



Legal Department

May 11, 2016

Chairman Andre T. Porter
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3793

Re: **In the Matter of the Application of**)
McDonalds)
and Ohio Power Company) **Case No. 16-0222-EL-EEC**
for Approval of a Special Arrangement)
Agreement with a Mercantile Customer)

Erin C. Miller
Counsel
Regulatory Services
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Ecmiller1@aep.com

Dear Chairman Porter,

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 2016 (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/ Erin C. Miller
Erin C. Miller

Attachments



Public Utilities Commission

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

Case No.: 16-0222-EL-EEC

Mercantile Customer: MCDONALDS

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: MCDONALDS

Principal address: 20830 N Tatum Blvd Ste 330, Phoenix, Az 85050

Address of facility for which this energy efficiency program applies: 1067 N Bridge St, Chillicothe, Oh 45601-1706

Name and telephone number for responses to questions:

Daniel Sapien, Mcdonalds, (480) 346-5819

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, 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)).
- ☐ 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):
9/15/2014
- ☐ 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:

Annual savings: kWh

- 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:

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

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

Annual savings: 19,967 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.

Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.

The less efficient new equipment is the minimum required by Ohio State code or Federal Standard whichever is more stringent. For those measures where no code applies the baseline equipment is assumed to be the least efficient equipment available in the marketplace or standard practice, whichever results in the most conservative annual savings. Any information available describing the less efficient new equipment option is provided in 10-1599-EL-EEC for the work papers that provide all methodologies, protocols, and practices used in this application for prescriptive measures.

- 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 (choose which 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):

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

KW Demand Reduction = Unit Quantity (watts) x (Deemed KW/Unit (watts))

4.0 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 seeking is:

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

☒ A cash rebate of \$ 1,314.79. (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.)

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: 4.64 (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 \$ 6,656.32

The utility's program costs were \$ 119.80

The utility's incentive costs/rebate costs were \$ 1,314.79.

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

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

Case No.: 16-0222-EL-EEC

State of Ohio :

Ozgin Donaci (Engineer), 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.

[Signature] Engineer
Signature of Affiant & Title

Sworn and subscribed before me this 4th day of May, 2016 Month/Year

[Signature]
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



A unit of American Electric Power

Attachment 1
Self Direct Project Overview & Commitment
Page 1 of 1

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	MCDONALDS	
Project Number	AEP-15-16921	
Customer Premise Address	1067 N BRIDGE ST, CHILLICOTHE, OH 45601-1706	
Customer Mailing Address	20830 N Tatum Blvd Ste 330, Phoenix, AZ 85050	
Date Received	11/12/2015	
Project Installation Date	9/15/2014	
Annual kWh Reduction	19,967	
Total Project Cost	\$7,178.30	
Unadjusted Energy Efficiency Credit (EEC) Calculation	\$1,753.05	
Simple Payback (yrs)	4.4	
Utility Cost Test (UCT) for EEC	4.64	
Utility Cost Test (UCT) for Exemption	0.04	
<i>Please Choose One Option Below and Initial</i>		
Self Direct EEC: 75%	\$1,314.79	<input checked="" type="checkbox"/> Initial: <u>DS</u>
EE/PDR Rider Exemption	NA	<input type="checkbox"/> Initial: N/A

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.

- New 9 ton rooftop unit Lennox LGH120H
- New 5 ton rooftop unit Lennox LGH60H
- New efficient ice maker
- New interior lighting-LPD-saved 2000 watts from baseline
- New exterior lighting-LPD-saved 400 watts from baseline
- New 5 ton air side economizer

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

MCDONALDS

By: [Signature]

By: [Signature]

Title: Manager

Title: Rebate Coordinator

Date: 2/11/2016

Date: 2-10-16

Prescriptive, Custom & Self-Direct
Program Application



APPLICATION GUIDELINES

All 2015 AEP Ohio Business Incentives Program projects must be completed and Final Applications received no later than November 13, 2015, 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

2740 Airport Drive, Suite 160, Columbus, OH 43219

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.

*Prescriptive, Custom & Self-Direct
Program Application*



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 - 1 ____ - ____

AEP Ohio Business Incentives Program

2740 Airport Drive, Suite 160. Columbus, OH 43219
Phone: (877) 607-0739 | Fax: (877) 607-0740
aepohioincentives@dnvgl.com
Visit our website at AEPohio.com/solutions

*Prescriptive, Custom & Self-Direct
Program Application*



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 _____ 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 ten digits of the account number.

*Prescriptive, Custom & Self-Direct
Program Application*



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

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

*Prescriptive, Custom & Self-Direct
Program Application*



CUSTOMER AGREEMENT

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

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

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

Prescriptive, Custom & Self-Direct
Program Application



CUSTOMER AGREEMENT

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

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)
_____	_____	_____

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) _____ Is this a Self-Direct application? (Select One) _____

Project Completion Date _____ Total Project Cost _____

Date _____ Total Applied for Incentive _____

Total Requested Incentive¹ _____ \$ 0.00 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.

MCDONALDS is a mercantile customer.

Customer Name	Service Address	Service City	Service State	Service Zip
MCDONALDS	600 N Clark St	Chicago	IL	60610
MCDONALDS	180 W Adams St	Chicago	IL	60603
MCDONALDS	4587 OLD SCIOTO TRL	PORTSMOUTH	OH	45662
MCDONALDS	2624 GALLIA ST	PORTSMOUTH	OH	45662
MCDONALDS	103 ETNA CREST BLVD	ETNA	OH	43062
MCDONALDS	525 W MARKET ST	LIMA	OH	45801

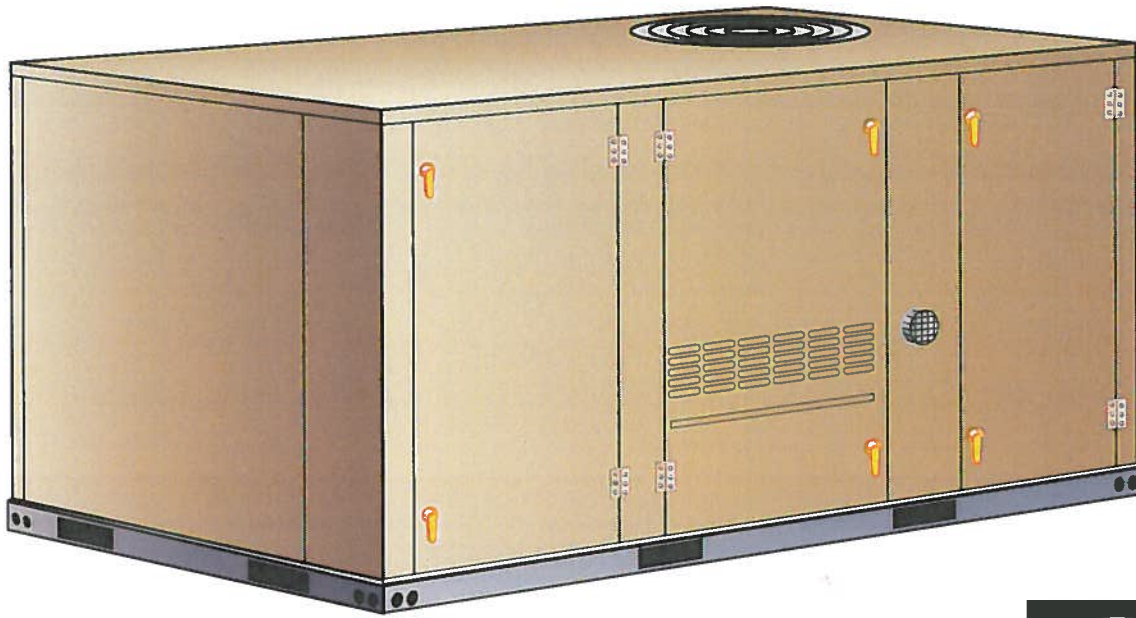
ALLIEDTM

Commercial

PRODUCT SPECIFICATIONS

PACKAGED GAS ELECTRIC LGH E-Series Rooftop Units 60 HZ

Bulletin No. LGH-036-072 (09/2012)



