



Case No.: 13 - 0576 -EL-EEC

Mercantile Customer: Wal-Mart Stores, Inc.

Electric Utility: Ohio Edison Company

**Program Title or
Description:** Project 1 - New Construction Lighting
Project 2 - HVAC Rooftop Upgrades
Project 3 - High Efficiency Refrigerated Cases

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 to the issuance of a Commission order.

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

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

Section 1: Mercantile Customer Information

Name: Wal-Mart Store #1863 Eastlake, OH

Principal address: Sam Walton Development Complex 2001 S.E. 10th Street Bentonville, AR 72716-5530

Address of facility for which this energy efficiency program applies: 33752 Vine Street Eastlake, OH 44095

Name and telephone number for responses to questions: Richard Mynatt 479-277-9086

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

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

Section 2: Application Information

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

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

B) The electric utility is: Ohio Edison Company

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

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

Section 3: Energy Efficiency Programs

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

- ☒ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)). **If Checked, Please see Exhibit 1 and Exhibit 2**
- ☐ Installation of new equipment to replace equipment that needed to be replaced. The customer installed new equipment on the following date(s): ____.
- ☒ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):
10/15/2012 and 1/17/2013.
- ☐ Behavioral or operational improvement.

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

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

Annual savings: 38,351 kWh

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

Annual savings: _____ kWh

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

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

Annual savings: 1,776,785 kWh

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

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

Section 4: Demand Reduction/Demand Response Programs

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

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

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

9/3/2012 - See Exhibit 2A

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

See Exhibit 2A - 179 kW

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

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

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

A) The customer is applying for:

☒ Option 1: A cash rebate reasonable arrangement.

OR

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

OR

☐ Commitment payment

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

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

☒ A cash rebate of \$51,982.00. (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)

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

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

OR

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

OR

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

Section 6: Cost Effectiveness

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

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

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

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

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

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

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

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

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

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

Section 7: Additional Information

Please attach the following supporting documentation to this application:

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



Public Utilities Commission

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

Case No.: 13 - 0576 -EL-EEC

State of Ohio :

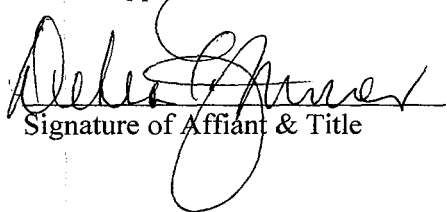
Debra James , Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Wal-Mart Stores, Inc.

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

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

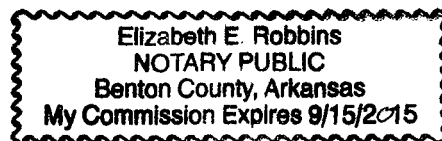

Signature of Affiant & Title

Sworn and subscribed before me this 27th day of March, 2013 Month/Year


Signature of official administering oath

ELIZABETH E Robbins
Print Name and Title

My commission expires on 9/15/2015



Customer Legal Entity Name: Wal-Mart Stores Inc.

Site Address: Wal-Mart Store #1863 Eastlake OH

Principal Address: 33752 Vine Street

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	What date would you have replaced your equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	New Construction Lighting	High-lumen T8 lamps with NEMA premium rated electronic ballasts were installed as part of a new construction/remodel project. 8' fixtures with (4) 4' lamps were installed to provide even lighting over a large area, requiring fewer fixtures to properly light the space. Skylights were installed throughout the sales floor area to provide natural light during the daytime. The 8' fixtures over the sales floor are controlled by daylighting controls, which dim the fluorescent lights based on the amount of natural light illuminating the space. In addition, the existing exterior lighting in the parking lot was upgraded with LED technology. This facility operates year-round, 24 hours/day, 7 days per week.	See the attached lighting calculations "WM 1863_P1_NonStandard_Lighting_Calculator.xls".	N/A	Standard 8' fixtures with (4) 32 watt T8 lamps and normal power electronic ballasts.
2	HVAC Rooftop Upgrades	New high-efficiency rooftop HVAC units were installed as part of a new construction/remodel project. The existing system consisted of 30 standard efficiency roof top units (RTUs) by Carrier, ranging in cooling capacity of 3 to 20 tons. In order to reduce the store's energy use, new high-efficiency RTUs were installed. The new units are Lennox high-performance Strategos SG/SC series ranging in cooling capacity from 3 to 20 tons. The new RTUs use less energy to deliver the same amount of cooling capacity as the old system.	See the attached HVAC calculation sheet "WM 1863_P2_HVAC Savings Calculations.pdf".	2 to 3 years. The decision to upgrade the roof top units was made to reduce energy use and increase reliability and customer comfort levels.	N/A
3	High Efficiency Refrigerated Cases	In order to conserve energy, Hussmann refrigerated cases were installed with high efficiency options installed. LED lighting was installed in the frozen food cases instead of the standard fluorescent T8 lighting. Electrically commutated motors were installed on the evaporator fans instead of shaded-pole motors. A total of 31 refrigerated cases were installed in the grocery department.	See the attached calculations "WM 1863_P3_Refrigerated Cases Calculations.pdf".	N/A	The new refrigerated cases were ordered with high efficiency options installed. Standard options for the purchased refrigerated cases are fluorescent lighting and evaporator fans with shaded pole motors.

Docket No. 13-0576

Site: 33752 Vine Street

Exhibit 2

Customer Legal Entity Name: Wal-Mart Stores Inc.

Site Address: Wal-Mart Store #1863 Eastlake OH

Principal Address: 33752 Vine Street

	Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) <i>Note 1</i>
2011	1,994,720	1,994,720	1,994,720
Average	1,994,720	1,994,720	1,994,720

Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2	Commitment Payment \$
1	New Construction Lighting	10/15/2012	\$147,460	\$73,730	1,665,106	1,665,106	128	\$57,307	\$42,980	
2	HVAC Rooftop Upgrades	09/03/2012	\$225,536	\$112,768	38,351	38,351	41	\$3,068	\$2,301	
3	High Efficiency Refrigerated Cases	01/17/2013	\$295,269	\$147,635	111,679	111,679	10	\$8,934	\$6,701	
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
	Total		\$668,265		1,815,136	1,815,136	179	\$69,309	\$51,982	\$0

Docket No. 13-0576

Site: 33752 Vine Street

Notes

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

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

Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh	Utility Avoided Cost \$/MWh	Utility Avoided Cost \$	Utility Cost \$	Cash Rebate \$	Administrator Variable Fee \$	Total Utility Cost \$	UCT
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1	1,665	\$ 308	\$ 513,319	\$ 1,350	\$42,980	\$16,651	\$ 60,981	8.4
2	38	\$ 308	\$ 11,823	\$ 1,350	\$2,301	\$384	\$ 4,035	2.93
3	112	\$ 308	\$ 34,428	\$ 1,350	\$6,701	\$1,117	\$ 9,167	3.76
Total	1,815	\$ 308	559,570	4,050	\$51,982	\$18,151	74,183	7.5

Notes

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

Wal-Mart Stores Inc. ~ Wal-Mart Store #1863 Eastlake OH
Docket No. 13-0576

Site: 33752 Vine Street

Lighting Inventory Form

Applicant Name:	Wal-Mart Inc.
Facility Name:	Wal-Mart #2863 Eastlake, OH
Date:	10/15/2012
Leftline Zone (asterisk only):	Leftline Zone 2

Instructions: Please use one line for each fixture type in a room or area.
For existing or proposed control, choose OCC for Occupancy Sensor, DAYLTG for photosensor, or NONE for none. Controls must save energy to qualify.
The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

[illegible]

Project Estimated Annual Savings Summary

Lighting

Estimated Annual kWh Savings	1,665,106
Total Change in Connected Load	128.05

Annual Estimated Cost Savings	\$166,510.60
Annual Operating Hours	6,297

Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$53,732.00
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$3,550.10
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard-wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$25.00

Total Calculated Incentive	\$57,307.10
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Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	1070
Total Lamp Quantity for retrofit Screw-In CFLs	0

Total Lamp Quantity for retrofit Hard-Wired CFLs	0
Total Fixture Quantity for retrofit LED Exit Signs	0
Total Quantity for Occupancy Sensors	0
Total Quantity for Daylight Sensors	1

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type "Other" indicated on the Lighting Form tab
This facility will be open 24 hours per day/7 days per week.

Demand Savings (For Internal Use Only)	146.77
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T8

ELECTRONIC FLUORESCENT CONTROLLABLE BALLASTS

For 32W Lamps

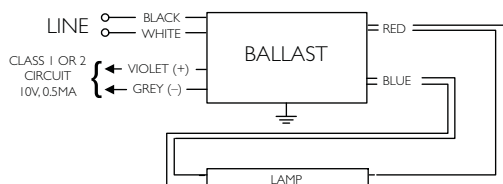
HIGH POWER FACTOR SOUND RATED A

Mark 7 0-10V Electronic Dimming Ballast

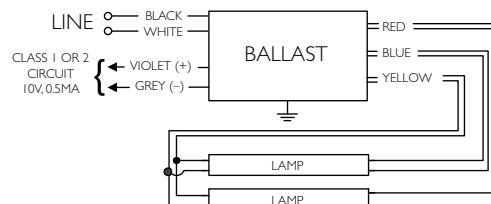


No. of Lamps	Input Volts	Lamp Starting Method	Ballast Family	Catalog Number	Max/Min		Full Light Output		Min. Starting Temp. (°F/°C)	Dim.	Wiring Dia.
					Input Power ANSI (Watts)	Ballast Factor	THD %	Line Current (Amps)			
F32T8, FBO31T8, F32T8/U6 (32W)											
1	120-277	PS	Mark 7 0-10V	IZT-132-SC	35/8	1.00/0.03	10	0.30-0.13	50/10	B	55A
2				IZT-2S32-SC	68/14			0.57-0.24			56A
3				IZT-3S32-SC	100/20			0.86-0.37			57A
4	277			VZT-4S32-G	116/25	0.88/0.05		0.42		G	16A
				VZT-4S32-HL	149/27	1.18/0.05		0.54			174
				VZT-4PSP32-G	112/27	0.88/0.10		0.41	D		16A
	120-277			IZT-4S32	116/25	0.88/0.03		0.98-0.42			

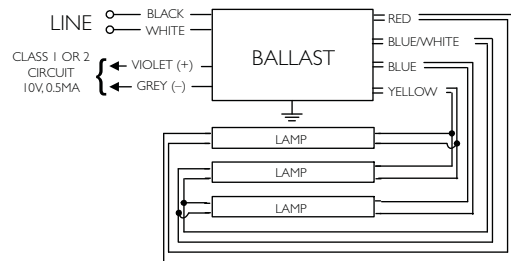
Some lamp manufacturers recommend burning in new lamps 100 hours at full light output before dimming. Consult lamp manufacturer.
Ballasts utilizing poke-in connectors can accept wire gauges from AWG 16 - 20.



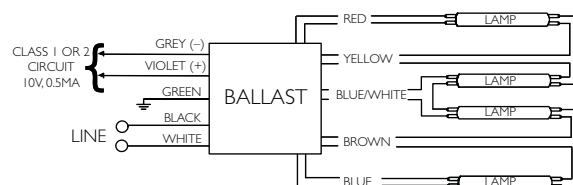
Diag. 55A



Diag. 56A



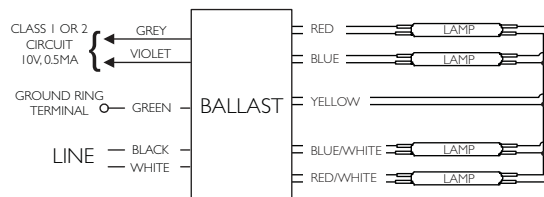
Diag. 57A



Diag. 16A

Mark 7 0-10V Control Wiring (Grey and Violet)

Wire Size	Maximum Length (Ft.)
AWG-16	800
AWG-18	500
AWG-20	320
AWG-22	200
AWG-24	120



Diag. 174

ONLY USE RAPID-START SOCKETS

Refer to pages 1-15 to 1-19 for information on remote/tandem wiring and lead length extension
Refer to pages 2-18 for ballast dimensions
Refer to pages 2-32 & 2-33 for compatible low voltage controls
Refer to pages 9-23 to 9-27 for lead lengths and shipping data

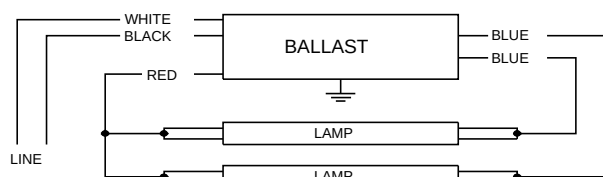
Electrical Specifications

IOP-2P32-SC@277V

Brand Name	OPTANIUM
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F32T8	1	32	-20/-29	0.13	35	1.05	10	0.98	1.6	3.00
* F32T8	2	32	-20/-29	0.20	54	0.87	10	0.98	1.6	1.61

Wiring Diagram



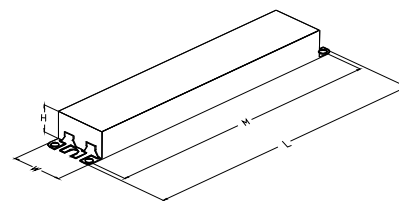
Diag. 64

The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.		in.	cm.
Black	25	63.5	Yellow/Blue		0
White	25	63.5	Blue/White		0
Blue	31	78.7	Brown		0
Red	37	94	Orange		0
Yellow		0	Orange/Black		0
Gray		0	Black/White		0
Violet		0	Red/White		0

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 03/03/2010



Data is based upon tests performed by Philips Lighting Electronics N.A. in a controlled environment and is representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

PHILIPS LIGHTING ELECTRONICS N.A.

10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018

Tel: 800-322-2086 · Fax: 888-423-1882 · www.philips.com/advance

Customer Support/Technical Service: 800-372-3331 · OEM Support: 866-915-5886

IOP-2P32-SC@277V

Brand Name	OPTANIUM
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance

- 2.1 Ballast shall be _____ (Instant or Programmed) Start.
- 2.2 Ballast shall provide Independent Lamp Operation (ILO) for Instant Start or Programmed Start Parallel ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail.
- 2.3 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.4 Ballast shall operate from 50/60 Hz input source of _____ (120V through 277V or 347V) with sustained variations of +/- 10% (voltage and frequency).
- 2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency between 42 kHz and 52 kHz to avoid interference with infrared devices, eliminate visible flicker and avoid Article Surveillance System, such as anti-theft devices.
- 2.6 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.77 for Low Watt, 0.87 for Normal Light Output, and 1.18 for High Light for Instant Start ballasts or 0.71 for Low Watt and 0.88 for Normal Light Output for Programmed Start ballasts.
- 2.8 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less.
- 2.9 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.
- 2.11 Ballast shall have a minimum starting temperature of -29C (-20F) on Instant Start ballasts or -18C (0F) on Programmed Start ballasts for standard T8 lamps and 16C (60F) for energy-saving T8 lamps. Consult lamp manufacturer for temperature versus light output characteristics.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.
- 2.13 Ballast shall have lamp striation-reduction circuitry.
- 2.14 Programmed Start ballast shall provide lamp EOL protection circuitry.
- 2.15 Maximum distance for Energy Saving Lamps in Remote/Tandem wiring applications shall be 6 feet for Instant Start and Programmed Start models.

Section III - Regulatory

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.4 Ballast shall comply with ANSI C82.11 where applicable.
- 3.5 Ballast shall comply with applicable requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
- 3.6 Ballast shall meet NEMA Premium/CEE High Performance T8 Lighting System Specifications.
- 3.7 IOP or GOP ballast shall comply with UL Type CC rating.
- 3.8 Ballast shall comply with NEMA 410 for in-rush current limits.
- 3.9 Ballast shall meet RoHS Compliance Standards

Section IV - Other

- 4.1 Ballast shall be manufactured in an ISO 9001 Qualified factory.
- 4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a "90C" designation in their catalog number shall also carry a three-year warranty at maximum case temperature of 90C.
- 4.3 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market.
- 4.4 Energy-saving T8 lamps (25W, 28W or 30W) may experience lamp striations if operated on ballasts not rated for their use.

Revised 03/03/2010



Data is based upon tests performed by Philips Lighting Electronics N.A. in a controlled environment and is representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

PHILIPS LIGHTING ELECTRONICS N.A.

10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018

Tel: 800-322-2086 · Fax: 888-423-1882 · www.philips.com/advance

Customer Support/Technical Service: 800-372-3331 · OEM Support: 866-915-5886

GE
Lighting Solutions

Evolve™ LED Area Light

Medium Thin Profile (EAMT)



imagination at work

Product Features

GE Lighting Solutions designed this luminaire using both fixture and LED application expertise to bring unmatched product quality and reliability with optical leadership and understanding of customer needs. This product can easily achieve IESNA RP-20 horizontal illuminance requirements while exceeding MAX/MIN uniformity requirements. This sleek and robust fixture is now available with a new, higher light output Type V option (D5) that produces 19,000 lumens.

Applications

- For site, area, and general lighting utilizing advanced LED optical system providing high uniformity, excellent vertical light distribution, reduced offsite visibility, reduced on-site glare and effective security light levels.
- Ideal for commercial and medical properties, large malls, and big box retailers.

Housing

- Die-cast aluminum housing.
- Slim architectural design incorporates a heat sink directly into the unit ensuring maximum heat transfer, long LED life and a reduced Effective Projected Area (EPA).
- Meets 2G vibration standards per ANSI C136.32-2001. For 3G rating contact factory.

LED & Optical Assembly

- Optimized LED array based on distribution pattern.
- Utilizes high brightness LEDs, 70 CRI at 6000K typical. D5 available in 4000K and 5700K typical, binned per ANSI C78.377-2008.
- LM-79 tests and reports are performed in accordance to IESNA standards.

Lumen Maintenance

- System rating is 50,000 hours at L85.
- Contact factory for L rating (Lumen Depreciation) beyond 50,000 hours.

Ratings

- UL/cUL listed, suitable for wet locations.
- IP 65 rated optical assembly per ANSI C136.25-2009.
- Temperature rated at -40°C to 50°C.

Mounting

Option A

- 10-inch (254mm) mounting arm for square pole with easy-connect terminal board.

Option B

- 10-inch (254mm) mounting arm for round pole with easy-connect terminal board.

Option C

- Slipfitter mounting for 2 3/8-inch (60mm) O.D. pipe prewired with 24-inch (610mm) leads.

Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard colors: Black & Dark Bronze.
- RAL & custom colors available.

Electrical

- 120-277 volt and 347-480 volt available.
- System power factor is >90% and THD <20%.
- Class "A" Sound rating.
- Integral surge protection non-dimming:
 - For 120-277VAC per IEEE/ANSI C62.41.-1991, 4kV/2kA Location Category B2 (120 Events)
 - For 347-480VAC per IEEE/ANSI C62.41.-1991, 6kV/3kA Location Category B3 (120 Events)
- Integral surge protection GE dimming:
 - For 120-480VAC per IEEE/ANSI C62.41.2-2002, 6kV/3kA Location Category B (120 Events)
- EMI: FCC 47 CFR 15 Class A
- Photo Electric Sensors (PE) available for all voltages.

Warranty

- 5-year limited system warranty standard.

Ordering Number Logic

Medium Thin Profile Fixtures (EAMT)



E A M T

A

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area M = Medium T = Thin	0 = 120 - 277 H = 347 - 480 1 = 120* 2 = 208* 3 = 240* 4 = 277* S = 480* D = 347* *Specify single voltage only if fuse option is selected		F = Front L = Left R = Right N = Not Applicable* *Not applicable when pattern is symmetric	40 = 4000K* 57 = 5700K* 60 = 6000K** *D5 Distribution Only **Not available in D5 distribution	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control PE control not available for 347-480V. Must be a discrete voltage.	A = 10" Arm for Square Pole supplied with Terminal Block B = 10" Arm for Round Pole supplied with Terminal Block C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads	BLCK = Black DKBZ = Dark Bronze Contact factory for other colors	D = Dimmable (0-10 Volt Input)* F = Fusing T = Extra Surge Protection* *Contact factory for availability.

Front (F)

Left (L)

Right (R)

(N)
Not Applicable

Light pattern thrown in direction specified in relation to Pole and Fixture.

OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS			TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	BUG RATINGS									IES FILE NUMBER		
		4000K	5700K	6000K	120-277V	347-480V		4000K			5700K			6000K			4000K	5700K	6000K
								B	U	G	B	U	G	B	U	G			
D5	Symmetric Square	17,500	19,000	N/A	270	285	N	5	3	3	5	3	3	N/A	N/A	N/A	454564	454566	N/A
S5	Symmetric Square	N/A	N/A	12,300	210	220	N	N/A	N/A	N/A	N/A	N/A	N/A	4	2	2	N/A	N/A	545058
F4	Asymmetric Forward	N/A	N/A	5,400	94	99	F, L, R	N/A	N/A	N/A	N/A	N/A	N/A	1	3	2	N/A	N/A	454062
W3	Asymmetric Wide	N/A	N/A	7,200	132	138	F, L, R	N/A	N/A	N/A	N/A	N/A	N/A	3	1	3	N/A	N/A	454066

IESNA Classifications



SYMMETRIC SQUARE



ASYMMETRIC FORWARD



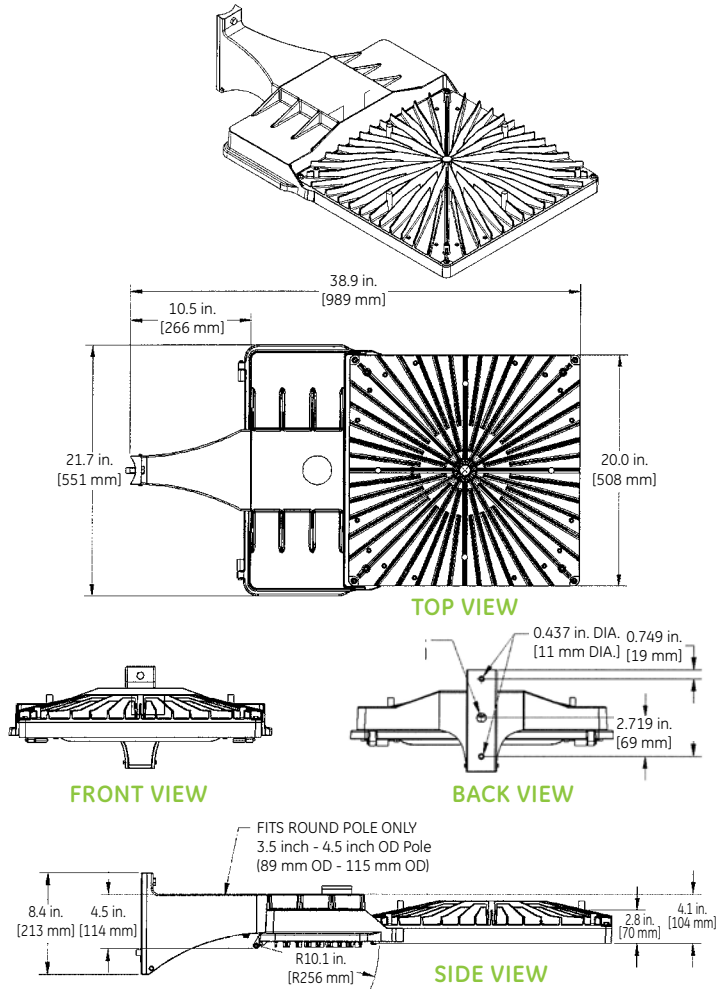
ASYMMETRIC WIDE

DATA

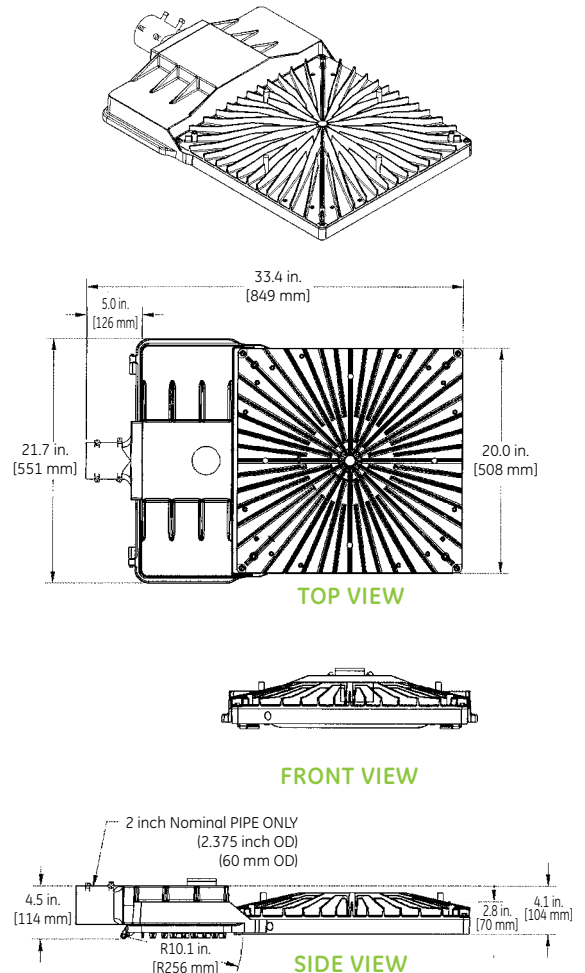
- Approximate Net Weight: 51-57 lbs (23-26 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.35 sq ft max (0.13 sq M)
- Effective Projected Area (EPA) with Slipfitter: 1.19 sq ft max (0.11 sq M)

Product Dimensions

10" Arm for Round Pole Mount (Option B)

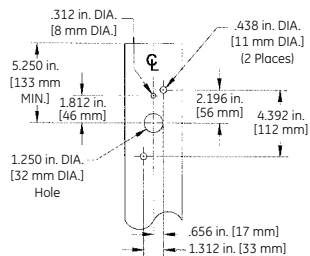


Slipfitter Arm Mount (Option C)



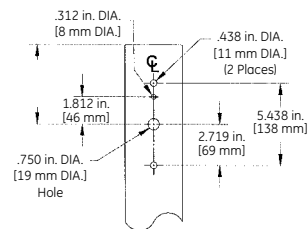
Drilling Templates for Slipfitter Arms & Arm Mount

SQUARE POLE MOUNTING



ROUND POLE MOUNTING

3.5 TO 4.5-inch (89 to 114mm) OD round pole mounting arm

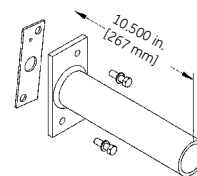


Mounting Arms for Slipfitter

Order separately with Mounting Option C (External Slipfitter)

SQUARE POLE MOUNTING ARM

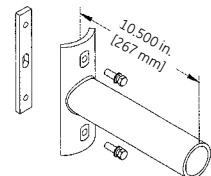
3.5 TO 4.5-inch (89 to 114mm) SQUARE
(WILL ALLOW 4 FIXTURES PER
POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE
AS CATALOG NUMBER
SPA-EAMT10BLCK "Black"
SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM

3.5 TO 4.5-inch (89 to 114mm) OD
(WILL ALLOW 4 FIXTURES PER
POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE
AS CATALOG NUMBER
RPA-EAMT10BLCK "Black"
RPA-EAMT10DKBZ "Dark Bronze"

(FOR RETROFITS INSTALLATIONS OTHER MOUNTING PATTERNS ARE AVAILABLE)
CONTACT FACTORY FOR OTHER AVAILABLE MOUNTING PATTERNS



GE Lighting Solutions • 1-888-MY-GE-LED • www.gelightingsolutions.com

1-888-6-9-43-533

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GE
Lighting Solutions

Evolve™ LED Area Light

Modular Fixture - Small & Medium (EASM & EAMM)



imagination at work

Product Features

The next evolution of the GE Evolve™ LED Area Light continues to deliver the same outstanding features associated with the original Evolve product, while now adding greater flexibility and style. The European styling offers a sleek, modern look, and balances the needs for photometric scalability with reliable workhorse performance. The new modular design provides 34 photometric combinations, available in two color temperatures, to meet a wide range of area lighting needs.

