



Legal Department

April 6, 2017

Chairman Asim Z. Haque
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3793

Re: **In the Matter of the Application of**)
The Kroger Co.)
and Ohio Power Company) **Case No. 17-0527-EL-EEC**
for Approval of a Special Arrangement)
Agreement with a Mercantile Customer)

Ryan Aguiar
Fellow
Regulatory Services
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raguiar@aep.com

Dear Chairman Haque,

Attached please find the Joint Application of Ohio Power Company (AEP Ohio) and the above-referenced mercantile customer for approval of a Special Arrangement of the commitment of energy efficiency/peak demand reduction (EE/PDR) resources toward compliance with the statutory benchmarks for 2017 (hereinafter "Joint Application").

Amended Substitute Senate Bill 221, codified at R.C. 4928.66, sets forth EE/PDR benchmarks that electric distribution utilities are required to meet or exceed. The statute allows utilities to include EE/PDR resources committed by mercantile customers for integration into the utilities' programs to be counted toward compliance with a utility's EE/PDR benchmarks. The statute also enables the Commission to approve special arrangements for mercantile customers that commit EE/PDR resources to be counted toward compliance with EE/PDR benchmarks.

The Commission's Order in Case No. 10-834-EL-EEC established a streamlined process to expedite review of these special arrangements by developing a sample application process for parties to follow for consideration of such programs implemented during the prior three calendar years. The attached Joint Application and affidavit conforms with AEP Ohio's version of the streamlined sample application. As requested by Commission Staff, any confidential information referenced in the Joint Application has been provided confidentially to Commission Staff for filing in Commission Docket 10-1599-EL-EEC and subject to the confidentially protections of R.C. 4901.16 and OAC 4901-1-24(E). AEP Ohio respectfully requests that the Commission treat the two cases as associated dockets and that any confidential information provided to Staff for filing in connection with the Joint Application be subject to the protective order requested in Docket 10-1599-EL-EEC.

Cordially,

/s/ Ryan Aguiar
Ryan Aguiar

Attachments



Case No.: 17-0527-EL-EEC

Mercantile Customer: THE KROGER CO.

Electric Utility: Ohio Power

Program Title or Description: AEP Ohio Business Incentives for Energy Efficiency: Self Direct Program

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: Company Information

Name: THE KROGER CO.

Principal address: 2462 Quarry Lake Drive, Columbus, Oh 43204

Address of facility for which this energy efficiency program applies: 1701 Tamarack Rd, Newark, Oh 43055-1350

Name and telephone number for responses to questions:

David Joens, The Kroger Co., (740) 522-8181

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

- ☒ The customer uses more than seven hundred thousand kilowatt hours per year at our facility. (Please attach documentation.)

See Confidential and Proprietary Attachment 4 – Calculation of Rider Exemption and UCT which provides the facility consumption for the last three years, benchmark kWh, and the last 12 months usage.

- ☐ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.) When checked, see Attachment 6 – Supporting Documentation for a listing of the customer's name and service addresses of other accounts in the AEP Ohio service territory.

Section 2: Application Information

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

- ☐ Individually, on our own.
- ☒ Jointly with our electric utility.

B) Our electric utility is: Ohio Power Company

The application to participate in the electric utility energy efficiency program is "Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application."

C) The customer is offering to commit (choose which applies):

- ☐ Energy savings from our 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 demand reduction 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 (choose whichever applies):

- ☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, 6/5/2015 and the date on which the customer would have replaced your equipment if you had not replaced it 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)).

The remaining life of the equipment varies and is not known with certainty. The future replacement date is unknown and has historically been at the end of equipment life. Replacement was completed early to achieve energy savings and to reduce future maintenance costs.

- ☐ 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 your energy efficiency program:

- 1) If you checked the box indicating that your 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:

Unit Quantity (watts) = Existing (watts x units) - Installed (watts x units)

kWh Reduction (Annual Savings) = Unit Quantity x (Deemed kWh/Unit)

Annual savings: 39,385 kWh

See Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation for annual energy savings calculations and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

- 2) If you checked the box indicating that you 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 the less efficient new equipment that you rejected in favor of the more efficient new equipment.

- 3) If you checked the box indicating that your 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 you rejected in favor of the more efficient new equipment.

- 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):

➤ Choose one or more of the following 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?

The coincident peak-demand savings are permanent installations that reduce demand through energy efficiency and were installed on the date specified in Section 3 A above.

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

$$\text{Unit Quantity (watts)} = \text{Existing (watts x units)} - \text{Installed (watts x units)}$$

$$\text{KW Demand Reduction} = \text{Unit Quantity (watts)} \times (\text{Deemed KW/Unit (watts)})$$

5.9 kW

See Confidential and Proprietary Attachment 5 – Self Direct Program Project Calculation for peak demand reduction calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.

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 cost recovery mechanism implemented by the electric utility.

OR

☐ Commitment payment

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

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

☐ A cash rebate of \$_____. (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.)

OR

☒ A cash rebate valued at no more than 50% of the total project cost, which is equal to \$ 1,571.93. (Attach documentation and calculations showing how this payment amount was determined.)

See Confidential and Proprietary Attachment 5 – Self Direct Program Project Calculation for incentive calculations for this mercantile program.

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 an ongoing efficiency program that is practiced by our organization. (Attach documentation that establishes your organization's ongoing efficiency program. In order to continue the exemption beyond the initial 24 month period your organization 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: 6.77 (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 utility's 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 \$ 12,245.87

The utility's program costs were \$ 236.31

The utility's incentive costs/rebate costs were \$ 1,571.93.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

- Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment.

See Attachment 1 - Self Direct Project Overview and Commitment for a description of the project. See Attachment 6 - Supporting Documentation, for the specifications of the replacement equipment 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed. Due to the length of time since the equipment replacement, the make, model and year of the replaced equipment is not available.

- A copy of the formal declaration or agreement that commits your program to the electric utility, including:

- 1) any confidentiality requirements associated with the agreement;

See Attachment 2 - Self Direct Program Project Blank Application including Rules and Requirements. All confidentiality requirements are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application.)

- 2) a description of any consequences of noncompliance with the terms of the commitment;

See Attachment 2 - Self Direct Program Project Blank Application including Rules and Requirements. All consequences of noncompliance are pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 - Self Direct Program Project Completed Application.

- 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;

None required because the resources committed are permanent installations that reduce demand through increased efficiency during the Company's peak summer demand period generally defined as May through September and do not require specific coordination and communication to provide demand reduction capabilities to the Company.

- 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,

See Attachment 2 – Self Direct Program Blank Application including Rules and Requirements granting such permission pursuant to the Retrospective Projects/Rules and Requirements that are part of the signed application which is provided as Confidential and Proprietary Attachment 3 – Self Direct Program Project Completed Application.

- 5) a commitment by you to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

See Attachment 1 - Self Direct Project Overview and Commitment for the commitment to comply with any information and compliance reporting requirements imposed by rule or as part of the approval of this arrangement by the Public Utilities Commission of Ohio.

- 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.