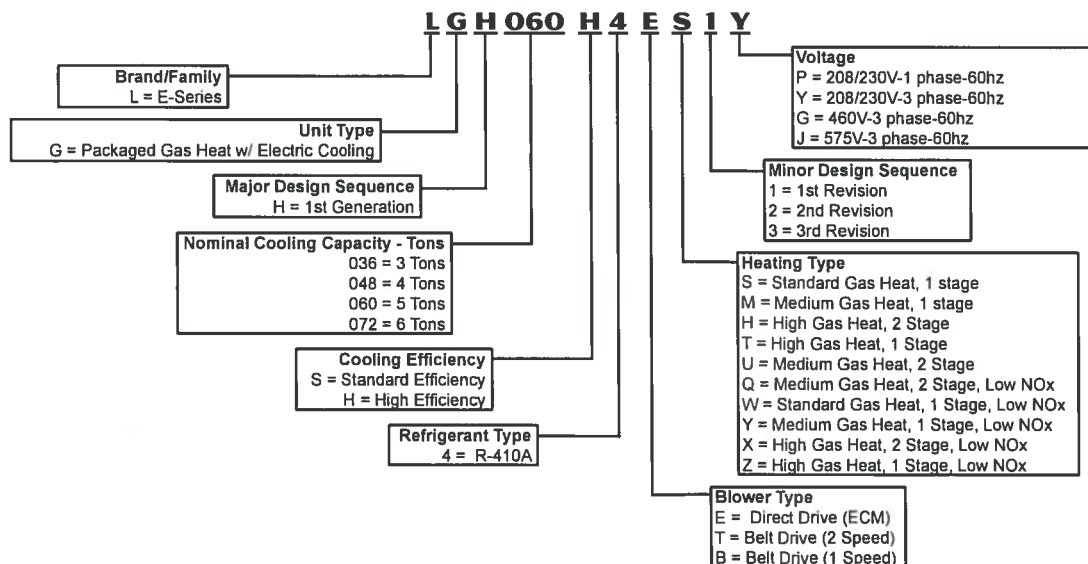
**ASHRAE 90.1
COMPLIANT**



3 to 6 Tons

**Net Cooling Capacity - 34,800 to 72,000 Btuh
Gas Input Heat Capacity - 65,000 to 150,000 Btuh**

MODEL NUMBER IDENTIFICATION



OPTIONS / ACCESSORIES

Item	Model Number	Catalog Number	Unit Model No			
			036	048	060	072
CONTROLS						
Blower Proving Switch	C1SNSR35FF1	53W65	OX	OX	OX	OX
Commercial Controls	CPC Einstein Integration	Factory	O	O	O	O
Intelli-guide™ Control System - BACnet® Module - C0CTRL60AE1L	59W51		OX	OX	OX	OX
Intelli-guide™ Control System - LonTalk® Module - C0CTRL65FF1	54W27		OX	OX	OX	OX
Novar® 2051 - E0CTRL30A1	64W72		OX	OX	OX	OX
Novar® LSE	Factory		O	O	O	O
Dirty Filter Switch	E1SNSR55AP1	53W66	OX	OX	OX	OX
Fresh Air Tempering	C1SNSR75AD1	58W63	OX	OX	OX	OX
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44AP1	53W78	OX	OX	OX	OX
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43AP1	53W79	OX	OX	OX	OX
ELECTRICAL						
Voltage	208/230V - 1 phase	Factory	1 O	1 O	1 O	
60 hz	208/230V - 3 phase	Factory	O	O	O	O
	460V - 3 phase	Factory	O	O	O	O
	575V - 3 phase	Factory	O	O	O	O
HACR Circuit Breakers		Factory	O	O	O	O
Disconnect Switch	80 amp - T1DISC080AH1	20W23	OX	OX		
	80 amp - T1DISC080NH1	20W26			OX	OX
GFI Service	15 amp non-powered, field-wired (208/230V, 460V only)	LTAGFIK10/15	74M70	OX	OX	OX
Outlets	20 amp non-powered, field-wired (575V only)	Factory	O	O	O	O
Phase/Voltage Detection - 3 Phase Models Only		Factory	O	O	O	O
ECONOMIZER						
Economizer With Outdoor Air Hood (Sensible Control)						
Economizer - With Barometric Relief Dampers and Exhaust Hood		Factory	O	O	O	O
Economizer - With Power Exhaust Fan and Barometric Relief Dampers with Exhaust Hood		Factory	O	O	O	O
Economizer - No Exhaust Option		Factory	O	O	O	O
Economizer - With Barometric Relief Damper with Hood	E1ECON30A-2-	90W59	X	X		
	E1ECON30AT2-	90W60			X	X
Horizontal Economizer Conversion Kit	T1HECK00AN1	17W45	X	X	X	X
Economizer Controls						
Differential Enthalpy	Order 2 - C1SNSR64FF1	53W64	OX	OX	OX	OX
Sensible Control	Sensor is Furnished	Factory	O	O	O	O
Single Enthalpy	C1SNSR64FF1	53W64	OX	OX	OX	OX
Global Control	Sensor Field Provided	Factory	O	O	O	O
OUTDOOR AIR						
Outdoor Air Dampers						
Damper Section - Manual, Includes Outdoor Air Hood	C1DAMP11A-1-	53W34	OX	OX		
	C1DAMP11AT1-	53W37			OX	OX
Damper Section - Motorized, Includes Outdoor Air Hood	E1DAMP21A-1-	53W35	OX	OX		
	E1DAMP21AT1-	53W38			OX	OX
POWER EXHAUST FAN						
Standard Static	208/230V-1 or 3ph - C1PWRE10A-1P	79W87	OX	OX		
Note: Factory installed Power Exhaust Fan includes Exhaust Hood. Barometric Relief Dampers without Exhaust Hood are required (order separately).	460V-3ph - C1PWRE10A-1G	79W88	OX	OX		
	575V-3ph - C1PWRE10A-1J	79W89	OX	OX		
Note: Field installed Power Exhaust Fans do not include Exhaust Hood. Barometric Relief Dampers with Exhaust Hood are required (order separately).	208/230V-1 or 3ph - C1PWRE10AT1P	79W90			OX	OX
	460V-3ph - C1PWRE10AT1G	79W91			OX	OX
	575V-3ph - C1PWRE10AT1J	79W92			OX	OX
BAROMETRIC RELIEF						
² Barometric Relief Dampers with Exhaust Hood	C1DAMP50A-1-	74W38	X	X		
	C1DAMP50AT1-	74W39			X	X
³ Barometric Relief Dampers without Exhaust Hood	C1DAMP50A-2-	72W89	X	X		
	C1DAMP50AT2-	72W90			X	X

¹ 208/230-1ph not available on belt drive units.

² Required when Economizer is factory installed (no exhaust option) with field installed Power Exhaust Fan option.

³ Required when Economizer is factory installed with factory installed Power Exhaust Fan option.

NOTE - Catalog and model numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed

OPTIONS / ACCESSORIES

Item	Model Number	Catalog Number	Unit Model No			
			036	048	060	072
CONDENSER REHEAT OPTION						
Dehumidification		Factory	O	O	O	O
Humidity Sensor Kit, Remote mounted (required)	COSNSR31AE-1	17M50	X	X	X	X
INDOOR AIR QUALITY						
Air Filters						
High Efficiency Air Filters	MERV 8 (16 x 20 x 2) - C1FLTR15A-1-	54W20	OX	OX		
Order 4 per unit	MERV 13 (16 x 20 x 2) - T1FLTR40A-1-	52W37	OX	OX		
	MERV 8 (20 x 20 x 2) - C1FLTR15D-1-	54W21			OX	OX
	MERV 13 (20 x 20 x 2) - C1FLTR40D-1-	52W39			OX	OX
Replaceable Media Filter With Metal Mesh	16 x 20 x 2 (Order 4) - K1FLTR30A-1	39W09	X	X		
Frame (includes non-pleated filter media)	20 x 20 x 2 (Order 4) - K1FLTR30A-2	44N60			X	X
Indoor Air Quality (CO ₂) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	77N39	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display	C0SNSR52AE1L	87N53	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting	C0SNSR51AE1L	87N52	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0MISC19AE1	87N54	X	X	X	X
CO ₂ Sensor Duct Mounting Kit - for downflow applications	C0MISC19AE1-	85L43	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensors (87N53 or 77N39)	C0MISC16AE1-	90N43	X	X	X	X
UVC Germicidal Lamps						
¹ UVC Light Kit (208/230v-1ph)	C1UVCL10AN1-	50W90	OX	OX	OX	OX
ROOF CURBS - DOWNFLOW						
Clip Curb						
8 in. height	T1CURB23AN1	16W93	X	X	X	X
14 in. height	T1CURB20AN1	16W94	X	X	X	X
18 in. height	T1CURB21AN1	16W95	X	X	X	X
24 in. height	T1CURB22AN1	16W96	X	X	X	X
Hinged						
8 in. height	T1CURB30AN1	17W46	X	X	X	X
18 in. height	T1CURB32AN1	17W47	X	X	X	X
24 in. height	T1CURB33AN1	17W48	X	X	X	X
Standard						
14 in. height	T1CURB10AN1	13W27	X	X	X	X
Adjustable Pitched Curb						
14 in. height	C1CURB55AT1	43W27	X	X	X	X
CEILING DIFFUSERS						
Step-Down - Order one	RTD9-65-R	27G87	X	X	X	
	RTD11-95	29G04				X
	(Canada Only) RTD11-95S	13K61				X
Flush - Order one	FD9-65-R	27G86	X	X	X	
	FD11-95	29G08				X
	(Canada Only) FD11-95S	13K56				X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	17W53	X	X	X	
	T1TRAN20N-1	17W54				X

¹ Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).

NOTE - Catalog and model numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed

SPECIFICATIONS - DIRECT DRIVE

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton
		Model Number	LGH036H4E	LGH048H4E	LGH060H4E
		Efficiency Type	High	High	High
		Blower Type	Multi-Speed Direct Drive	Multi-Speed Direct Drive	Multi-Speed Direct Drive
Cooling Performance	Gross Cooling Capacity - Btuh		35,800	50,100	61,600
	¹ Net Cooling Capacity - Btuh		35,200	49,000	60,000
	AHRI Rated Air Flow - cfm		1200	1600	1750
	Total Unit Power - kW		2.8	3.8	4.7
	¹ SEER (Btuh/Watt) - 208/230V-1-3ph		18.0	17.6	17.1
	¹ SEER (Btuh/Watt) - 460V-3ph, 575V-3ph		17.0	17.0	17.0
	¹ EER (Btuh/Watt) - 208/230V-1-3ph		12.7	12.8	12.7
	¹ EER (Btuh/Watt) - 460V-3ph, 575V-3ph		12.5	12.8	12.7
	Refrigerant Type		R-410A	R-410A	R-410A
Refrigerant Charge	Eco-last™™ Coil System		5 lbs. 9 oz.	6 lbs.10 oz.	8 lbs. 1 oz.
	Conventional Fin/Tube Coil		9 lbs. 1 oz.	11 lbs. 5 oz.	15 lbs. 8 oz.
	Conventional Fin/Tube With Dehumidification Option		9 lbs. 12 oz.	12 lbs. 7 oz.	17 lbs. 8 oz.
Gas Heating Options Available - See page 16			Standard (1 stage) or Medium (1 or 2 stage)	Standard (1 stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)	Standard (1 stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)
Compressor Type (number)			Scroll (1)	Scroll (1)	Scroll (1)
Outdoor Coil Eco-last™ (Fin/Tube)	Net face area (total) - sq. ft.		11.70 (15.60)	14.50 (15.60)	17.80 (19.30)
	Tube diameter - in.		0.71 (3/8)	0.71 (3/8)	0.71 (3/8)
	Number of rows		1 (1.5)	1 (2)	1 (2)
	Fins per inch		20 (20)	20 (20)	20 (20)
Outdoor Coil Fans	Motor - (No.) horsepower		(1) 1/3 (ECM)	(1) 1/3 (ECM)	(1) 1/3 (ECM)
	Motor rpm		715-810	645-810	930-1100
	Total Motor Input - watts		112-160	89-165	230-350
	Diameter - (No.) in.		(1) 24	(1) 24	(1) 24
	Number of blades		3	3	3
	Total air volume - cfm		3400-3795	2910-3675	4315-4980
Indoor Coil	Net face area (total) - sq. ft.		7.78	7.78	9.72
	Tube diameter - in.		3/8	3/8	3/8
	Number of rows		3	4	4
	Fins per inch		14	14	14
	Drain connection (Number) and size - in.		(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type		Balance port TXV, removable head		
² Indoor Blower	Nominal motor HP		0.50 (ECM)	0.75 (ECM)	1 (ECM)
	Blower wheel nominal diameter x width - in.		(1) 10 X 10	(1) 10 X 10	(1) 11 X 10
Filters	Type of filter		disposable		
	Number and size - in.		(4) 16 X 20 X 2		(4) 20 x 20 x 2
Electrical characteristics			208/230V - 60 Hz - 1 phase 208/230V, 460V, or 575V - 60 Hz -3 phase		