GE's exclusive optical ring design produces superior vertical illuminance and efficiently directs the light without wasteful and unwelcomed light spill into neighboring properties. Additionally, reduced energy consumption, combined with a long rated life that virtually eliminates ongoing maintenance expenses, enables the Evolve LED Area Light to provide significant operating cost benefits over the life of each fixture.

Applications

- Single and double modules for site, area, and general lighting utilizing advanced LED optical system providing high uniformity, excellent vertical light distribution, reduced offsite visibility, reduced on-site glare and effective security light levels.
- Scalable design makes this product ideal for small to medium retailers, commercial to medical properties, strip malls to large malls, and big box retailers.

Housing

- Die-cast aluminum housing.
- Slim architectural design incorporates modular heat sink light engine directly into the unit ensuring maximum heat transfer, long LED life and a reduced Effective Projected Area (EPA).
- Meets 2G vibration per ANSI C136.31-2001. For 3G rating contact manufacturer.

LED & Optical Assembly

- Structured LED arrays for optimized area light photometric distribution.
- Evolve modular light engine utilizing nested concentric directional reflectors designed to optimize application efficiency and minimize glare.
- Utilizes high brightness LEDs, 70 CRI at 4000K and 5700K typical.
- LM-79 tests and reports are performed in accordance with IESNA standards.

Lumen Maintenance

- System rating is L85 at 50,000 hours. Contact manufacturer for Lxx rating (Lumen Depreciation) beyond 50,000 hours.

Ratings

- /cUL listed, suitable for wet locations.
- IP 65 rated optical enclosure per ANSI C136.25-2009.
- Temperature rated at -40° to 45°C.
- Upward Light Output Ratio (ULOR) = 0.
-  RoHS compliant.

Mounting

Option A

- 10-inch (254mm) mounting arm for square pole.

Option B

- 10-inch (254mm) mounting arm for round pole.

Option C

- Slipfitter mounting for 2 3/8-inch (60mm) O.D. pipe prewired with 24-inch (610mm) leads.

Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard colors: Black & Dark Bronze.
- RAL & custom colors available.

Electrical

- 120-277 volt and 347-480 volt available.
- System power factor is >90% and THD <20%.*
- Class "A" audible sound rating.
- Integral surge protection non-dimming:
 - For 120-277VAC per IEEE/ANSI C62.41.-1991, 4kV/2kA Location Category B2 (120 Events)
 - For 347-480VAC per IEEE/ANSI C62.41.-1991, 6kV/3kA Location Category B3 (120 Events)
- Integral surge protection GE dimming:
 - For 120-480VAC per IEEE/ANSI C62.41.2-2002, 6kV/3kA Location Category B (120 Events)
- Optional high capability surge protection per IEEE/ANSI C62.41.2-2002.
 - Rating 1 - 10kV/5kA Location Category (120 events)
 - Rating 2 - 6kV/3kA Location Category C-Low (5000 events)
- EMI: Title 47 CFR Part 15 Class A
- Photo electric sensors (PE) available for all voltages.

* System power factor and THD is tested and specified at 120V input and maximum load conditions.

Warranty

- 5-year limited system warranty standard.

Ordering Number Logic

Medium / Double Module Fixture (EAMM)



E A M M - - - - - A - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area M = Medium M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front L = Left R = Right N = Not Applicable	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact manufacturer for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.
Light pattern thrown in direction specified in relation to Pole and Fixture.									

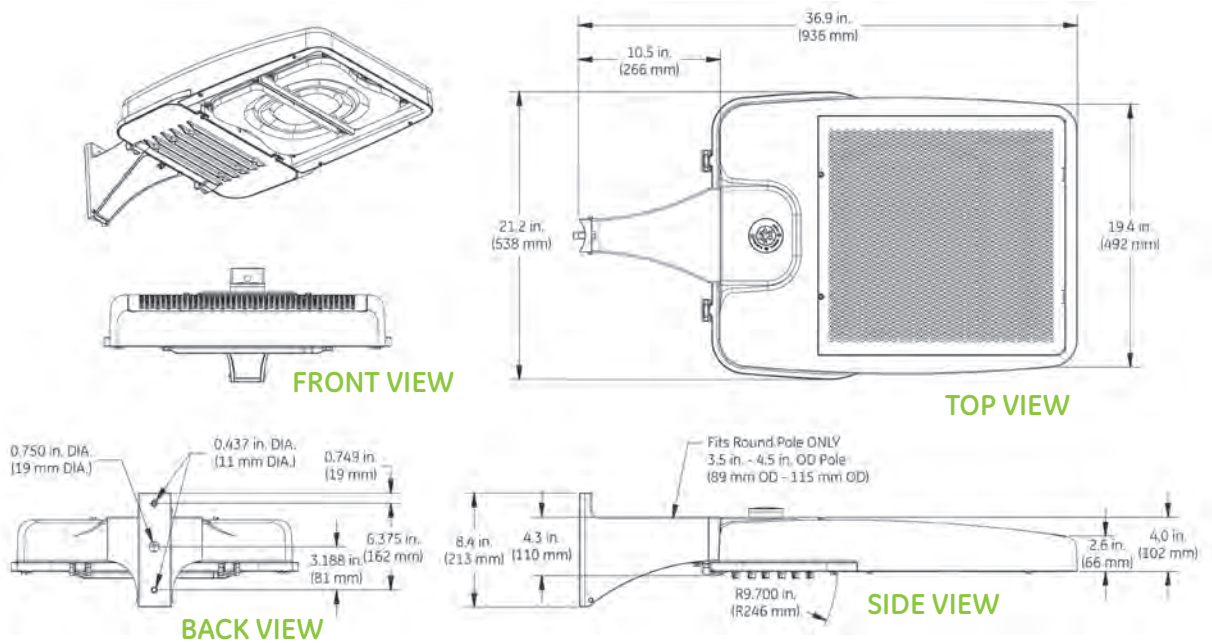
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	BUG RATINGS						IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		4000K			5700K			4000K	5700K
TYPE V	A5	Symmetric Medium	6260	6800	100	105	N	3	1	1	3	2	2	454457	454487
	B5	Symmetric Medium	8100	8800	126	133	N	3	2	2	3	2	2	454458	454488
	C5	Symmetric Medium	9940	10800	152	160	N	4	2	2	4	2	2	454459	454489
	D5	Symmetric Medium	11780	12800	178	187	N	4	2	2	4	3	2	454460	454490
	E5	Symmetric Medium	13620	14800	202	213	N	4	3	2	4	3	2	454461	454491
	K5	Symmetric Short	6260	6800	100	105	N	3	1	1	3	1	1	454471	454513
	L5	Symmetric Short	8100	8800	126	133	N	3	1	1	3	1	1	454472	454514
	M5	Symmetric Short	9940	10800	152	160	N	3	1	2	3	1	2	454473	454515
	N5	Symmetric Short	11780	12800	178	187	N	3	1	2	4	1	2	454474	454516
TYPE IV	P5	Symmetric Short	13620	14800	202	213	N	4	1	2	4	1	2	454475	454517
	F4	Asymmetric Forward	8100	8800	126	133	F, L, R	2	3	2	2	3	2	454409	454396
	G4	Asymmetric Forward	9020	9800	139	146	F, L, R	2	3	2	2	3	2	454448	454476
	H4	Asymmetric Forward	9940	10800	152	160	F, L, R	2	3	2	2	3	3	454412	454405
	J4	Asymmetric Forward	10860	11800	165	174	F, L, R	2	3	3	2	3	3	454451	454479
	K4	Asymmetric Forward	11780	12800	178	187	F, L, R	2	3	3	2	3	3	454415	454426
	L4	Asymmetric Forward	12700	13800	190	200	F, L, R	2	3	3	2	3	3	454454	454482
TYPE III	M4	Asymmetric Forward	13620	14800	202	213	F, L, R	2	3	3	3	3	3	454418	454435
	F3	Asymmetric Wide	8100	8800	126	133	F, L, R	1	1	2	1	1	2	454436	454492
	G3	Asymmetric Wide	9020	9800	139	146	F, L, R	2	1	2	2	1	2	454462	454495
	H3	Asymmetric Wide	9940	10800	152	160	F, L, R	2	1	2	2	1	2	454439	454498
	J3	Asymmetric Wide	10860	11800	165	174	F, L, R	2	1	2	2	1	2	454465	454501
	K3	Asymmetric Wide	11780	12800	178	187	F, L, R	2	1	2	2	1	2	454442	454504
	L3	Asymmetric Wide	12700	13800	190	200	F, L, R	2	1	2	2	1	2	454468	454507
	M3	Asymmetric Wide	13620	14800	202	213	F, L, R	2	1	2	2	1	2	454445	454510

*Shielded options available. Contact manufacturer for IES files.

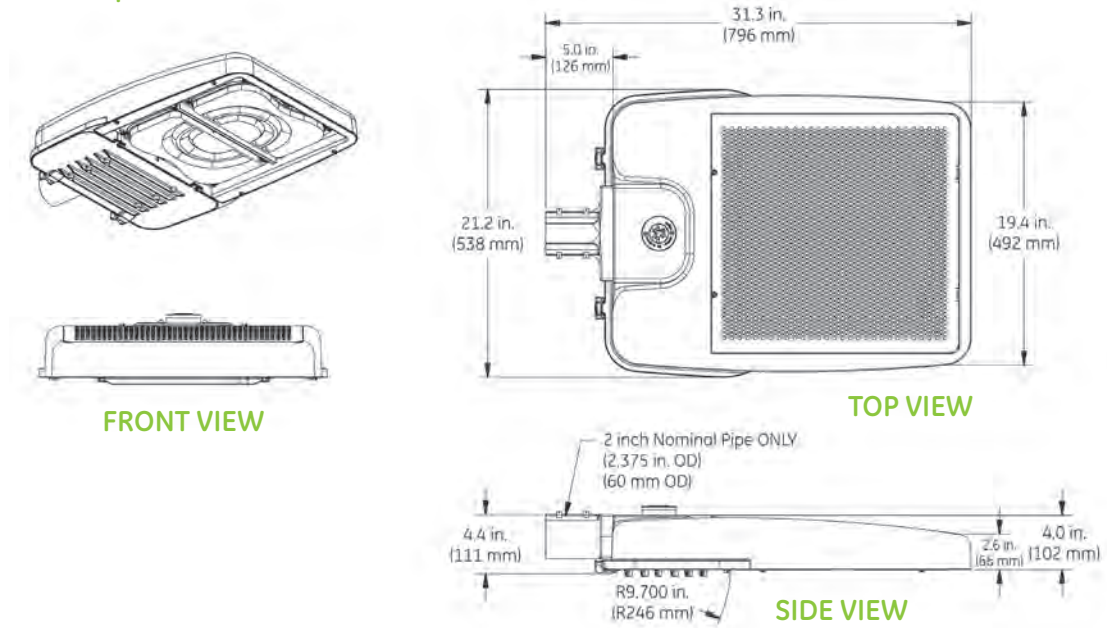
Product Dimensions

Medium / Double Module Fixture (EAMM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 46-49 lbs (21-22 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.35 sq ft max (0.13 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.86 sq ft max (0.08 sq m)

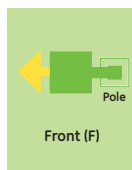
Ordering Number Logic

Small / Single Module Fixture (EASM)



E A S M - - - - F - - - - A - - - - - - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area S = Small M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact factory for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.



Light pattern thrown in direction specified in relation to Pole and Fixture.

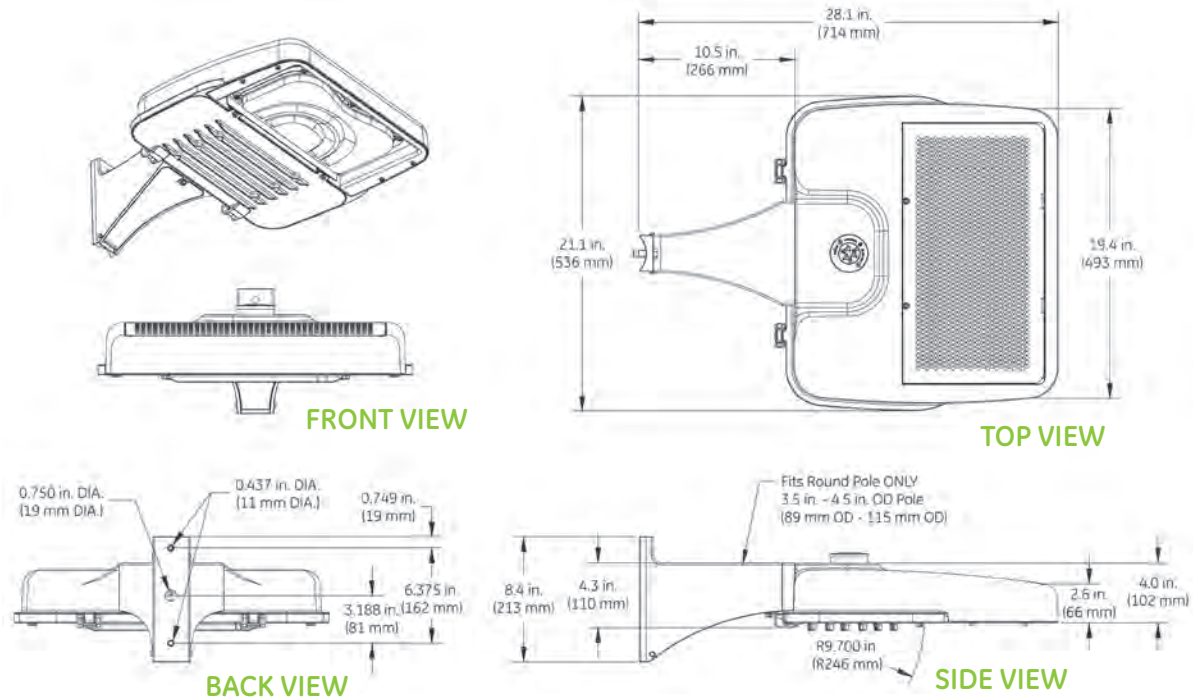
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	4000K			5700K			IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		B	U	G	B	U	G	4000K	5700K
TYPE IV	A4	Asymmetric Forward	3130	3400	50	53	F	1	2	1	1	2	1	454394	454395
	B4	Asymmetric Forward	4050	4400	63	66	F	1	2	2	1	2	2	434397	454398
	C4	Asymmetric Forward	4970	5400	76	80	F	1	2	2	1	2	2	454400	454401
	D4	Asymmetric Forward	5890	6400	89	94	F	1	2	2	1	3	2	454403	454404
	E4	Asymmetric Forward	6810	7400	101	106	F	1	3	2	2	3	2	454406	454407
TYPE III	A3	Asymmetric Wide	3130	3400	50	53	F	1	1	1	1	1	1	454421	454422
	B3	Asymmetric Wide	4050	4400	63	66	F	1	1	1	1	1	1	454424	454425
	C3	Asymmetric Wide	4970	5400	76	80	F	1	1	1	1	1	2	454427	454428
	D3	Asymmetric Wide	5890	6400	89	94	F	1	1	2	1	1	2	454430	454431
	E3	Asymmetric Wide	6810	7400	101	106	F	1	1	2	1	1	2	454433	454434

*Shielded options available. Contact manufacturer for IES files.

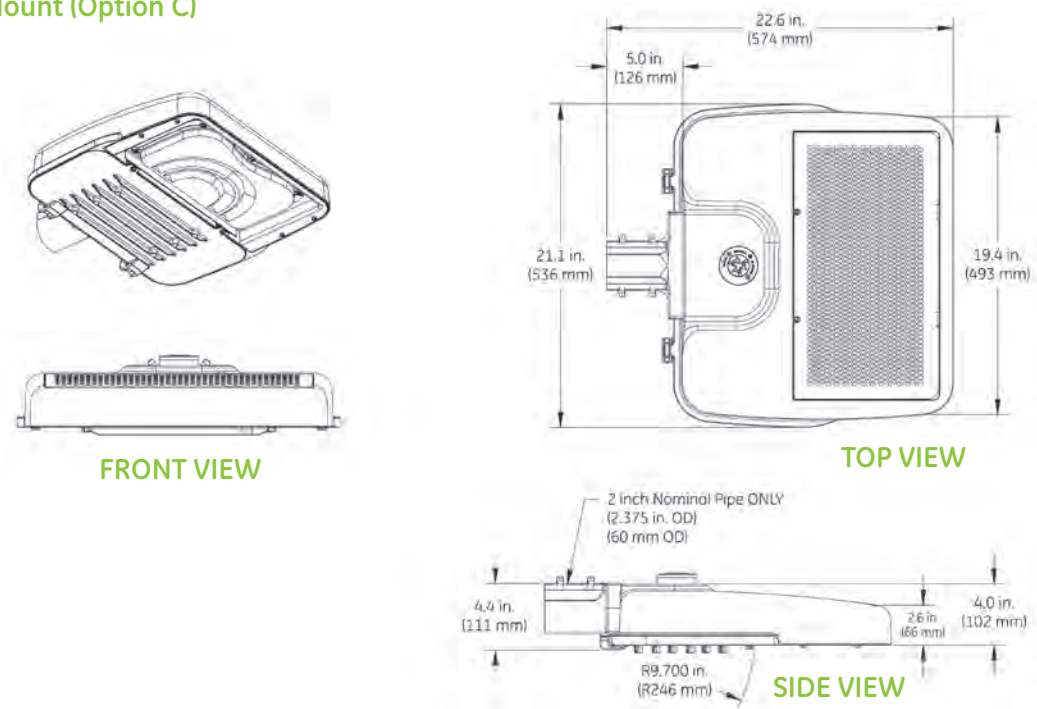
Product Dimensions

Small / Single Module Fixture (EASM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 30-33 lbs (14-15 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.11 sq ft max (0.10 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.62 sq ft max (0.06 sq m)

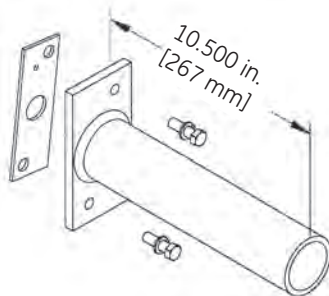
Mounting Information

Mounting Arms for Slipfitter

Order separately with Mounting Option C (External Slipfitter)

SQUARE POLE MOUNTING ARM

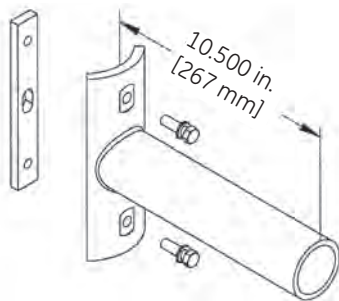
3.5 TO 4.5-inch (89 to 114mm) SQUARE
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
SPA-EAMT10BLCK "Black"
SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM

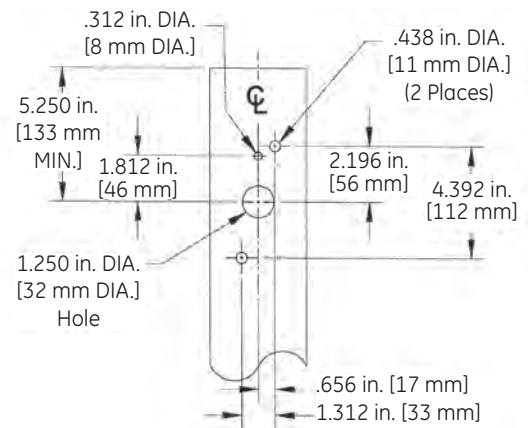
3.5 TO 4.5-inch (89 to 114mm) OD
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
RPA-EAMT10BLCK "Black"
RPA-EAMT10DKBZ "Dark Bronze"

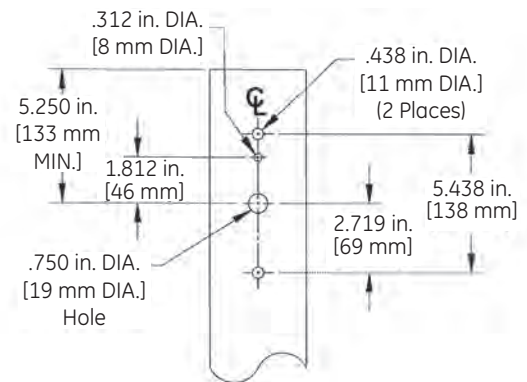
Drilling Templates for Slipfitter Arms & Arm Mount

SQUARE POLE MOUNTING



ROUND POLE MOUNTING

3.5 TO 4.5-inch (89 to 114mm) OD
round pole mounting arm

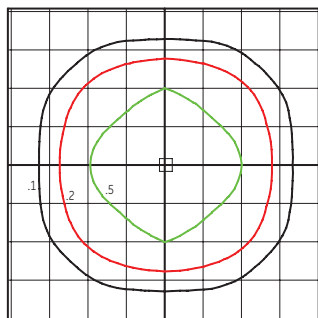


FOR RETROFITS INSTALLATIONS OTHER MOUNTING PATTERNS ARE AVAILABLE.
CONTACT FACTORY FOR OTHER AVAILABLE MOUNTING PATTERNS

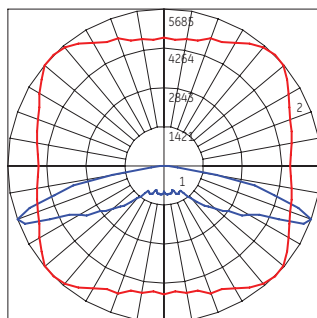
Photometrics

Medium / Double Module Fixture (EAMM)

EAMM Type V – Symmetric Medium (E5)
14,800 Lumens, 5700K (GE454491.ies)

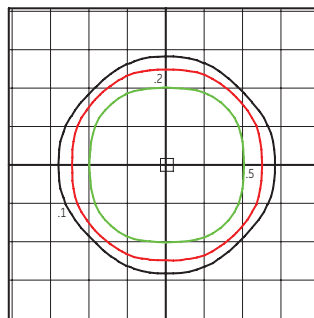


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

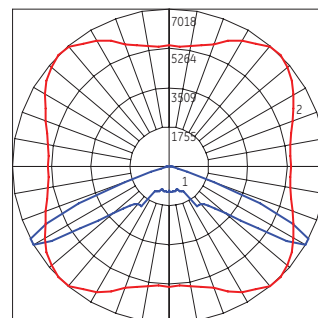


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type V - Symmetric Short (P5)
14,800 Lumens, 5700K (GE454517.ies)

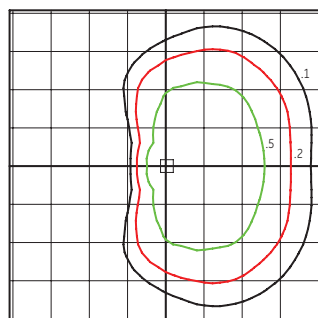


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

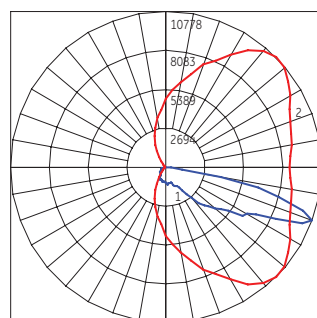


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type IV - Asymmetric Forward (M4)
14,800 Lumens, 5700K (GE454435.ies)

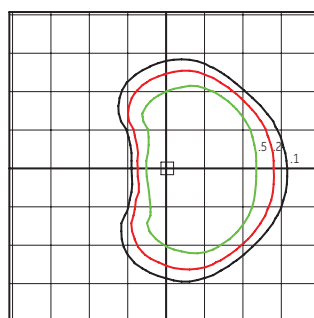


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

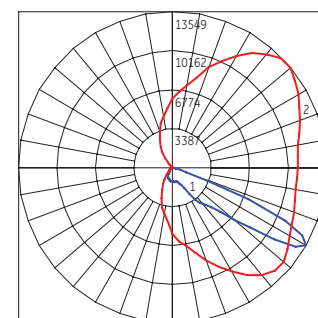


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type III - Asymmetric Wide (M3)
14,800 Lumens, 5700K (GE454510.ies)



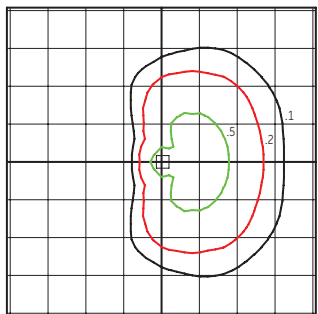
Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



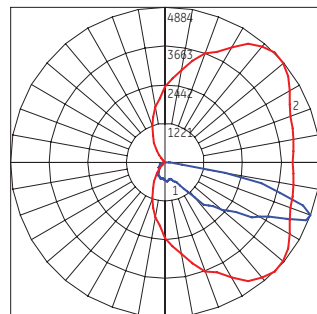
Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

Small / Single Module Fixture (EASM)

EASM Type IV - Asymmetric Forward (E4)
7,400 Lumens, 5700K (GE454407.ies)

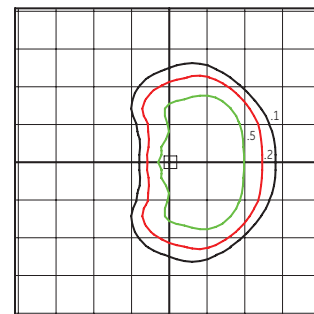


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

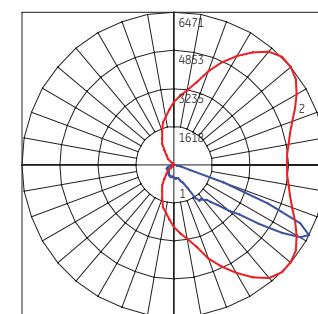


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EASM Type III - Asymmetric Wide (E3)
7,400 Lumens, 5700K (GE454434.ies)



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower



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1-888-69-43-533

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GE
Lighting Solutions

Evolve™ LED Area Light

Modular Fixture - Small & Medium (EASM & EAMM)



imagination at work

Product Features

The next evolution of the GE Evolve™ LED Area Light continues to deliver the same outstanding features associated with the original Evolve product, while now adding greater flexibility and style. The European styling offers a sleek, modern look, and balances the needs for photometric scalability with reliable workhorse performance. The new modular design provides 34 photometric combinations, available in two color temperatures, to meet a wide range of area lighting needs.

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Applications

- Single and double modules for site, area, and general lighting utilizing advanced LED optical system providing high uniformity, excellent vertical light distribution, reduced offsite visibility, reduced on-site glare and effective security light levels.
- Scalable design makes this product ideal for small to medium retailers, commercial to medical properties, strip malls to large malls, and big box retailers.

Housing

- Die-cast aluminum housing.
- Slim architectural design incorporates modular heat sink light engine directly into the unit ensuring maximum heat transfer, long LED life and a reduced Effective Projected Area (EPA).
- Meets 2G vibration per ANSI C136.31-2001. For 3G rating contact manufacturer.