The Company applies the same methodologies, protocols, and practices to Self Direct Program retrospective projects that are screened and submitted for approval as it does to prospective projects submitted through its Prescriptive and Custom Programs. The Commission has not published a technical reference manual for use by the Company so deviations can not be identified. The project submitted is a prescriptive project and energy savings are determined as described in Confidential and Proprietary Attachment 5 - Self Direct Program Project Calculation, and 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures, as needed.



Public Utilities Commission

Project # 16-19860
Docket # 17-0527

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

Case No.: 17-0527-EL-EEC

State of Ohio :

Allan Leary, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

DNV GL Energy Services USA Inc. agent of Ohio Power

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.

Allan Leary Energy Efficiency Engineer
Signature of Affiant & Title

Sworn and subscribed before me this 16th day of March, 2017 Month/Year

Dawn G. Irving
Signature of official administering oath

Dawn G. Irving / Notary
Print Name and Title

My commission expires on 9-3-2019



DAWN G IRVING
NOTARY PUBLIC
STATE OF OHIO
Comm. Expires
September 03, 2019



Self Direct Project Overview & Commitment

The Public Utility Commission of Ohio (PUCO) will soon review your application for participation in AEP Ohio's Energy Efficiency/Peak Demand Response program. Based on your submitted project, please select by initialing one of the two options below, sign and fax to 877-607-0740.

Customer Name	THE KROGER CO.	
Project Number	AEP-16-19860	
Customer Premise Address	1701 TAMARACK RD, NEWARK, OH 43055-1350	
Customer Mailing Address	2462 Quarry Lake Drive, Columbus, OH 43204	
Date Received	11/11/2016	
Project Installation Date	6/5/2015	
Annual kWh Reduction	39,385	
Total Project Cost	\$24,734.30	
Unadjusted Energy Efficiency Credit (EEC) Calculation	\$2,095.90	
Simple Payback (yrs)	9.5	
Utility Cost Test (UCT) for EEC	6.77	
Utility Cost Test (UCT) for Exemption	0.05	
<i>Please Choose One Option Below and Initial</i>		
Self Direct EEC: 75%	\$1,571.93	☒ Initial: <u>[Signature]</u>
EE/PDR Rider Exemption	4 Months (After PUCO Approval)	☐ Initial: _____

Note: This is a one time selection. By selecting EEC, the customer will receive payment in the amount stated above. Selection of EE/PDR rider exemption, will result in the customer not being eligible to participate in any other energy efficiency programs offered by AEP Ohio during the period of exemption. In addition, the term of EE/PDR rider exemption is subject to ongoing review for compliance and could be changed by the PUCO.

If EEC has been selected, will the Energy Efficiency Funds selected help you move forward with other energy efficiency projects?

☒ YES ☐ NO

Note: Exemptions for periods beyond 24 months are subject to look-back or true-up adjustments every year to ensure that the exemption accurately reflects the EEDR savings. Applicants must file for renewal for any exemption beyond 12 months.

Project Overview:

The Self Direct (Prescriptive and Custom) project that the above has completed and applied is as follows.

Retrofitted (4) 6F32T8 into (4) 64W LED
Retrofitted (10) 400w MH into (10) 169W LED
Retrofitted (16) 175w MH into (16) 80W LED
Retrofitted (1) No VFD into (1) VFD Air to Lab and Production Areas

The documentation that was included with the application proved that the energy measures applied for were purchased and installed.

By signing this document, the Mercantile customer affirms its intention to commit and integrate the above listed energy efficiency resources into the utility's peak demand reduction, demand response, and energy efficiency programs. By signing, the Mercantile customer also agrees to serve as a joint applicant in any filings necessary to secure approval of this arrangement by the Public Utilities Commission of Ohio, and comply with any information and compliance reporting requirements imposed by rule or as part of that approval.

Ohio Power Company

THE KROGER CO.

By: [Signature]
Title: Manager
Date: 2/28/2017

By: [Signature]
Title: Plant Engineer
Date: 2-28-17



APPLICATION GUIDELINES

All 2016 AEP Ohio Business Incentives Program projects must be completed and Final Applications received no later than October 28, 2016, in order to qualify for incentives identified in this application.

Step 1: Verify Eligibility

- ✓ Customer must have a valid AEP Ohio account.
- ✓ Equipment/measure must be installed at facilities served by the AEP Ohio account.
- ✓ Project must produce permanent reduction in electrical energy use (kWh).
- ✓ All installed equipment must meet or exceed the specifications in the application.
- ✓ Please see the **Terms and Conditions for Self-Direct** or **Terms and Conditions** for all other programs for program eligibility and requirements.

Step 2: Complete Applicant Information

- ✓ All fields in customer and project information sections must be completed.
- ✓ Solution Provider/contractor information must be completed if project is not self-performed.

Step 3: Complete the Incentive Worksheet(s)

- ✓ Find and read specifications related to the project.
- ✓ Ensure new equipment/measure meets or exceeds the specifications.
- ✓ Choose the incentive category on the worksheet based on the installed equipment and specifications.
- ✓ Complete all fields (fixture description, operating hours, etc.) on the related worksheet.

Step 4: Sign Customer Agreement

- ✓ Read the Terms and Conditions before signing and submitting the application.
- ✓ Sign Pre-Approval Agreement and submit the application to reserve funds.
- ✓ Sign Final Application Agreement and submit the application after the project is completed.
- ✓ Complete Third Party Payment Release Authorization ONLY if incentive payment is to be paid to an entity other than AEP Ohio customer listed on the Applicant Information page.

Step 5: Submit Pre-Approval Application¹ (For Self-Direct applications, skip to Step 7)

- ✓ Submitting a Pre-Approval Application to determine

qualification and reserve program funds for a project is strongly recommended.

- ✓ All custom measures require pre-approval.
- ✓ Complete all fields for Pre-Approval Agreement section.
- ✓ **Pre-Approval Application must be submitted with:**
 - **Proposed scope of work (type and quantity of old and new equipment must be listed)**
 - **Specification sheets for all proposed equipment**
 - **W-9 form**
- ✓ Submit application via email, fax or mail.
- ✓ During the application review, an inspection may be required; the team will contact applicants requiring an inspection for scheduling.

Step 6: Complete Project

- ✓ New equipment must be installed and operational to submit a Final Application.

Step 7: Submit Final Application

- ✓ Submit a Final Application.
- ✓ Use the same application used during pre-approval (if applicable).
 - Change Application Type to Final Application
- ✓ Complete all fields for Final Application Agreement section.
- ✓ Update the application if there are any changes (customer contact, incentive measure, equipment, etc.).
- ✓ **Final Application must be submitted with:**
 - **Dated and itemized material invoice**
 - **External labor invoice (if applicable)**
 - **If Pre-Approval Application was not submitted, include the documents listed on Step 5**
- ✓ Submit application via email, fax or mail.
- ✓ During the application review, an inspection may be required; the team will contact applicants requiring an inspection for scheduling.

Additional steps are required for Self-Direct applications after application submission. Please see the Self-Direct Terms and Conditions for details.