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

² Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - BELT DRIVE

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton	6 Ton
Model Number		LGH036S4T	LGH048S4T	LGH060S4T	LGH072H4B	
Efficiency Type		Standard	Standard	Standard	High	
Blower Type		Two Speed Belt Drive	Two Speed Belt Drive	Two Speed Belt Drive	Single Speed Belt Drive	
Cooling Performance	Gross Cooling Capacity - Btuh	35,800	50,100	61,600	73,500	
	Net Cooling Capacity - Btuh	¹ 34,800	¹ 49,000	¹ 60,000	² 72,000	
	AHRI Rated Air Flow - cfm	1200	1600	1750	1920	
	Total Unit Power - kW	3.0	4.1	4.8	6.0	
	SEER (Btuh/Watt)	¹ 15.0	¹ 15.0	¹ 15.5	---	
	EER (Btuh/Watt)	¹ 11.6	¹ 12.5	¹ 12.5	² 12.0	
	IEER (Btuh/Watt)	---	---	---	² 13.5	
	Refrigerant Type	R-410A	R-410A	R-410A	R-410A	
Refrigerant Charge	Eco-last™ Coil System	5 lbs. 3 oz.	6 lbs. 10 oz.	8 lbs. 5 oz.	8 lbs. 3 oz.	
	Conventional Fin/Tube Coil	9 lbs. 1 oz.	11 lbs. 5 oz.	15 lbs. 8 oz.	16 lbs. 5 oz.	
	Conventional Fin/Tube With Dehumidification Option	9 lbs. 12 oz.	12 lbs. 7 oz.	17 lbs. 8 oz.	16 lbs. 5 oz.	
Gas Heating Options Available - See page 16		Standard (1 stage) or Medium (1 or 2 stage)	Standard (1 stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)	Standard (1 stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)	Standard (1 stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)	
Compressor Type (number)		Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)	
Outdoor Coil Eco-last™ (Fin/Tube)	Net face area (total) - sq. ft.	11.70 (15.60)	14.5 (15.60)	17.80 (19.30)	17.80 (19.30)	
	Tube diameter - in.	0.71 (3/8)	0.71 (3/8)	0.71 (3/8)	0.71 (3/8)	
	Number of rows	1 (1.5)	1 (2)	1 (2)	1 (2)	
	Fins per inch	20 (20)	20 (20)	20 (20)	20 (20)	
Outdoor Coil Fans	Motor - (No.) horsepower	(1) 1/6 (PSC)	(1) 1/4 (PSC)	(1) 1/3 (PSC)	(1) 1/3 (PSC)	
	Motor rpm	825	825	1075	1075	
	Total Motor Input - watts	168	230	410	410	
	Diameter - (No.) in.	(1) 24	(1) 24	(1) 24	(1) 24	
	Number of blades	3	3	3	3	
	Total air volume - cfm	3,000	3,300	4,800	4,800	
Indoor Coil	Net face area (total) - sq. ft.	7.78	7.78	9.72	9.72	
	Tube diameter - in.	3/8	3/8	3/8	3/8	
	Number of rows	3	4	4	4	
	Fins per inch	14	14	14	14	
	Drain connection (Number) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	
Expansion device type		Balance port TXV, removable head				
³ Indoor Blower and Drive Selection	No. of Speeds	2	2	2	1	
	Nominal motor HP	Low static	0.75	0.75	1	1
		High static	1	2	2	2
	Maximum usable motor output (US Only)	Low static	0.86	0.86	1.15	1.15
		High static	1.15	2.3	2.3	2.30
	Motor - Drive kit number	A01	A02	A03	AA01	
		low 449-673	low 497-673	low 555-833	522 - 784 rpm	
		high 673-1010	high 745-1117	high 833-1250	AA02	
		A05	A06	A07	632 - 875 rpm	
		low 598-897	low 714-953	low 808-1032	AA03	
high 897-1346		high 1071-1429	high 1212-1548	798 - 1105 rpm		
Blower wheel nominal diameter x width - in.		(1) 10 X 10	(1) 10 X 10	(1) 10 X 10	(1) 15 X 9	
Filters	Type of filter	disposable				
	Number and size - in.	(4) 16 X 20 X 2		(4) 20 X 20 X 2		
Electrical characteristics		208/230V, 460V, or 575V - 60 hz -3 phase				

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ 2 AHRI Certified to AHRI Standard ¹ 210/240 or ² 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - GAS HEAT

Model No.		LGH036 LGH048 LGH060 LGH072	LGH036 LGH048 LGH060	LGH072	LGH036 LGH048 LGH060	LGH072	LGH048 LGH060	LGH072	LGH048 LGH060	LGH072
Heat Input Type		Standard (1 Stage)	Medium (1 Stage)		Medium (2 Stage)		High (1 Stage)		High (2 Stage)	
Input Btuh	1st Stage	65,000	105,000		73,500		150,000		105,000	
	2nd Stage	---	---		105,000		---		150,000	
Output Btuh	1st Stage	52,000	84,000		59,000		120,000		85,500	
	2nd Stage	---	---		84,000		---		120,000	
Temperature Rise	1st stage	20 - 50	25 - 70	20 - 50	15 - 55	10 - 40	40 - 85	30 - 60	25 - 65	20 - 50
	2nd Stage	---	---	---	25 - 70	20 - 50	---	---	40 - 85	30 - 60
¹ AFUE		80	80	80	80	80	80	80	80	80
Thermal Efficiency	1st Stage	80	80	80	80	80	80	80	81.5	81.5
	2nd Stage	---	---	---	80	80	---	---	80	80
Gas Supply Connections		1/2 in. NPT								
Rec. Gas Supply Pressure - Nat./ LPG		7 in.w.g. / 11 in.w.g.								

¹ Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

HIGH ALTITUDE DERATE

NOTE - Units may be installed at altitudes up to 2000 ft. above sea level without any modifications. At altitudes above 2000 ft. units must be derated to match information in the table shown. At altitudes above 4500 ft. unit must be derated 2% for each 1000 ft. above sea level.
NOTE - This is the only permissible derate for these units.

Heat Input Type	Altitude Feet	Gas Manifold Pressure in. w.g.		Input Rate (Btuh)
		Natural Gas	LPG/ Propane	
Standard (1 stage)	2001 - 4500	3.0	9.0	60,000
Medium (1 stage)	2001 - 4500	3.0	9.0	97,000
Medium (2 stage)	2001 - 4500	3.0/1.7	9.0/5.1	97,000 / 73,500
High (1 stage)	2001 - 4500	3.0	9.0	138,000
High (2 stage)	2001 - 4500	3.0/1.7	9.0/5.1	138,000/ 105,000

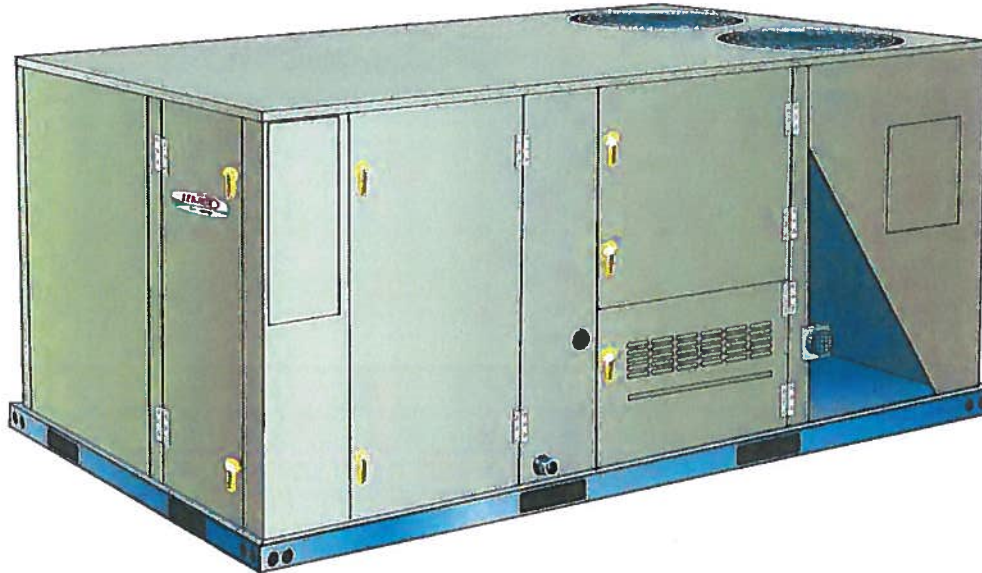


ENERGENCE.
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**PACKAGED GAS ELECTRIC
LGH**

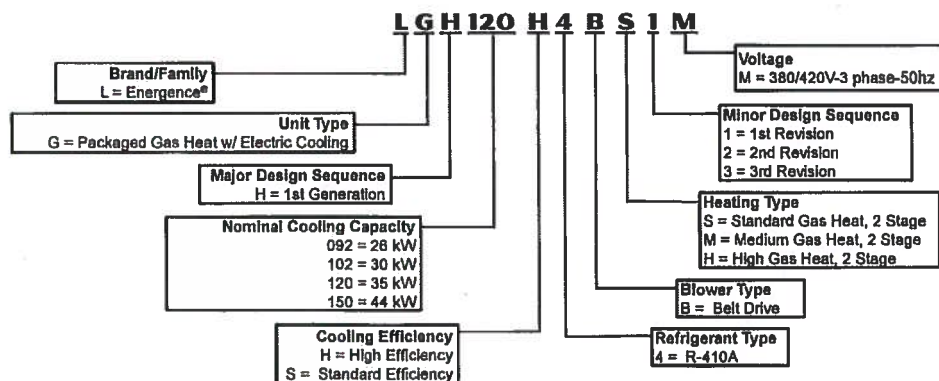
**Energence® Rooftop Units
50 HZ**

Bulletin No. 490139
November 2010
Supersedes August 2010



**26 to 44 kW (7.5 to 12.5 Ton)
Net Cooling Capacity - 23.7 to 36.7 kW (81 000 to 125 300 Btuh)
Gas Input Heat Capacity - 38.1 to 70.3 kW (130 000 to 240 000 Btuh)**