LED & Optical Assembly

- Structured LED arrays for optimized area light photometric distribution.
- Evolve modular light engine utilizing nested concentric directional reflectors designed to optimize application efficiency and minimize glare.
- Utilizes high brightness LEDs, 70 CRI at 4000K and 5700K typical.
- LM-79 tests and reports are performed in accordance with IESNA standards.

Lumen Maintenance

- System rating is L85 at 50,000 hours. Contact manufacturer for Lxx rating (Lumen Depreciation) beyond 50,000 hours.

Ratings

- /cUL listed, suitable for wet locations.
- IP 65 rated optical enclosure per ANSI C136.25-2009.
- Temperature rated at -40° to 45°C.
- Upward Light Output Ratio (ULOR) = 0.
-  RoHS compliant.

Mounting

Option A

- 10-inch (254mm) mounting arm for square pole.

Option B

- 10-inch (254mm) mounting arm for round pole.

Option C

- Slipfitter mounting for 2 3/8-inch (60mm) O.D. pipe prewired with 24-inch (610mm) leads.

Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard colors: Black & Dark Bronze.
- RAL & custom colors available.

Electrical

- 120-277 volt and 347-480 volt available.
- System power factor is >90% and THD <20%.*
- Class "A" audible sound rating.
- Integral surge protection non-dimming:
 - For 120-277VAC per IEEE/ANSI C62.41.-1991, 4kV/2kA Location Category B2 (120 Events)
 - For 347-480VAC per IEEE/ANSI C62.41.-1991, 6kV/3kA Location Category B3 (120 Events)
- Integral surge protection GE dimming:
 - For 120-480VAC per IEEE/ANSI C62.41.2-2002, 6kV/3kA Location Category B (120 Events)
- Optional high capability surge protection per IEEE/ANSI C62.41.2-2002.
 - Rating 1 - 10kV/5kA Location Category (120 events)
 - Rating 2 - 6kV/3kA Location Category C-Low (5000 events)
- EMI: Title 47 CFR Part 15 Class A
- Photo electric sensors (PE) available for all voltages.

* System power factor and THD is tested and specified at 120V input and maximum load conditions.

Warranty

- 5-year limited system warranty standard.

Ordering Number Logic

Medium / Double Module Fixture (EAMM)



E A M M - - - - - A - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area M = Medium M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front L = Left R = Right N = Not Applicable	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact manufacturer for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.
Light pattern thrown in direction specified in relation to Pole and Fixture.									

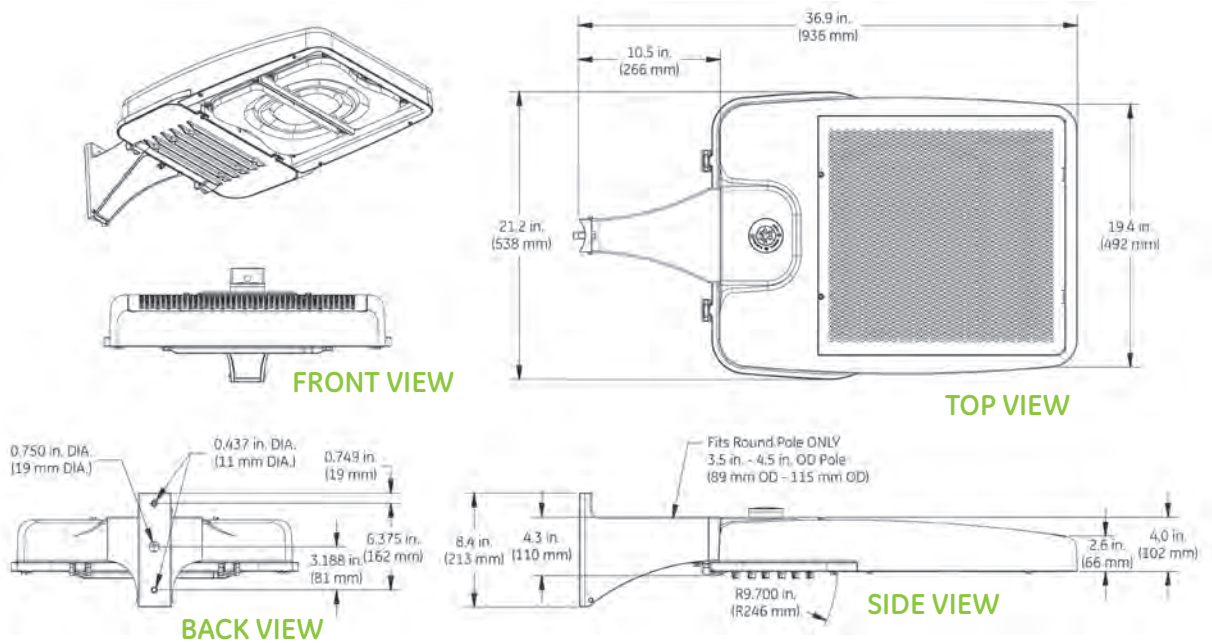
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	BUG RATINGS						IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		4000K		5700K				4000K	5700K
TYPE V	A5	Symmetric Medium	6260	6800	100	105	N	3	1	1	3	2	2	454457	454487
	B5	Symmetric Medium	8100	8800	126	133	N	3	2	2	3	2	2	454458	454488
	C5	Symmetric Medium	9940	10800	152	160	N	4	2	2	4	2	2	454459	454489
	D5	Symmetric Medium	11780	12800	178	187	N	4	2	2	4	3	2	454460	454490
	E5	Symmetric Medium	13620	14800	202	213	N	4	3	2	4	3	2	454461	454491
	K5	Symmetric Short	6260	6800	100	105	N	3	1	1	3	1	1	454471	454513
	L5	Symmetric Short	8100	8800	126	133	N	3	1	1	3	1	1	454472	454514
	M5	Symmetric Short	9940	10800	152	160	N	3	1	2	3	1	2	454473	454515
	N5	Symmetric Short	11780	12800	178	187	N	3	1	2	4	1	2	454474	454516
TYPE IV	P5	Symmetric Short	13620	14800	202	213	N	4	1	2	4	1	2	454475	454517
	F4	Asymmetric Forward	8100	8800	126	133	F, L, R	2	3	2	2	3	2	454409	454396
	G4	Asymmetric Forward	9020	9800	139	146	F, L, R	2	3	2	2	3	2	454448	454476
	H4	Asymmetric Forward	9940	10800	152	160	F, L, R	2	3	2	2	3	3	454412	454405
	J4	Asymmetric Forward	10860	11800	165	174	F, L, R	2	3	3	2	3	3	454451	454479
	K4	Asymmetric Forward	11780	12800	178	187	F, L, R	2	3	3	2	3	3	454415	454426
	L4	Asymmetric Forward	12700	13800	190	200	F, L, R	2	3	3	2	3	3	454454	454482
TYPE III	M4	Asymmetric Forward	13620	14800	202	213	F, L, R	2	3	3	3	3	3	454418	454435
	F3	Asymmetric Wide	8100	8800	126	133	F, L, R	1	1	2	1	1	2	454436	454492
	G3	Asymmetric Wide	9020	9800	139	146	F, L, R	2	1	2	2	1	2	454462	454495
	H3	Asymmetric Wide	9940	10800	152	160	F, L, R	2	1	2	2	1	2	454439	454498
	J3	Asymmetric Wide	10860	11800	165	174	F, L, R	2	1	2	2	1	2	454465	454501
	K3	Asymmetric Wide	11780	12800	178	187	F, L, R	2	1	2	2	1	2	454442	454504
	L3	Asymmetric Wide	12700	13800	190	200	F, L, R	2	1	2	2	1	2	454468	454507
	M3	Asymmetric Wide	13620	14800	202	213	F, L, R	2	1	2	2	1	2	454445	454510

*Shielded options available. Contact manufacturer for IES files.

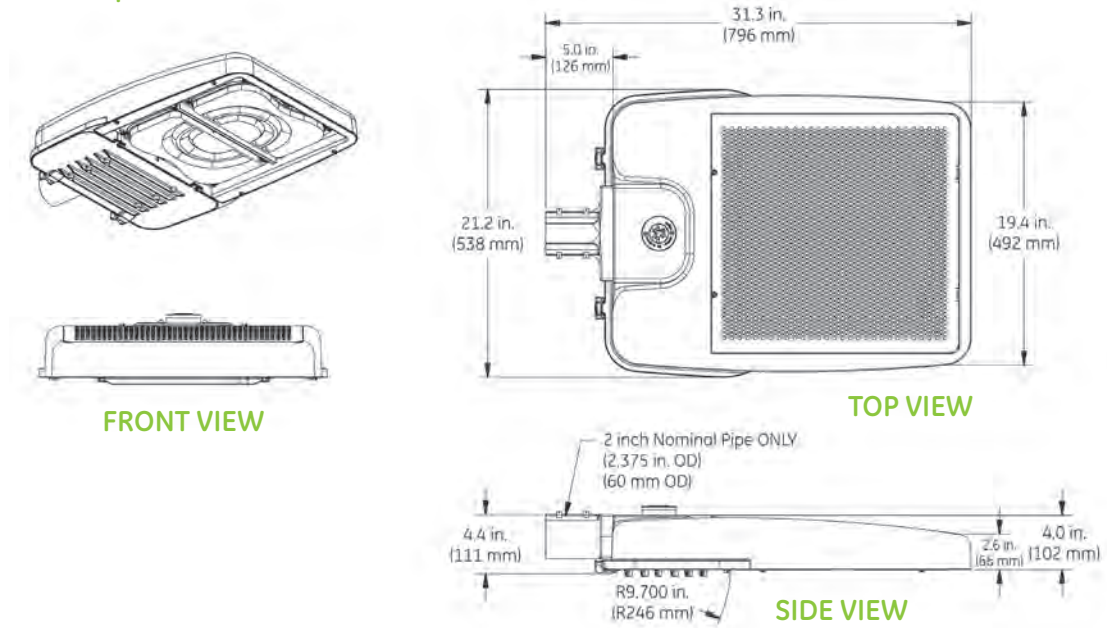
Product Dimensions

Medium / Double Module Fixture (EAMM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 46-49 lbs (21-22 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.35 sq ft max (0.13 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.86 sq ft max (0.08 sq m)

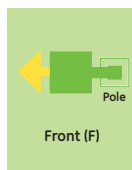
Ordering Number Logic

Small / Single Module Fixture (EASM)



E A S M - - - - F - - - - A - - - - - - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
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Light pattern thrown in direction specified in relation to Pole and Fixture.

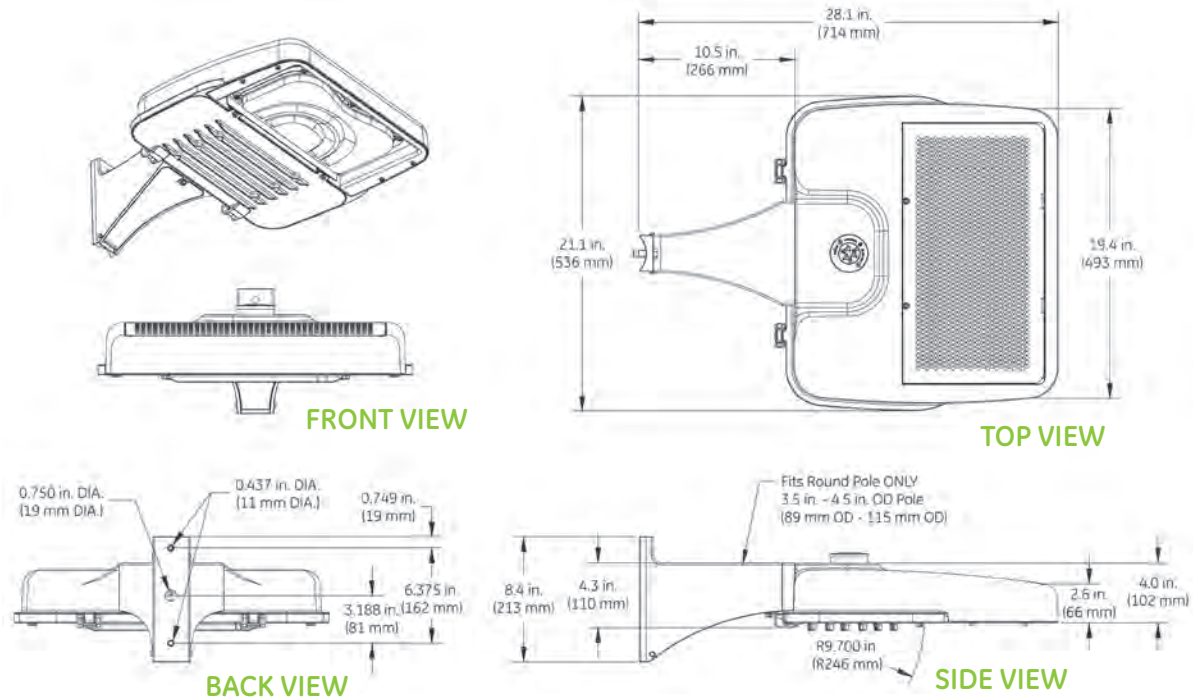
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	4000K			5700K			IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		B	U	G	B	U	G	4000K	5700K
TYPE IV	A4	Asymmetric Forward	3130	3400	50	53	F	1	2	1	1	2	1	454394	454395
	B4	Asymmetric Forward	4050	4400	63	66	F	1	2	2	1	2	2	434397	454398
	C4	Asymmetric Forward	4970	5400	76	80	F	1	2	2	1	2	2	454400	454401
	D4	Asymmetric Forward	5890	6400	89	94	F	1	2	2	1	3	2	454403	454404
	E4	Asymmetric Forward	6810	7400	101	106	F	1	3	2	2	3	2	454406	454407
TYPE III	A3	Asymmetric Wide	3130	3400	50	53	F	1	1	1	1	1	1	454421	454422
	B3	Asymmetric Wide	4050	4400	63	66	F	1	1	1	1	1	1	454424	454425
	C3	Asymmetric Wide	4970	5400	76	80	F	1	1	1	1	1	2	454427	454428
	D3	Asymmetric Wide	5890	6400	89	94	F	1	1	2	1	1	2	454430	454431
	E3	Asymmetric Wide	6810	7400	101	106	F	1	1	2	1	1	2	454433	454434

*Shielded options available. Contact manufacturer for IES files.

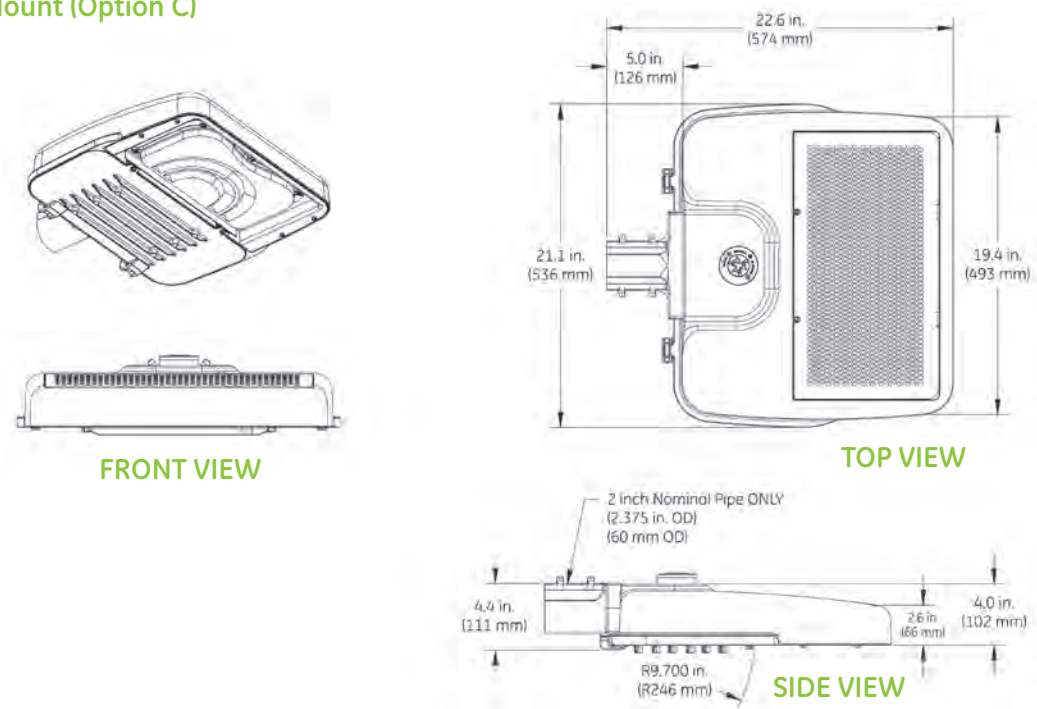
Product Dimensions

Small / Single Module Fixture (EASM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA	• Approximate Net Weight: 30-33 lbs (14-15 kgs)
	• Effective Projected Area (EPA) with 10" Mounting Arm: 1.11 sq ft max (0.10 sq m)
	• Effective Projected Area (EPA) with Slipfitter: 0.62 sq ft max (0.06 sq m)

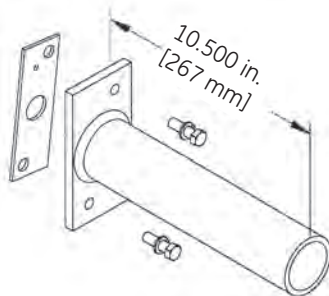
Mounting Information

Mounting Arms for Slipfitter

Order separately with Mounting Option C (External Slipfitter)

SQUARE POLE MOUNTING ARM

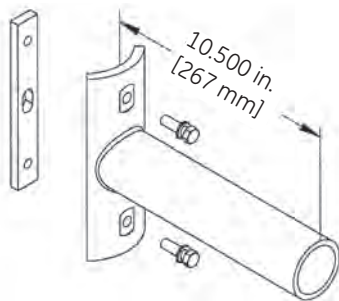
3.5 TO 4.5-inch (89 to 114mm) SQUARE
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
SPA-EAMT10BLCK "Black"
SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM

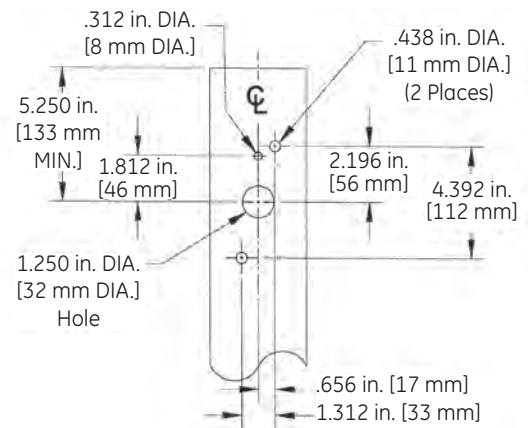
3.5 TO 4.5-inch (89 to 114mm) OD
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
RPA-EAMT10BLCK "Black"
RPA-EAMT10DKBZ "Dark Bronze"

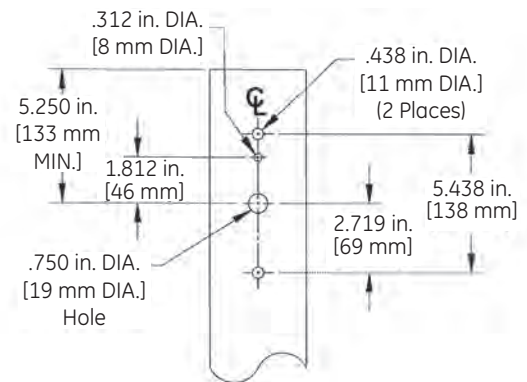
Drilling Templates for Slipfitter Arms & Arm Mount

SQUARE POLE MOUNTING



ROUND POLE MOUNTING

3.5 TO 4.5-inch (89 to 114mm) OD
round pole mounting arm

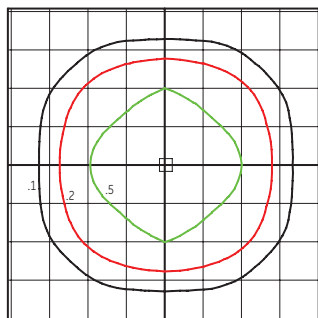


FOR RETROFITS INSTALLATIONS OTHER MOUNTING PATTERNS ARE AVAILABLE.
CONTACT FACTORY FOR OTHER AVAILABLE MOUNTING PATTERNS

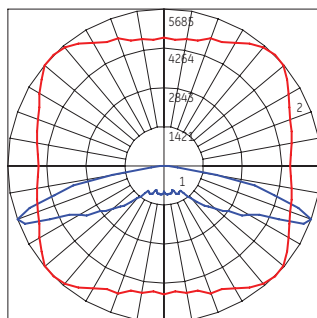
Photometrics

Medium / Double Module Fixture (EAMM)

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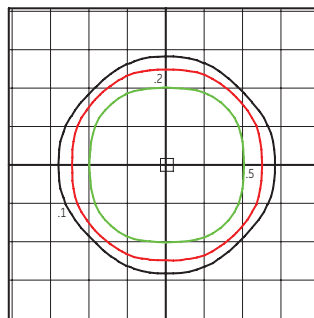


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

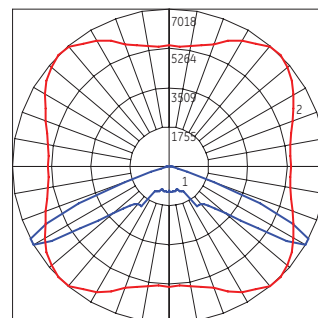


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type V - Symmetric Short (P5)
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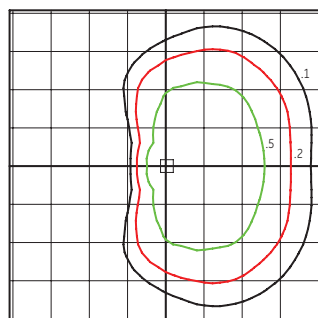


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

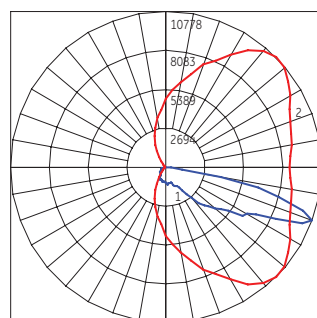


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type IV - Asymmetric Forward (M4)
14,800 Lumens, 5700K (GE454435.ies)

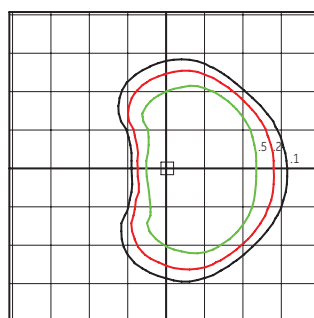


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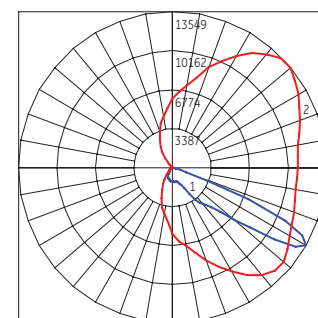


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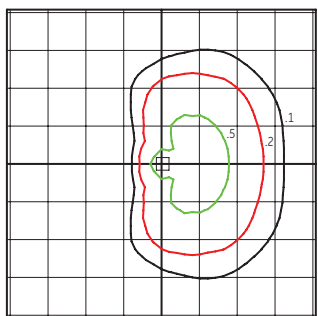
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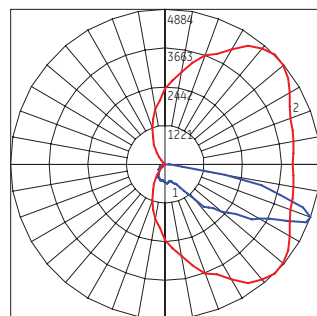
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Small / Single Module Fixture (EASM)

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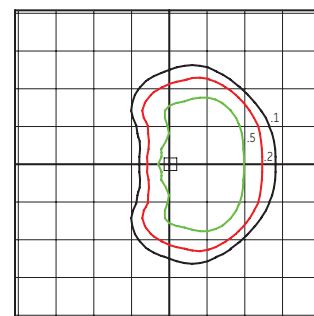


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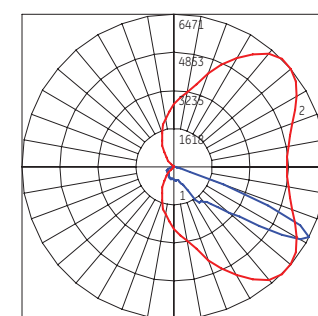


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

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Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower



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Lighting Solutions

Evolve™ LED Area Light

Modular Fixture - Small & Medium (EASM & EAMM)



imagination at work

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- System rating is L85 at 50,000 hours. Contact manufacturer for Lxx rating (Lumen Depreciation) beyond 50,000 hours.

Ratings

- /cUL listed, suitable for wet locations.
- IP 65 rated optical enclosure per ANSI C136.25-2009.
- Temperature rated at -40° to 45°C.
- Upward Light Output Ratio (ULOR) = 0.
-  RoHS compliant.

Mounting

Option A

- 10-inch (254mm) mounting arm for square pole.

Option B

- 10-inch (254mm) mounting arm for round pole.

Option C

- Slipfitter mounting for 2 3/8-inch (60mm) O.D. pipe prewired with 24-inch (610mm) leads.

Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard colors: Black & Dark Bronze.
- RAL & custom colors available.

Electrical

- 120-277 volt and 347-480 volt available.
- System power factor is >90% and THD <20%.*
- Class "A" audible sound rating.
- Integral surge protection non-dimming:
 - For 120-277VAC per IEEE/ANSI C62.41.-1991, 4kV/2kA Location Category B2 (120 Events)
 - For 347-480VAC per IEEE/ANSI C62.41.-1991, 6kV/3kA Location Category B3 (120 Events)
- Integral surge protection GE dimming:
 - For 120-480VAC per IEEE/ANSI C62.41.2-2002, 6kV/3kA Location Category B (120 Events)
- Optional high capability surge protection per IEEE/ANSI C62.41.2-2002.
 - Rating 1 - 10kV/5kA Location Category (120 events)
 - Rating 2 - 6kV/3kA Location Category C-Low (5000 events)
- EMI: Title 47 CFR Part 15 Class A
- Photo electric sensors (PE) available for all voltages.

* System power factor and THD is tested and specified at 120V input and maximum load conditions.

Warranty

- 5-year limited system warranty standard.

Ordering Number Logic

Medium / Double Module Fixture (EAMM)



E A M M - - - - - A - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area M = Medium M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front L = Left R = Right N = Not Applicable	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact manufacturer for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.
Light pattern thrown in direction specified in relation to Pole and Fixture.									