AEP Ohio Business Incentives Program

5777 Frantz Road, Dublin, OH 43017

Phone: (877) 607-0739 | Fax: (877) 607-0740

aepohioincentives@dnvgl.com

Visit our website at AEPohio.com/solutions

¹A Pre-Approval Application is not a guarantee of an incentive; the actual incentive will be based on the energy savings and equipment installed as determined in the Final Application. Funds are reserved for 90 days, unless an applicant is granted an extension. The program team reserves the right to contact the customer before the reservation expiration date to ensure that the project is moving forward. If the project is not underway, the reservation may be cancelled. Reserved funds are not transferable to other projects, facilities and/or customers. A waiting list will be established when funds become fully subscribed.



CHECKLIST

PRE-APPROVAL APPLICATION

Required Attachments

- ☐ Completed Applicant Information form
- ☐ Completed Incentives Requested section of Application form
- ☐ Signed Customer Agreement form
- ☐ Equipment specifications
- ☐ Proposed scope of work (required on Custom projects and recommended for all projects)
- ☐ W-9 (required for LLC, individual, partnership, property management companies)

Applicable Incentive Worksheets

Please complete worksheets for checked boxes.

- ☐ Lighting
- ☐ HVAC
- ☐ Motors & Drives
- ☐ Compressed Air
- ☐ Refrigeration/Food Service
- ☐ Agriculture & Miscellaneous
- ☐ Transformer
- ☐ UPS
- ☐ Custom

Application date _____
Estimated incremental project cost _____
Expected completion date _____

Incomplete applications will delay processing and reservation of funds.

FINAL APPLICATION

Required Attachments

- ☐ Completed Applicant Information form
- ☐ Completed and signed Final Payment Agreement and Customer Agreement forms
- ☐ Completed Third-Party Payment Release
- ☐ Authorization section (optional)
- ☐ Itemized invoices
- ☐ Equipment specifications¹
- ☐ Updated scope of work¹
- ☐ W-9¹ (required for LLC, individual, partnership, property management companies)

Incentive Worksheets

Please complete worksheets for checked boxes.

- ☐ Lighting
- ☐ HVAC
- ☐ Motors & Drives
- ☐ Compressed Air
- ☐ Refrigeration/Food Service
- ☐ Agriculture & Miscellaneous
- ☐ Transformer
- ☐ UPS
- ☐ Custom

Application date _____
Final incremental project cost _____
Final completion date _____

Incomplete applications will delay processing and incentive payment.

¹If submitted with a pre-application, required only if project changed.

Revised Submittal

Please complete below if this is a revised submittal.

Submittal date _____

AEP Project Number (if known) AEP - _ _ - _ _ _ _ _

AEP Ohio Business Incentives Program

5777 Frantz Road, Dublin, OH 43017
Phone: (877) 607-0739 | Fax: (877) 607-0740
aepohioincentives@dnvgl.com
Visit our website at AEPohio.com/solutions



APPLICANT INFORMATION

AEP Application Number AEP - __ - _____

Application Type (Select One)

Customer Information

Business Name _____

Name as It Appears on Utility Bill _____

AEP Ohio Account Number* at Project Site _____ Multiple AEP Ohio Account Numbers for this Project? (Select One)

Taxpayer ID _____ - _____ W-9 Tax Status (Select One)

Contact Name _____ Contact Title _____

Mailing Address - where check will be sent

Mailing Address _____ City _____ State OH Zip _____

Phone _____ Ext. _____ Contact Email _____

How Did You Hear About the Program? (Select One) _____ AEP OH Energy Advisor _____

Project Information

Project Name (if applicable) _____

☐ Check if mailing address and project site address are the same.

Project Site Address _____ City _____ State OH Zip _____

Building Type (Select One) _____ Shift (Select One) _____

Annual Operating Hours _____ Building Area (sq. ft.) _____

Construction Type (Select One)

Does the facility have a data center? (Select One) _____

*Please only enter the first eleven digits of the account number.



APPLICANT INFORMATION

Solution Provider/Contractor Information (If project is not self-performed by customer)

Contracting Company Name _____

Contact Name _____ Title of Contact _____

Mailing Address _____ City _____ State OH Zip _____

Phone _____ Ext. _____ Contact Email _____

Who should we contact with questions about the application? ☐ Customer ☐ Contractor

Primary Contact Information

Contact Name _____ Title of Contact _____

Phone _____ Ext. _____ Contact Email _____

INCENTIVE SUMMARY TABLE (THIS TABLE SELF-POPULATES FROM WORKSHEETS)

Incentive Category	Applied for Incentives	Applicable Self- Direct Incentives
Lighting		
HVAC		
Motors		
Motor Rewind		
Drives		
Compressed Air		
Refrigeration/Food Service		
Agriculture		
Miscellaneous		
Custom		
NC Lighting (SD Only)		
Total		

AEP Application Number AEP - _ _ - _ _ _ _ _



CUSTOMER AGREEMENT

Pre-Approval Agreement

By signing this document, I agree to program requirements outlined in the measure specifications, Terms and Conditions, and Final Application Agreement. As an eligible customer, I verify the information is correct and request consideration for participation under this program. Furthermore, I concur that I meet all eligibility criteria in order to receive payment under this program.

[Link to Prescriptive/Custom Terms and Conditions and Final Application Agreement.](#)

Estimated Completion Date

Estimated Project Cost

Total Incentive Requested¹

Date

AEP Ohio Customer Signature

Print Name

Final Application Agreement

By signing this document, I agree to program requirements outlined in the measure specifications, Terms and Conditions for the applicable program and Final Application Agreement. As an eligible customer, I verify the information is correct and request consideration for participation under this program. Furthermore, I concur that I meet all eligibility criteria in order to receive payment under this program.

[Link to Prescriptive/Custom Terms and Conditions, and Final Application Agreement](#)

[Link to Self-Direct Terms and Conditions, and Final Application Agreement](#)

Project Completion Year (Select One)

Self-Direct

Project Completion Date

Total Project Cost \$ 0.00

Date

Total Applied for Incentive

Total Requested Incentive¹

Total Self-Direct Requested Incentive²

Print Name

AEP Ohio Customer Signature

SUBMIT VIA EMAIL

PRINT APPLICATION

¹Incentives are capped at 50% of the project cost and total incentives are capped at \$25,000.

²Self-Direct incentives are 75% of Total Requested Incentive, after 50% of the project cost cap and tiering is applied.

AEP Application Number AEP - _ _ - _ _ _ _ _



THIRD PARTY PAYMENT

Third Party Payment Release Authorization (Optional, NOT APPLICABLE TO Self-Direct)

Complete this section **ONLY** if incentive payment is to be paid to an entity other than the AEP Ohio customer.

Make checks payable to: Company/Individual _____

Mailing Address _____ City _____ State OH Zip _____

Phone _____ Ext. _____

Taxpayer ID of 3rd Party _____ - _____ W-9 Tax Status _____

By signing this document, I authorize the payment of the incentive to the third party named above and understand that I will not receive the incentive payment from AEP Ohio. I also understand that my release of the payment to a third party does not exempt me from the program requirements outlined in the measure specifications, Terms and Conditions, and Final Application Agreement.