MODEL NUMBER IDENTIFICATION



General Data		26 (7.5)	30 (8.5)	35 (10)	44 (12.5)	
Nominal kW (Tons)						
Model Number		LGH092H4	LGH102H4	LGH120H4	LGH150S4	
Efficiency Type		High	High	High	Standard	
Blower Type		Constant Air Volume CAV	Constant Air Volume CAV	Constant Air Volume CAV	Constant Air Volume CAV	
Cooling Performance	Gross Cooling Capacity - kW (Btuh)	24.6 (84 000)	27.5 (93 900)	32.9 (112 200)	38.4 (131 300)	
	¹ Net Cooling Capacity - kW (Btuh)	23.7 (81 000)	26.4 (90 100)	31.7 (108 200)	36.7 (125 300)	
	AHRI Rated Air Flow - L/s (cfm)	1416 (3000)	1605 (3400)	1699 (3600)	1935 (4100)	
	Total Unit Power - kW	6.6	7.2	8.9	11.4	
	¹ EER (Btuh/Watt)	12.7	12.4	12.2	11.0	
	² IEER (Btuh/Watt)	12.9	12.9	12.7	11	
	Refrigerant Type	R-410A	R-410A	R-410A	R-410A	
	Refrigerant Charge	Circuit 1	6.12 kg (13 lbs. 8 oz.)	6.12 kg (13 lbs. 8 oz.)	6.58 kg (14 lbs. 8 oz.)	7.48 kg (16 lbs. 8 oz.)
		Circuit 2	5.67 kg (12 lbs. 8 oz.)	5.67 kg (12 lbs. 8 oz.)	6.12 kg (13 lbs. 8 oz.)	6.58 kg (14 lbs. 8 oz.)
	With Humiditrol®	Circuit 1	7.71 kg (17 lbs. 0 oz.)	7.71 kg (17 lbs. 0 oz.)	8.16 kg (18 lbs. 0 oz.)	8.39 kg (18 lbs. 8 oz.)
	Circuit 2	5.67 kg (12 lbs. 8 oz.)	5.67 kg (12 lbs. 8 oz.)	6.12 kg (13 lbs. 8 oz.)	6.58 kg (14 lbs. 8 oz.)	
Gas Heating Options Available - See page 14						
Compressor Type (number)		Standard (2 stage)	Standard (2 stage)	Medium (2 Stage)	High (2 Stage)	
		Scroll (2)	Scroll (2)	Scroll (2)	Scroll (2)	
Outdoor Coils	Net face area (total) - m ² (sq. ft.)	2.72 (29.33)	2.72 (29.33)	2.72 (29.33)	2.72 (29.33)	
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	
	Number of rows	3	3	3	3	
	Fins per m (Fins per inch)	787 (20)	787 (20)	787 (20)	787 (20)	
Outdoor Coil Fans	Motor - (No.) W (hp)	(2) 0.25 (1/3)	(2) 0.25 (1/3)	(2) 0.25 (1/3)	(2) 373 (1/2)	
	Motor rev/min	896	896	896	896	
	Total Motor watts	554	554	554	626	
	Diameter - (No.) mm (in.)	(2) 610 (24)	(2) 610 (24)	(2) 610 (24)	(2) 610 (24)	
	Number of blades	3	3	3	3	
	Total Air volume - L/s (cfm)	3146 (6665)	3146 (6665)	3146 (6665)	3462 (7335)	
Indoor Coils	Net face area (total) - m ² (sq. ft.)	1.19 (12.78)	1.19 (12.78)	1.26 (13.54)	1.26 (13.54)	
	Tube diameter - mm (in.)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	
	Number of rows	4	4	4	4	
	Fins per m (Fins per inch)	551 (14)	551 (14)	551 (14)	787 (20)	
	Drain connection - Number and size	(1) 1 in. NPT coupling				
	Expansion device type	Balance port TXV, removable head				
³ Indoor Blower and Drive Selection	Nominal motor kW (HP)	1.5 (2)	1.5 (2)	1.5 (2)	1.5 (2)	
	Maximum usable motor kW (HP)	1.7 (2.3)	1.7 (2.3)	1.7 (2.3)	1.7 (2.3)	
	Kit # (rev/min range)	#1 (490-740)	#1 (490-740)	#1 (490-740)	#1 (490-740)	
		#2 (665-920)	#2 (665-920)	#2 (665-920)	#2 (665-920)	
		#3 (660-995)	#3 (660-995)	#3 (660-995)	#3 (660-995)	
	Nominal motor kW (HP)	2.2 (3)	2.2 (3)	2.2 (3)	2.2 (3)	
	Maximum usable motor kW (HP)	2.6 (3.45)	2.6 (3.45)	2.6 (3.45)	2.6 (3.45)	
	Kit # (rev/min range)	#7 (610-810)	#7 (610-810)	#7 (610-810)	#7 (610-810)	
		#8 (780-1000)	#8 (780-1000)	#8 (780-1000)	#8 (780-1000)	
		#9 (845-1085)	#9 (845-1085)	#9 (845-1085)	#9 (845-1085)	
	Nominal motor kW (HP)	3.7 (5)	3.7 (5)	3.7 (5)	3.7 (5)	
	Maximum usable motor kW (HP)	4.3 (5.75)	4.3 (5.75)	4.3 (5.75)	4.3 (5.75)	
	Kit # (rev/min range)	#10 (750-945)	#10 (750-945)	#10 (750-945)	#10 (750-945)	
		#11 (865-1095)	#11 (865-1095)	#11 (865-1095)	#11 (865-1095)	
		#12 (940-1190)	#12 (940-1190)	#12 (940-1190)	#12 (940-1190)	
		Blower wheel nominal diameter x width - mm (in.)	(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)
Filters	Type of filter	Disposable				
	Number and size - mm (in.)	(4) 508 x 508 x 51 (20 x 25 x 2)				
Electrical characteristics		380/420V - 50 hertz - 3 phase with neutral (No neutral on CE marked models)				

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

Energy Star

Manitowoc - Indigo-Series : IB1094YC-161

Specifications

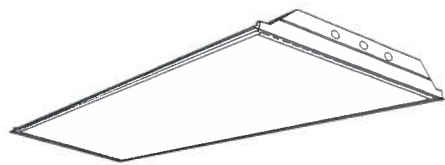
ENERGY STAR Partner ⓘ:	Manitowoc Ice (A division of Manitowoc Foodservice)
Equipment Type ⓘ:	Remote Condensing Unit
Ice Type ⓘ:	Batch
Harvest Rate (lbs ice/day) ⓘ:	910
Measured Energy Use (kWh/100 lbs ice) ⓘ:	4.85
Adjusted Energy Use for Continuous (kWh/100 lbs ice) ⓘ:	4.85
Potable Water Use (gallons/100 lbs ice) ⓘ:	20.0
Ice Hardness Factor ⓘ:	100.0
Condenser Unit Model Number (if applicable) ⓘ:	ICVD11953-263
Markets ⓘ:	United States, Australia, New Zealand, Switzerland, Europe, Taiwan, Japan, Canada

Columbia
LIGHTING

F2

JT824-2, JT824-3

2' x 4' Dedicated T8 Lensed Troffer / 2 or 3-Lamp Troffer



FEATURES

- T8 optimized fluorescent lensed troffer
- Shallow design frees up plenum space
- Hemmed fixture edges reduce risk of injury during fixture handling and installation
- Integral T-bar clips quickly secure fixture to the grid
- Corner hinging for easy insertion and removal of shielding frame
- Housing embossments provide extra strength and rigidity
- Housing ends secured by unique corner interlock and screws
- Snap-in ballast cover requires no tools for wireway access
- Flush steel shielding frame, screw assembled for easy diffuser replacement
- Rotary action cam latches. Smooth operating for secure shielding retention
- Metal to metal light leak protection on all four sides of shielding frame
- Rotary lock lampholders for positive lamp contact
- Heat sink embossments behind ballasts for cooler operation, longer life
- Recessed, surface or cable mount
- UL listed 1598

PROJECT INFORMATION

Project Name

Type

Catalog No.

Date

CONSTRUCTION

Housing is constructed of heavy gauge steel, die formed for extra rigidity. Four T-bar clips integral to housing. Housing features hemmed edges. Door frame hinges and latches from either side. Wireway accessible from below for upgrades or maintenance.

BALLASTS

Energy efficient, thermally protected, automatic resetting, Class "P", high power factor, sound rated A, unless otherwise specified. For a specific vendor and/or ballast, specify as option. CEE NEMA Premium compliant.

ELECTRICAL

Standard class "P," thermally protected, autoresetting HPF ballast, sound rated A. CEE NEMA Premium compliant. All ballast leads extend a minimum of 6" through access location. NEC/CEC compliant ballast disconnect is standard.

FINISH

All metal parts processed with a phase phosphate bonding treatment. Grid units are pre-painted with high gloss baked white enamel, 86% reflective. Polyester powder coat paint after fabrication (PAF) option available, reflectance 90%.

SHIELDING

100% virgin acrylic prismatic 12, extruded and roll-embossed, diagonally oriented female prism standard. Other shielding may be specified. If desired shielding media is not shown in ordering guide, contact your local Hubbell Lighting representative.

CEILING COMPATIBILITY

Designed for recessed installation in standard inverted tee grid ceilings (G), recessed installation in hard ceilings (G with FK accessory), Surface mount at ceiling plane (SM) or cable mount suspension below ceiling plane (CM). For compatibility with specific ceilings contact your Hubbell Lighting representative.

CERTIFICATION

All luminaires are built to UL 1598 standards and bear appropriate UL and cUL or CSA labels. Damp location labeling is standard. Emergency-equipped fixtures labeled UL 924. UL Sanitation Approved.

ORDERING INFORMATION

EXAMPLE JT824-232G-FSA12-EU-F0735-C388-GLR

JT8	24	32					
MODEL	NO. OF LAMPS	CEILING TYPE	SHIELDING	VOLTAGE	OPTIONS		
JT8 Dedicated T8 Lensed Troffer	2 Two 3 Three	G Inverted T-Bar ¹ SM Surface Mount CM Cable Mount ²	A12 Pattern 12 Acrylic 0.100" Nominal (Std.) A12.125 Pattern 12 Acrylic 0.125" Nominal A19 Pattern 19 Acrylic 0.156" Male Prism PC1 Silver Parabolic Louver ½" × ½" × ½"	U 120V-277V 347 347V	F830 30K 78+CRI T8 Lamps Installed F835 35K 78+CRI T8 Lamps Installed F841 41K 78+CRI T8 Lamps Installed GLR Fast Blow Fuse EL Emergency Battery Pack Installed PAF Paint After Fabrication MS9 Master/Satellite w/9' Harness C388 ¾" Flex with 3 No. 18 Wires C384 ¾" Flex with 3 No. 14 Wires C488 ¾" Flex with 4 No. 18 Wires C424 ½" Flex with 4 No. 14 Wires M4R Specular Reflector G1 Single Gasket (Door to Housing) G2 Double Gasketing (G1 and Lens to Door) G3 Triple Gasketing (G2 and Housing to Ceiling) WIH wiHUBB Enabled ¹⁴ EOR End of Row (SM/CM only) ¹⁵ INT Intermediate (SM/CM only) ¹⁵ CP Chicago Plenum		
SIZE	DOOR STYLE	For additional door styles contact your local Columbia Lighting representative	For more shielding, see Options and Accessories.	BALLAST			
24 2' × 4'	FS Flush Steel FA Flush Aluminum						
LAMP TYPE							
32 4', T8: 32, 30, 28 or 25 Watt							
ACCESSORIES (ORDER SEPARATELY)							
FK24 2' × 4' Flange Kit FKCR Flange Kit Continuous Row Connector CM48Y2SC3F-KIT 48" Cable Mount Kit for 2" wide CM ceiling type, 3 Wire Feed Cord							

¹ For drywall order flange kit accessories separately.

² Order hanger accessories separately.

³ In-Fixture Module Antenna adds 2" to overall fixture height at power feed location.

⁴ Not available with Surface Mount ceiling types.

⁵ Provides ends with wiring access for continuous row mounting.

⁶ Contact Hubbell representative for continuous row, 3-lamp fixtures.

Columbia LIGHTING

JT824-2, JT824-3 2' x 4' Dedicated T8 Lensed Troffer / 2 or 3-Lamp T8

PHOTOMETRIC DATA

LUMINAIRE DATA

Luminaire	JT824-332G-FSA12 J Lensed Troffer 2' x 4' 3-Lamp with A-12 Pattern Acrylic Prismatic Lens
Ballast	B3321120RH-A
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	84
Shielding Angle	N/A
Spacing Criterion	0° = 1.23 90° = 1.36

AVG. LUMINANCE (Candela/Sq. M.)