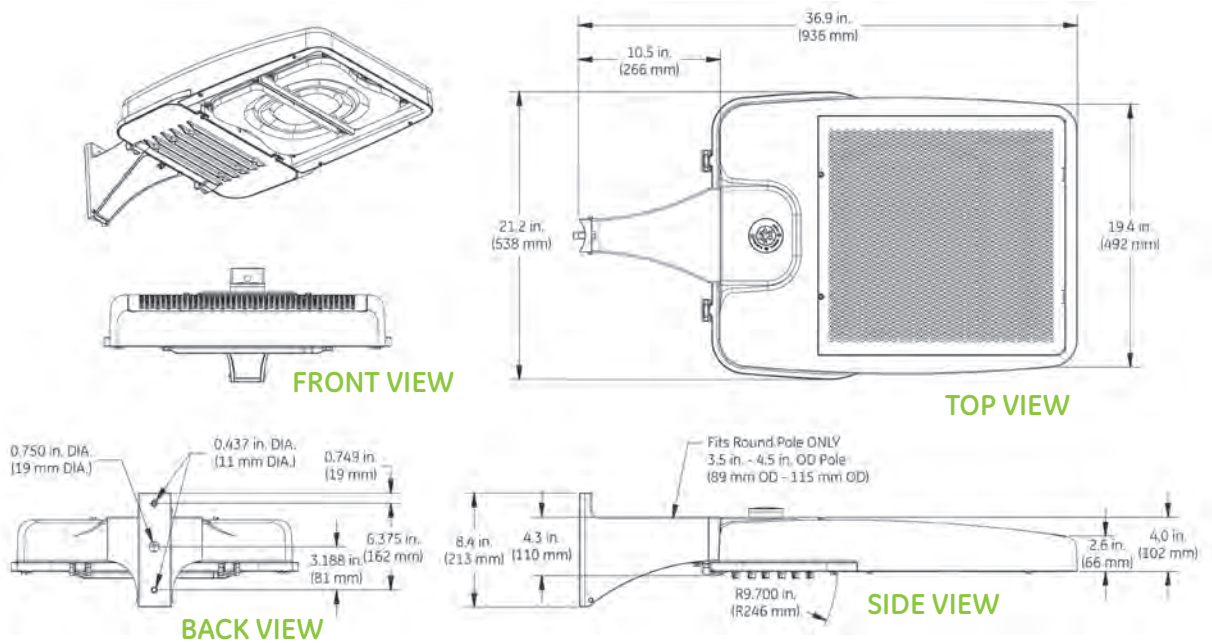
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	BUG RATINGS						IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		4000K			5700K			4000K	5700K
TYPE V	A5	Symmetric Medium	6260	6800	100	105	N	3	1	1	3	2	2	454457	454487
	B5	Symmetric Medium	8100	8800	126	133	N	3	2	2	3	2	2	454458	454488
	C5	Symmetric Medium	9940	10800	152	160	N	4	2	2	4	2	2	454459	454489
	D5	Symmetric Medium	11780	12800	178	187	N	4	2	2	4	3	2	454460	454490
	E5	Symmetric Medium	13620	14800	202	213	N	4	3	2	4	3	2	454461	454491
	K5	Symmetric Short	6260	6800	100	105	N	3	1	1	3	1	1	454471	454513
	L5	Symmetric Short	8100	8800	126	133	N	3	1	1	3	1	1	454472	454514
	M5	Symmetric Short	9940	10800	152	160	N	3	1	2	3	1	2	454473	454515
	N5	Symmetric Short	11780	12800	178	187	N	3	1	2	4	1	2	454474	454516
TYPE IV	P5	Symmetric Short	13620	14800	202	213	N	4	1	2	4	1	2	454475	454517
	F4	Asymmetric Forward	8100	8800	126	133	F, L, R	2	3	2	2	3	2	454409	454396
	G4	Asymmetric Forward	9020	9800	139	146	F, L, R	2	3	2	2	3	2	454448	454476
	H4	Asymmetric Forward	9940	10800	152	160	F, L, R	2	3	2	2	3	3	454412	454405
	J4	Asymmetric Forward	10860	11800	165	174	F, L, R	2	3	3	2	3	3	454451	454479
	K4	Asymmetric Forward	11780	12800	178	187	F, L, R	2	3	3	2	3	3	454415	454426
	L4	Asymmetric Forward	12700	13800	190	200	F, L, R	2	3	3	2	3	3	454454	454482
TYPE III	M4	Asymmetric Forward	13620	14800	202	213	F, L, R	2	3	3	3	3	3	454418	454435
	F3	Asymmetric Wide	8100	8800	126	133	F, L, R	1	1	2	1	1	2	454436	454492
	G3	Asymmetric Wide	9020	9800	139	146	F, L, R	2	1	2	2	1	2	454462	454495
	H3	Asymmetric Wide	9940	10800	152	160	F, L, R	2	1	2	2	1	2	454439	454498
	J3	Asymmetric Wide	10860	11800	165	174	F, L, R	2	1	2	2	1	2	454465	454501
	K3	Asymmetric Wide	11780	12800	178	187	F, L, R	2	1	2	2	1	2	454442	454504
	L3	Asymmetric Wide	12700	13800	190	200	F, L, R	2	1	2	2	1	2	454468	454507
	M3	Asymmetric Wide	13620	14800	202	213	F, L, R	2	1	2	2	1	2	454445	454510

*Shielded options available. Contact manufacturer for IES files.

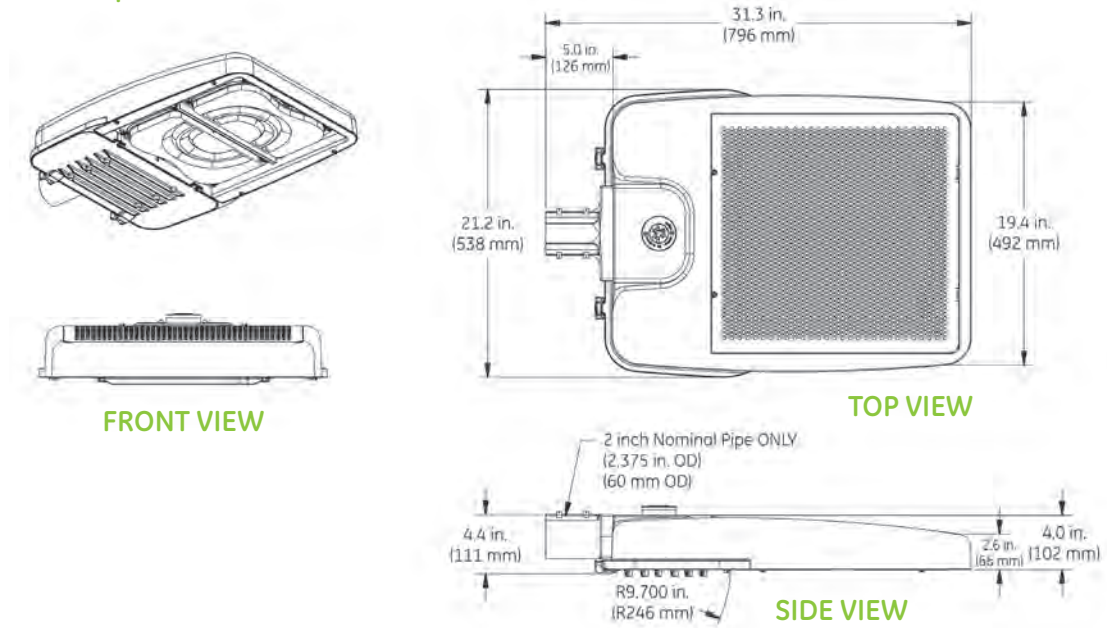
Product Dimensions

Medium / Double Module Fixture (EAMM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 46-49 lbs (21-22 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.35 sq ft max (0.13 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.86 sq ft max (0.08 sq m)

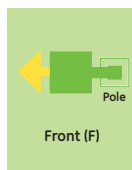
Ordering Number Logic

Small / Single Module Fixture (EASM)



E A S M - - - - F - - - - A - - - - - - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area S = Small M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact factory for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.



Light pattern thrown in direction specified in relation to Pole and Fixture.

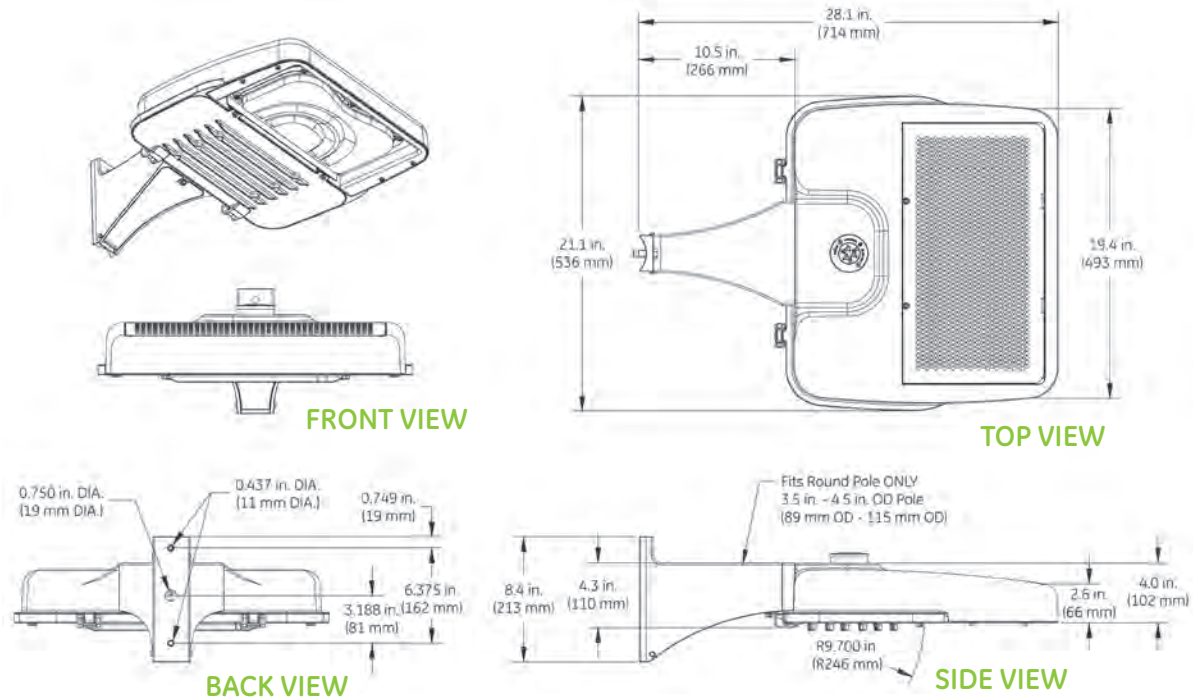
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	4000K			5700K			IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		B	U	G	B	U	G	4000K	5700K
TYPE IV	A4	Asymmetric Forward	3130	3400	50	53	F	1	2	1	1	2	1	454394	454395
	B4	Asymmetric Forward	4050	4400	63	66	F	1	2	2	1	2	2	434397	454398
	C4	Asymmetric Forward	4970	5400	76	80	F	1	2	2	1	2	2	454400	454401
	D4	Asymmetric Forward	5890	6400	89	94	F	1	2	2	1	3	2	454403	454404
	E4	Asymmetric Forward	6810	7400	101	106	F	1	3	2	2	3	2	454406	454407
TYPE III	A3	Asymmetric Wide	3130	3400	50	53	F	1	1	1	1	1	1	454421	454422
	B3	Asymmetric Wide	4050	4400	63	66	F	1	1	1	1	1	1	454424	454425
	C3	Asymmetric Wide	4970	5400	76	80	F	1	1	1	1	1	2	454427	454428
	D3	Asymmetric Wide	5890	6400	89	94	F	1	1	2	1	1	2	454430	454431
	E3	Asymmetric Wide	6810	7400	101	106	F	1	1	2	1	1	2	454433	454434

*Shielded options available. Contact manufacturer for IES files.

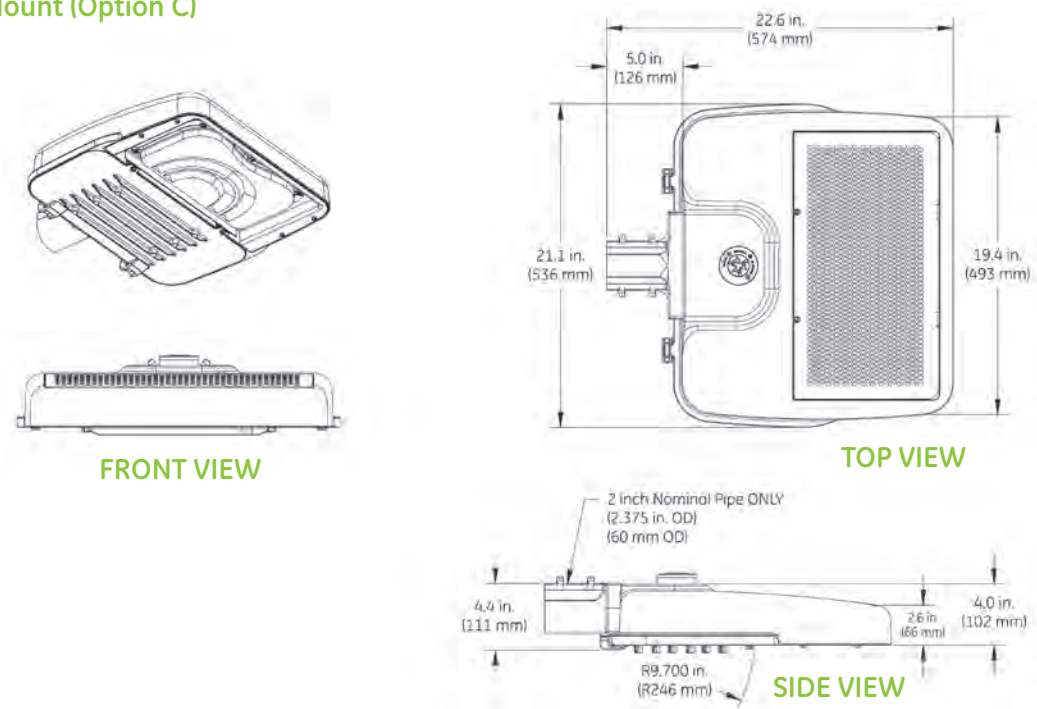
Product Dimensions

Small / Single Module Fixture (EASM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 30-33 lbs (14-15 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.11 sq ft max (0.10 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.62 sq ft max (0.06 sq m)

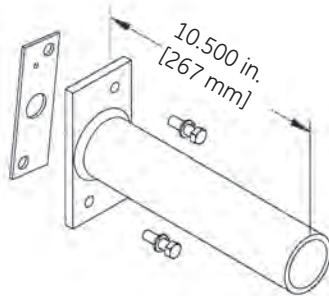
Mounting Information

Mounting Arms for Slipfitter

Order separately with Mounting Option C (External Slipfitter)

SQUARE POLE MOUNTING ARM

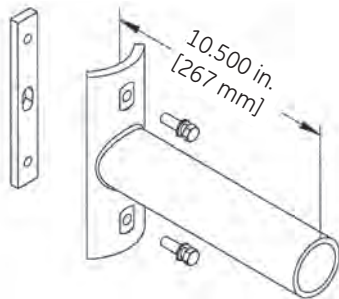
3.5 TO 4.5-inch (89 to 114mm) SQUARE
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
SPA-EAMT10BLCK "Black"
SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM

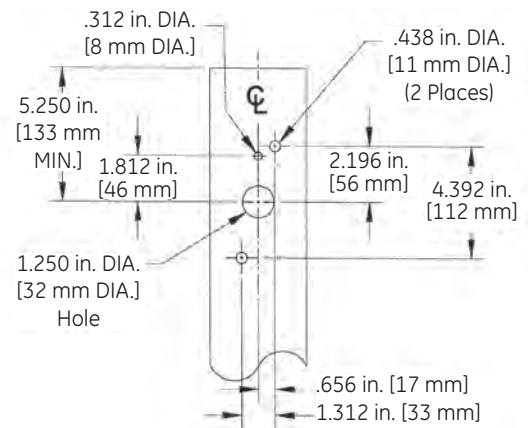
3.5 TO 4.5-inch (89 to 114mm) OD
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
RPA-EAMT10BLCK "Black"
RPA-EAMT10DKBZ "Dark Bronze"

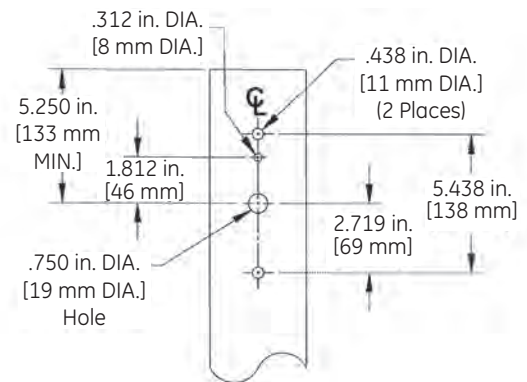
Drilling Templates for Slipfitter Arms & Arm Mount

SQUARE POLE MOUNTING



ROUND POLE MOUNTING

3.5 TO 4.5-inch (89 to 114mm) OD
round pole mounting arm

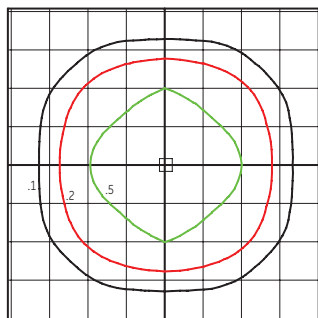


FOR RETROFITS INSTALLATIONS OTHER MOUNTING PATTERNS ARE AVAILABLE.
CONTACT FACTORY FOR OTHER AVAILABLE MOUNTING PATTERNS

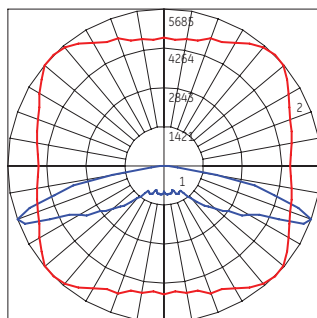
Photometrics

Medium / Double Module Fixture (EAMM)

EAMM Type V – Symmetric Medium (E5)
14,800 Lumens, 5700K (GE454491.ies)

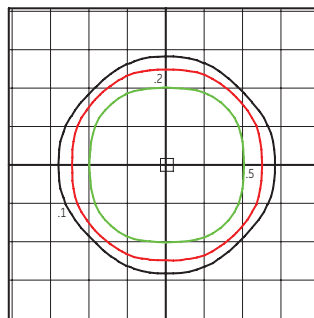


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

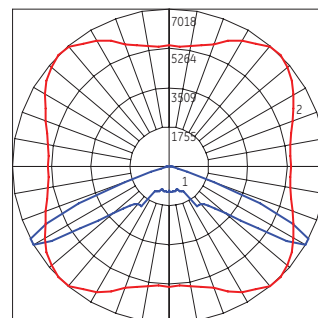


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type V - Symmetric Short (P5)
14,800 Lumens, 5700K (GE454517.ies)

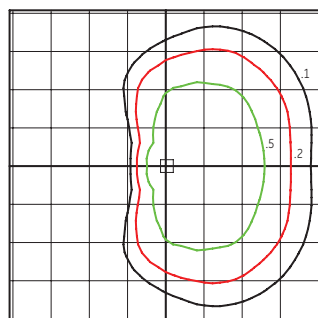


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

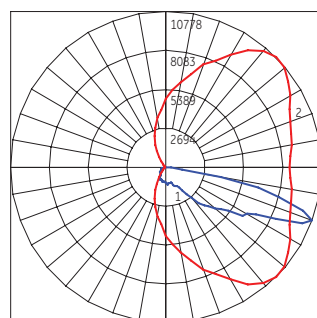


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type IV - Asymmetric Forward (M4)
14,800 Lumens, 5700K (GE454435.ies)

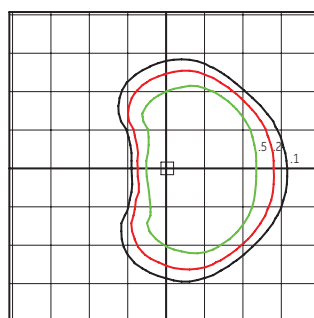


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

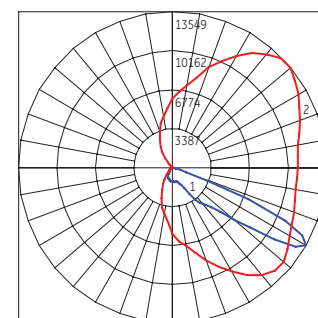


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type III - Asymmetric Wide (M3)
14,800 Lumens, 5700K (GE454510.ies)



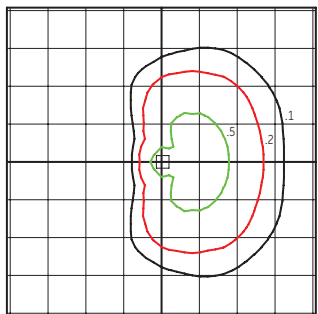
Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



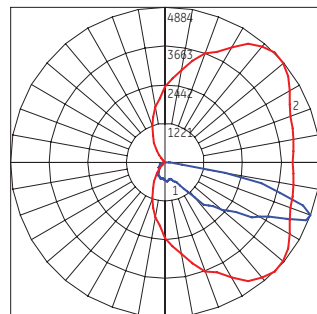
Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

Small / Single Module Fixture (EASM)

EASM Type IV - Asymmetric Forward (E4)
7,400 Lumens, 5700K (GE454407.ies)

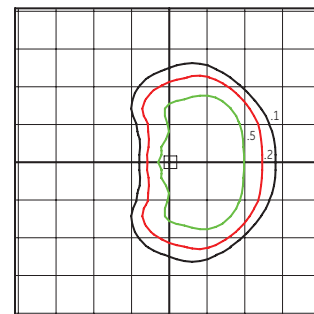


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

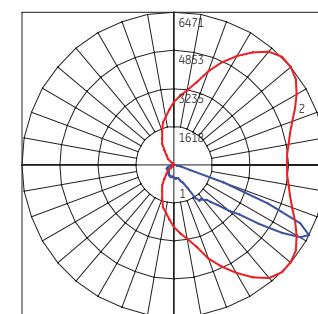


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EASM Type III - Asymmetric Wide (E3)
7,400 Lumens, 5700K (GE454434.ies)



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower



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1-888-69-43-533

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GE
Lighting Solutions

Evolve™ LED Area Light

Modular Fixture - Small & Medium (EASM & EAMM)



imagination at work

Product Features

The next evolution of the GE Evolve™ LED Area Light continues to deliver the same outstanding features associated with the original Evolve product, while now adding greater flexibility and style. The European styling offers a sleek, modern look, and balances the needs for photometric scalability with reliable workhorse performance. The new modular design provides 34 photometric combinations, available in two color temperatures, to meet a wide range of area lighting needs.

GE's exclusive optical ring design produces superior vertical illuminance and efficiently directs the light without wasteful and unwelcomed light spill into neighboring properties. Additionally, reduced energy consumption, combined with a long rated life that virtually eliminates ongoing maintenance expenses, enables the Evolve LED Area Light to provide significant operating cost benefits over the life of each fixture.

Applications

- Single and double modules for site, area, and general lighting utilizing advanced LED optical system providing high uniformity, excellent vertical light distribution, reduced offsite visibility, reduced on-site glare and effective security light levels.
- Scalable design makes this product ideal for small to medium retailers, commercial to medical properties, strip malls to large malls, and big box retailers.

Housing

- Die-cast aluminum housing.
- Slim architectural design incorporates modular heat sink light engine directly into the unit ensuring maximum heat transfer, long LED life and a reduced Effective Projected Area (EPA).
- Meets 2G vibration per ANSI C136.31-2001. For 3G rating contact manufacturer.

LED & Optical Assembly

- Structured LED arrays for optimized area light photometric distribution.
- Evolve modular light engine utilizing nested concentric directional reflectors designed to optimize application efficiency and minimize glare.
- Utilizes high brightness LEDs, 70 CRI at 4000K and 5700K typical.
- LM-79 tests and reports are performed in accordance with IESNA standards.

Lumen Maintenance

- System rating is L85 at 50,000 hours. Contact manufacturer for Lxx rating (Lumen Depreciation) beyond 50,000 hours.

Ratings

- /cUL listed, suitable for wet locations.
- IP 65 rated optical enclosure per ANSI C136.25-2009.
- Temperature rated at -40° to 45°C.
- Upward Light Output Ratio (ULOR) = 0.
-  RoHS compliant.

Mounting

Option A

- 10-inch (254mm) mounting arm for square pole.

Option B

- 10-inch (254mm) mounting arm for round pole.

Option C

- Slipfitter mounting for 2 3/8-inch (60mm) O.D. pipe prewired with 24-inch (610mm) leads.

Finish

- Corrosion resistant polyester powder painted, minimum 2.0 mil. thickness.
- Standard colors: Black & Dark Bronze.
- RAL & custom colors available.

Electrical

- 120-277 volt and 347-480 volt available.
- System power factor is >90% and THD <20%.*
- Class "A" audible sound rating.
- Integral surge protection non-dimming:
 - For 120-277VAC per IEEE/ANSI C62.41.-1991, 4kV/2kA Location Category B2 (120 Events)
 - For 347-480VAC per IEEE/ANSI C62.41.-1991, 6kV/3kA Location Category B3 (120 Events)
- Integral surge protection GE dimming:
 - For 120-480VAC per IEEE/ANSI C62.41.2-2002, 6kV/3kA Location Category B (120 Events)
- Optional high capability surge protection per IEEE/ANSI C62.41.2-2002.
 - Rating 1 - 10kV/5kA Location Category (120 events)
 - Rating 2 - 6kV/3kA Location Category C-Low (5000 events)
- EMI: Title 47 CFR Part 15 Class A
- Photo electric sensors (PE) available for all voltages.

* System power factor and THD is tested and specified at 120V input and maximum load conditions.

Warranty

- 5-year limited system warranty standard.

Ordering Number Logic

Medium / Double Module Fixture (EAMM)



E A M M - - - - - A - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area M = Medium M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front L = Left R = Right N = Not Applicable	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact manufacturer for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.
Light pattern thrown in direction specified in relation to Pole and Fixture.									