Print Name

Date

Customer Signature (AEP Ohio Customer)

Attachment 6 Supporting Documentation
Page 1 of 10

Project # 16-19860
Docket # 17-0527

INVOICE RECAP								
Customer: Tamarack								
Description:								
This is a portion of a LED improvement project for the Tamarack dairy facility. This project spans from 2013 to 2016 with higher efficiency lighting upgrades throughout the facility.								
	W/O Number	Date	Work Description	Part Number	Item Description	Qty	Est Unit Cost	Total Cost
Asset Front Offices	14-786510-000	11/1/2015	Replace 4 light fixtures marked in the center of office in the front office with led lights area must be clean when finished	D604659	055-2GR-LD1-64-A-UNV-L840-CD-1-U COOPER LED LIGHT-055	4	\$0.00	\$0.00
Asset Cooler Area	15-027274-000	3/31/2015	Install 4 high bay light fixtures in the new section of cooler they will replace existing florescent units ILP HB-150WLE	D732858	055-ILP HB-150WLED-UNIV-5000K-N-CA HIGH BAY LIGHT FIXTU	4	\$404.00	\$1,616.00
Asset Cooler Area	15-032493-000	3/20/2015	Install 6 high bay light fixtures new section of cooler r they will replace existing florescent units ILP HB-150WLED-UNI	D732858	055-ILP HB-150WLED-UNIV-5000K-N-CA HIGH BAY LIGHT FIXTU	6	\$411.88	\$2,471.28
Asset Processing Area	14-822798-000	02/06/2015	Install 4 fixtures WT-80WLED-UNIV-5000K south wall in processing	D732898	055-WT-80WLED-UNIV-5000K LIGHT FIXTURE-055	4	\$285.00	\$1,140.00
Asset Mezz Area	15-015186-000	27/2/2015	Install 4 LED lights above MCC-4 South wall. Mount lights above piping and conduit near the ceiling.	D732898	055-WT-80WLED-UNIV-5000K LIGHT FIXTURE-055	4	\$295.00	\$1,180.00

Attachment 6 Supporting Documentation
Page 2 of 10

Project # 16-19860
Docket # 17-0527

Customer Name:	Tamarack				
Customer Location:					
Description:	This is a large VFD improvement project for Tamarack dairy facility. This project spanning from 2013 to 2016 started with many groups of 4 10HP VFD's added and then branched out to other VFD opportunities throughout the facility.				
Description:	Date:	HP:	Qty:	Price/Unit:	Total Cost:
Air to Lab and Production Areas	6/5/2015	3	1	\$ 613.00	\$ 613.00

Asset History Work
Order Cost (see "VFD
MFGEMPAC-
AssetCoolerArea" file

COOPER LIGHTING - METALUX[®]

DESCRIPTION

GR LED is a lensed troffer series. This high quality luminaire is dedicated to the latest solid state lighting and electronic driver technology for optimal performance and energy efficiency. The GR LED is compatible with all of today's popular ceiling systems and is available with a number of options and accessories for application versatility.

The GR LED series features efficiency, quality and performance. The series is an excellent choice for commercial office spaces, schools, hospitals or retail merchandising areas.

SPECIFICATION FEATURES

Construction

Rigid housing is die formed of code gauge prime cold rolled steel and features full length die-formed stiffeners and unibody endplate for added strength. Side flanges are hemmed. Innovative design provides superior lens brightness uniformity and visual comfort. Unibody endplates are securely attached with interlocking tabs and screws. Four auxiliary fixture end suspension points provided. Endplates have integral Grid-lock feature for safety and convenience.

Controls

The GR LED is equipped standard with a 0-10V continuous dimming driver that works with any standard 0-10V control/dimmer. Combine with energy-saving products like occupancy sensors, daylighting controls, and lighting relay panels from Cooper Controls (www.coopercontrol.com) to maximize energy savings.

Electrical

Long-Life LED system coupled with electrical driver to deliver optimal performance. LED's available in 3000K, 3500K, 4000K or 5000K with typical CRI 85. Projected life is 60,000 hours at 70% lumen output. cULus listed. Electronic drivers are available for 120-277V applications. A 0-10V dimming driver is standard.

Finish

Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Housing and driver cover finished with new 90% reflective white enamel for superior performance. "PAF" Painted After Fabrication option also available.

Hinging/Latching

Positive spring loaded steel latches with baked white enamel finish. Safety-lock T-hinges allow hinging and latching either side.

Frame/Shielding

Die formed, heavy gauge, flat steel door with reinforced mitered corners and baked white enamel finish. Flat and regressed aluminum doors also available. Positive light seals. Light stabilized, acrylic prismatic lens. Standard #12 pattern.

Compliance

Modules are UL recognized components and indoor luminaires are cULus listed for 25°C ambient environments, RoHS compliant, and LED modules comply with IESNA LM-79 and LM-80 standards. DesignLights™ Consortium Qualified.

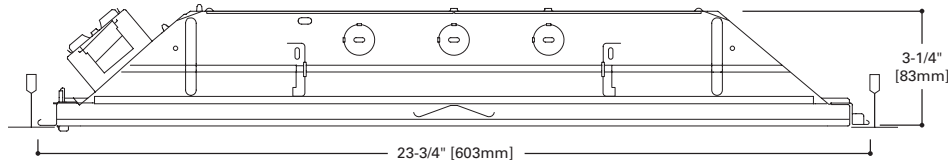


2GR LED LED

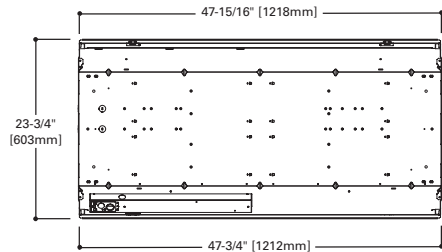
2' X 4' LED TROFFER

General Recessed LED Troffer

For Use in Insulated Ceilings



MOUNTING DATA



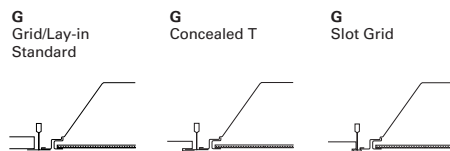
DOOR FRAMES



WATTAGE

Lumens Package	Wattage
3800	38W
4800	49W
6400	65W
8500	85W

CEILING COMPATIBILITY



Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G

(Verify compatibility/ consult factory.)