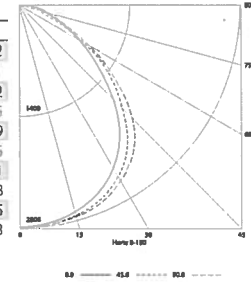
	0.0	22.5	45.0	67.5	90.0
0	4289	4289	4289	4289	4289
30	4196	4277	4409	4495	4518
40	3635	4032	4230	4421	4515
45	3655	3764	3994	4218	4355
50	3299	3469	3761	3940	4047
55	2993	3133	3443	3569	3647
60	2706	2694	2903	3078	3161
65	2420	2238	2231	2547	2631
70	2178	1908	1643	2223	2326
75	2101	1792	1501	2130	2368
80	2255	1822	1831	2229	2583
85	2344	2009	2079	2555	2696

COEFFICIENTS OF UTILIZATION (%)

RC	80	70	50	30	10	70	50	30	10	50	30	10	0
RW	70	50	30	10	70	50	30	10	50	30	10	0	
1	93	89	85	82	90	87	84	81	83	81	79	72	
2	85	78	73	68	83	77	72	67	74	70	66	61	
3	78	69	63	58	76	68	62	57	65	60	56	52	
4	71	62	55	49	70	61	54	49	59	53	48	45	
5	66	55	48	43	64	54	48	42	53	47	42	39	
6	61	50	43	38	59	49	42	37	48	42	37	35	
7	57	45	38	33	55	45	38	33	44	37	33	31	
8	53	42	35	30	51	41	34	30	40	34	29	28	
9	49	38	31	27	48	38	31	27	37	31	27	25	
10	46	35	29	24	45	35	29	24	34	28	24	23	

Test 13120 Test Date 11/07/2003

INDOOR CANDELA PLOT



ZONAL LUMEN SUMMARY

Zone	Lumens	Lamp	Fixt.
0-30	2232	25.7	30.3
0-40	3678	42.3	49.9
0-60	6216	71.4	84.4
0-90	7364	84.6	100.0
0-180	7364	84.6	100.0

ENERGY DATA

Total Luminaire Efficiency	84.6%
Luminaire Efficacy Rating (LER)	77
IESNA RP-1-2004 Compliance	Non-Compliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.12 based on 3000 hrs. and \$0.08 per KWH

LUMINAIRE DATA

Luminaire	JT824-232G-FSA12 J Lensed Troffer 2' x 4' 2-Lamp with A-12 Pattern Acrylic Prismatic Lens
Ballast	B2321120RH-A
Ballast Factor	0.88
Lamp	F32T8
Lumens per Lamp	2900
Watts	60
Shielding Angle	N/A
Spacing Criterion	0° = 1.23 90° = 1.36

AVG. LUMINANCE (Candela/Sq. M.)

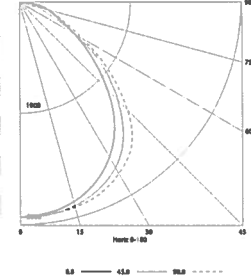
	0.0	22.5	45.0	67.5	90.0
0	2967	2967	2967	2967	2967
30	2850	2921	3045	3133	3155
40	2638	2733	2893	3073	3160
45	2430	2537	2719	2912	2986
50	2198	2308	2513	2669	2714
55	1973	2046	2220	2327	2394
60	1757	1754	1806	1923	2036
65	1577	1461	1377	1563	1752
70	1509	1302	1100	1361	1603
75	1596	1329	1169	1377	1650
80	1716	1450	1389	1512	1778
85	1780	1656	1568	1709	1850

COEFFICIENTS OF UTILIZATION (%)

RC	80	70	50	30	10	70	50	30	10	50	30	10	0
RW	70	50	30	10	70	50	30	10	50	30	10	0	
1	94	91	87	84	92	89	85	83	85	82	80	74	
2	87	80	74	70	84	78	73	69	75	71	67	62	
3	79	71	64	59	77	69	63	58	67	62	57	54	
4	73	63	56	50	71	62	55	50	60	54	49	46	
5	67	57	49	44	66	56	49	44	54	48	43	40	
6	62	51	44	39	61	50	43	38	49	43	38	36	
7	58	47	39	34	56	46	39	34	45	38	34	32	
8	54	43	36	31	53	42	35	31	41	35	30	28	
9	50	39	32	28	49	39	32	28	38	32	27	26	
10	47	36	30	25	46	36	29	25	35	29	25	23	

Test 13121 Test Date 1/8/03

INDOOR CANDELA PLOT



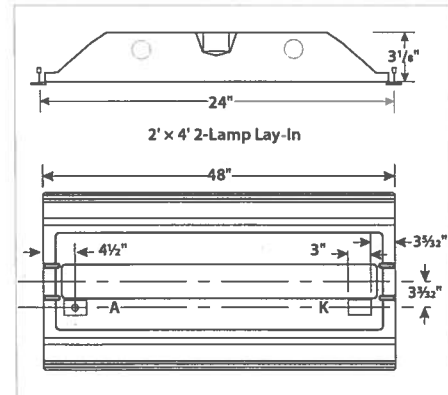
ZONAL LUMEN SUMMARY

Zone	Lumens	Lamp	Fixt.
0-30	1542	26.6	30.8
0-40	2538	43.8	50.7
0-60	4234	73.0	84.6
0-90	5004	86.3	100.0
0-180	5004	86.3	100.0

ENERGY DATA

Total Luminaire Efficiency	86.3%
Luminaire Efficacy Rating (LER)	73
IESNA RP-1-2004 Compliance	Non-Compliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.29 based on 3000 hrs. and \$0.08 per KWH

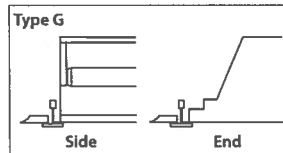
DIMENSIONAL DATA



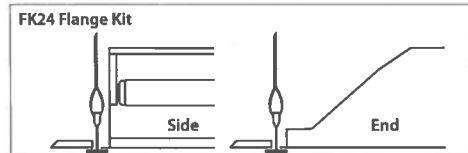
A: 3/8" Diameter knockout
K: 2" x 3" through hole for access plate.

NOTE: All dimensions are in inches; dimensions and specifications are subject to change without notice. Please consult factory or check sample for verification.

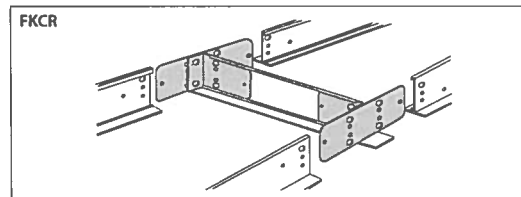
CEILING COMPATIBILITY



For lay-in installation in exposed grid ceilings. Maximum tee widths of 1" and maximum tee heights of 2" allowed.



For hard ceiling applications order FK24 flange kit. Flange kit wires directly into concealed ceiling opening for a clean, finished appearance.



Row cut out dimensions using FK24 & FKCR adapters:
Width 24 1/2", Length [48" x (# in row)] + 1/2". Example: (48" x 2) + 1/2" = 96 1/2"
Flange kit rough in dimensions for single unit only: 24 1/2" x 48 3/4"

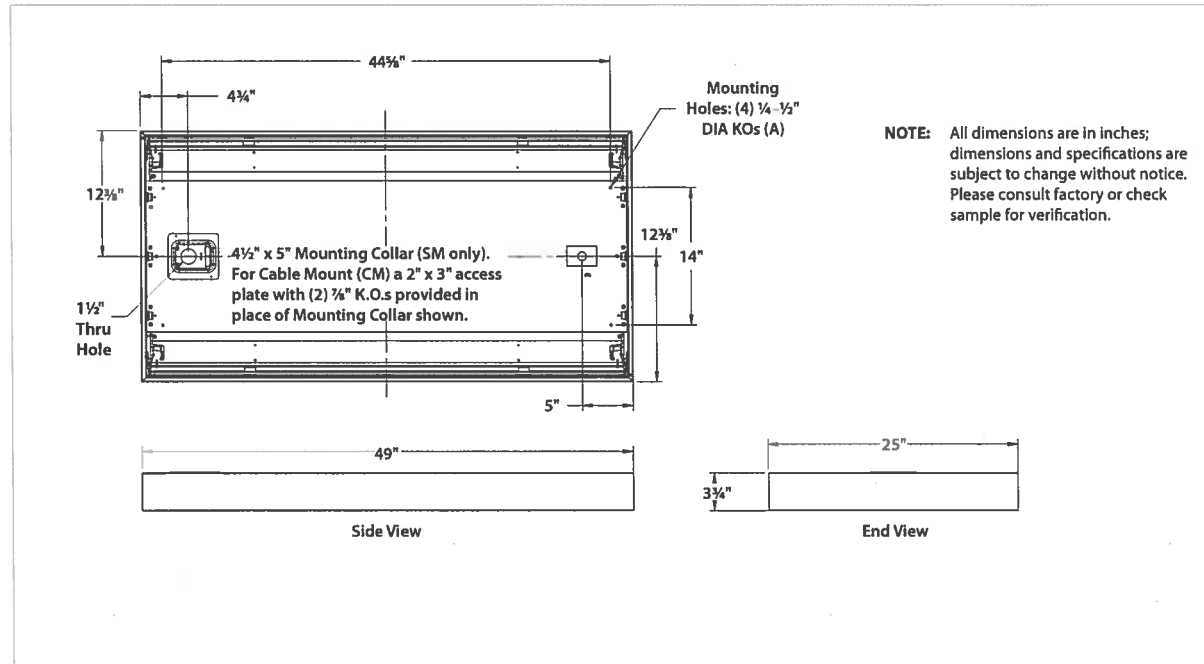
For flanged fixtures in row configurations, the FKCR adapter bracket kit is required in addition to the FK24 kit. Order one less FKCR than the total number of fixtures in row. (Example: Row of two, order (2) FK24 & (1) FKCR)

Columbia
LIGHTING

JT824-2, JT824-3

2' x 4' Dedicated T8 Lensed Troffer / 2 or 3-Lamp T8

DIMENSIONAL DATA - SURFACE MOUNT (SM) AND CABLE MOUNT (CM)



SURFACE MOUNT

Order SM ceiling type. Mounting collar required for surface mounting. (4) Mounting knock-outs, 1/4" to 1/2" provided as shown, marked "A".

CABLE MOUNT

Order CM ceiling type. Access plate supplied for cable mounting or suspension. Use CM48Y2SC3F-KIT 48" cable mount kit. Includes 3 wire feed cord. For other wiring needs, contact Hubbell Lighting representative. Mounting knock-outs, 1/4" to 1/2" provided as shown, marked "A".