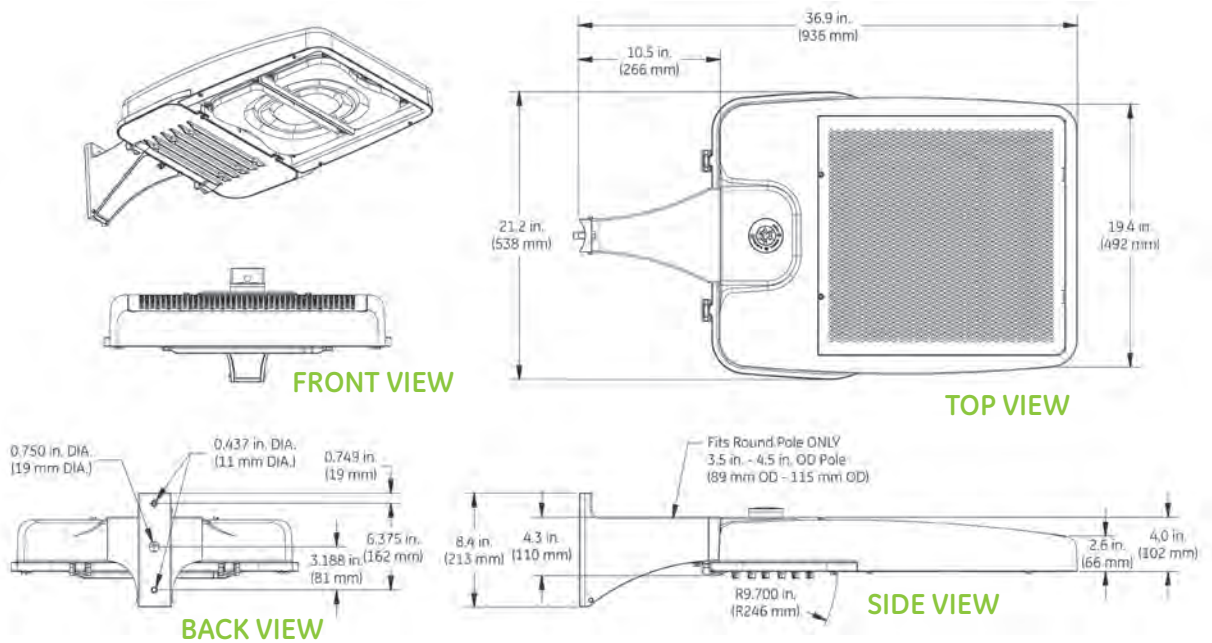
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	BUG RATINGS						IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		4000K			5700K			4000K	5700K
TYPE V	A5	Symmetric Medium	6260	6800	100	105	N	3	1	1	3	2	2	454457	454487
	B5	Symmetric Medium	8100	8800	126	133	N	3	2	2	3	2	2	454458	454488
	C5	Symmetric Medium	9940	10800	152	160	N	4	2	2	4	2	2	454459	454489
	D5	Symmetric Medium	11780	12800	178	187	N	4	2	2	4	3	2	454460	454490
	E5	Symmetric Medium	13620	14800	202	213	N	4	3	2	4	3	2	454461	454491
	K5	Symmetric Short	6260	6800	100	105	N	3	1	1	3	1	1	454471	454513
	L5	Symmetric Short	8100	8800	126	133	N	3	1	1	3	1	1	454472	454514
	M5	Symmetric Short	9940	10800	152	160	N	3	1	2	3	1	2	454473	454515
	N5	Symmetric Short	11780	12800	178	187	N	3	1	2	4	1	2	454474	454516
TYPE IV	P5	Symmetric Short	13620	14800	202	213	N	4	1	2	4	1	2	454475	454517
	F4	Asymmetric Forward	8100	8800	126	133	F, L, R	2	3	2	2	3	2	454409	454396
	G4	Asymmetric Forward	9020	9800	139	146	F, L, R	2	3	2	2	3	2	454448	454476
	H4	Asymmetric Forward	9940	10800	152	160	F, L, R	2	3	2	2	3	3	454412	454405
	J4	Asymmetric Forward	10860	11800	165	174	F, L, R	2	3	3	2	3	3	454451	454479
	K4	Asymmetric Forward	11780	12800	178	187	F, L, R	2	3	3	2	3	3	454415	454426
	L4	Asymmetric Forward	12700	13800	190	200	F, L, R	2	3	3	2	3	3	454454	454482
TYPE III	M4	Asymmetric Forward	13620	14800	202	213	F, L, R	2	3	3	3	3	3	454418	454435
	F3	Asymmetric Wide	8100	8800	126	133	F, L, R	1	1	2	1	1	2	454436	454492
	G3	Asymmetric Wide	9020	9800	139	146	F, L, R	2	1	2	2	1	2	454462	454495
	H3	Asymmetric Wide	9940	10800	152	160	F, L, R	2	1	2	2	1	2	454439	454498
	J3	Asymmetric Wide	10860	11800	165	174	F, L, R	2	1	2	2	1	2	454465	454501
	K3	Asymmetric Wide	11780	12800	178	187	F, L, R	2	1	2	2	1	2	454442	454504
	L3	Asymmetric Wide	12700	13800	190	200	F, L, R	2	1	2	2	1	2	454468	454507
	M3	Asymmetric Wide	13620	14800	202	213	F, L, R	2	1	2	2	1	2	454445	454510

*Shielded options available. Contact manufacturer for IES files.

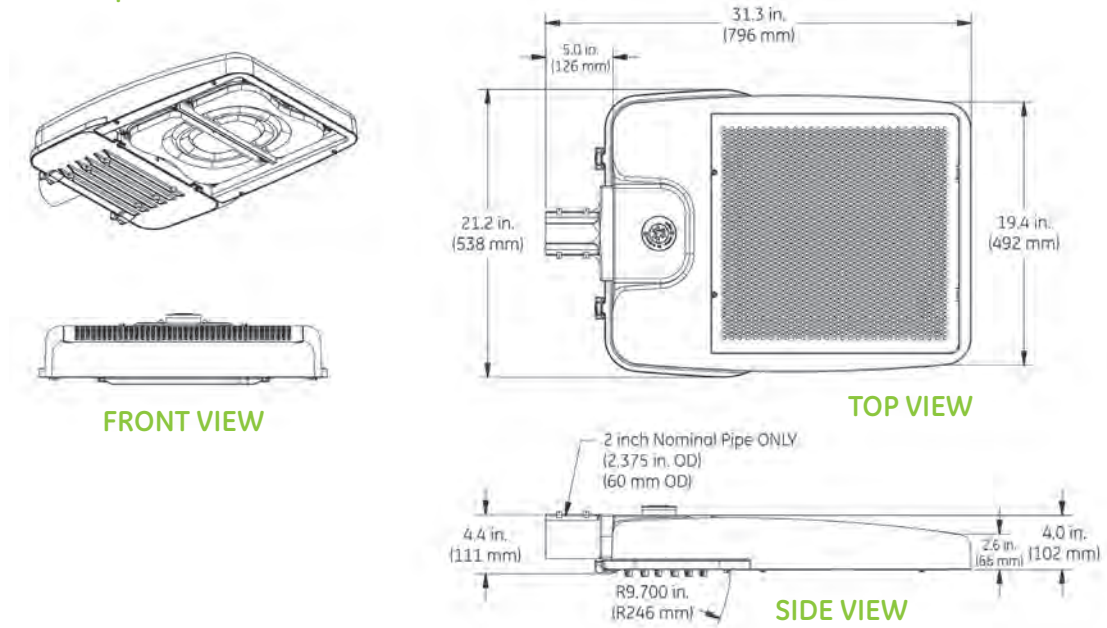
Product Dimensions

Medium / Double Module Fixture (EAMM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 46-49 lbs (21-22 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.35 sq ft max (0.13 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.86 sq ft max (0.08 sq m)

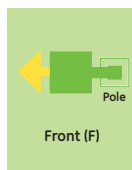
Ordering Number Logic

Small / Single Module Fixture (EASM)



E A S M - - - - F - - - - A - - - - -

PROD. ID	VOLTAGE	OPTICAL CODE	DISTRIBUTION ORIENTATION	LED COLOR TEMP	LENS TYPE	PE FUNCTION	MOUNTING ARM	COLOR	OPTIONS
E = Evolve A = Area S = Small M = Modular	0 = 120 - 277 1 = 120* 2 = 208* 3 = 240* 4 = 277* 5 = 480* D = 347* *Specify single voltage if fuse option is selected.		F = Front	40 = 4000K 57 = 5700K	A = Acrylic	1 = None 2 = PE Rec. 4 = PE Rec. with Shorting Cap 5 = PE Rec. with Control 7 = Dimming PE Receptacle *† 9 = Dimming PE Receptacle with Shorting Cap † PE control not available for 347-480V. Must be a discrete voltage. * Order dimming control PE as a separate item † When ordering PE function socket 7 or 9, a dimming option "D2" must also be ordered under the "OPTIONS" column	A = 10" Arm for Square Pole B = 10" Arm for Round Pole C = EXT Slipfitter 2" PIPE (2.375 in. OD) supplied with leads/dimming cable	BLCK = Black DKBZ = Dark Bronze Contact factory for other colors	D2 = Dimmable (0-10 Volt Input) F = Fusing T = Extra Surge Protection* XXX = Special Options * Future availability. Contact manufacturer for details and timing.



Light pattern thrown in direction specified in relation to Pole and Fixture.

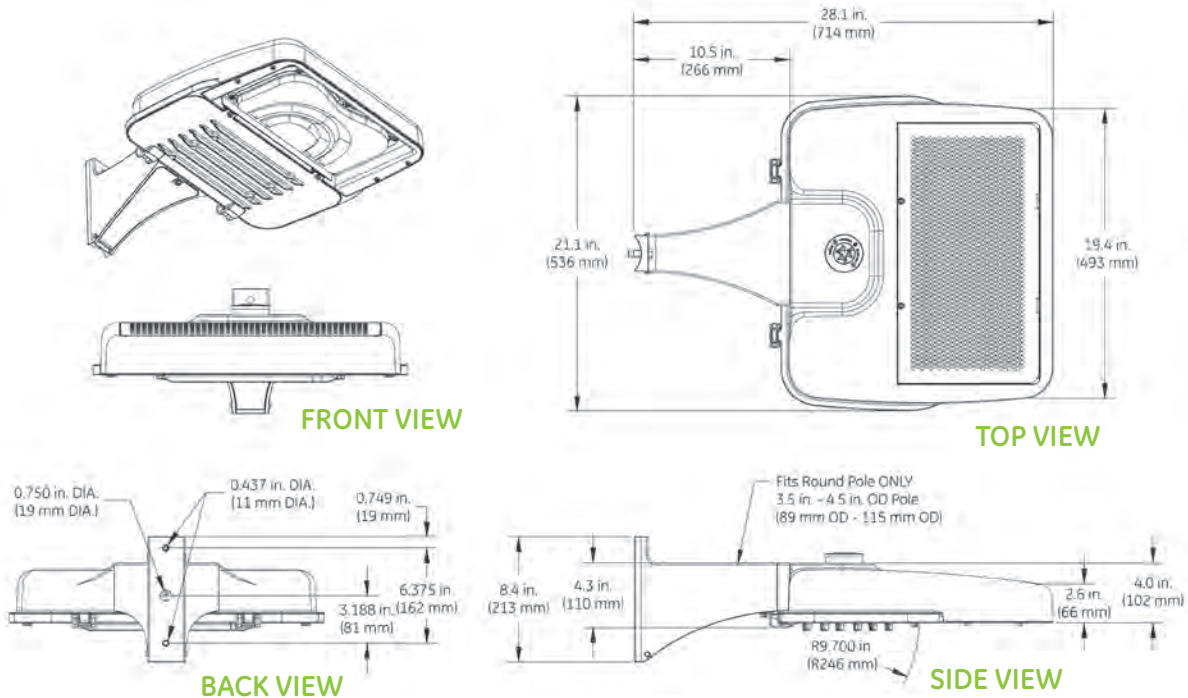
	OPTICAL CODE	TYPE	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		DISTRIBUTION ORIENTATION AVAILABLE	4000K			5700K			IES FILE NUMBER*	
			4000K	5700K	120-277V	347-480V		B	U	G	B	U	G	4000K	5700K
TYPE IV	A4	Asymmetric Forward	3130	3400	50	53	F	1	2	1	1	2	1	454394	454395
	B4	Asymmetric Forward	4050	4400	63	66	F	1	2	2	1	2	2	434397	454398
	C4	Asymmetric Forward	4970	5400	76	80	F	1	2	2	1	2	2	454400	454401
	D4	Asymmetric Forward	5890	6400	89	94	F	1	2	2	1	3	2	454403	454404
	E4	Asymmetric Forward	6810	7400	101	106	F	1	3	2	2	3	2	454406	454407
TYPE III	A3	Asymmetric Wide	3130	3400	50	53	F	1	1	1	1	1	1	454421	454422
	B3	Asymmetric Wide	4050	4400	63	66	F	1	1	1	1	1	1	454424	454425
	C3	Asymmetric Wide	4970	5400	76	80	F	1	1	1	1	1	2	454427	454428
	D3	Asymmetric Wide	5890	6400	89	94	F	1	1	2	1	1	2	454430	454431
	E3	Asymmetric Wide	6810	7400	101	106	F	1	1	2	1	1	2	454433	454434

*Shielded options available. Contact manufacturer for IES files.

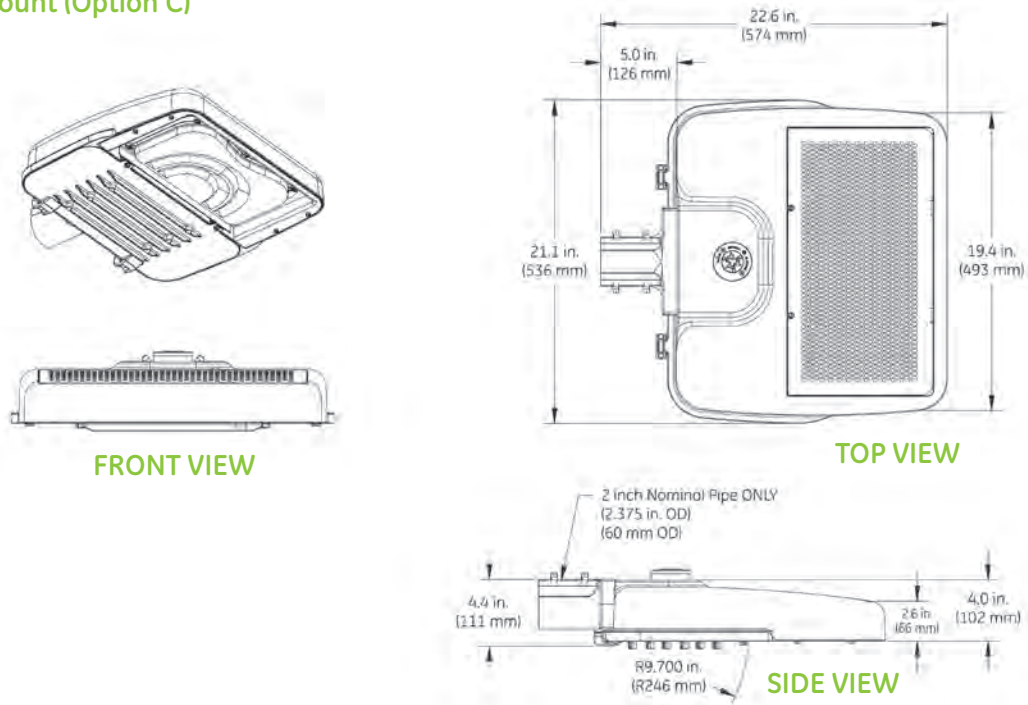
Product Dimensions

Small / Single Module Fixture (EASM)

10" Arm for Round Pole Mount (Option B)



Slipfitter Arm Mount (Option C)



DATA

- Approximate Net Weight: 30-33 lbs (14-15 kgs)
- Effective Projected Area (EPA) with 10" Mounting Arm: 1.11 sq ft max (0.10 sq m)
- Effective Projected Area (EPA) with Slipfitter: 0.62 sq ft max (0.06 sq m)

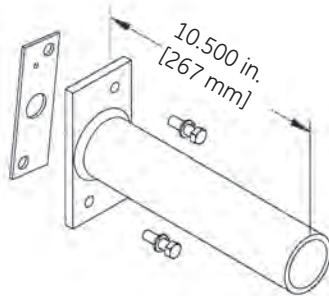
Mounting Information

Mounting Arms for Slipfitter

Order separately with Mounting Option C (External Slipfitter)

SQUARE POLE MOUNTING ARM

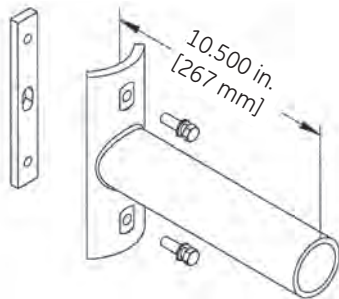
3.5 TO 4.5-inch (89 to 114mm) SQUARE
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
SPA-EAMT10BLCK "Black"
SPA-EAMT10DKBZ "Dark Bronze"

ROUND POLE MOUNTING ARM

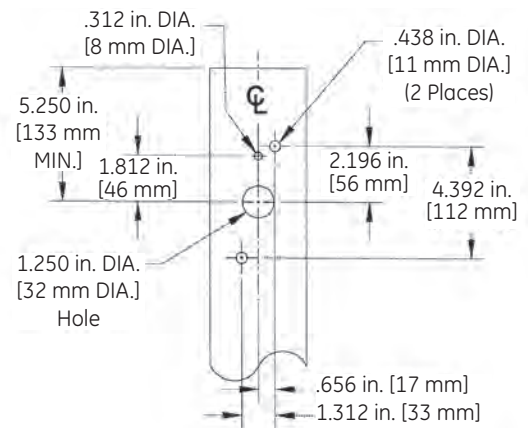
3.5 TO 4.5-inch (89 to 114mm) OD
(WILL ALLOW 4 FIXTURES PER POLE @ 90 DEGREES.)



ORDER SEPARATELY FROM FIXTURE AS CATALOG NUMBER
RPA-EAMT10BLCK "Black"
RPA-EAMT10DKBZ "Dark Bronze"

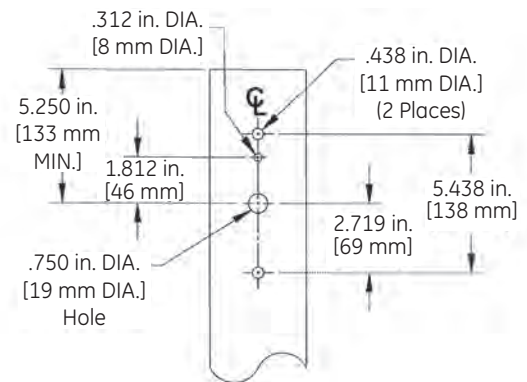
Drilling Templates for Slipfitter Arms & Arm Mount

SQUARE POLE MOUNTING



ROUND POLE MOUNTING

3.5 TO 4.5-inch (89 to 114mm) OD
round pole mounting arm

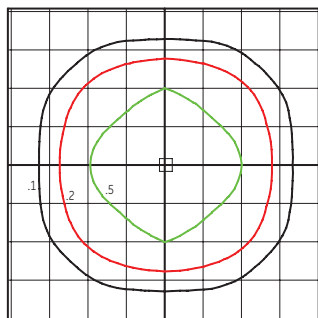


FOR RETROFITS INSTALLATIONS OTHER MOUNTING PATTERNS ARE AVAILABLE.
CONTACT FACTORY FOR OTHER AVAILABLE MOUNTING PATTERNS

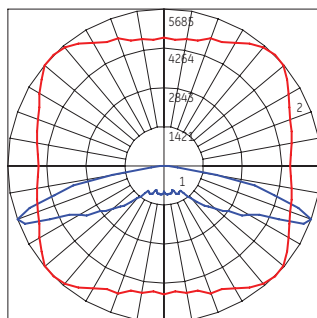
Photometrics

Medium / Double Module Fixture (EAMM)

EAMM Type V – Symmetric Medium (E5)
14,800 Lumens, 5700K (GE454491.ies)

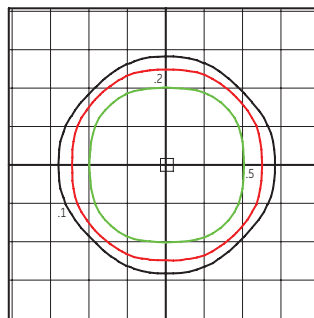


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

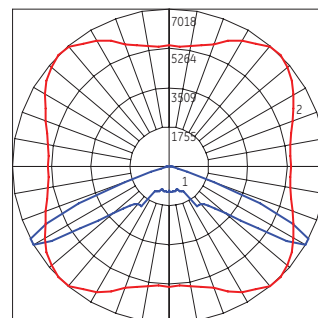


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type V - Symmetric Short (P5)
14,800 Lumens, 5700K (GE454517.ies)

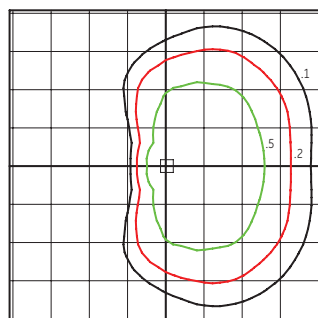


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

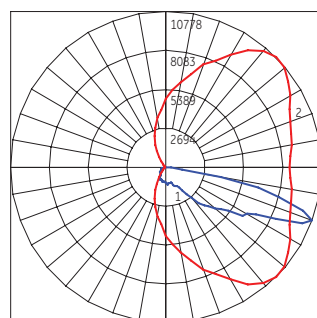


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type IV - Asymmetric Forward (M4)
14,800 Lumens, 5700K (GE454435.ies)

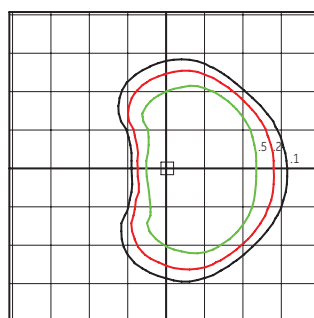


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

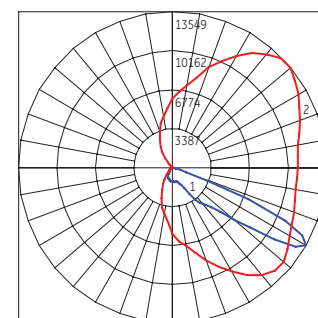


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EAMM Type III - Asymmetric Wide (M3)
14,800 Lumens, 5700K (GE454510.ies)



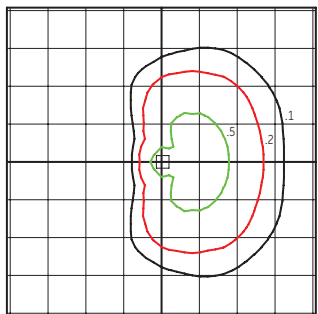
Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



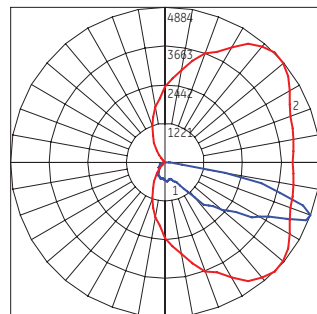
Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

Small / Single Module Fixture (EASM)

EASM Type IV - Asymmetric Forward (E4)
7,400 Lumens, 5700K (GE454407.ies)

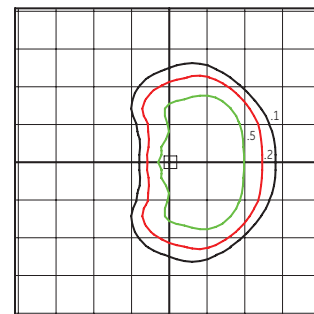


Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade

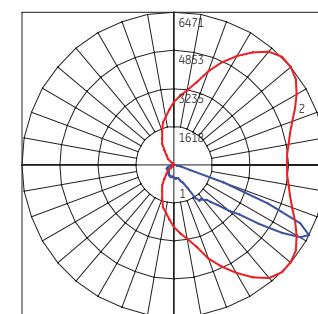


Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower

EASM Type III - Asymmetric Wide (E3)
7,400 Lumens, 5700K (GE454434.ies)



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



Polar Trace Vertical and Horizontal Plane through Horizontal Angle of Maximum Candlepower



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Ohio Edison • The Illuminating Company • Toledo Edison

Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	High Efficiency HVAC Upgrades - Proj. 2
Site Name:	Wal-Mart store #1863 Eastlake
Completed by (Name):	Tri-C Construction
Date completed:	9/13/2012

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
High Efficiency HVAC Rooftop Units	38,351	3068.05
Total Project Energy Savings kWh	38,351	
Total Custom Prescriptive Rebate Amount \$	\$	3,068.05

Notes about this rebate calculation:

New high-efficiency roof top units were installed to replace the existing standard efficiency units. The annual estimated energy use of the standard efficiency units was used as the baseline for calculating the energy savings. See the attached document 'WM 1863_P2_HVAC Savings Calculations.pdf' for the annual estimated energy savings.

LANDMARK® ROOFTOP UNIT PERFORMANCE SPECIFICATIONS

		COOLING DATA		HEATING INPUT				PHYSICAL DATA			
GAS/ELECTRIC UNITS	Nom. Ton	Model	EER	SEER or IEER	Low	Standard	Medium	High	Dimensions H x W x L [inches]	Ship Wt. [lbs.]	
	2	KGA024S4D	11.4	13.0	---	65,000	---	---	39 x 47 x 86	591	
	2.5	KGA030S4D	11.2	13.0	---	65,000	---	---	39 x 47 x 86	593	
	3	KGA036S4B	10.7	13.0	---	65,000	105,000	---	39 x 47 x 86	594	
	4	KGA048S4B	11.0	13.0	---	65,000	105,000	150,000	39 x 47 x 86	631	
	5	KGA060S4B	11.2	13.0	---	65,000	105,000	150,000	39 x 47 x 86	661	
	6	KGA072S4B	11.0	11.2	---	65,000	105,000	150,000	47 x 47 x 86	760	
	7.5	KGA090S4B	11.0	11.2	---	---	105,000	150,000	47 x 47 x 99	865	
	7.5	KGA092S4B	11.0	11.2	---	130,000	180,000	240,000	47 x 61 x 102	1,052	
	8.5	KGA102S4B	11.0	11.2	---	130,000	180,000	240,000	47 x 61 x 102	1,072	
	10	KGA120S4B	11.0	11.2	---	130,000	180,000	240,000	47 x 61 x 102	1,112	
	12.5	KGA150S4B	10.8	11.0	---	130,000	180,000	240,000	47 x 61 x 102	1,202	
	15	KGA180S4B	10.8	11.0	---	260,000	360,000	480,000	55 x 92 x 108	2,055	
	17.5	KGA210S4B	10.8	11.0	---	260,000	360,000	480,000	55 x 92 x 108	2,200	
	20	KGA240S4B	10.8	11.0	---	260,000	360,000	480,000	55 x 92 x 133	2,295	
	25	KGA300S4B	10.0	9.9	---	260,000	360,000	480,000	55 x 92 x 133	2,375	
						KW Range*					
ELECTRIC/ELECTRIC UNITS	2	KCA024S4D	11.4	13.0	7.5	10.0	---	---	---	39 x 47 x 86	555
	2.5	KCA030S4D	11.2	13.0	7.5	10.0	---	---	---	39 x 47 x 86	557
	3	KCA036S4B	10.7	13.0	7.5	15.0	---	---	---	39 x 47 x 86	558
	4	KCA048S4B	11.0	13.0	7.5	15.0	---	---	---	39 x 47 x 86	595
	5	KCA060S4B	11.2	13.0	7.5	15.0	22.5	---	---	39 x 47 x 86	625
	6	KCA072S4B	11.2	11.4	7.5	15.0	22.5	30.0	---	47 x 47 x 86	724
	7.5	KCA090S4B	11.2	11.4	7.5	15.0	22.5	30.0	---	47 x 47 x 99	827
	7.5	KCA092S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,052
	8.5	KCA102S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,072
	10	KCA120S4B	11.2	11.4	15.0	22.5	30.0	45.0	60.0	47 x 61 x 102	1,112
	12.5	KCA150S4B	11.0	11.2	15.0	23.0	30.0	45.0	60.0	47 x 61 x 102	1,202
	15	KCA180S4B	11.0	11.2	15.0	30.0	45.0	60.0	---	55 x 92 x 108	2,000
	17.5	KCA210S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 108	2,145
20	KCA240S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,240	
25	KCA300S4B	10.0	10.1	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,320	
					47 Cap.	HSPF/ COP 47	17 Cap.	COP 17			
HEAT PUMPS	2	KHA024S4D	11.2	13.0	24,000	3.4	14,400	2.3	39 x 47 x 86	591	
	2.5	KHA030S4D	11.3	13.0	29,200	3.5	17,600	2.3	39 x 47 x 86	593	
	3	KHA036S4B	10.9	13.0	36,400	3.6	22,000	2.3	39 x 47 x 86	595	
	4	KHA048S4B	10.7	13.0	48,000	3.5	29,500	2.4	39 x 47 x 86	617	
	5	KHA060S4B	10.9	13.0	60,500	3.6	36,000	2.4	47 x 47 x 86	727	
	6	KHA072S4B	11.0	11.2	70,000	3.3	40,000	2.25	47 x 47 x 99	810	
	7.5	KHA092S4B	11.0	11.2	89,000	3.3	53,000	2.25	47 x 61 x 102	1,114	
	8.5	KHA102S4B	11.0	11.2	100,000	3.3	55,000	2.25	47 x 61 x 102	1,146	
	10	KHA120S4B	11.0	11.2	116,000	3.3	72,000	2.25	47 x 61 x 102	1,212	
	12.5	KHA150S4B	10.6	10.7	138,000	3.3	82,000	2.05	47 x 61 x 124	1,412	
	15	KHA180S4B	10.6	10.7	178,000	3.2	104,000	2.05	55 x 92 x 130	2,100	
	20	KHA240S4B	10.6	10.7	220,000	3.2	128,000	2.05	55 x 92 x 130	2,250	

Certified in accordance with the USE certification program which is based on ARI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator coil air.
 Certified in accordance with the ULE certification program which is based on ARI standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air;
 minimum external duct static pressure.
 Direct-drive blower motors available for 2- to 5-ton models.