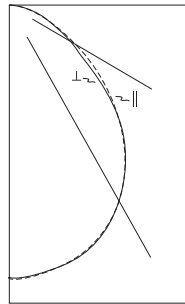
Cooper Lighting
by **EATON**

LINEAR DISCONNECT
Safe and convenient means of
disconnecting power



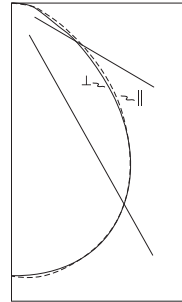
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2014-03-17 14:40:30

PHOTOMETRICS



2GR-LD1-48-A-UNV-L835-CD1-U
Dimming Driver
Linear LED 3500K
Spacing criterion:
(H) 1.2 x mounting
height, (L) 1.2 x
mounting height
Efficiency: 100%
Lumens: 4833
Input Watts: 48.6W
Efficacy: 99.4 LPW
Test Report:
2GR-LD1-48-A-UNV-
L835-CD1-U.IES

Candlepower				
Angle	Along H	45°	Across L	
0	2115	2115	2115	
5	2119	2105	2111	
10	2093	2080	2084	
15	2041	2032	2039	
20	1965	1961	1969	
25	1864	1858	1864	
30	1734	1729	1733	
35	1578	1567	1573	
40	1392	1369	1379	
45	1174	1160	1163	
50	959	956	905	
55	769	725	684	
60	582	505	524	
65	422	334	386	
70	308	213	294	
75	224	159	240	
80	167	132	191	
85	93	80	112	
90	0	0	0	



2GR-LD1-64-A-UNV-L835-CD1-U
Dimming Driver
Linear LED 3500K
Spacing criterion:
(H) 1.2 x mounting
height, (L) 1.2 x
mounting height
Efficiency: 100%
Lumens: 6808
Input Watts: 70.6W
Efficacy: 96.4 LPW
Test Report:
2GR-LD1-64-A-UNV-
L835-CD1-U.IES

Candlepower				
Angle	Along H	45°	Across L	
0	2960	2960	2960	
5	2984	2955	2970	
10	2944	2921	2929	
15	2861	2841	2871	
20	2766	2759	2747	
25	2622	2617	2623	
30	2439	2422	2442	
35	2232	2210	2205	
40	1967	1931	1941	
45	1657	1636	1624	
50	1350	1357	1277	
55	1078	1030	973	
60	824	717	732	
65	599	468	547	
70	431	302	421	
75	316	224	338	
80	233	187	267	
85	136	113	155	
90	0	0	0	

Coefficients of Utilization

Effective floor cavity reflectance 20%									
rc	80%			70%			50%		
rw	70	50	30	10	70	50	30	10	0
RCR									
0	119	119	119	119	116	116	116	111	111
1	110	105	101	98	107	103	100	96	99
2	101	93	87	82	98	91	86	81	88
3	93	83	76	70	90	82	75	69	79
4	86	74	66	60	83	73	66	60	71
5	79	67	59	53	77	66	58	52	64
6	73	61	53	46	72	60	52	46	58
7	68	56	47	41	67	55	47	41	53
8	64	51	43	37	62	50	43	37	49
9	60	47	39	34	58	46	39	34	45
10	56	43	36	31	55	43	36	31	42

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	1629	33.7
0-40	2607	53.9
0-60	4147	85.8
0-90	4833	100.0
0-180	4833	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2542	2512	2518
55	2053	1935	1826
65	1529	1210	1398
75	1325	941	1420
85	1634	1405	1968

Coefficients of Utilization

Effective floor cavity reflectance 20%									
rc	80%			70%			50%		
rw	70	50	30	10	70	50	30	10	0
RCR									
0	119	119	119	119	116	116	116	111	111
1	110	105	101	98	107	103	100	96	99
2	101	93	87	82	98	91	86	81	88
3	93	83	76	70	90	82	75	69	79
4	86	74	66	60	83	73	66	60	71
5	79	67	59	53	77	66	58	52	64
6	73	61	53	46	72	60	52	46	58
7	68	56	47	41	67	55	47	41	53
8	64	51	43	37	62	50	43	37	49
9	60	47	39	34	58	46	39	34	45
10	56	43	36	31	55	43	36	31	42

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	2289	33.6
0-40	3666	53.8
0-60	5839	85.8
0-90	6808	100.0
0-180	6808	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	3588	3542	3516
55	2878	2749	2597
65	2170	1695	1982
75	1869	1325	1999
85	2389	1985	2723

ORDERING INFORMATION

SAMPLE NUMBER: 2GR-LD1-48-A-UNV-L835-CD1-U

Rating Blank= Standard ATW-SW4= Chicago Rated	LED Type LD1=LED 1.0	Voltage ⁽²⁾ UNV=Universal Voltage 120-277 ⁽³⁾	Driver Type CD=0-10V Dimming Driver SD=Step-Dim Driver SLTD=Fifth Light (DALI) Driver	Options PAF=Painted After Fabrication G1=Gasket, Door Frame and Housing G2=G1 plus Gasket between Lens and Door G3=G1 and G2 plus Gasketing on Mounting Surface of Fixture Trims ^{(7),(8)}	Packaging U=Unit Pack PALC=Palletized Fixtures In Carton
Width 2=2' Width	LED Lumens Output ⁽⁵⁾ 38=3800 48=4800 64=6400 85=8500	Options GL=Single Element Fuse GM=Double Element Fuse	Number of Drivers 1=1 Driver		
Trim Type G=Grid/Lay-in (Standard) ⁽¹⁾ G=Concealed T G=Slot Grid	Shielding A=A12 .095 A125=A12 .125 A125MIN=A12 .125 MIN A19/156=A19 .156 F=A12 .095 Frost F125=A12 .125 Frost ND=No Door	Emergency EL=Emergency Installed, 700 Lumens ^{(4),(9)} EL14=Emergency Installed, 1400 Lumens ^{(4),(9)} EL10W=Emergency Installed, 10 Watts ⁽¹⁰⁾			
Series ⁽⁶⁾ R=General Purpose Troffer		CCT L830=3000K L835=3500K L840=4000K L850=5000K Flex Multiple Configurations Available			
Door Frame Standard=Flat White Steel Door (Leave Blank) FA=Flush White Extruded Aluminum c/w Spring Latch RA=Regressed White Extruded Aluminum FAN=Flush Natural Anodized Extruded Aluminum RAN=Regressed Natural Anodized Extruded Aluminum FAB=Flush Black Extruded Aluminum RAB=Regressed Black Extruded Aluminum					

ACCESSORIES

EQ-CLIP-U=T-BAR Safety Earthquake Clips⁽¹¹⁾
DF-24-W=2' x 4' Drywall Frame Kit

NOTES: ⁽¹⁾ An EQ Grid Clip is recommended for all 9/16" ceiling systems. ⁽²⁾ Products also available in non-US voltages and frequencies for international markets. ⁽³⁾ Not available when specifying emergencies, voltage must be specific. ⁽⁴⁾ EL options are non-integral. ⁽⁵⁾ Nominal lumen output. ⁽⁶⁾ DesignLights™ Consortium Qualified (all lumen packages). Refer to www.designlights.org Qualified Products List under Family Models for details. ⁽⁷⁾ Gasketing only available with aluminum door frame. ⁽⁸⁾ Gasketing minimum .125. ⁽⁹⁾ Must specify voltage (120V or 277V) when selecting EL option. ⁽¹⁰⁾ For delivered lumens, take lumens per watt of desired fixture and multiply by 10 watts (100 lp/W x 10 = 1000 lumens delivered).

Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

SHIPPING DATA

Catalog No.	Wt.	Pallet
2GR-LD1-48	20 lbs.	24
2GR-LD1-64	20 lbs.	24

Project Name:	
Catalog Number:	Fixture Type:
Volts / Watts:	Lamps / Boards:



HIGH BAY - 150W LED

PREMIUM HIGH BAY

FEATURES

- Aluminum Body with Steel Channel for Added Rigidity
- Tool-Less Hinged Bottom Ballast Access Door
- Frosted or Polycarbonate Lens Options
- 95% Enhanced Aluminum Wide Distribution Reflectors (Std.)
No Reflector (Recommended)
- High Gloss Polyester White Paint
- Riveted Construction and Vented Ballast Channel
- V-Clips for Dual Point Chain or Cable Hanging (Std)
- Multiple Dimming and Sensor Options to Fully Control
Occupied and Unoccupied Light Levels
- 0-10V Dimming Driver (Std.)*
- 5000K Color Temp (Std)
- 5 Year Warranty
- ETL Damp Listed
- DesignLights Consortium® Listed

* To Ensure Lead Wires Are Attached, "DIM" Call Out Is Required
When Building Part Number



REPLACES 400W MH



LED SYSTEM

Board (LG Chips)	6 x 56
Calculated L70 (TM-21)	99,000 hours
Delivered Lumens	18,252 lm
Total Input Watts	169.0 W
Luminaire Efficacy Rating (LER)	108.0 lm/W
Correlated Color Temperature (CCT)	5000 K
Color Rendering Index (CRI)	> 80
Max Ambient Temp	130° F ⁽³⁾
Universal Driver	120-277 V

LED System data above based on HB-150WLED-UNIV-5000K-N

⁽¹⁾ LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25°C ambient

⁽²⁾ Specific Configurations Listed on DLC. ⁽³⁾ Max ambient temp applies to standard driver installed.

SUITABLE APPLICATIONS

- Warehouse
- Distribution
- Manufacturing Plant
- Gymnasium



ORDERING GUIDE:

HB	150WLED	UNIV	5000K	eg: N
----	---------	------	-------	-------

Series	LED	Driver	Color	Options
--------	-----	--------	-------	---------

☐ HB High Bay 4ft	☐ 150WLED 4x56 Board	☐ UNIV 120-277 Driver	☐ 4000K* ☐ 5000K* *DLC Listed Config.	☐ FRL Frosted Acrylic Lens ☐ PCL Polycarbonate Lens .125" ☐ N* No Reflector (recommended) ☐ DIM 0-10V Dimmable Driver ☐ FIOS On/Off Occupancy Sensor Installed ☐ FIOSPC On/Off Occupancy Sensor w/ Photocell ☐ FIOSPC/DLH On/Off Occ. Sensor w/ Daylight Harvesting ☐ USDC User Selectable Dimming Control ☐ USBD User Select Bi-level Dim w/ Occ. Sensor ☐ BDxx Preset Bi-level Dim Sensor (xx=% eg. 20,30) ☐ BDxxPC Preset Bi-level Dim Sensor w/ Photocell ☐ DHPC Daylight Harvesting ☐ PC Photocell ☐ SD480** 480V Step Down Transformer ☐ SD347** 347V Step Down Transformer ☐ LEDBB LED Battery Backup (may reduce max ambient) ☐ CLD For Below 0°C/32°F Environment ☐ CORDx Cord (x = ft) ☐ QDCx Quick Disconnect Cord (x = ft) ☐ HB-XX-18Y-PAD Y-Toggle Cable System (xx = in) ☐ WC 11 GA Wire Cage
--	---	--	--	--

**Option Not Currently DLC Qualified

PROJECT NAME:	
CATALOG NUMBER:	FIXTURE TYPE:
VOLTS/WATTS:	LAMPS/BOARD:



AMAZON - 80W LED

WET LOCATION

FEATURES

- 4 Foot Enclosure
- Suitable for Wall or Ceiling Mount
- Impact Resistant, Ribbed Acrylic Clear Lens (Std), Ribbed Acrylic Frosted (RAF), Ribbed Polycarbonate (PC-4ft Only) Deep Clear Lens (DCL) or Deep Frosted Lens (DFL) Options
- Continuous Poured, Closed Cell Polyurethane Gasket
- Stainless Steel Mounting Brackets for Drill Free Mounting
- Polycarbonate Latches* (Std), Stainless Steel (SS) Optional
- Tamper Proof Screws (TPS) Optional
- 5 Year Warranty
- Fiberglass Body Attributes
 - IP65, IP66 & IP67 (Dust Tight, Low Pressure Water Jets, High Pressure Water Jets, and Immerse 1M)
 - NEMA4 & NSF Rated Components, 5VA Flame Rating
 - UL Listed / Wet Locations, (F1) Rated for Outdoor Use

LED SYSTEM

Board (Nichia Chips)	2 x 36
Calculated L70 (TM-21)	57,000 hours
Delivered Lumens	5,673 lm
Total Input Watts	79.94 W
Luminaire Efficacy Rating (LER)	70.97 lm/W
Correlated Color Temperature (CCT)	5000 K
Color Rendering Index (CRI)	> 80
Max Ambient Temp	100° F
Universal Driver	120-277 V

LED System data above based on WT-80WLED-UNIV-50

⁽¹⁾ LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25°C ambient

*Stainless Steel latches are recommended for the following applications: swimming pools due to chlorine, food processing due to cleaning chemicals, car washes due to chemicals used, agriculture due to ammonia

Ordering Guide

WT	80WLED	UNIV	50	eg: RAFL
----	--------	------	----	----------

Series	LED	Driver	Color	Options
--------	-----	--------	-------	---------

☐ WT	Amazon 4ft	☐ 80WLED	☐ UNIV	120-277 Driver	☐ 30*	☐ RPCL	Ribbed Polycarbonate Lens (4 ft Only)
					☐ 40	☐ RAFL	Ribbed Acrylic Frosted Lens (recommended)
					☐ 50	☐ DPCL	Deep Clear Lens
						☐ DPFL	Deep Frosted Lens
						☐ CORDWx	Wet Location Strain Relief Cord (x = ft)
						☐ SD480	480V Step Down Transformer
						☐ FI/ILBCP05	5W LED Factory Installed Battery Backup
						☐ FI/ILBCP07	7W LED Factory Installed Battery Backup
						☐ FI/ILBCP10	10W LED Factory Installed Battery Backup
						☐ FI/ILBCP12	12W LED Factory Installed Battery Backup
						☐ SS	Stainless Steel Latches
						☐ TPS	Tamper Proof Screws
						☐ DIM	0-10V Dimmable Driver
						☐ FIOS	On/Off Occupancy Sensor Installed
						☐ FIOSPC	On/Off Occupancy Sensor w/ Photocell
						☐ USDC	User Selectable Dimming Control
						☐ USBD	User Select Bi-level Dim w/ Occ. Sensor
						☐ BDxx	Preset Bi-level Dim Sensor (xx=% eg. 20,30)
						☐ BDxxPC	Preset Bi-level Dim Sensor w/ Photocell
						☐ DHPC	Daylight Harvesting
						☐ PCxxx	Photocell (xxx = Voltage)
						☐ AB/45DEG	45 degree angled surface/wall mount brackets, (2) per fixture

*Call for Availability

*Battery Backup Options See Field Installed LED BB Sheet.

