebate Option

THIS MERCANTILE CUSTOMER PROJECT COMMITMENT AGREEMENT (“Agreement”) is made and entered into by and between The Cleveland Electric Illuminating Company, its successors and assigns (hereinafter called the “Company”) and Cleveland Heights - University Heights Public Library, Taxpayer ID No. 34-6000690 its permitted successors and assigns (hereinafter called the “Customer”) (collectively the “Parties” or individually the “Party”) and is effective on the date last executed by the Parties as indicated below.

WITNESSETH

WHEREAS, the Company is an electric distribution utility and electric light company, as both of these terms are defined in R.C. § 4928.01(A); and

WHEREAS, Customer is a mercantile customer, as that term is defined in R.C. § 4928.01(A)(19), doing business within the Company’s certified service territory; and

WHEREAS, R.C. § 4928.66 (the “Statute”) requires the Company to meet certain energy efficiency and peak demand reduction (“EE&PDR”) benchmarks; and

WHEREAS, when complying with certain EE&PDR benchmarks the Company may include the effects of mercantile customer-sited EE&PDR projects; and

WHEREAS, Customer has certain customer-sited demand reduction, demand response, or energy efficiency project(s) as set forth in attached Exhibit 1 (the “Customer Energy Project(s)”) that it desires to commit to the Company for integration into the Company’s Energy Efficiency & Peak Demand Reduction Program Portfolio Plan (“Company Plan”) that the Company will implement in order to comply with the Statute; and

WHEREAS, the Customer, pursuant to the Public Utilities Commission of Ohio’s (“Commission”) September 15, 2010 Order in Case No. 10-834-EL-EEC, desires to pursue a cash rebate of some of the costs pertaining to its Customer Energy Project(s) (“Cash Rebate”) and is committing the Customer Energy Project(s) as a result of such incentive.

WHEREAS, Customer’s decision to commit its Customer Energy Project(s) to the Company for inclusion in the Company Plan has been reasonably encouraged by the possibility of a Cash Rebate.

WHEREAS, in consideration of, and upon receipt of, said cash rebate, Customer will commit the Customer Energy Project(s) to the Company and will comply with all other terms and conditions set forth herein.

NOW THEREFORE, in consideration of the mutual promises set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties, intending to be legally bound, do hereby agree as follows:

1. **Customer Energy Projects.** Customer hereby commits to the Company and Company accepts for integration into the Company Plan the Customer Energy Project(s) set forth on attached Exhibit 1. Said commitment shall be for the life of the Customer Energy Project(s). Company will incorporate said project(s) into the Company Plan to the extent that such projects qualify. In so committing, and as evidenced by the affidavit attached hereto as Exhibit A, Customer acknowledges that the information provided to the Company about the Customer Energy Project(s) is true and accurate to the best of its knowledge.

- a. By committing the Customer Energy Project(s) to the Company, Customer acknowledges and agrees that the Company shall control the use of the kWh and/or kW reductions resulting from said projects for purposes of complying with the Statute. By committing the Customer Energy Project(s), Customer further acknowledges and agrees that the Company shall take ownership of the energy efficiency capacity rights associated with said Project(s) and shall, at its sole discretion, aggregate said capacity into the PJM market through an auction. Any proceeds from any such bids accepted by PJM will be used to offset the costs charged to the Customer and other of the Company's customers for compliance with state mandated energy efficiency and/or peak demand requirements
 - b. The Company acknowledges that some of Customer's Energy Projects contemplated in this paragraph may have been performed under certain other federal and/or state programs in which certain parameters are required to be maintained in order to retain preferential financing or other government benefits (individually and collectively, as appropriate, "Benefits"). In the event that the use of any such project by the Company in any way affects such Benefits, and upon written request from the Customer, Company will release said Customer's Energy Project(s) to the extent necessary for Customer to meet the prerequisites for such Benefits. Customer acknowledges that such release (i) may affect Customer's cash rebate discussed in Article 3 below; and (ii) will not affect any of Customer's other requirements or obligations.
 - c. Any future Customer Energy Project(s) committed by Customer shall be subject to a separate application and, upon approval by the Commission, said projects shall become part of this Agreement.
 - d. Customer will provide Company or Company's agent(s) with reasonable assistance in the preparation of the Commission's standard joint application for approval of this Agreement ("Joint Application") that will be filed with the Commission, with such Joint Application being consistent with then current Commission requirements.
 - e. Upon written request and reasonable advance notice, Customer will grant employees or authorized agents of either the Company or the Commission reasonable, pre-arranged access to the Customer Energy Project(s) for purposes of measuring and verifying energy savings and/or peak demand reductions resulting from the Customer Energy Project(s). It is expressly agreed that consultants of either the Company or the Commission are their respective authorized agents.
2. **Joint Application to the Commission.** The Parties will submit the Joint Application using the Commission's standard "Application to Commit Energy Efficiency/Peak Demand Reduction Programs" ("Joint Application") in which they will seek the Commission's approval of (i) this Agreement; (ii) the commitment of the Customer Energy Project(s) for inclusion in the Company Plan; and (iii) the Customer's Cash Rebate.