*Nominal electric heat capacities are rated at 240V, 480V and 600V.
 **Heating CFM for gas models varies dependent upon heat option selected. Minimum
 Heating CFM for heat pumps does not include supplemental electric heat.
 Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and
 dimensions are subject to change.

LANDMARK® ROOFTOP UNIT PERFORMANCE SPECIFICATIONS

		COOLING DATA		HEATING INPUT				PHYSICAL DATA			
GAS/ELECTRIC UNITS	Nom. Ton	Model	EER	SEER or IEER	Low	Standard	Medium	High	Dimensions H x W x L [inches]	Ship Wt. [lbs.]	
	2	KGA024S4D	11.4	13.0	—	65,000	—	—	39 x 47 x 86	591	
	2.5	KGA030S4D	11.2	13.0	—	65,000	—	—	39 x 47 x 86	593	
	3	KGA036S4B	10.7	13.0	—	65,000	105,000	—	39 x 47 x 86	594	
	4	KGA048S4B	11.0	13.0	—	65,000	105,000	150,000	39 x 47 x 86	631	
	5	KGA060S4B	11.2	13.0	—	65,000	105,000	150,000	39 x 47 x 86	661	
	6	KGA072S4B	11.0	11.2	—	65,000	105,000	150,000	47 x 47 x 86	760	
	7.5	KGA090S4B	11.0	11.2	—	—	105,000	150,000	47 x 47 x 99	865	
	7.5	KGA092S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,052	
	8.5	KGA102S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,072	
	10	KGA120S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,112	
	12.5	KGA150S4B	10.8	11.0	—	130,000	180,000	240,000	47 x 61 x 102	1,202	
	15	KGA180S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,055	
	17.5	KGA210S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,200	
	20	KGA240S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 133	2,295	
	25	KGA300S4B	10.0	9.9	—	260,000	360,000	480,000	55 x 92 x 133	2,375	
					KW Range*						
ELECTRIC/ELECTRIC UNITS	2	KCA024S4D	11.4	13.0	7.5	10.0	—	—	—	39 x 47 x 86	555
	2.5	KCA030S4D	11.2	13.0	7.5	10.0	—	—	—	39 x 47 x 86	557
	3	KCA036S4B	10.7	13.0	7.5	15.0	—	—	—	39 x 47 x 86	558
	4	KCA048S4B	11.0	13.0	7.5	15.0	—	—	—	39 x 47 x 86	595
	5	KCA060S4B	11.2	13.0	7.5	15.0	22.5	—	—	39 x 47 x 86	625
	6	KCA072S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 86	724
	7.5	KCA090S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 99	827
	7.5	KCA092S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,052
	8.5	KCA102S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,072
	10	KCA120S4B	11.2	11.4	15.0	22.5	30.0	45.0	60.0	47 x 61 x 102	1,112
	12.5	KCA150S4B	11.0	11.2	15.0	23.0	30.0	45.0	60.0	47 x 61 x 102	1,202
	15	KCA180S4B	11.0	11.2	15.0	30.0	45.0	60.0	—	55 x 92 x 108	2,000
	17.5	KCA210S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 108	2,145
20	KCA240S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,240	
25	KCA300S4B	10.0	10.1	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,320	
					47 Cap.	HSPF/ COP 47	17 Cap.	COP 17			
HEAT PUMPS	2	KHA024S4D	11.2	13.0	24,000	3.4	14,400	2.3	39 x 47 x 86	591	
	2.5	KHA030S4D	11.3	13.0	29,200	3.5	17,600	2.3	39 x 47 x 86	593	
	3	KHA036S4B	10.9	13.0	36,400	3.6	22,000	2.3	39 x 47 x 86	595	
	4	KHA048S4B	10.7	13.0	48,000	3.5	29,500	2.4	39 x 47 x 86	617	
	5	KHA060S4B	10.9	13.0	60,500	3.6	36,000	2.4	47 x 47 x 86	727	
	6	KHA072S4B	11.0	11.2	70,000	3.3	40,000	2.25	47 x 47 x 99	810	
	7.5	KHA092S4B	11.0	11.2	89,000	3.3	53,000	2.25	47 x 61 x 102	1,114	
	8.5	KHA102S4B	11.0	11.2	100,000	3.3	55,000	2.25	47 x 61 x 102	1,146	
	10	KHA120S4B	11.0	11.2	116,000	3.3	72,000	2.25	47 x 61 x 102	1,212	
	12.5	KHA150S4B	10.6	10.7	138,000	3.3	82,000	2.05	47 x 61 x 124	1,412	
	15	KHA180S4B	10.6	10.7	178,000	3.2	104,000	2.05	55 x 92 x 130	2,100	
	20	KHA240S4B	10.6	10.7	220,000	3.2	128,000	2.05	55 x 92 x 130	2,250	

Certified in accordance with the USE certification program which is based on ARI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator coil air.
 Certified in accordance with the ULE certification program which is based on ARI standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.
 Direct-drive blower motors available for 2- to 5-ton models.

*Nominal electric heat capacities are rated at 240V, 480V and 600V.
 **Heating CFM for gas models varies dependent upon heat option selected. Minimum Heating CFM for heat pumps does not include supplemental electric heat.
 Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change.

LANDMARK® ROOFTOP UNIT PERFORMANCE SPECIFICATIONS

		COOLING DATA		HEATING INPUT				PHYSICAL DATA			
GAS/ELECTRIC UNITS	Nom. Ton	Model	EER	SEER or IEER	Low	Standard	Medium	High	Dimensions H x W x L [inches]	Ship Wt. [lbs.]	
	2	KGA024S4D	11.4	13.0	—	65,000	—	—	39 x 47 x 86	591	
	2.5	KGA030S4D	11.2	13.0	—	65,000	—	—	39 x 47 x 86	593	
	3	KGA036S4B	10.7	13.0	—	65,000	105,000	—	39 x 47 x 86	594	
	4	KGA048S4B	11.0	13.0	—	65,000	105,000	150,000	39 x 47 x 86	631	
	5	KGA060S4B	11.2	13.0	—	65,000	105,000	150,000	39 x 47 x 86	661	
	6	KGA072S4B	11.0	11.2	—	65,000	105,000	150,000	47 x 47 x 86	760	
	7.5	KGA090S4B	11.0	11.2	—	—	105,000	150,000	47 x 47 x 99	865	
	7.5	KGA092S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,052	
	8.5	KGA102S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,072	
	10	KGA120S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,112	
	12.5	KGA150S4B	10.8	11.0	—	130,000	180,000	240,000	47 x 61 x 102	1,202	
	15	KGA180S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,055	
	17.5	KGA210S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,200	
	20	KGA240S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 133	2,295	
25	KGA300S4B	10.0	9.9	—	260,000	360,000	480,000	55 x 92 x 133	2,375		
					KW Range*						
ELECTRIC/ELECTRIC UNITS	2	KCA024S4D	11.4	13.0	7.5	10.0	—	—	—	39 x 47 x 86	555
	2.5	KCA030S4D	11.2	13.0	7.5	10.0	—	—	—	39 x 47 x 86	557
	3	KCA036S4B	10.7	13.0	7.5	15.0	—	—	—	39 x 47 x 86	558
	4	KCA048S4B	11.0	13.0	7.5	15.0	—	—	—	39 x 47 x 86	595
	5	KCA060S4B	11.2	13.0	7.5	15.0	22.5	—	—	39 x 47 x 86	625
	6	KCA072S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 86	724
	7.5	KCA090S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 99	827
	7.5	KCA092S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,052
	8.5	KCA102S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,072
	10	KCA120S4B	11.2	11.4	15.0	22.5	30.0	45.0	60.0	47 x 61 x 102	1,112
	12.5	KCA150S4B	11.0	11.2	15.0	23.0	30.0	45.0	60.0	47 x 61 x 102	1,202
	15	KCA180S4B	11.0	11.2	15.0	30.0	45.0	60.0	—	55 x 92 x 108	2,000
	17.5	KCA210S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 108	2,145
	20	KCA240S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,240
	25	KCA300S4B	10.0	10.1	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,320
					47 Cap.	HSPF/ COP 47	17 Cap.	COP 17			
HEAT PUMPS	2	KHA024S4D	11.2	13.0	24,000	3.4	14,400	2.3	39 x 47 x 86	591	
	2.5	KHA030S4D	11.3	13.0	29,200	3.5	17,600	2.3	39 x 47 x 86	593	
	3	KHA036S4B	10.9	13.0	36,400	3.6	22,000	2.3	39 x 47 x 86	595	
	4	KHA048S4B	10.7	13.0	48,000	3.5	29,500	2.4	39 x 47 x 86	617	
	5	KHA060S4B	10.9	13.0	60,500	3.6	36,000	2.4	47 x 47 x 86	727	
	6	KHA072S4B	11.0	11.2	70,000	3.3	40,000	2.25	47 x 47 x 99	810	
	7.5	KHA092S4B	11.0	11.2	89,000	3.3	53,000	2.25	47 x 61 x 102	1,114	
	8.5	KHA102S4B	11.0	11.2	100,000	3.3	55,000	2.25	47 x 61 x 102	1,146	
	10	KHA120S4B	11.0	11.2	116,000	3.3	72,000	2.25	47 x 61 x 102	1,212	
	12.5	KHA150S4B	10.6	10.7	138,000	3.3	82,000	2.05	47 x 61 x 124	1,412	
	15	KHA180S4B	10.6	10.7	178,000	3.2	104,000	2.05	55 x 92 x 130	2,100	
	20	KHA240S4B	10.6	10.7	220,000	3.2	128,000	2.05	55 x 92 x 130	2,250	

Certified in accordance with the USE certification program which is based on ARI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator coil air.
 Certified in accordance with the ULE certification program which is based on ARI standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air;
 minimum external duct static pressure.
 Direct-drive blower motors available for 2- to 5-ton models.

*Nominal electric heat capacities are rated at 240V, 480V and 600V.
 **Heating CFM for gas models varies dependent upon heat option selected. Minimum
 Heating CFM for heat pumps does not include supplemental electric heat.
 Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and
 dimensions are subject to change.

LANDMARK® ROOFTOP UNIT PERFORMANCE SPECIFICATIONS

		COOLING DATA		HEATING INPUT				PHYSICAL DATA			
GAS/ELECTRIC UNITS	Nom. Ton	Model	EER	SEER or IEER	Low	Standard	Medium	High	H x W x L [inches]	Ship Wt. [lbs.]	
	2	KGA024S4D	11.4	13.0	—	65,000	—	—	39 x 47 x 86	591	
	2.5	KGA030S4D	11.2	13.0	—	65,000	—	—	39 x 47 x 86	593	
	3	KGA036S4B	10.7	13.0	—	65,000	105,000	—	39 x 47 x 86	594	
	4	KGA048S4B	11.0	13.0	—	65,000	105,000	150,000	39 x 47 x 86	631	
	5	KGA060S4B	11.2	13.0	—	65,000	105,000	150,000	39 x 47 x 86	661	
	6	KGA072S4B	11.0	11.2	—	65,000	105,000	150,000	47 x 47 x 86	760	
	7.5	KGA090S4B	11.0	11.2	—	—	105,000	150,000	47 x 47 x 99	865	
	7.5	KGA092S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,052	
	8.5	KGA102S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,072	
	10	KGA120S4B	11.0	11.2	—	130,000	180,000	240,000	47 x 61 x 102	1,112	
	12.5	KGA150S4B	10.8	11.0	—	130,000	180,000	240,000	47 x 61 x 102	1,202	
	15	KGA180S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,055	
	17.5	KGA210S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 108	2,200	
	20	KGA240S4B	10.8	11.0	—	260,000	360,000	480,000	55 x 92 x 133	2,295	
25	KGA300S4B	10.0	9.9	—	260,000	360,000	480,000	55 x 92 x 133	2,375		
					KW Range*						
ELECTRIC/ELECTRIC UNITS	2	KCA024S4D	11.4	13.0	7.5	10.0	—	—	—	39 x 47 x 86	555
	2.5	KCA030S4D	11.2	13.0	7.5	10.0	—	—	—	39 x 47 x 86	557
	3	KCA036S4B	10.7	13.0	7.5	15.0	—	—	—	39 x 47 x 86	558
	4	KCA048S4B	11.0	13.0	7.5	15.0	—	—	—	39 x 47 x 86	595
	5	KCA060S4B	11.2	13.0	7.5	15.0	22.5	—	—	39 x 47 x 86	625
	6	KCA072S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 86	724
	7.5	KCA090S4B	11.2	11.4	7.5	15.0	22.5	30.0	—	47 x 47 x 99	827
	7.5	KCA092S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,052
	8.5	KCA102S4B	11.2	11.4	7.5	15.0	22.5	30.0	45.0	47 x 61 x 102	1,072
	10	KCA120S4B	11.2	11.4	15.0	22.5	30.0	45.0	60.0	47 x 61 x 102	1,112
	12.5	KCA150S4B	11.0	11.2	15.0	23.0	30.0	45.0	60.0	47 x 61 x 102	1,202
	15	KCA180S4B	11.0	11.2	15.0	30.0	45.0	60.0	—	55 x 92 x 108	2,000
	17.5	KCA210S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 108	2,145
	20	KCA240S4B	11.0	11.2	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,240
	25	KCA300S4B	10.0	10.1	15.0	30.0	45.0	60.0	90.0	55 x 92 x 133	2,320
					47 Cap.	HSPF/ COP 47	17 Cap.	COP 17			
HEAT PUMPS	2	KHA024S4D	11.2	13.0	24,000	3.4	14,400	2.3	39 x 47 x 86	591	
	2.5	KHA030S4D	11.3	13.0	29,200	3.5	17,600	2.3	39 x 47 x 86	593	
	3	KHA036S4B	10.9	13.0	36,400	3.6	22,000	2.3	39 x 47 x 86	595	
	4	KHA048S4B	10.7	13.0	48,000	3.5	29,500	2.4	39 x 47 x 86	617	
	5	KHA060S4B	10.9	13.0	60,500	3.6	36,000	2.4	47 x 47 x 86	727	
	6	KHA072S4B	11.0	11.2	70,000	3.3	40,000	2.25	47 x 47 x 99	810	
	7.5	KHA092S4B	11.0	11.2	89,000	3.3	53,000	2.25	47 x 61 x 102	1,114	
	8.5	KHA102S4B	11.0	11.2	100,000	3.3	55,000	2.25	47 x 61 x 102	1,146	
	10	KHA120S4B	11.0	11.2	116,000	3.3	72,000	2.25	47 x 61 x 102	1,212	
	12.5	KHA150S4B	10.6	10.7	138,000	3.3	82,000	2.05	47 x 61 x 124	1,412	
	15	KHA180S4B	10.6	10.7	178,000	3.2	104,000	2.05	55 x 92 x 130	2,100	
	20	KHA240S4B	10.6	10.7	220,000	3.2	128,000	2.05	55 x 92 x 130	2,250	

Certified in accordance with the USE certification program which is based on ARI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator coil air.
 Certified in accordance with the ULE certification program which is based on ARI standard 340/360: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air;
 minimum external duct static pressure.
 Direct-drive blower motors available for 2- to 5-ton models.

*Nominal electric heat capacities are rated at 240V, 480V and 600V.
 **Heating CFM for gas models varies dependent upon heat option selected. Minimum
 Heating CFM for heat pumps does not include supplemental electric heat.
 Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and
 dimensions are subject to change.

Our most innovative features are already built in.

Standard installed features:

- Circuit breakers
- Ground fault circuit interrupter (GFCI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- MERV 7 filter

Prodigy® unit controller standard features:

- Over 200 customer-configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Compressors 1–4 runtime and cycle count
- Relative humidity input
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Supply duct static pressure setpoint
- Smoke alarm mode
- CO₂ demand control ventilation ready
- “Strike-Three” critical alarm
 - Automatic reset
 - Low pressure
 - High pressure
 - Freezestat
 - Heat limit

Factory-installed options:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton only)
- Hail guard (20- and 24-ton only)
- MSAV® (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Novar 2051 DDC
- CPC 810-3062 DDC
- Novar integration (requires Novar system gateway device)
- CPC integration (requires CPC system gateway device)
- Interoperability via BACnet or LonTalk® protocols
- Return smoke detector
- Supply smoke detector
- Dual/single enthalpy

Field-installed accessories:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Novar 2051 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh-air tempering
- Coil guard
- Hail guard

THE STRATEGOS® ROOFTOP UNIT PRODUCT LINE

PERFORMANCE SPECIFICATIONS

		COOLING DATA							HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
	Nominal Tonnage	Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IEER]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [in wc]	Dimensions H x W x L [inches]	Shipping Wt. [lbs.]
GAS/ELECTRIC UNITS	3	SGC036H4B	CAV	37,200	36,000	1,200	14.3	16.1	75	125	NA	900	926	2,500	1.1	42 x 83 x 73	1,018-1,063
	5	SGC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	800-1,235	2,500	1.1	42 x 83 x 73	1,042-1,087
	10	SGC120H4B	CAV	123,000	119,000	3,700	12.3	12.5	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	10	SGC120H4M	MSAV	123,000	119,000	3,700	12.1	14.7	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	20	SGC240H4B	CAV	242,000	236,000	6,500	12.6	14.2	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	20	SGC240H4M	MSAV	242,000	236,000	6,500	12.6	16.6	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	24	SGC288H4B	CAV	296,000	288,000	7,700	11.6	12.7	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320
	24	SGC288H4M	MSAV	296,000	288,000	7,700	11.6	14.1	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321
KW Range																	
ELEC./ELEC. UNITS	3	SCC036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024
	5	SCC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031
	10	SCC120H4B	CAV	123,000	119,000	3,700	12.5	12.8	15	30	45	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	10	SCC120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	20	SCC240H4B	CAV	242,000	236,000	6,500	12.8	14.3	30	60	90	6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	20	SCC240H4M	MSAV	242,000	236,000	6,500	12.8	16.8	30	60	90	4,000-6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	24	SCC288H4B	CAV	296,000	288,000	7,700	11.6	12.8	30	60	90	7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956
	24	SCC288H4M	MSAV	296,000	288,000	7,700	11.6	14.2	30	60	90	4,800-7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956

Certified in accordance with USE certification program which is based on ARI standard 210/240 (5 tons and below):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

Certified (CAV units) or rated (MSAV units) in accordance with USE certification program which is based on ARI standard 340/360 (6 tons and above):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

All dimensions have been rounded up to the nearest inch.

Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change.

Our most innovative features are already built in. They may be options or accessories for other units, but these are standard installed features on the Strategos rooftop unit:

- Circuit breakers
- Ground fault circuit interrupter (GFI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- R-410A refrigerant
- MERV 7 filter

Want to improve service and maintenance with 100+ diagnostic codes? Or improve reliability by monitoring and controlling unit operation based on critical alarms? The following control features are standard:

- Integrated Modular Controller
- Over 200 customer configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Minimum compressor run time
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Smoke alarm mode
- CO₂ demand control ventilation ready
- Strike-Three critical alarm
- Automatic reset
- Low pressure
- High pressure
- Freezestat
- Heat limit

Want or need more? Factory-installed options customize units for certain climates and/or specifications. These options include:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/Propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton)
- Hail guard (20- and 24-ton)
- MSAV™ (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- Novar integration (requires Novar system gateway device)
- CPC integration (requires CPC system gateway device)
- Return smoke detector
- Supply smoke detector

Easily added during installation, field-installed accessories include:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh air tempering

THE STRATEGOS™ ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

				COOLING DATA					HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA		
Nominal Tonnage		Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IPLV]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [in w.c.]	Dimensions H x W x L [Inches]	Shipping Wt. [lbs.]	
GAS/ELECTRIC UNITS	3	SGA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	75	125	NA	900	926	2,500	1.1	42 x 83 x 73	1,018-1,063	
	5	SGA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	800-1,235	2,500	1.1	42 x 83 x 73	1,042-1,087	
	10	SGA120H4B	CAV	123,000	119,000	3,700	12.3	13.2	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860	
	10	SGA120H4M	MSAV	123,000	119,000	3,700	12.1	15.0	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860	
	20	SGA240H4B	CAV	242,000	236,000	6,500	12.6	14.4	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275	
	20	SGA240H4M	MSAV	242,000	236,000	6,500	12.6	16.2	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275	
	24	SGB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320	
	24	SGB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321	
									KW Range									
ELEC./ELEC. UNITS	3	SCA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024	
	5	SCA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031	
	10	SCA120H4B	CAV	123,000	119,000	3,700	12.5	13.5	15	30	45	60	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	10	SCA120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	60	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	20	SCA240H4B	CAV	242,000	236,000	6,500	12.8	14.8	30	60	90	6,000	8,000	9,600	1.2	66 x 91x 146	2,786-2,991	
	20	SCA240H4M	MSAV	242,000	236,000	6,500	12.8	16.4	30	60	90	4,000-6,000	8,000	9,600	1.2	66 x 91x 146	2,786-2,991	
	24	SCB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	30	60	90	7,200	8,000	11,520	1.2	66 x 91x 146	2,856-2,956	
	24	SCB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	30	60	90	4,800-7,200	8,000	11,520	1.2	66 x 91x 146	2,856-2,956	

Certified in accordance with USE certification program which is based on ARI standard 210/240 (5 tons and below):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

Certified (CAV units) or rated (MSAV units) in accordance with USE certification program which is based on ARI standard 340/360 (6 tons and above):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

All dimensions have been rounded up to the nearest inch.

Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change.

Our most innovative features are already built in.

Standard installed features:

- Circuit breakers
- Ground fault circuit interrupter (GFCI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- MERV 7 filter

Prodigy® unit controller standard features:

- Over 200 customer-configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Compressors 1–4 runtime and cycle count
- Relative humidity input
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Supply duct static pressure setpoint
- Smoke alarm mode
- CO₂ demand control ventilation ready
- “Strike-Three” critical alarm
 - Automatic reset
 - Low pressure
 - High pressure
 - Freezestat
 - Heat limit

Factory-installed options:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton only)
- Hail guard (20- and 24-ton only)
- MSAV® (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Novar 2051 DDC
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- Novar integration (requires Novar system gateway device)
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- Interoperability via BACnet or LonTalk® protocols
- Return smoke detector
- Supply smoke detector
- Dual/single enthalpy

Field-installed accessories:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Novar 2051 DDC
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- CO₂ sensor
- Thermostat
- Fresh-air tempering
- Coil guard
- Hail guard

THE STRATEGOS® ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

	Nominal Tonnage	Model	Supply Fan Type	COOLING DATA					HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
				Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IEER]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [in wg]	Dimensions H x W x L [inches]	Shipping Wt. [lbs.]
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	5	SGC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	800-1,235	2,500	1.1	42 x 83 x 73	1,042-1,087
	10	SGC120H4B	CAV	123,000	119,000	3,700	12.3	12.5	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	10	SGC120H4M	MSAV	123,000	119,000	3,700	12.1	14.7	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	20	SGC240H4B	CAV	242,000	236,000	6,500	12.6	14.2	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	20	SGC240H4M	MSAV	242,000	236,000	6,500	12.6	16.6	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	24	SGC288H4B	CAV	296,000	288,000	7,700	11.6	12.7	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320
	24	SGC288H4M	MSAV	296,000	288,000	7,700	11.6	14.1	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321
ELEC./ELEC. UNITS	KW Range																
	3	SCC036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024
	5	SCC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031
	10	SCC120H4B	CAV	123,000	119,000	3,700	12.5	12.8	15	30	45	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	10	SCC120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	20	SCC240H4B	CAV	242,000	236,000	6,500	12.8	14.3	30	60	90	6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	20	SCC240H4M	MSAV	242,000	236,000	6,500	12.8	16.8	30	60	90	4,000-6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	24	SCC288H4B	CAV	296,000	288,000	7,700	11.6	12.8	30	60	90	7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956
	24	SCC288H4M	MSAV	296,000	288,000	7,700	11.6	14.2	30	60	90	4,800-7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956

Certified in accordance with USE certification program which is based on ARI standard 210/240 (5 tons and below):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

Certified (CAV units) or rated (MSAV units) in accordance with USE certification program which is based on ARI standard 340/360 (6 tons and above):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

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- Circuit breakers
- Ground fault circuit interrupter (GFI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- R-410A refrigerant
- MERV 7 filter

Want to improve service and maintenance with 100+ diagnostic codes? Or improve reliability by monitoring and controlling unit operation based on critical alarms? The following control features are standard:

- Integrated Modular Controller
- Over 200 customer configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Minimum compressor run time
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Smoke alarm mode
- CO₂ demand control ventilation ready
- Strike-Three critical alarm
- Automatic reset
- Low pressure
- High pressure
- Freezestat
- Heat limit

Want or need more? Factory-installed options customize units for certain climates and/or specifications. These options include:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/Propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton)
- Hail guard (20- and 24-ton)
- MSAV™ (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- Novar integration (requires Novar system gateway device)
- CPC integration (requires CPC system gateway device)
- Return smoke detector
- Supply smoke detector

Easily added during installation, field-installed accessories include:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh air tempering

THE STRATEGOS™ ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

			COOLING DATA						HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
	Nominal Tonnage	Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IPLV]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [In w/c]	Dimensions H x W x L [Inches]	Shipping Wt. [lbs.]
GAS/ELECTRIC UNITS	3	SCA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	75	125	NA	900	926	2,500	1.1	42 x 83 x 73	1,018-1,063
	5	SCA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	1,391-2,540	2,500	1.1	42 x 83 x 73	1,042-1,087
	10	SCA120H4B	CAV	123,000	119,000	3,700	12.3	13.2	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	10	SCA120H4M	MSAV	123,000	119,000	3,700	12.1	15.0	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	20	SCA240H4B	CAV	242,000	236,000	6,500	12.6	14.4	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	20	SCA240H4M	MSAV	242,000	236,000	6,500	12.6	16.2	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	24	SCB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320
	24	SCB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321
KW Range																	
ELEC./ELEC. UNITS	3	SCA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024
	5	SCA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031
	10	SCA120H4B	CAV	123,000	119,000	3,700	12.5	13.5	15	30	45	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	10	SCA120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
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- CO₂ demand control ventilation ready
- “Strike-Three” critical alarm
 - Automatic reset
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 - Freezestat
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Factory-installed options:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
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- Stainless steel heat exchanger
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THE STRATEGOS® ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

	Nominal Tonnage	Model	Supply Fan Type	COOLING DATA					HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
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- MSAV™ (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- Novar integration (requires Novar system gateway device)
- CPC integration (requires CPC system gateway device)
- Return smoke detector
- Supply smoke detector

Easily added during installation, field-installed accessories include:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Danfoss DDC
- Novar 2024 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh air tempering

THE STRATEGOS™ ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

				COOLING DATA					HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA		
GAS/ELECTRIC UNITS	Nominal Tonnage	Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IPLV]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [in wc]	Dimensions H x W x L [Inches]	Shipping Wt. [lbs.]	
	3	SGA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	75	125	NA	900	926	2,500	1.1	42 x 83 x 73	1,018-1,063	
	5	SGA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	800-1,235	2,500	1.1	42 x 83 x 73	1,042-1,087	
	10	SGA120H4B	CAV	123,000	119,000	3,700	12.3	13.2	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860	
	10	SGA120H4M	MSAV	123,000	119,000	3,700	12.1	15.0	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860	
	20	SGA240H4B	CAV	242,000	236,000	6,500	12.6	14.4	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275	
	20	SGA240H4M	MSAV	242,000	236,000	6,500	12.6	16.2	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275	
	24	SGB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320	
	24	SGB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321	
									KW Range									
ELEC./ELEC. UNITS	3	SCA036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024	
	5	SCA060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031	
	10	SCA120H4B	CAV	123,000	119,000	3,700	12.5	13.5	15	30	45	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750	
	10	SCA120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750	
	20	SCA240H4B	CAV	242,000	236,000	6,500	12.8	14.8	30	60	90	6,000	8,000	9,600	1.2	66 x 91x 146	2,786-2,991	
	20	SCA240H4M	MSAV	242,000	236,000	6,500	12.8	16.4	30	60	90	4,000-6,000	8,000	9,600	1.2	66 x 91x 146	2,786-2,991	
	24	SCB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	30	60	90	7,200	8,000	11,520	1.2	66 x 91x 146	2,856-2,956	
	24	SCB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	30	60	90	4,800-7,200	8,000	11,520	1.2	66 x 91x 146	2,856-2,956	

Certified in accordance with USE certification program which is based on ARI standard 210/240 (5 tons and below):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

Certified (CAV units) or rated (MSAV units) in accordance with USE certification program which is based on ARI standard 340/360 (6 tons and above):

95°F outdoor air temperature and 80°F DB/67°F WB entering evaporator coil air.