REPLACES 2T5HO,
175W MH



Optional
Deep Frosted Lens
(DPFL)

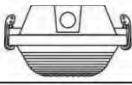
SUITABLE APPLICATIONS

- Parking Garage
- Food Processing and Preparation (SS Latches)
- Pool Areas (SS Latches)
- Car Washes (SS Latches)



AMAZON - 80W LED

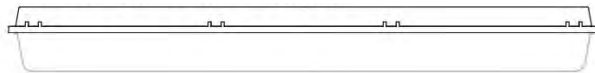
WET LOCATION

	Wide (2 Light)	Nominal Length	Width	Length	Depth
Lineal Ribbed Diffuser		4'	6.40"	51.37"	4.25"
		8'	6.40"	99.50"	4.25"
Deep Clear Lens		4'	6.40"	51.37"	5.63"
		8'	6.40"	99.50"	5.63"

Lineal Ribbed Diffuser 4' and 8' Lengths



Deep Clear Lens 4' and 8' Lengths



MOUNTING OPTIONS

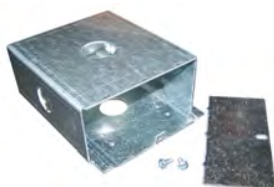
- **SS Mounting Brackets** for drill-free surface mounting (2 brackets standard)
- **Fixture Mounting Box (FMB)** - Includes rigid box to attach to the fixture, provides for single point mounting to accept a pendant, hook, or conduit hub (sold separately).



Drill-Free Stainless Steel Mounting Brackets



HOOK



FMB



AB/45DEG



HUB 3/4

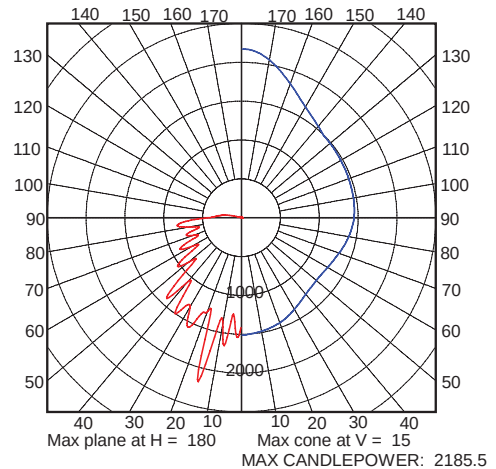
WT-80WLED-UNIV

LUMINAIRE OUTPUT = 5668 LMS
120VAC, 671.3mA 79.94W, 0.9922PF

SUMMARY DATA

HEMISPHERES TESTED: BOTH
EFFICIENCY (Total): 100.0 %
EFFICIENCY (Down / Up): 92.7 % / 7.3 %
EFFICIENCY (Street / House): 55.1 % / 44.9 %
ROADWAY CLASSIFICATION: TYPE II, VERY SHORT
CUTOFF CLASSIFICATION: NONCUTOFF
LUMENS/LAMP: 5670.853
NO. OF LAMPS: 1
LUMINOUS OPENING: RECTANGULAR
Width: 0.54 (Feet)
Length: 4.29
Height: 0.09
INPUT WATTS: 79.9

PLANE AND CONE DIAGRAM



Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

LED

Industrial Lighting Products

lighting facts®

A Program of the U.S. DOE

Light Output (Lumens)	5673
Watts	79.94
Lumens per Watt (Efficacy)	70

Color Accuracy	70
Color Rendering Index (CRI)	

Light Color

Correlated Color Temperature (CCT)

5167 (Daylight)

Warm White

Bright White

Daylight

2700K

3000K

4500K

6500K

All results are according to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting. The U.S. Department of Energy (DOE) verifies product test data and results.

Visit www.lightingfacts.com for the Label Reference Guide.

Registration Number: 8QYC-MSBQL2 (9/24/2012)
Model Number: WT-80WLED-UNIV-PLUG
Type: Surface-mounted fixture (other)

Technical Data



PowerFlex 4 and 40 AC Drives

Original Instructions



Topic	Page
Product Overview	2
Reference Materials	2
Packaging and Mounting	3
Start Up, Programming and Operation	3
Optimized Performance	4
Sensorless Vector Performance	4
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PowerFlex 4 and 40 Configured Drives	32

LISTEN.
THINK.
SOLVE.®

Catalog Number Explanation

1-3	4	5	6-8	9	10	11	12	13-14
22A	-	A	1P5	N	1	1	4	AA
a		b	c	d	e	f	g	h

a	
Drive	
Code	Type
22A	PowerFlex 4
22B	PowerFlex 40

b		
Voltage Rating		
Code	Voltage	Ph.
V	120V ac	1
A	240V ac	1
B	240V ac	3
D	480V ac	3
E	600V ac	3

c1		
Rating		
100-120V Single-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
6P0	6.0	1.1 (1.5)

c2		
Rating		
200-240V Single-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
8P0	8.0	1.5 (2.0)
012	12	2.2 (3.0)

c3		
Rating		
200-240V Three-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
8P0	8.0	1.5 (2.0)
012	12	2.2 (3.0)
017	17.5	3.7 (5.0)
024	24	5.5 (7.5)
033	33	7.5 (10)

c4		
Rating		
380-480V Three-Phase Input		
Code	Amps	kW (Hp)
1P4	1.4	0.4 (0.5)
2P3	2.3	0.75 (1.0)
4P0	4.0	1.5 (2.0)
6P0	6.0	2.2 (3.0)
010	10.5	4.0 (5.0)
012	12	5.5 (7.5)
017	17	7.5 (10)
024	24	11 (15)

c5		
Rating		
460-600V Three-Phase Input		
Code	Amps	kW (Hp)
1P7	1.7	0.75 (1.0)
3P0	3.0	1.5 (2.0)
4P2	4.2	2.2 (3.0)
6P6	6.6	4.0 (5.0)
9P9	9.9	5.5 (7.5)
012	12	7.5 (10)
019	19	11 (15)

d	
Enclosure	
Code	Enclosure
C	IP66, NEMA/UL Type 4X *
F	Flange Mount - IP20, NEMA/UL Type Open
H	Replacement Plate Drive - IP20, NEMA/UL Type Open Contact factory for ordering information.
N	Panel Mount - IP20, NEMA/UL Type Open

* Check availability before ordering.