F12,F12A,F13

HOUSING

RC6

6" Recessed Housing

Product Description

The RC6 recessed housing is designed to accommodate Cree six-inch downlights in new construction applications. It is rated for use with luminaires that have low-wattage ratings, such as the LR6 and CR6, optimizing energy density calculations for easier energy code compliance and LEED certification. The RC6 housing is IC rated, airtight, inherently protected and, when ordered with a GU24 socket, California Title-24 compliant.

Product Specifications

CONSTRUCTION & MATERIAL

- Recessed housing with integral nailer and ceiling grid attachment accommodates Cree six-inch LED downlights in ceiling thicknesses from 0.25" to 1.25"
- Gasketed housing enables air-tight fit to effectively isolate housing assembly from conditioned space below
- Adjustable bar-hangers span from 14" to 24.5" without sag
- Suitable for insulated or non-insulated ceilings
- Dimensions: L 12.5" x W 7.5" x H 7.5"

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- IC air-tight rated, tested in accordance with ASTM E283
- Title-24 compliant when utilized with GU24 socket
- Suitable for damp locations

Compatible Downlights

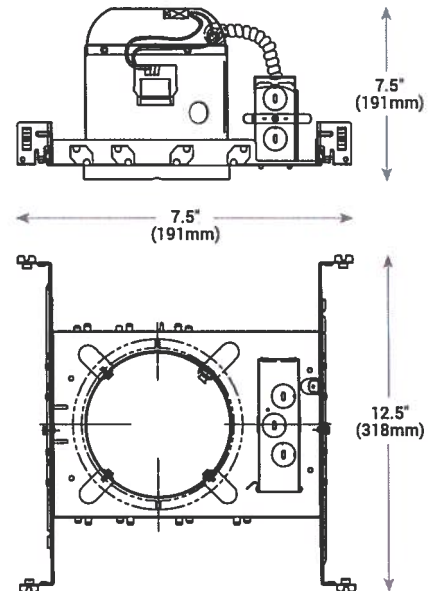
Downlights		
RC6-12W CR6 Series with E26 base LR6 Series with E26 base LE6 Series with E26 base	RC6-12W-GU24 CR6 Series with GU24 base LR6 Series with GU24 base LE6 Series with GU24 base	RC6-277V LR6-277V Products LR6-DR1000-277V Products

Ordering Information

Example: RC6-12W

Product
RC6-12W 120V, Edison Socket RC6-12W-GU24 120V, GU24 Socket RC6-277V 277V, 277V Connector

RC6



F12,F12A,F13

LR6-DR1000

6" Deep Recess LED Downlight

LAMPS

Product Description

The LR6-DR1000 deep recess LED downlight delivers 1000 lumens of exceptional 90+ CRI light while achieving 80 lumens per watt. This breakthrough performance is achieved by combining the high efficacy and high-quality light of Cree TrueWhite® Technology. The LR6-DR1000 is available in warm or neutral color temperatures and has a variety of trim options. It easily installs into Cree six-inch GU24 housings or may be retrofitted with a GU24 whip adapter, making the LR6-DR1000 perfect for use in commercial new construction or retrofit applications.

Performance Summary

Utilizes Cree TrueWhite® Technology

Active Color Management

Delivered Light Output: 1000 lumens

Input Power: 12.5 watts

CRI: 90

CCT: 2700K, 3500K

Limited Warranty¹: 10 years

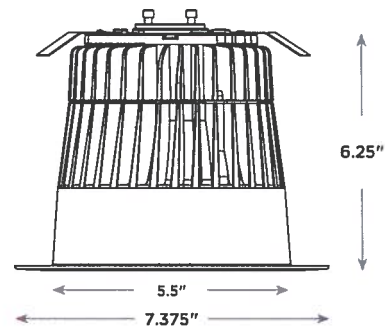
Lifetime: Designed to last 50,000 hours

Dimming: Dimmable to 20%*

Housing & Accessories

Reference Housing & Accessory documents for more details.

Trims	
LT6A-DR Diffuse anodized finish	LT6AB-DR Black anodized finish
LT6AW-DR Wheat diffuse anodized finish	LT6WH-DR Smooth white
LT6AP-DR Pewter diffuse anodized finish	LT6BB-DR Flat black finish trim and reflector
Housing (Edison or GU24)	
H6 Architectural	SC6 Cylindrical Surface Mount
RC6 New Construction	SC6-CM Cylindrical Cord Mount
RR6 Retrofit	SC6-WM Cylindrical Wall Mount



Ordering Information

Example: LR6-DR1000

Product
LR6-DR1000 2700K
LR6C-DR1000 3500K

NOTE: Intended for use with Cree six-inch GU24 housings. May be retrofitted into six-inch housings from select manufacturers using the supplied GU24 whip adapter

¹ See www.cree.com/lighting/products/warranty for warranty terms

* Reference www.cree.com/lighting for recommended dimmers



Rev. Date: 04/14/2014



US: www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507

LR6-DR1000

Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy - a true no compromise solution.

CONSTRUCTION & MATERIALS

- Durable die-cast aluminum housing protects LEDs, driver and power supply. Adjustable flip clips resist heat while providing retention for flush ceiling fit
- Thermal management system uses integral heat sink to conduct heat away from LEDs and transfer it to the plenum space for optimal performance. LED junction temperatures stay below specified maximum even when installed in attic insulation with ambient temperatures exceeding 60 °C
- Suitable for insulated and non-insulated ceilings
- One-piece aluminum lower reflector redirects light while also conducting heat away from LEDs. It creates a comfortable visual transition from the lens to the ceiling plane and easily accommodates LT6 snap-in trims

OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing. This ensures smooth light patterns are projected with no hot spots and minimal striations
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness
- Deep set diffusing lens shields direct view of LEDs and provides more precise optical control with greater visual cut-off

ELECTRICAL SYSTEM

- Integral, high-efficiency driver and power supply
- Power Factor: > 0.9
- Input Voltage: 120V, 60Hz
- Dimming: Dimmable to 20% with certain incandescent dimmers*

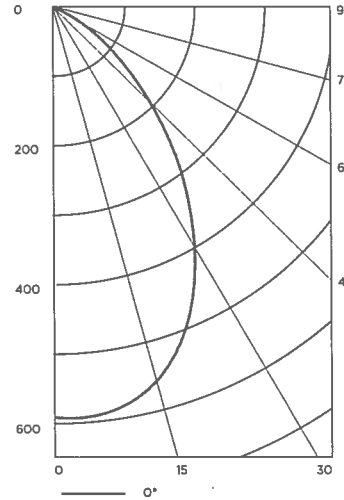
REGULATORY & VOLUNTARY QUALIFICATIONS

- ENERGY STAR® qualified
- cULus Listed
- Exceeds California Title-24 high efficacy luminaire requirements
- Suitable for damp locations

* Reference www.cree.com/lighting for recommended dimmers

Photometry

LR6-DR1000 Based on LTL #: 22718



Intensity (Candlepower) Summary

Angle	Mean CP
0°	597
5°	593
15°	559
25°	463
35°	329
45°	207
55°	120
65°	61
75°	32
85°	7
90°	0

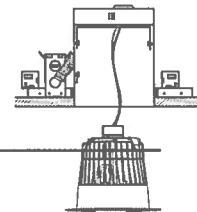
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fix
0-30	424	42.42%	42.42%
0-40	629	62.89%	62.89%
0-60	897	89.71%	89.71%
0-90	1000	100%	100%

Reference www.cree.com/lighting for detailed photometric data

Installation

- Designed to easily install in standard 6" housings from Cree and other manufacturers*
- Quick install system utilizes a unique retention feature. Simply attach socket to LR6-DR1000. Move light to ready position and slide into housing



NOTE: Reference www.cree.com/lighting for detailed installation instructions
*Reference www.cree.com/lighting for a list of compatible housings

Application Reference

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4 x 4	1000	12.5	80	0.72	59
6 x 6				0.34	28
8 x 8				0.18	15
10 x 10				0.12	10

10' Ceiling, 80/50/20 Reflectances, 2.5 workplane
LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

Corridor					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4' on Center	1000	12.5	80	0.48	21
6' on Center				0.32	14
8' on Center				0.24	10
10' on Center				0.20	9

10' Ceiling, 80/50/20 Reflectances, Light levels on the ground
LLF: 1.0 Initial. Corridor: 6' Wide x 100' Long

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US: www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507



F12,F12A,F13

LE6™

6" Adjustable LED Downlight

LAMPS

Product Description

The LE6™ adjustable LED downlight delivers 500 lumens of exceptional 90+ CRI light while achieving over 41 lumens per watt. This breakthrough performance is achieved by combining the high efficacy and high-quality light of Cree TrueWhite® Technology. The LE6 is available in warm or neutral color temperatures and can be adjusted from 10 to 30 degrees for smooth wall washing. It easily installs into most standard six-inch recessed IC or non-IC housings, making the LE6 perfect for use in commercial new construction or retrofit applications.

Performance Summary

Utilizes Cree TrueWhite® Technology

Active Color Management

Delivered Light Output: 500 lumens (at 30 degree tilt)

Input Power: 12 watts

CRI: 90

CCT: 2700K, 3500K

Warranty: 10 years*

Lifetime: Designed to last 50,000 hours

Dimming: Dimmable to 20%*

Ordering Information

Example: LE6

Product
LE6 2700K, Edison Base
LE6-GU24 2700K, GU24 Base
LE6C 3500K, Edison Base
LE6C-GU24 3500K, GU24 Base

Housings & Accessories

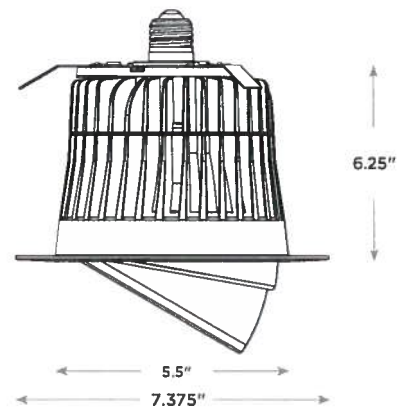
Reference Housing & Accessory documents for more details.

Housings (Edison or GU24)	
H6 Architectural	SC6 Cylindrical Surface Mount
RC6 New Construction	SC6-CM Cylindrical Cord Mount
RR6 Retrofit	SC6-WM Cylindrical Wall Mount

* Reference www.cree.com/lighting for recommended dimmers.

† See www.cree.com/lighting for warranty terms.

LE6



LE6™

Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology mixes the light from the highest performing red and unsaturated yellow LEDs. This patented approach delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy—a true no compromise solution.

CONSTRUCTION & MATERIALS

- Durable die-cast aluminum housing protects LEDs, driver and power supply. Adjustable flip clips resist heat while providing retention for flush ceiling fit.
- Thermal management system uses integral heat sink to conduct heat away from LEDs and transfer it to the plenum space for optimal performance. LED junction temperatures stay below specified maximum even when installed in attic insulation with ambient temperatures exceeding 60 C.
- Suitable for insulated and non-insulated ceilings.
- Adjustable trim offers vertical lens adjustment from 10 to 30 degrees.

OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing. This ensures smooth light patterns are projected with no hot spots and minimal striations.
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness.
- Diffusing lens shields direct view of LEDs while adjustable trim enables 10 to 30 degrees vertical lens adjustment to wash a wall with light.

ELECTRICAL SYSTEM

- Integral, high-efficiency driver and power supply.
- Power Factor > 0.9 nominal
- Input Voltage: 120V, 60Hz
- Dimming: Dimmable to 20% with most incandescent dimmers. Reference www.cree.com/lighting for recommended dimmers.

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations.

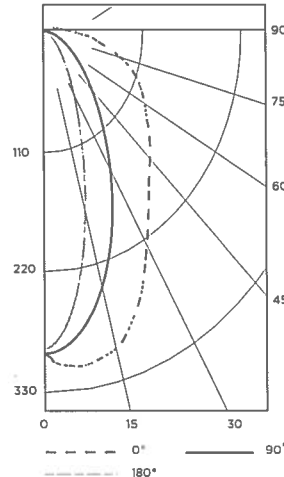
Application Reference

Spacing	Luminaires 3' from wall on 3' centers		Luminaires 3' from wall on 4' centers	
	Footcandle Values		Footcandle Values	
Height	Between Centers	On Centers	Between Centers	On Centers
10	13	13	8	10
9	18	18	12	14
8	18	18	13	13
7	15	15	11	11
6	13	13	9	9
5	11	11	8	8
4	9	9	7	7
3	8	8	6	6
2	7	7	5	5
1	6	6	5	5

Average initial illuminance in footcandles, reflectances = 80/50/20, ceiling height = 10', based on minimum of 5 luminaires, placed in a hallway with width = 6', aimed at center points 3' and 4' apart respectively.

Photometry

LE6 ITL TEST #: 61449 TILTED TO 30°



Intensity (Candlepower) Summary

Angle	0°	90°	180°
0°	299	299	299
5°	312	293	270
15°	304	250	177
25°	256	181	91
35°	206	120	43
45°	170	82	17
55°	145	54	0
65°	117	30	0
75°	81	14	0
85°	50	3	0
90°	40	0	0
95°	30	0	0
105°	13	0	0

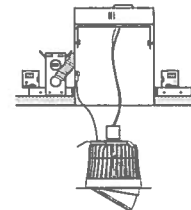
Zonal Lumen Summary

Zone	Lumens	% Fix
0-30	182	36.3%
0-40	262	52.3%
0-60	393	78.8%
0-90	487	97.6%
0-180	500	100%

Reference www.cree.com/lighting for detailed photometric data.

Installation

- Designed to easily install in standard 6" downlight housings from Cree and other manufacturers.*
- Quick install system utilizes a unique retention feature. Simply attach socket to LE6. Move light to ready position and slide into housing



NOTE: Reference www.cree.com/lighting for detailed installation instructions.

*Reference www.cree.com/lighting for a list of compatible housings.

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www.sylvania.com

DULUX® EL Twist

Electronic Compact Fluorescent Lamps



SYLVANIA offers DULUX EL self-ballasted medium, candelabra and GU24 based compact fluorescent lamps in a variety of Twist designs. The Dimmable Twists offer smooth dimming down to 20% of rated light output. With a reduced T2 tube diameter, Micro-Mini Twist lamps are the smallest CFL lamps available in the industry, further addressing sustainability objectives with long 12,000 hour life and TCLP-compliance.

With improved efficacy, smaller profiles, excellent color rendition and a broad range of color temperature options, DULUX EL CFLs provide a brilliant alternative to traditional incandescent and halogen light sources and are suitable for many different types of luminaires. They complement the DULUX EL Covered family of CFLs described in companion Product Information Bulletin CF047.

Key Features & Benefits

- Energy saving alternatives to incandescent lamps save up to 75% compared to similar lumen output incandescents
- Variety of medium and candelabra base shapes and wattages to satisfy most applications
- Long life: 8,000 – 15,000 hour average rated life
- Flicker-free starting
- Micro-Mini configurations are TCLP-compliant
- Increased energy savings with dimmable 14W and 24W twists
- 82 CRI
- Available in a variety of color temperatures:
 - 2700K
 - 3000K
 - 3500K
 - 4100K
 - 5000K
 - 6500K

Product Offering

Lamp Type	Wattage
Micro-Mini Twist	5W, 10W, 13W, 20W, 23W, 26W
Super Mini Twist	7W, 11W, 13W, 19W, 23W
Mini Twist	7W, 11W, 13W, 19W, 23W
Micro LED Night Light	23W
Twist	30W, 40W, 65W
Twist GU24	13W, 23W
3-Way Twist	12/22/33W, 20/30/40W
Dimmable Twist	14W, 24W

Application Information

Applications

- Chandeliers
- Decorative & vanity fixtures
- Difficult to service areas
- Floor lamps
- Sconces
- Security lighting
- Table lamps
- 3-way lamps

Application Notes

1. Do not install DULUX EL lamps on dimming circuits, unless the lamp is labelled as "Dimmable"
2. Outdoor application — use only in enclosed fixtures to avoid exposure to weather
3. Do not use in emergency exit fixtures or lights
4. Do not use on electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15
5. Meets CSA, FCC and UL requirements
6. Use only 120V AC, 60Hz circuit
7. Install and remove lamp from fixture by handling plastic base, not lamp glass
8. Best performance achieved when operated at 77°F/25°C

P1,P2

Ordering Information (continued)

	Item Number	Ordering Abbreviation	Base	Incan descent Wattage	Nominal Wattage	Initial Lumens	Color Temp.	CRI	Avg. Rated Life (hrs.)	Pkg.
Mini Twist	29379	CF7EL/MINI/830	Medium	25	7	375	3000K	82	8,000	1/SKU,6/CS
	29378	CF11EL/MINI/830	Medium	40	11	600	3000K	82	8,000	1/SKU,6/CS
	29376	CF13EL/MINI/830	Medium	60	13	875	3000K	82	8,000	1/SKU,6/CS
	29781	CF13EL/MINI/835/DAY/RP	Medium	60	13	875	3500K	82	8,000	1/SKU,6/CS
	29567	CF13EL/MINI/841	Medium	60	13	800	4100K	82	10,000	1/SKU,6/CS
	29149	CF13EL/MINI/827/CVP 12/CS	Medium	60	13	875	2700K	82	10,000	12/SKU,12/CS
	29120	CF13EL/MINI/827/CVP 6/CS	Medium	60	13	875	2700K	82	10,000	6/SKU,6/CS
	29780	CF13EL/MINI/835/DAY/RP3	Medium	60	13	875	3500K	82	10,000	3/SKU,18/CS
	29396	CF19EL/MINI/830	Medium	75	19	1200	3000K	82	8,000	1/SKU,6/CS
	29614	CF23EL/MINI/827/CVP	Medium	100	23	1600	2700K	82	8,000	12/SKU,12/CS
	29397	CF23EL/MINI/830	Medium	100	23	1600	3000K	82	8,000	1/SKU,6/CS
	29784	CF23EL/MINI/835/DAY/RP	Medium	100	23	1600	3500K	82	8,000	1/SKU,6/CS
Twist	29564	CF23EL/MINI/841	Medium	100	23	1600	4100K	82	10,000	1/SKU,6/CS
	28957	CF13EL/GU24/827/BL	GU24	60	13	800	2700K	82	8,000	1/SKU,5/CS
	28946	CF23EL/TWIST/827/DIMBASE 4/CS 1/SKU	Medium	100	23	1500	2700K	82	8,000	1/SKU,4/CS
	29947	CF23EL/GU24/827/BL	GU24	100	23	1600	2700K	82	8,000	1/SKU,5/CS
	29793	CF30EL/TWIST/835/DAY/RP	Medium	125	30	1845	3500K	82	10,000	1/SKU,6/CS
	29395	CF30EL/TWIST/830	Medium	125	30	2000	3000K	82	10,000	1/SKU,6/CS
	29792	CF30EL/TWIST/827/RP	Medium	125	30	2000	2700K	82	10,000	1/SKU,6/CS
	29786	CF40EL/TWIST/827/RP	Medium	150	40	2600	2700K	82	10,000	1/SKU,6/CS
	29508	CF65EL/TWIST/841	Medium	200	65	4200	4100K	82	8,000	1/SKU,6/CS
	29454	CF14EL/TWIST/827/DIM/BL	Medium	60	14	800	2700K	82	8,000	1/SKU,6/CS
Dimmable Twist	29453	CF24EL/TWIST/827/DIM/BL	Medium	100	24	1500	2700K	82	8,000	1/SKU,6/CS
	26933	CF33EL/3WAY/865/BL	Medium	50	12	540	6500K	82	10,000	1/SKU,4/CS
3-Way Twist				100	22	1080	6500K	82	10,000	
				150	33	1935	6500K	82	10,000	
	29747	CF33EL/3WAY/827	Medium	50	12	600	2700K	82	10,000	1/SKU,6/CS
				100	22	1200	2700K	82	10,000	
				150	33	2150	2700K	82	10,000	
	26930	CF33EL/3WAY/835/BL	Medium	50	12	600	3500K	82	10,000	1/SKU,4/CS
				100	22	1200	3500K	82	10,000	
				150	33	2150	3500K	82	10,000	
	29913	CF33EL/3WAY/830/RP	Medium	50	12	600	3000K	82	10,000	1/SKU,6/CS
				100	22	1200	3000K	82	10,000	
				150	33	2150	3000K	82	10,000	
	27714	CF40EL/3WAY/827/RP	Medium	50	20	1000	2700K	82	8,000	1/SKU,4/CS
				100	30	2050	2700K	82	8,000	
				150	40	2650	2700K	82	8,000	

Operating temperature range of all DULUX EL lamps is 0° to 100°F.

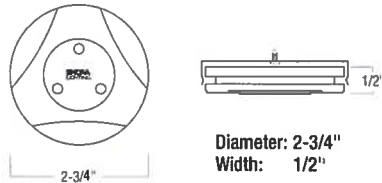
Ordering Guide

CF	13	EL	/	MICRO	/	C	/	830	/	RP2
Compact Fluorescent	Wattage: 13 watts	Electronic Ballast		Bulb Type Micro-Mini, Super Mini, Mini Twist, Twist, Micro LED		C = Candelabra Base GU24 = GU24 Base		8 = 82 CRI 27 = 2700K 30 = 3000K 41 = 4100K 50 = 5000K		RP = Retail Pack HVP = High Visibility Pack 2 = 2 per pack

NMPK1-3LED 12V LED Puck Light

Source: 4.2W LEDs

DIMENSIONS



PRODUCT DESCRIPTION

Nora Lighting introduces a new slim light disk LED system for accent, under cabinet, cove lighting and jewelry cases, and other applications with limited space. These low-profile fixtures can be chained together to provide excellent and even illumination on all surfaces. Light disk is one of the most energy efficient products in the market. Combined with ultra low-profile housing, Nora's light disk offers unique features and a great ease of installation. LED technology eliminates forward heat from the fixture, also no UV or infrared rays to harm artwork, retail displays or heat sensitive foods.