The Joint Application shall include all information as set forth in the Commission's standard form which, includes without limitation:

- i. A narrative description of the Customer Energy Project(s), including but not limited to, make, model and year of any installed and/or replaced equipment;
- ii. A copy of this Agreement; and
- iii. A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results.

3. **Customer Cash Rebate.** Upon Commission approval of the Joint Application, Customer shall provide Company with a W-9 tax form, which shall at a minimum include Customer's tax identification number. Within the greater of 90 days of the Commission's approval of the Joint Application or the completion of the Customer Energy Project, the Company will issue to the Customer the Cash Rebate in the amount set forth in the Commission's Finding and Order approving the Joint Application.
- a. Customer acknowledges: i) that the Company will cap the Cash Rebate at the lesser of 50% of Customer Energy Project(s) costs or \$250,000; ii) the maximum rebate that the Customer may receive per year is \$500,000 per Taxpayer Identification Number per utility service territory; and iii) if the Customer Energy Project qualifies for a rebate program approved by the Commission and offered by the Company, Customer may still elect to file such project under the Company's mercantile customer self direct program, however the Cash Rebate that will be paid shall be discounted by 25%; and
 - b. Customer acknowledges that breaches of this Agreement, include, but are not limited to:
 - i. Customer's failure to comply with the terms and conditions set forth in the Agreement, or its equivalent, within a reasonable period of time after receipt of written notice of such non-compliance;
 - ii. Customer knowingly falsifying any documents provided to the Company or the Commission in connection with this Agreement or the Joint Application.
 - c. In the event of a breach of this Agreement by the Customer, Customer agrees and acknowledges that it will repay to the Company, within 90 days of receipt of written notice of said breach, the full amount of the Cash Rebate paid under this Agreement. This remedy is in addition to any and all other remedies available to the Company by law or equity.
4. **Termination of Agreement.** This Agreement shall automatically terminate:
- a. If the Commission fails to approve the Joint Agreement;
 - b. Upon order of the Commission; or
 - c. At the end of the life of the last Customer Energy Project subject to this Agreement.

Customer shall also have an option to terminate this Agreement should the Commission not approve the Customer's Cash Rebate, provided that Customer provides the Company with written notice of such termination within ten days of either the Commission issuing a final appealable order or the Ohio Supreme Court issuing its opinion should the matter be appealed.

5. **Confidentiality.** Each Party shall hold in confidence and not release or disclose to any person any document or information furnished by the other Party in connection with this Agreement that is designated as confidential and proprietary ("Confidential Information"), unless: (i) compelled to disclose such document or information by judicial, regulatory or administrative process or other provisions of law; (ii) such document or information is generally available to the public; or (iii) such document or information was available to the receiving Party on a non-confidential basis at the time of disclosure.
- a. Notwithstanding the above, a Party may disclose to its employees, directors, attorneys, consultants and agents all documents and information furnished by the other Party in

connection with this Agreement, provided that such employees, directors, attorneys, consultants and agents have been advised of the confidential nature of this information and through such disclosure are deemed to be bound by the terms set forth herein.

- b. A Party receiving such Confidential Information shall protect it with the same standard of care as its own confidential or proprietary information.
 - c. A Party receiving notice or otherwise concluding that Confidential Information furnished by the other Party in connection with this Agreement is being sought under any provision of law, to the extent it is permitted to do so under any applicable law, shall endeavor to:
(i) promptly notify the other Party; and (ii) use reasonable efforts in cooperation with the other Party to seek confidential treatment of such Confidential Information, including without limitation, the filing of such information under a valid protective order.
 - d. By executing this Agreement, Customer hereby acknowledges and agrees that Company may disclose to the Commission or its Staff any and all Customer information, including Confidential Information, related to a Customer Energy Project, provided that Company uses reasonable efforts to seek confidential treatment of the same.
6. **Taxes.** Customer shall be responsible for all tax consequences (if any) arising from the payment of the Cash Rebate.
7. **Notices.** Unless otherwise stated herein, all notices, demands or requests required or permitted under this Agreement must be in writing and must be delivered or sent by overnight express mail, courier service, electronic mail or facsimile transmission addressed as follows:

If to the Company:

FirstEnergy Service Company
76 South Main Street
Akron, OH 44308
Attn: Victoria Nofziger
Telephone: 330-384-4684
Fax: 330-761-4281
Email: vmnofziger@firstenergycorp.com

If to the Customer:

Cleveland Heights - University Heights Public Library
2345 Lee Road
Cleveland Heights, OH 44118
Attn: Tim Pasbrig
Telephone: (216) 630-8549
Fax:
Email: tpasbrig@heightslibrary.org

or to such other person at such other address as a Party may designate by like notice to the other Party. Notice received after the close of the business day will be deemed received on the next business day; provided that notice by facsimile transmission will be deemed to have been received by the recipient if the recipient confirms receipt telephonically or in writing.

8. **Authority to Act.** The Parties represent and warrant that they are represented by counsel in connection with this Agreement, have been fully advised in connection with the execution thereof, have taken all legal and corporate steps necessary to enter into this Agreement, and that the undersigned has the authority to enter into this Agreement, to bind the Parties to all provisions herein and to take the actions required to be performed in fulfillment of the undertakings contained herein.
9. **Non-Waiver.** The delay or failure of either party to assert or enforce in any instance strict performance of any of the terms of this Agreement or to exercise any rights hereunder conferred, shall not be construed as a waiver or relinquishment to any extent of its rights to assert or rely upon such terms or rights at any later time or on any future occasion.
10. **Entire Agreement.** This Agreement, along with related exhibits, and the Company's Rider DSE, or its equivalent, as amended from time to time by the Commission, contains the Parties' entire understanding with respect to the matters addressed herein and there are no verbal or collateral representations, undertakings, or agreements not expressly set forth herein. No change in, addition to, or waiver of the terms of this Agreement shall be binding upon any of the Parties unless the same is set forth in writing and signed by an authorized representative of each of the Parties. In the event of any conflict between Rider DSE or its equivalent and this document, the latter shall prevail.
11. **Assignment.** Customer may not assign any of its rights or obligations under this Agreement without obtaining the prior written consent of the Company, which consent will not be unreasonably withheld. No assignment of this Agreement will relieve the assigning Party of any of its obligations under this Agreement until such obligations have been assumed by the assignee and all necessary consents have been obtained.
12. **Severability.** If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement, and the Parties further agree to substitute for the invalid portion a valid provision that most closely approximates the economic effect and intent of the invalid provision.
13. **Governing Law.** This Agreement shall be governed by the laws and regulations of the State of Ohio, without regard to its conflict of law provisions.
14. **Execution and Counterparts.** This Agreement may be executed in multiple counterparts, which taken together shall constitute an original without the necessity of all parties signing the same page or the same documents, and may be executed by signatures to electronically or telephonically transmitted counterparts in lieu of original printed or photocopied documents. Signatures transmitted by facsimile shall be considered original signatures.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized officers or representatives as of the day and year set forth below.

The Cleveland Electric Illuminating Company_
(Company)

By: Gail C. Loepp

Title: V.P. Of Energy Efficiency

Date: 5-7-13

Cleveland Heights - University Heights Public Library_
(Customer)

By: Timothy J. Paschke

Title: Library Manager

Date: 5.16.13

STATE OF OHIO)
)
COUNTY OF Cuyahoga) SS:

1. I am the Bliss Manager of Cleveland Heights - University Heights Public Library ("Customer") As part of my duties, I oversee energy related matters for the Customer.
2. The Customer has agreed to commit certain energy efficiency projects to The Cleveland Electric Illuminating Company ("Company"), which are the subject of the agreement to which this affidavit is attached ("Project(s)").
3. In exchange for making such a commitment, the Company has agreed to provide Customer with Cash ("Incentive"). This Incentive was a critical factor in the Customer's decision to go forward with the Project(s) and to commit the Project(s) to the Company.
4. All information related to said Project(s) that has been submitted to the Company is true and accurate to the best of my knowledge.

[illegible]

Laurie A. Marotta
Notary

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Case No(s). 13-1088-EL-EEC

Summary: Application to Commit Energy Efficiency/Peak Demand Reduction Programs of The Cleveland Electric Illuminating Company and Cleveland Heights - University Heights Public Library electronically filed by Ms. Jennifer M. Sybyl on behalf of The Cleveland Electric Illuminating Company and Cleveland Heights - University Heights Public Library