e	
HIM	
Code	Interface Module
1	Fixed Keypad

f	
Emission Class	
Code	Rating
0	Not Filtered
1	Filtered

g	
Brake IGBT	
Code	Description
3	Without Brake
4	With Brake

h	
Optional	
Code	Purpose
AA through ZZ	Reserved for custom firmware

Product Selection

Drive Ratings			PowerFlex 4			IP 20 Flange Mount ⁽²⁾	PowerFlex 40			IP 66, UL Type 4X Panel Mount	IP 20 Flange Mount ⁽²⁾
Input Voltage	kW	HP	Output Current	Catalog Number	Frame Size	Catalog Number	Output Current	Catalog Number	Frame Size	Catalog Number	Catalog Number
120V 50/60 Hz 1-Phase No Filter	0.2	0.25	1.5A	22A-V1P5N104	A	22A-V1P5F104	—	—	—	—	—
	0.4	0.5	2.3A	22A-V2P3N104	A	22A-V2P3F104	2.3A	22B-V2P3N104	B	22B-V2P3C104	22B-V2P3F104
	0.75	1.0	4.5A	22A-V4P5N104	B	22A-V4P5F104	5.0A	22B-V5P0N104	B	22B-V5P0C104	22B-V5P0F104
	1.1	1.5	6.0A	22A-V6P0N104	B	22A-V6P0F104	6.0A	22B-V6P0N104	B	22B-V6P0C104	22B-V6P0F104
240V 50/60 Hz 1-Phase NO BRAKE No Filter	0.2	0.25	1.4A	22A-A1P4N103	A	—	—	—	—	—	—
	0.4	0.5	2.1A	22A-A2P1N103	A	—	—	—	—	—	—
	0.75	1.0	3.6A	22A-A3P6N103	A	—	—	—	—	—	—
	1.5	2.0	6.8A	22A-A6P8N103	B	—	—	—	—	—	—
240V 50/60 Hz 1-Phase NO BRAKE With Integral "S Type" EMC Filter ⁽¹⁾	2.2	3.0	9.6	22A-A9P6N103	B	—	—	—	—	—	—
	0.2	0.25	1.4A	22A-A1P4N113	A	—	—	—	—	—	—
	0.4	0.5	2.1A	22A-A2P1N113	A	—	—	—	—	—	—
	0.75	1.0	3.6A	22A-A3P6N113	A	—	—	—	—	—	—
240V 50/60 Hz 1-Phase With Integral "S Type" EMC Filter ⁽¹⁾	1.5	2.0	6.8A	22A-A6P8N113	B	—	—	—	—	—	—
	2.2	3.0	9.6	22A-A9P6N113	B	—	—	—	—	—	—
	0.2	0.25	1.5A	22A-A1P5N114	A	—	—	—	—	—	—
	0.4	0.5	2.3A	22A-A2P3N114	A	—	2.3A	22B-A2P3N114	B	—	—
240V 50/60 Hz 1-Phase No Filter	0.75	1.0	4.5A	22A-A4P5N114	A	—	5.0A	22B-A5P0N114	B	—	—
	1.5	2.0	8.0A	22A-A8P0N114	B	—	8.0A	22B-A8P0N114	B	—	—
	2.2	3.0	—	—	—	—	12.0A	22B-A012N114	C	—	—
	0.2	0.25	1.5A	22A-A1P5N104	A	22A-A1P5F104	—	—	—	—	—
240V 50/60 Hz 1-Phase No Filter	0.4	0.5	2.3A	22A-A2P3N104	A	22A-A2P3F104	2.3A	22B-A2P3N104	B	22B-A2P3C104	22B-A2P3F104
	0.75	1.0	4.5A	22A-A4P5N104	A	22A-A4P5F104	5.0A	22B-A5P0N104	B	22B-A5P0C104	22B-A5P0F104
	1.5	2.0	8.0A	22A-A8P0N104	B	22A-A8P0F104	8.0A	22B-A8P0N104	B	22B-A8P0C104	22B-A8P0F104
	2.2	3.0	—	—	—	—	12.0A	22B-A012N104	C	—	22B-A012F104
240V 50/60 Hz 3-Phase No Filter	0.2	0.25	1.5A	22A-B1P5N104	A	22A-B1P5F104	—	—	—	—	—
	0.4	0.5	2.3A	22A-B2P3N104	A	22A-B2P3F104	2.3A	22B-B2P3N104	B	22B-B2P3C104	22B-B2P3F104
	0.75	1.0	4.5A	22A-B4P5N104	A	22A-B4P5F104	5.0A	22B-B5P0N104	B	22B-B5P0C104	22B-B5P0F104
	1.5	2.0	8.0A	22A-B8P0N104	A	22A-B8P0F104	8.0A	22B-B8P0N104	B	22B-B8P0C104	22B-B8P0F104
	2.2	3.0	12.0A	22A-B012N104	B	22A-B012F104	12.0A	22B-B012N104	B	22B-B012C104	22B-B012F104
	3.7	5.0	17.5A	22A-B017N104	B	22A-B017F104	17.5A	22B-B017N104	B	22B-B017C104	22B-B017F104
	5.5	7.5	—	—	—	—	24.0A	22B-B024N104	C	—	22B-B024F104
	7.5	10.0	—	—	—	—	33.0A	22B-B033N104	C	—	22B-B033F104
480V 50/60 Hz 3-Phase No Filter	0.4	0.5	1.4A	22A-D1P4N104	A	22A-D1P4F104	1.4A	22B-D1P4N104	B	22B-D1P4C104	22B-D1P4F104
	0.75	1.0	2.3A	22A-D2P3N104	A	22A-D2P3F104	2.3A	22B-D2P3N104	B	22B-D2P3C104	22B-D2P3F104
	1.5	2.0	4.0A	22A-D4P0N104	A	22A-D4P0F104	4.0A	22B-D4P0N104	B	22B-D4P0C104	22B-D4P0F104
	2.2	3.0	6.0A	22A-D6P0N104	B	22A-D6P0F104	6.0A	22B-D6P0N104	B	22B-D6P0C104	22B-D6P0F104
	3.7	5.0	8.7A	22A-D8P7N104	B	22A-D8P7F104	—	—	—	—	—
	4.0	5.0	—	—	—	—	10.5A	22B-D010N104	B	22B-D010C104	22B-D010F104
	5.5	7.5	—	—	—	—	12.0A	22B-D012N104	C	—	22B-D012F104
	7.5	10.0	—	—	—	—	17.0A	22B-D017N104	C	—	22B-D017F104
600V 50/60 Hz 3-Phase No Filter	11.0	15.0	—	—	—	—	24.0A	22B-D024N104	C	—	22B-D024F104 ⁽³⁾
	0.75	1.0	—	—	—	—	1.7A	22B-E1P7N104	B	22B-E1P7C104	22B-E1P7F104
	1.5	2.0	—	—	—	—	3.0A	22B-E3P0N104	B	22B-E3P0C104	22B-E3P0F104
	2.2	3.0	—	—	—	—	4.2A	22B-E4P2N104	B	22B-E4P2C104	22B-E4P2F104
	4.0	5.0	—	—	—	—	6.6A	22B-E6P6N104	B	22B-E6P6C104	22B-E6P6F104
	5.5	7.5	—	—	—	—	9.9A	22B-E9P9N104	C	—	22B-E9P9F104
	7.5	10.0	—	—	—	—	12.0A	22B-E012N104	C	—	22B-E012F104
	11.0	15.0	—	—	—	—	19.0A	22B-E019N104	C	—	22B-E019F104

(1) This filter is suitable for use with a cable length of at least 10 meters for Class A and 1 meter for Class B environments.

(2) Meets IP40/54/65 (NEMA 1/12/4/4X) when installed in an enclosure of like rating.

(3) Requires use of external DC Bus Inductor or AC Line Reactor.

Shaded areas are applicable to PowerFlex 40 only.

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in

Case No(s). 17-0527-EL-EEC

Summary: Application The Kroger Co. and Ohio Power Company for approval of a special arrangement agreement with a mercantile customer electronically filed by Mr. Ryan F.M. Aguiar on behalf of Ohio Power Company