FEATURES

- Available in single units or a kit, which includes 3 puck lights
- Ten lights can be daisy-chained up to 90' away from driver
- Well suited for very small spaces: 1/2" deep with 2-3/4" diameter
- Easy installation using one screw
- Dimmable with Magnetic Power Supply
- 3", 6", 12" and 24" Interconnection cables included with each puck
- Exceeds Title 24 high efficacy requirements
- No flicker delay or warm up like compact fluorescent products
- No UV light or infrared wavelengths
- Three Year Limited Warranty

Included with every puck light:

(1) 12V LED Puck Light, (1) 3" Interconnection Cable [NAPK-703], (1) 6" Interconnection Cable [NAPK-706], (1) 12" Interconnection Cable [NAPK-712], (1) 24" Interconnection Cable [NAPK-724], (1) Mini Coupler [NAPK-713], (1) Mounting Clip, and (1) Screw.

CONSTRUCTION

Die-cast aluminum, round, available in 3 different colors with matching cord colors: white and brushed nickel (both with white cord), and bronze (with black cord).

ELECTRICAL

Voltage: 12V DC

Power Consumption: 4.2 Watts

Lumens: 200 Lumens @ 3000K / 180 Lumens @ 4200K

Light Source: 3 LEDs

Efficacy: 50 LPW @ 3000K

Life Expectancy: 30,000 Hours

Maximum Length: Ten daisy-chained per run.

Labels and Warranty

cULus Listed for Damp Location

RoHS Compliant

Title 24 Compliant

California Energy Commission

Three Year Warranty



12V LED Puck Light

- ☐ NMPK1-3LED30BZ: 12V LED Puck Light, 3000K, Bronze
- ☐ NMPK1-3LED30C: 12V LED Puck Light, 3000K, Chrome
- ☐ NMPK1-3LED30W: 12V LED Puck Light, 3000K, White
- ☐ NMPK1-3LED42BZ: 12V LED Puck Light, 4200K, Bronze
- ☐ NMPK1-3LED42C: 12V LED Puck Light, 4200K, Chrome
- ☐ NMPK1-3LED42W: 12V LED Puck Light, 4200K, White

NORALIGHTING.

Type

Project

Catalog No.

Lamp/Wattage

ACCESSORIES

Item Number	Description
NMPKA-RECBZ	Recess Mount for LED Puck, Bronze
NMPKA-RECC	Recess Mount for LED Puck, Chrome
NMPKA-RECW	Recess Mount for LED Puck, White
NAPK-701B	Splitter, Black
NAPK-701W	Splitter, White
NAPK-702B	2" Interconnection Cable, Black
NAPK-702W	2" Interconnection Cable, White
NAPK-703B	3" Interconnection Cable, Black
NAPK-703W	3" Interconnection Cable, White
NAPK-706B	6" Interconnection Cable, Black
NAPK-706W	6" Interconnection Cable, White
NAPK-712B	12" Interconnection Cable, Black
NAPK-712W	12" Interconnection Cable, White
NAPK-724B	24" Interconnection Cable, Black
NAPK-724W	24" Interconnection Cable, White
NAPK-736B	36" Interconnection Cable, Black
NAPK-736W	36" Interconnection Cable, White
NAPK-748B	48" Interconnection Cable, Black
NAPK-748W	48" Interconnection Cable, White
NAPK-709B	18" Power Line Interconnector, Black
NAPK-709W	18" Power Line Interconnector, White
NAPK-711B	12" Power Line Interconnector with Switch, Black
NAPK-711W	12" Power Line Interconnector with Switch, White
NAPK-713B	Mini Coupler, Black
NAPK-713W	Mini Coupler, White

LED DRIVERS

HARDWIRE DRIVERS

Item Number	Description
NAPK-530HW/12	12V 30W Class II Hardwired Electronic LED Driver
NAPK-560HW/12	12V 60W Class II Hardwired Electronic LED Driver
NMT-36/12C2D1	120V/12V 36W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator
NMT-36/12C2D2	277V/12V 36W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator
NMT-60/12C2D1	120V/12V 60W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator
NMT-60/12C2D2	277V/12V 60W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator
NMT-244/12C2D1	120V/12V 240W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator
NMT-244/12C2D2	277V/12V 240W Dimmable Class II Remote Hardwire Magnetic Driver w/Regulator

PLUG-IN DRIVERS

NAPK-524/12	12V 24W Direct Plug-In LED Driver
NAPK-550/12	12V 50W Direct Plug-In LED Driver

DRIVER ACCESSORIES

NAPK-10	Replacement 10' Power Line Connector for NMT Series
NAPK-30	Replacement 30' Power Line Connector for NMT Series
NATL-415	Low Voltage Splice Box
NRA-125/6	6" Extension Cord for NAPK-530HW/12 & NAPK-560HW/12
NRA-125/12	12" Extension Cord for NAPK-530HW/12 & NAPK-560HW/12
NRA-125/18	18" Extension Cord for NAPK-530HW/12 & NAPK-560HW/12
NRA-125/72	72" Extension Cord for NAPK-530HW/12 & NAPK-560HW/12
NRA-6035W/6	6' Cord and Plug for NAPK-530HW/12 & NAPK-560HW/12
NRA-6035W/10	10' Cord and Plug for NAPK-530HW/12 & NAPK-560HW/12
NUSP-JBox	Junction Box required for hardwiring NAPK-530HW/12 & NAPK-560HW/12

NORALIGHTING.

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Phone: 800.686.6672 • FAX: 800.500.9955 • e-mail: nora@noralighting.com

S1

RADIUS WALL SCONCE



The RWSC Series radius wall sconce offers maximum versatility with multiple light sources and finishes. The available combination of uplight/downlight washes the building facade while the radial soft form housing will complement similar architectural design elements.

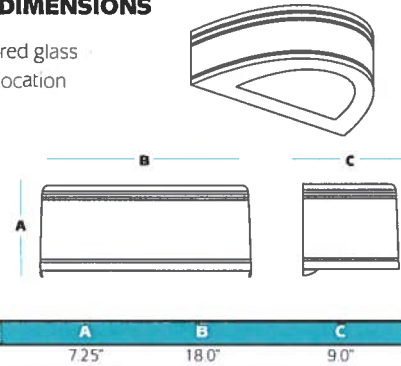


Fixture Specifications

FEATURES

- Durable cast aluminum housing
- Available in various lighting distributions for maximum versatility
- Integrated design eliminates high angle brightness
- Luminaire finished in weatherproof powder-coat paint
- Completely sealed, flat tempered glass lenses suitable for use in wet location
- Ships complete with lamp
- Downlight only, full cut-off
- Dark Sky compliant

DIMENSIONS



ORDERING INFORMATION

SAMPLE CATALOG NUMBER

RWSC **XXXXXX** **XX** **XX** **XXX**
Series Wattage/Source Distribution Finish Voltage

SERIES	
RWSC	Radius Wall Sconce
WATTAGE/SOURCE ¹	
70PMH	70 watt pulse start metal halide
100PMH	100 watt pulse start metal halide
150PMH	150 watt pulse start metal halide
70HPS	70 watt high pressure sodium
100HPS	100 watt high pressure sodium
150HPS	150 watt high pressure sodium
26QF	26 watt quad tube fluorescent
32TRF	32 watt triple tube fluorescent
42TRF	42 watt triple tube fluorescent
226QF	2x26 watt quad tube fluorescent
232TRF	2x32 watt triple tube fluorescent
242TRF	2x42 watt triple tube fluorescent
30LED	19 watt LED ²
50LED	44 watt LED

DISTRIBUTION	
UD	Up/Downlight
WD	Downlight only (wide distribution)- standard
FT	Downlight only (forward throw)
FINISH ³	
DB	Dark Bronze
BK	Black
WH	White
PS	Platinum Silver

¹ Consult factory for other lamp wattage and sources
² Other finishes available. Consult factory
³ Available with WD distribution only
⁴ Not for use with LED source

VOLTAGE	
120	120 volt
277	277 volt
MT	Multi-Tap

OPTIONS	
QSL	Quartz re-strike with lamp
F	Single fusing
FF	Double fusing
EM12	1 MR11/MR16 two pin socket for 12v power (by others) 35w max. 35w MR11 lamp included
2EM12	2 MR11/MR16 two pin sockets for 12v power (by others) 35w max. 35w MR11 lamp included

ACCESSORIES	
EM	Remote emergency ballast (fluorescent only)



A HUBBELL LIGHTING, INC. COMPANY

Performance Designed Lighting Products

www.securitylighting.com

1085 Johnson Drive • Buffalo Grove, IL 60089 • TOLL-FREE: 800-544-4848 • PHONE: 847-279-0627 • FAX: 847-279-0642

Linear HIRAF

LED Building Facade Lighting System

Choice of Illumination Distributions


- Combination Up/Down
- Down Only (Dark Sky Compliant)
- Up Only




SECURITY LIGHTING

1085 JOHNSON DRIVE, BUFFALO GROVE, IL 60089 • TEL: 800-544-4848 • FAX: 847-279-0642


Simple, Contractor-Friendly Installation




Drill holes for mounting brackets with supplied template.




Secure Mounting brackets to building.




Install first fixture into mounting brackets and connect power with furnished all-weather electrical whip.



Plug fixtures together in succession. (Power source required for first fixture only.)

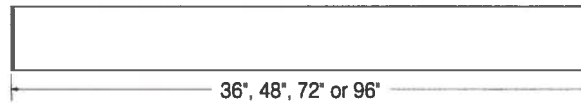
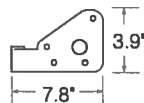


Mount fixtures in continuous row.



Finish last fixture with end-of-row plug provided.

Technical and Ordering Information



Sample Catalog Number

HIRAF	LED	XX	XX	XXX	PS
Series	Source	Size	Distribution	Voltage	Finish

SERIES	
HIRAF	Linear Façade Fixture

SOURCE	
LED	LED

SIZE	
96	8-Foot
72	6-Foot
48	4-Foot
36	3-Foot

DISTRIBUTION	
UD	Up and Down Light (14.25 watts per foot)
DO	Down Light Only (8.5 watts per foot)
UO	Up Light Only (5.75 watts per foot)

VOLTAGE	
120	120-Volt
277	277-Volt

FINISH	
PS	Platinum Silver
WH	White
BL	Black
DB	Dark Bronze
Consult factory for custom colors	

ACCESSORIES	
HIRAFLEDWHIPKIT	Power whip kit (one required per row of fixtures or one per fixture if not mounting continuous row)

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

5/11/2016 3:17:47 PM

in

Case No(s). 16-0222-EL-EEC

Summary: Application -McDonalds and Ohio Power Company for approval of a special arrangement agreement with a mercantile customer
electronically filed by Mrs. Erin C Miller on behalf of Ohio Power Company