All dimensions have been rounded up to the nearest inch.

Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change.

Our most innovative features are already built in.

Standard installed features:

- Circuit breakers
- Ground fault circuit interrupter (GFCI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- MERV 7 filter

Prodigy® unit controller standard features:

- Over 200 customer-configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Compressors 1–4 runtime and cycle count
- Relative humidity input
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Supply duct static pressure setpoint
- Smoke alarm mode
- CO₂ demand control ventilation ready
- “Strike-Three” critical alarm
 - Automatic reset
 - Low pressure
 - High pressure
 - Freezestat
 - Heat limit

Factory-installed options:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton only)
- Hail guard (20- and 24-ton only)
- MSAV® (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
- Novar 2051 DDC
- CPC 810-3062 DDC
- Novar integration (requires Novar system gateway device)
- CPC integration (requires CPC system gateway device)
- Interoperability via BACnet or LonTalk® protocols
- Return smoke detector
- Supply smoke detector
- Dual/single enthalpy

Field-installed accessories:

- 14-inch bolt-together curb
- 24-inch bolt-together curb
- Novar 2051 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh-air tempering
- Coil guard
- Hail guard

THE STRATEGOS® ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

		COOLING DATA							HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
	Nominal Tonnage	Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IEER]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [in wg]	Dimensions H x W x L [inches]	Shipping Wt. [lbs.]
GAS/ELECTRIC UNITS	3	SGC036H4B	CAV	37,200	36,000	1,200	14.3	16.1	75	125	NA	900	926	2,500	1.1	42 x 83 x 73	1,018-1,063
	5	SGC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	75	125	NA	1,500	800-1,235	2,500	1.1	42 x 83 x 73	1,042-1,087
	10	SGC120H4B	CAV	123,000	119,000	3,700	12.3	12.5	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	10	SGC120H4M	MSAV	123,000	119,000	3,700	12.1	14.7	130	180	240	2,000-3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
	20	SGC240H4B	CAV	242,000	236,000	6,500	12.6	14.2	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	20	SGC240H4M	MSAV	242,000	236,000	6,500	12.6	16.6	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	24	SGC288H4B	CAV	296,000	288,000	7,700	11.6	12.7	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320
	24	SGC288H4M	MSAV	296,000	288,000	7,700	11.6	14.1	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321
KW Range																	
ELEC./ELEC. UNITS	3	SCC036H4B	CAV	37,200	36,000	1,200	14.3	16.1	15	NA	NA	900	900	2,500	1.1	42 x 83 x 73	963-1,024
	5	SCC060H4B	CAV	61,500	59,500	1,650	12.8	15.5	15	30	NA	1,500	1,600	2,500	1.1	42 x 83 x 73	967-1,031
	10	SCC120H4B	CAV	123,000	119,000	3,700	12.5	12.8	15	30	45	3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	10	SCC120H4M	MSAV	123,000	119,000	3,700	12.3	15.2	15	30	45	2,000-3,000	3,800	4,800	1.0	52 x 91 x 87	1,678-1,750
	20	SCC240H4B	CAV	242,000	236,000	6,500	12.8	14.3	30	60	90	6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	20	SCC240H4M	MSAV	242,000	236,000	6,500	12.8	16.8	30	60	90	4,000-6,000	8,000	9,600	1.2	66 x 91 x 146	2,786-2,991
	24	SCC288H4B	CAV	296,000	288,000	7,700	11.6	12.8	30	60	90	7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956
	24	SCC288H4M	MSAV	296,000	288,000	7,700	11.6	14.2	30	60	90	4,800-7,200	8,000	11,520	1.2	66 x 91 x 146	2,856-2,956

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Note: Due to Lennox' ongoing commitment to quality, all specifications, ratings and dimensions are subject to change.

Our most innovative features are already built in. They may be options or accessories for other units, but these are standard installed features on the Strategos rooftop unit:

- Circuit breakers
- Ground fault circuit interrupter (GFI)
- Grille guard
- Thermal expansion valve (TXV)
- Compressor crankcase heater
- Freezestats
- High-pressure switch
- Low-pressure switch
- Filter driers
- R-410A refrigerant
- MERV 7 filter

Want to improve service and maintenance with 100+ diagnostic codes? Or improve reliability by monitoring and controlling unit operation based on critical alarms? The following control features are standard:

- Integrated Modular Controller
- Over 200 customer configuration parameters
- Over 100 diagnostic error codes
- Compressor time-off delay
- Minimum compressor run time
- Thermostat bounce delay
- Return air temperature limit control
- Night setback mode
- Smoke alarm mode
- CO₂ demand control ventilation ready
- Strike-Three critical alarm
- Automatic reset
- Low pressure
- High pressure
- Freezestat
- Heat limit

Want or need more? Factory-installed options customize units for certain climates and/or specifications. These options include:

- 230/3/60, 460/3/60, 575/3/60 Volt
- Evaporator coil corrosion protection
- Condenser coil corrosion protection
- Stainless steel heat exchanger
- LPG/Propane fuel supply
- Constant air volume supply fan
- Copper drain trap (20- and 24-ton)
- Hail guard (20- and 24-ton)
- MSAV™ (multi-stage air volume) supply fan
- Manual outdoor air damper with hood
- Economizer with barometric relief, hood and global control
- Power exhaust fans with damper position control (10- and 20-ton only)
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- CPC integration (requires CPC system gateway device)
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- Supply smoke detector

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- Novar 2024 DDC
- CPC 810-3062 DDC
- CO₂ sensor
- Thermostat
- Fresh air tempering

THE STRATEGOS™ ROOFTOP UNIT PRODUCT LINE PERFORMANCE SPECIFICATIONS

			COOLING DATA						HEATING INPUT			AIR SUPPLY RANGE				PHYSICAL DATA	
	Nominal Tonnage	Model	Supply Fan Type	Gross Cap. [Btuh]	ARI Rated Net Cap. [Btuh]	ARI Rated CFM	Full Load [EER]	Part Load [SEER or IPLV]	Standard [Btuh]	Medium [Btuh]	High [Btuh]	CFM Min. Cool	CFM Min. Heat	CFM Max.	Static [In w/c]	Dimensions H x W x L [Inches]	Shipping Wt. [lbs.]
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	10	SCA120H4B	CAV	123,000	119,000	3,700	12.3	13.2	130	180	240	3,000	1,391-2,540	4,800	1.0	52 x 91 x 87	1,785-1,860
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	20	SCA240H4B	CAV	242,000	236,000	6,500	12.6	14.4	260	360	480	6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	20	SCA240H4M	MSAV	242,000	236,000	6,500	12.6	16.2	260	360	480	4,000-6,000	2,782-5,079	9,600	1.2	66 x 91 x 146	3,000-3,275
	24	SCB288H4B	CAV	296,000	288,000	7,700	11.6	12.3	260	360	480	7,200	7,111	11,520	1.2	66 x 91 x 145	3,068-3,320
	24	SCB288H4M	MSAV	296,000	288,000	7,700	11.6	14.8	260	360	480	4,800-7,200	7,111	11,520	1.2	66 x 91 x 146	3,068-3,321
KW Range																	
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Facility Name:	Walmart #1863	
Location:	Eastlake, Ohio	Cooling Zone 2
Annual Cooling Hours:	935	
kWh Rate:	\$0.08	

Old HVAC System

Unit Tons	3	Cut Sheet 1
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	36,000	
EER	10.7	
Qty	6	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	18,875	

Unit Tons	5	Cut Sheet 2
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	60,000	
EER	11.2	
Qty	8	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	40,071	

Unit Tons	10	Cut Sheet 3
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	120,000	
EER	11	
Qty	10	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	102,000	

Unit Tons	20	Cut Sheet 4
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	240,000	
EER	10.8	
Qty	6	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	124,667	

New HVAC System

Unit Tons	3	Cut Sheet 5
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	36,000	
EER	14.3	
Qty	6	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	14,123	

Unit Tons	5	Cut Sheet 6
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	60,000	
EER	12.8	
Qty	8	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	35,063	

Unit Tons	10	Cut Sheet 7
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	120,000	
EER	12.3	
Qty	10	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	91,220	

Unit Tons	20	Cut Sheet 8
BTU's/hr (<i>Tons x 12,000 BTUs/hr</i>)	240,000	
EER	12.6	
Qty	6	
Annual kWh (<i>BTU's/SEER</i>)/1000 x cooling hours x qty	106,857	

Old System kW:	305.47
Old System Annual kWh:	285,612.86
Old System Annual Cost to Operate:	\$22,849.03

New System kW:	264.45
New System Annual kWh:	247,262.23
New System Annual Cost to Operate:	\$19,780.98

kW Savings:	41.02
Annual kWh Savings:	38,350.63
Annual Cost Savings:	\$3,068.05



Ohio Edison • The Illuminating Company • Toledo Edison

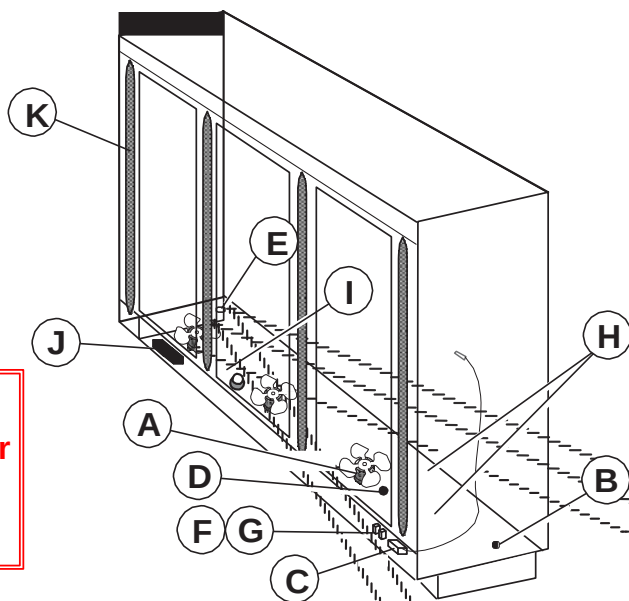
Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	High Efficiency Ref. Cases - Proj. 3
Site Name:	Wal-Mart store #1863 Eastlake
Completed by (Name):	Hussmann Corp.
Date completed:	1/17/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
H.E. Refrigerated Cases	111,679	8934.28
Total Project Energy Savings kWh	111,679	
Total Custom Prescriptive Rebate Amount \$	\$	8,934.28

Notes about this rebate calculation:

High-efficiency refrigerated cases were installed in the grocery and produce area. LED lighting and high-efficiency fan motors were chosen instead of the standard fluorescent lighting and shaded pole motors. The baseline annual energy use was based on the refrigerated cases with standard options installed. See the attached calculations 'WM 1863_P3_Refrigerated Cases Calculations.pdf' for the annual estimated energy savings.



Warning:
Terminal block NOT for
case-to-case
wire connection!

We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.

Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard Fan Assembly		(1)	H.	Electric Defrost Heaters – Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755	(1)	2 Door Models (HE.4850346)	
	0461805	Fan Blade (FB.4780446)			0441756	(1)	3 Door Models (HE.4850337)	
	12W Optional Energy Efficient Fan Assembly		(1)		0441757	(1)	4 Door Models (HE.4850347)	
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758	(1)	5 Door Models (HE.4850323)	
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891	(1)	2 Door Models (HE.4850358)	
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892	(1)	3 Door Models (HE.4850359)	
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893	(1)	4 Door Models (HE.4850360)	
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894	(1)	5 Door Models (HE.4850361)	
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036	(1)	2 Door Models (HE.4850239)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037	(1)	3 Door Models (HE.4850240)	
					0387038	(1)	4 Door Models (HE.4850241)	
					0387039	(1)	5 Door Models (HE.4850242)	
				LAMPS AND BALLASTS				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

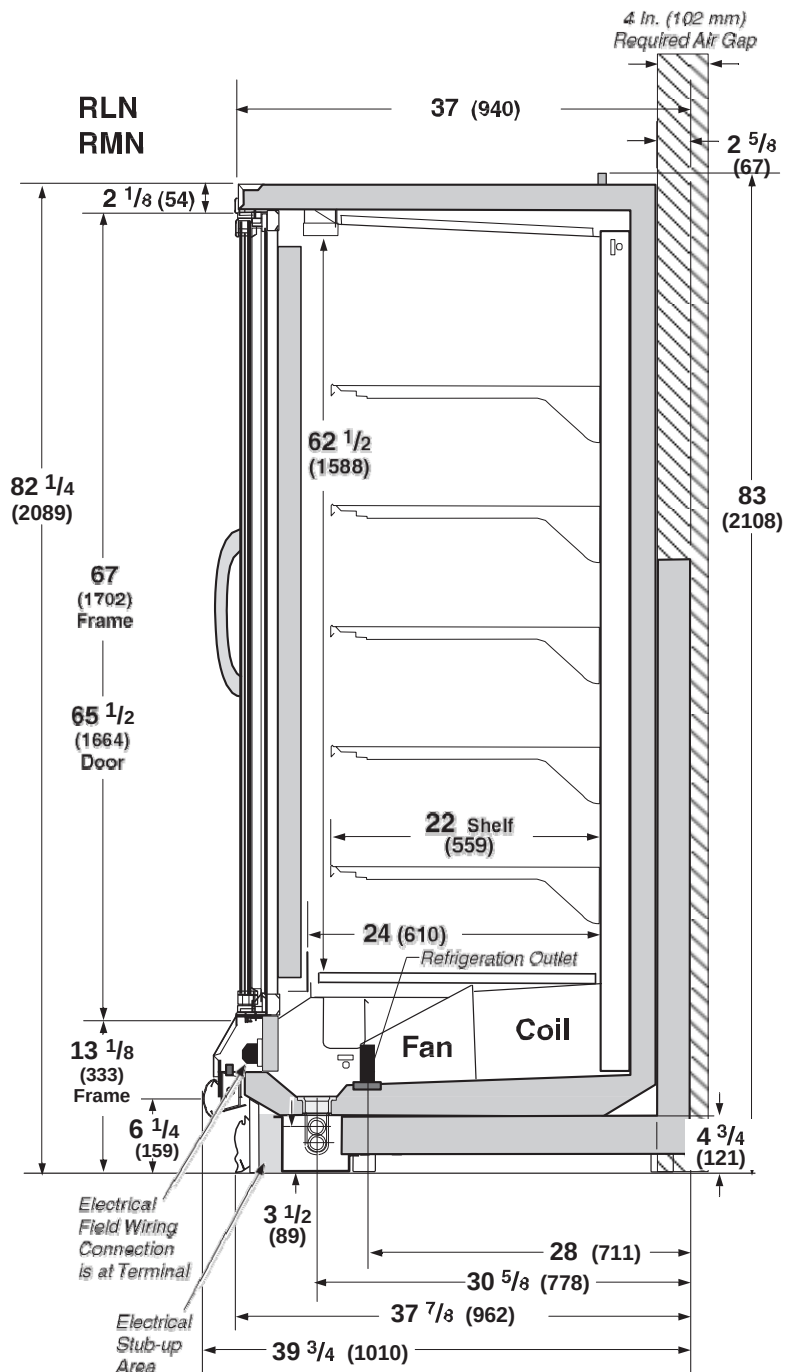
Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, P/N 0425683, for Innovator and Innovator II door and frame replacement parts.

NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.

NOTE: Revision K updates LED electrical data, Page 4.

Narrow Reach-in 2, 3, 4 and 5 Door Models INNOVATOR Doors Standard

Dimensions shown as in. & (mm).



NSF Certification

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Impact **RLN**

With INNOVATOR Doors
Frozen Food & Ice Cream

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator (°F)	-11	-19
Unit Sizing (°F)	-14	-22
Btu/hr/Door*	FF	IC
Parallel	1300	1370
Conventional	1325	1400

*Optional LED lighting reduces refrigeration load by 100 Btu/hr/Door.

Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/Door.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/day)	1.2	1.2
(± 15% based on case configuration and product loading.)		

ELECTRIC	FF	IC
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45

GAS	FF	IC
Duration (minutes)	20	20

OFFTIME Not Recommended

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

PHYSICAL DATA

Estimated Charge (lb)***

2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

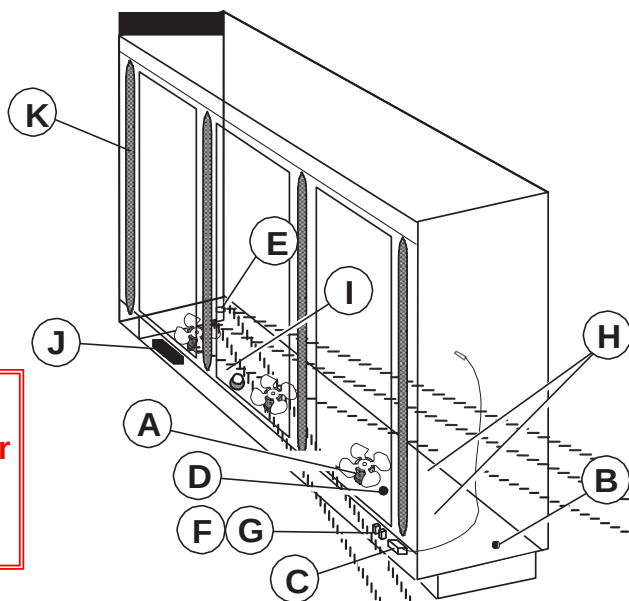
Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

Number of Fans—12W

			2Dr	3Dr	4Dr	5Dr			
			2	3	4	5			
			Amperes				Watts		
Merchandiser			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr
Evaporator Fan									
120V	60Hz	Standard	1.30	1.95	2.60	3.25	100	150	200
120V	50Hz	Standard	1.50	2.25	3.00	3.75	114	171	228
220V	60Hz	Export	0.66	0.99	1.32	1.65	100	150	200
220V	50Hz	Export	0.76	1.14	1.52	1.90	114	171	228
120V	60Hz	Energy Efficient	0.60	0.90	1.20	1.50	36	54	72
220V	60Hz	Energy Efficient	0.30	0.45	0.60	0.75	36	54	72
Door Anti-sweat Heaters (on fan circuit)									
120V	50/60Hz	Standard	1.54	2.31	3.08	3.86	185	278	370
220V	50/60Hz	Export	0.84	1.26	1.68	2.10	185	278	370
Frame Anti-sweat Heaters (on fan circuit)									
120V	50/60Hz	Standard	0.78	1.18	1.57	1.97	94	141	188
220V	50/60Hz	Export	0.43	0.64	0.85	1.07	94	141	188
Minimum Circuit Ampacity									
120V	60Hz	Standard	3.82	5.64	7.45	9.28			
120V	50Hz	Standard	4.02	5.94	7.85	9.78			
220V	60Hz	Export	2.13	3.09	4.05	5.02			
220V	50Hz	Export	2.23	3.24	4.25	5.27			
120V	60Hz	Energy Efficient	3.12	4.59	6.05	7.53			
220V	60Hz	Energy Efficient	1.77	2.55	3.33	4.12			
Maximum Over Current Protection 120V			20	20	20	20			
Maximum Over Current Protection 220V			15	15	15	15			
Defrost									
Drain Heaters (120V)			0.63	1.25	2.00	2.57	75	150	240
(Export: 220V 50 Hz)			0.34	0.76	1.22	1.53	84	168	269
208V 1Ø Electric Defrost			6.72	10.08	13.46	16.82	1400	2100	2800
(Export: 220V 50 Hz)			7.11	10.66	14.24	17.79	1564	2345	3133
Standard Vertical Lighting			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr
Innovator* Doors (120V)			1.50	2.00	2.50	3.00	180	240	300
(Export: 220V 50 Hz)			0.84	1.12	1.40	1.68	185	246	308
Optional LED Lighting									
Hussmann EcoShine™ [27 W] (120V)			0.45	0.68	0.90	1.13	54	81	108
Hussmann EcoShine™ [27 W] [220V (Export)]			0.25	0.37	0.49	0.61	54	81	108
Hussmann EcoShine™ EP [16 W] (120V)			0.27	0.40	0.53	0.67	32	48	64
Hussmann EcoShine™ EP [16 W] [220V (Export)]			0.15	0.22	0.29	0.36	32	48	64
Hussmann EcoShine™ [20 W] (120V)			0.33	0.50	0.67	0.83	40	60	80
Hussmann EcoShine™ [20 W] [220V (Export)]			0.17	0.25	0.33	0.42	40	60	80
Gelcore (120V)			0.48	0.73	0.97	1.21	58	87	116
Gelcore (120V) [220V (Export)]			0.26	0.40	0.53	0.66	58	87	116

* Innovator or Innovator II



Warning:
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case-to-case
wire connection!

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Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard Fan Assembly		(1)	H.	Electric Defrost Heaters – Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755	(1)	2 Door Models (HE.4850346)	
	0461805	Fan Blade (FB.4780446)			0441756	(1)	3 Door Models (HE.4850337)	
	12W Optional Energy Efficient Fan Assembly		(1)		0441757	(1)	4 Door Models (HE.4850347)	
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758	(1)	5 Door Models (HE.4850323)	
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891	(1)	2 Door Models (HE.4850358)	
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892	(1)	3 Door Models (HE.4850359)	
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893	(1)	4 Door Models (HE.4850360)	
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894	(1)	5 Door Models (HE.4850361)	
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036	(1)	2 Door Models (HE.4850239)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037	(1)	3 Door Models (HE.4850240)	
					0387038	(1)	4 Door Models (HE.4850241)	
					0387039	(1)	5 Door Models (HE.4850242)	
				LAMPS AND BALLASTS				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

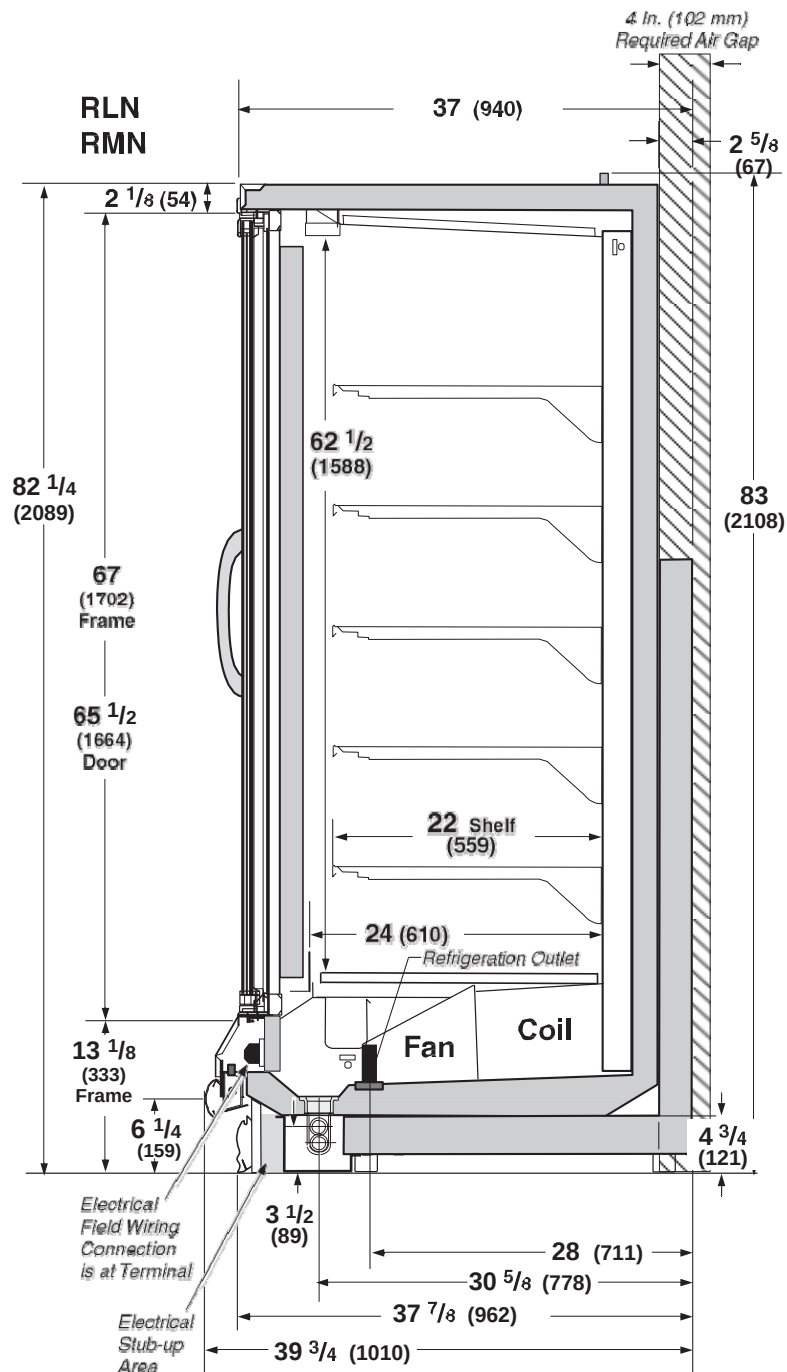
Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, P/N 0425683, for Innovator and Innovator II door and frame replacement parts.

NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.

NOTE: Revision K updates LED electrical data, Page 4.

Narrow Reach-in 2, 3, 4 and 5 Door Models INNOVATOR Doors Standard

Dimensions shown as in. & (mm).



NSF Certification

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Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator (°F)	-11	-19
Unit Sizing (°F)	-14	-22
Btu/hr/Door*	FF	IC
Parallel	1300	1370
Conventional	1325	1400

*Optional LED lighting reduces refrigeration load by 100 Btu/hr/Door.

Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/Door.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/day)	1.2	1.2
(± 15% based on case configuration and product loading.)		

<i>ELECTRIC</i>	FF	IC
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45

<i>GAS</i>		
Duration (minutes)	20	20

OFFTIME Not Recommended

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

PHYSICAL DATA

Estimated Charge (lb)***

2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

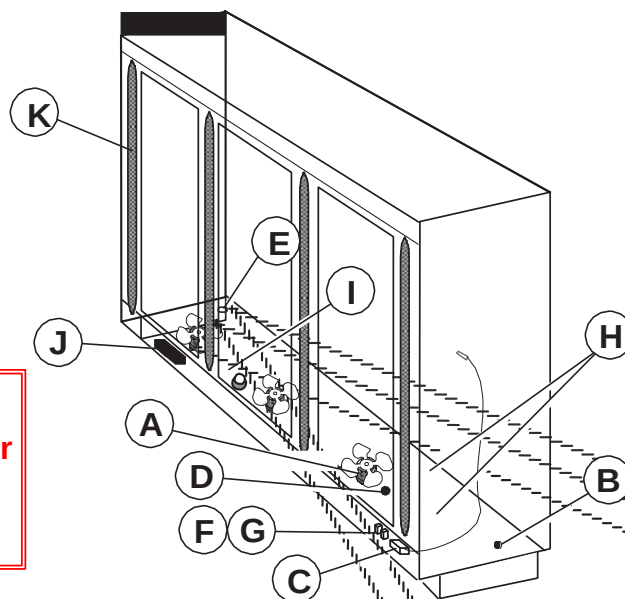
Impact RLN
 With INNOVATOR Doors
 Frozen Food & Ice Cream

Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

Number of Fans—12W			2Dr 2	3Dr 3	4Dr 4	5Dr 5			
Merchandise			Amperes				Watts		
Evaporator Fan			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr 5Dr
120V	60Hz	Standard	1.30	1.95	2.60	3.25	100	150	200 250
120V	50Hz	Standard	1.50	2.25	3.00	3.75	114	171	228 285
220V	60Hz	Export	0.66	0.99	1.32	1.65	100	150	200 250
220V	50Hz	Export	0.76	1.14	1.52	1.90	114	171	228 285
120V	60Hz	Energy Efficient	0.60	0.90	1.20	1.50	36	54	72 90
220V	60Hz	Energy Efficient	0.30	0.45	0.60	0.75	36	54	72 90
Door Anti-sweat Heaters (on fan circuit)									
120V	50/60Hz	Standard	1.54	2.31	3.08	3.86	185	278	370 463
220V	50/60Hz	Export	0.84	1.26	1.68	2.10	185	278	370 463
Frame Anti-sweat Heaters (on fan circuit)									
120V	50/60Hz	Standard	0.78	1.18	1.57	1.97	94	141	188 236
220V	50/60Hz	Export	0.43	0.64	0.85	1.07	94	141	188 236
Minimum Circuit Ampacity									
120V	60Hz	Standard	3.82	5.64	7.45	9.28			
120V	50Hz	Standard	4.02	5.94	7.85	9.78			
220V	60Hz	Export	2.13	3.09	4.05	5.02			
220V	50Hz	Export	2.23	3.24	4.25	5.27			
120V	60Hz	Energy Efficient	3.12	4.59	6.05	7.53			
220V	60Hz	Energy Efficient	1.77	2.55	3.33	4.12			
Maximum Over Current Protection 120V			20	20	20	20			
Maximum Over Current Protection 220V			15	15	15	15			
Defrost									
Drain Heaters (120V)			0.63	1.25	2.00	2.57	75	150	240 300
(Export: 220V 50 Hz)			0.34	0.76	1.22	1.53	84	168	269 336
208V 1Ø Electric Defrost			6.72	10.08	13.46	16.82	1400	2100	2800 3500
(Export: 220V 50 Hz)			7.11	10.66	14.24	17.79	1564	2345	3133 3914
Standard Vertical Lighting			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr 5Dr
Innovator* Doors (120V)			1.50	2.00	2.50	3.00	180	240	300 360
(Export: 220V 50 Hz)			0.84	1.12	1.40	1.68	185	246	308 370
Optional LED Lighting									
Hussmann EcoShine™ [27 W] (120V)			0.45	0.68	0.90	1.13	54	81	108 135
Hussmann EcoShine™ [27 W] [220V (Export)]			0.25	0.37	0.49	0.61	54	81	108 135
Hussmann EcoShine™ EP [16 W] (120V)			0.27	0.40	0.53	0.67	32	48	64 80
Hussmann EcoShine™ EP [16 W] [220V (Export)]			0.15	0.22	0.29	0.36	32	48	64 80
Hussmann EcoShine™ [20 W] (120V)			0.33	0.50	0.67	0.83	40	60	80 100
Hussmann EcoShine™ [20 W] [220V (Export)]			0.17	0.25	0.33	0.42	40	60	80 100
Gelcore (120V)			0.48	0.73	0.97	1.21	58	87	116 145
Gelcore (120V) [220V (Export)]			0.26	0.40	0.53	0.66	58	87	116 145

* Innovator or Innovator II



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wire connection!

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Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard Fan Assembly		(1)	H.	Electric Defrost Heaters – Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755	(1)	2 Door Models (HE.4850346)	
	0461805	Fan Blade (FB.4780446)			0441756	(1)	3 Door Models (HE.4850337)	
	12W Optional Energy Efficient Fan Assembly		(1)		0441757	(1)	4 Door Models (HE.4850347)	
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758	(1)	5 Door Models (HE.4850323)	
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891	(1)	2 Door Models (HE.4850358)	
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892	(1)	3 Door Models (HE.4850359)	
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893	(1)	4 Door Models (HE.4850360)	
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894	(1)	5 Door Models (HE.4850361)	
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036	(1)	2 Door Models (HE.4850239)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037	(1)	3 Door Models (HE.4850240)	
					0387038	(1)	4 Door Models (HE.4850241)	
					0387039	(1)	5 Door Models (HE.4850242)	
				LAMPS AND BALLASTS				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

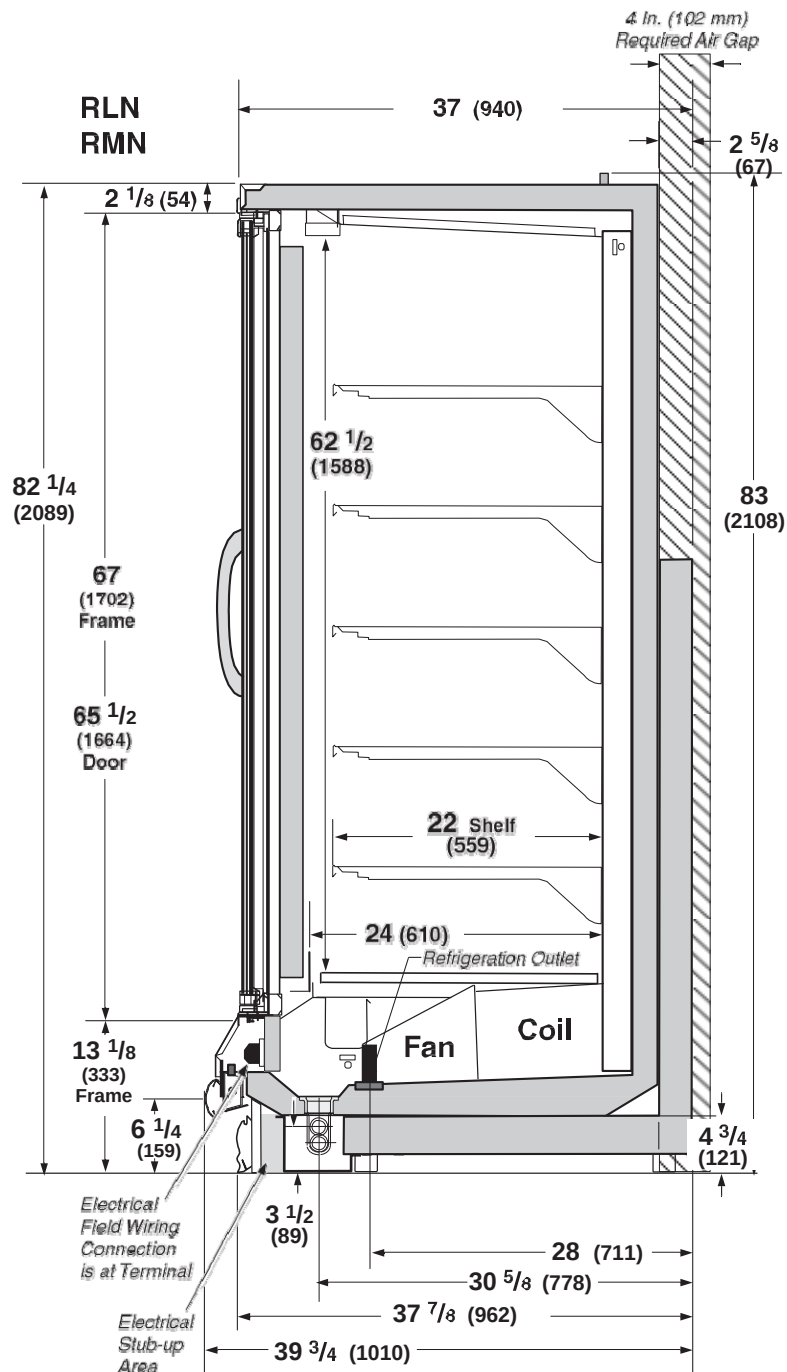
Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, P/N 0425683, for Innovator and Innovator II door and frame replacement parts.

NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.

NOTE: Revision K updates LED electrical data, Page 4.

Narrow Reach-in 2, 3, 4 and 5 Door Models

Dimensions shown as in. & (mm).



NSF Certification

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Impact RLN

**With INNOVATOR Doors
Frozen Food & Ice Cream**

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator (°F)	-11	-19
Unit Sizing (°F)	-14	-22
<i>Btu/hr/Door*</i>	FF	IC
Parallel	1300	1370
Conventional	1325	1400

*Optional LED lighting reduces refrigeration load by 100 Btu/hr/Door.

Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/Door.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/day)	1.2	1.2

(± 15% based on case configuration and product loading.)

<i>ELECTRIC</i>	FF	IC
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45

GAS

Duration (minutes)	20	20
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OFFTIME

Not Recommended

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

****Use a Temperature Pressure Chart to determine PSIG conversions.**

PHYSICAL DATA

Estimated Charge (lb)***

2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types.
Actual refrigerant charge may vary by
approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

Number of Fans—12W

Merchandise	Amperes				Watts			
	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Evaporator Fan								
120V 60Hz Standard	1.30	1.95	2.60	3.25	100	150	200	250
120V 50Hz Standard	1.50	2.25	3.00	3.75	114	171	228	285
220V 60Hz Export	0.66	0.99	1.32	1.65	100	150	200	250
220V 50Hz Export	0.76	1.14	1.52	1.90	114	171	228	285
120V 60Hz Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V 60Hz Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90

Door Anti-sweat Heaters (on fan circuit)

120V 50/60Hz Standard	1.54	2.31	3.08	3.86	185	278	370	463
220V 50/60Hz Export	0.84	1.26	1.68	2.10	185	278	370	463

Frame Anti-sweat Heaters (on fan circuit)

120V 50/60Hz Standard	0.78	1.18	1.57	1.97	94	141	188	236
220V 50/60Hz Export	0.43	0.64	0.85	1.07	94	141	188	236

Minimum Circuit Ampacity

120V 60Hz Standard	3.82	5.64	7.45	9.28
120V 50Hz Standard	4.02	5.94	7.85	9.78
220V 60Hz Export	2.13	3.09	4.05	5.02
220V 50Hz Export	2.23	3.24	4.25	5.27
120V 60Hz Energy Efficient	3.12	4.59	6.05	7.53
220V 60Hz Energy Efficient	1.77	2.55	3.33	4.12

Maximum Over Current Protection 120V

Maximum Over Current Protection 220V

20	20	20	20
15	15	15	15

Defrost

Drain Heaters (120V)	0.63	1.25	2.00	2.57	75	150	240	300
(Export: 220V 50 Hz)	0.34	0.76	1.22	1.53	84	168	269	336
208V 1Ø Electric Defrost	6.72	10.08	13.46	16.82	1400	2100	2800	3500
(Export: 220V 50 Hz)	7.11	10.66	14.24	17.79	1564	2345	3133	3914

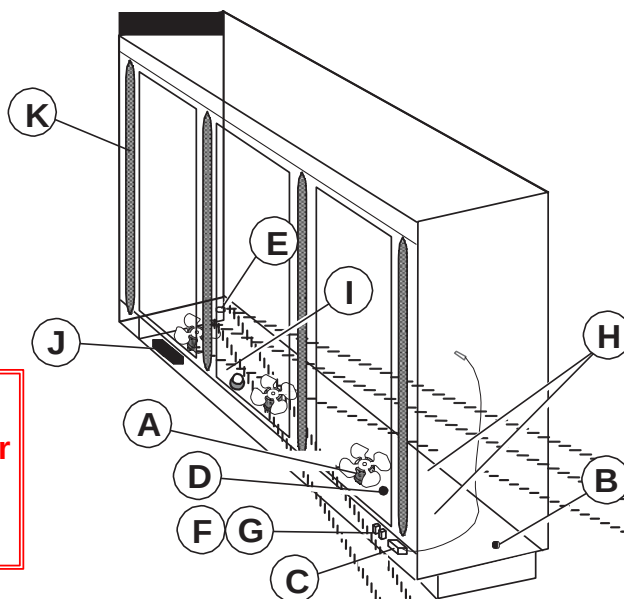
Standard Vertical Lighting

Innovator* Doors (120V)	1.50	2.00	2.50	3.00	180	240	300	360
(Export: 220V 50 Hz)	0.84	1.12	1.40	1.68	185	246	308	370

Optional LED Lighting

Hussmann EcoShine™ [27 W] (120V)	0.45	0.68	0.90	1.13	54	81	108	135
Hussmann EcoShine™ [27 W] [220V (Export)]	0.25	0.37	0.49	0.61	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)	0.27	0.40	0.53	0.67	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V (Export)]	0.15	0.22	0.29	0.36	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)	0.33	0.50	0.67	0.83	40	60	80	100
Hussmann EcoShine™ [20 W] [220V (Export)]	0.17	0.25	0.33	0.42	40	60	80	100
Gelcore (120V)	0.48	0.73	0.97	1.21	58	87	116	145
Gelcore (120V) [220V (Export)]	0.26	0.40	0.53	0.66	58	87	116	145

* Innovator or Innovator II



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Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard Fan Assembly		(1)	H.	Electric Defrost Heaters – Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755	(1)	2 Door Models (HE.4850346)	
	0461805	Fan Blade (FB.4780446)			0441756	(1)	3 Door Models (HE.4850337)	
	12W Optional Energy Efficient Fan Assembly		(1)		0441757	(1)	4 Door Models (HE.4850347)	
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758	(1)	5 Door Models (HE.4850323)	
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891	(1)	2 Door Models (HE.4850358)	
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892	(1)	3 Door Models (HE.4850359)	
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893	(1)	4 Door Models (HE.4850360)	
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894	(1)	5 Door Models (HE.4850361)	
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036	(1)	2 Door Models (HE.4850239)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037	(1)	3 Door Models (HE.4850240)	
					0387038	(1)	4 Door Models (HE.4850241)	
					0387039	(1)	5 Door Models (HE.4850242)	
				LAMPS AND BALLASTS				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

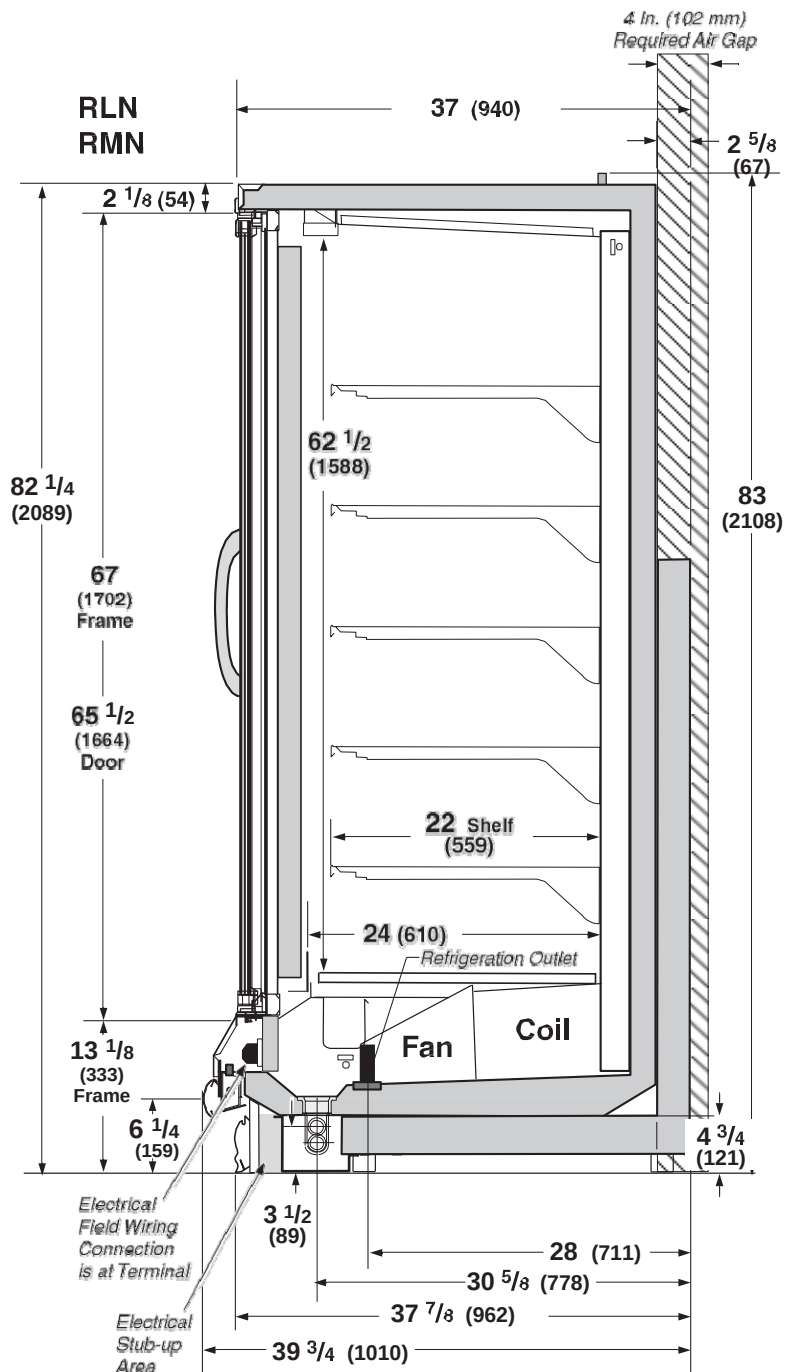
Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, P/N 0425683, for Innovator and Innovator II door and frame replacement parts.

NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available.

NOTE: Revision K updates LED electrical data, Page 4.

Narrow Reach-in 2, 3, 4 and 5 Door Models INNOVATOR Doors Standard

Dimensions shown as in. & (mm).



NSF Certification

This merchandiser model is manufactured to meet ANSI/NSF (National Sanitation Foundation) Standard #7 requirements for construction, materials & cleanability.

Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator (°F)	-11	-19
Unit Sizing (°F)	-14	-22
Btu/hr/Door*	FF	IC
Parallel	1300	1370
Conventional	1325	1400

*Optional LED lighting reduces refrigeration load by 100 Btu/hr/Door.

Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/Door.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/day)	1.2	1.2
(± 15% based on case configuration and product loading.)		

ELECTRIC	FF	IC
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45

GAS	FF	IC
Duration (minutes)	20	20

OFFTIME Not Recommended

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

PHYSICAL DATA

Estimated Charge (lb)***

2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

Impact RLN
With INNOVATOR Doors
Frozen Food & Ice Cream

Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

Number of Fans—12W

Merchandise	Amperes				Watts			
	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Evaporator Fan								
120V 60Hz Standard	1.30	1.95	2.60	3.25	100	150	200	250
120V 50Hz Standard	1.50	2.25	3.00	3.75	114	171	228	285
220V 60Hz Export	0.66	0.99	1.32	1.65	100	150	200	250
220V 50Hz Export	0.76	1.14	1.52	1.90	114	171	228	285
120V 60Hz Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V 60Hz Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90

Door Anti-sweat Heaters (on fan circuit)

120V 50/60Hz Standard	1.54	2.31	3.08	3.86	185	278	370	463
220V 50/60Hz Export	0.84	1.26	1.68	2.10	185	278	370	463

Frame Anti-sweat Heaters (on fan circuit)

120V 50/60Hz Standard	0.78	1.18	1.57	1.97	94	141	188	236
220V 50/60Hz Export	0.43	0.64	0.85	1.07	94	141	188	236

Minimum Circuit Ampacity

120V 60Hz Standard	3.82	5.64	7.45	9.28
120V 50Hz Standard	4.02	5.94	7.85	9.78
220V 60Hz Export	2.13	3.09	4.05	5.02
220V 50Hz Export	2.23	3.24	4.25	5.27
120V 60Hz Energy Efficient	3.12	4.59	6.05	7.53
220V 60Hz Energy Efficient	1.77	2.55	3.33	4.12

Maximum Over Current Protection 120V

Maximum Over Current Protection 220V

20	20	20	20
15	15	15	15

Defrost

Drain Heaters (120V)	0.63	1.25	2.00	2.57	75	150	240	300
(Export: 220V 50 Hz)	0.34	0.76	1.22	1.53	84	168	269	336
208V 1Ø Electric Defrost	6.72	10.08	13.46	16.82	1400	2100	2800	3500
(Export: 220V 50 Hz)	7.11	10.66	14.24	17.79	1564	2345	3133	3914

Standard Vertical Lighting

Innovator* Doors (120V)	1.50	2.00	2.50	3.00	180	240	300	360
(Export: 220V 50 Hz)	0.84	1.12	1.40	1.68	185	246	308	370

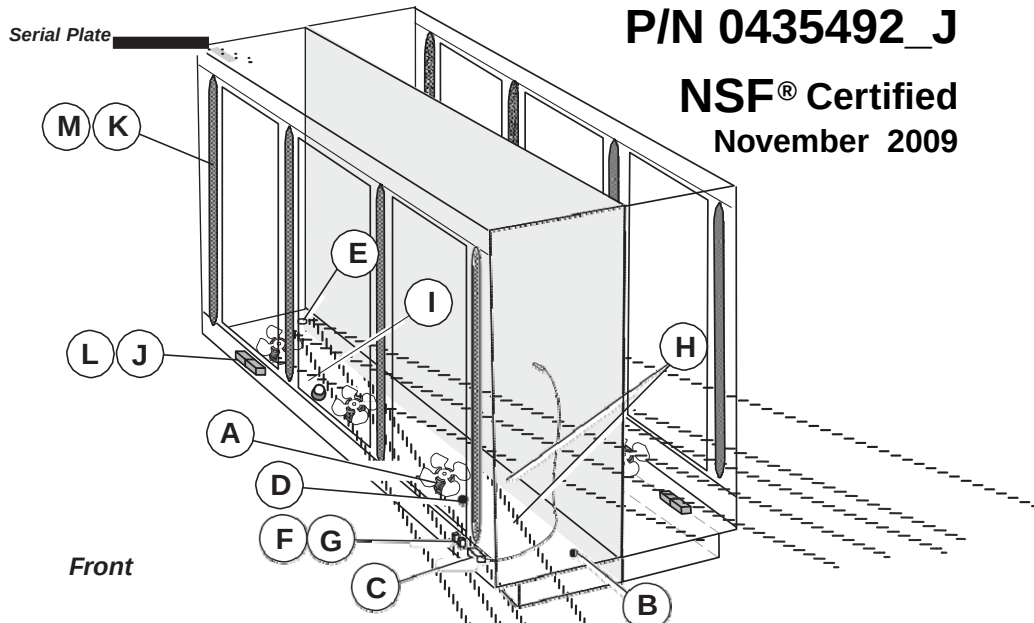
Optional LED Lighting

Hussmann EcoShine™ [27 W] (120V)	0.45	0.68	0.90	1.13	54	81	108	135
Hussmann EcoShine™ [27 W] [220V (Export)]	0.25	0.37	0.49	0.61	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)	0.27	0.40	0.53	0.67	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V (Export)]	0.15	0.22	0.29	0.36	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)	0.33	0.50	0.67	0.83	40	60	80	100
Hussmann EcoShine™ [20 W] [220V (Export)]	0.17	0.25	0.33	0.42	40	60	80	100
Gelcore (120V)	0.48	0.73	0.97	1.21	58	87	116	145
Gelcore (120V) [220V (Export)]	0.26	0.40	0.53	0.66	58	87	116	145

* Innovator or Innovator II

Warning:
Terminal block NOT for
case-to-case
wire connection!

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Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard	Fan Assembly	(1)	H.	Electric Defrost Heaters — Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755 (1)	2 Door Models (HE.4850346)		
	0461805	Fan Blade (FB.4780446)			0441756 (1)	3 Door Models (HE.4850337)		
	12W Optional Energy Efficient	Fan Assembly (1)			0441757 (1)	4 Door Models (HE.4850347)		
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758 (1)	5 Door Models (HE.4850323)		
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891 (1)	2 Door Models (HE.4850358)		
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892 (1)	3 Door Models (HE.4850359)		
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893 (1)	4 Door Models (HE.4850360)		
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894 (1)	5 Door Models (HE.4850361)		
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036 (1)	2 Door Models (HE.4850239)		
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037 (1)	3 Door Models (HE.4850240)		
					0387038 (1)	4 Door Models (HE.4850241)		
					0387039 (1)	5 Door Models (HE.4850242)		
				LAMPS, BALLASTS, LED FIXTURES AND POWER SUPPLY				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

Refer to INNOVATOR REACH-IN GLASS DOOR
INSTALLATION AND SERVICE manual, P/N 0425683,
for Innovator and Innovator II door and frame
replacement parts.

NOTE: For LED lighting parts contact your Hussmann
service representative at 1-800-922-1919. Please have
your model and serial number available.

NOTE: Revision J updates electrical data, Page 4.

Refrigeration data is PER SIDE.

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator(°F)	-11	-19
Unit Sizing (°F)	-14	-22
Btu/hr/door/side*		
Parallel	1180	1244
Conventional	1200	1270

*Optional LED lighting reduces the refrigeration load by 100 Btu/hr/Door.
Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/door/side.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/side/day)	1.2	1.2

(± 15% based on case configuration and product loading).

	FF	IC
ELECTRIC		
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45
GAS		
Duration (minutes)	20	20
OFFTIME	Not Recommended	

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

Estimated Charge per Side (lb)***

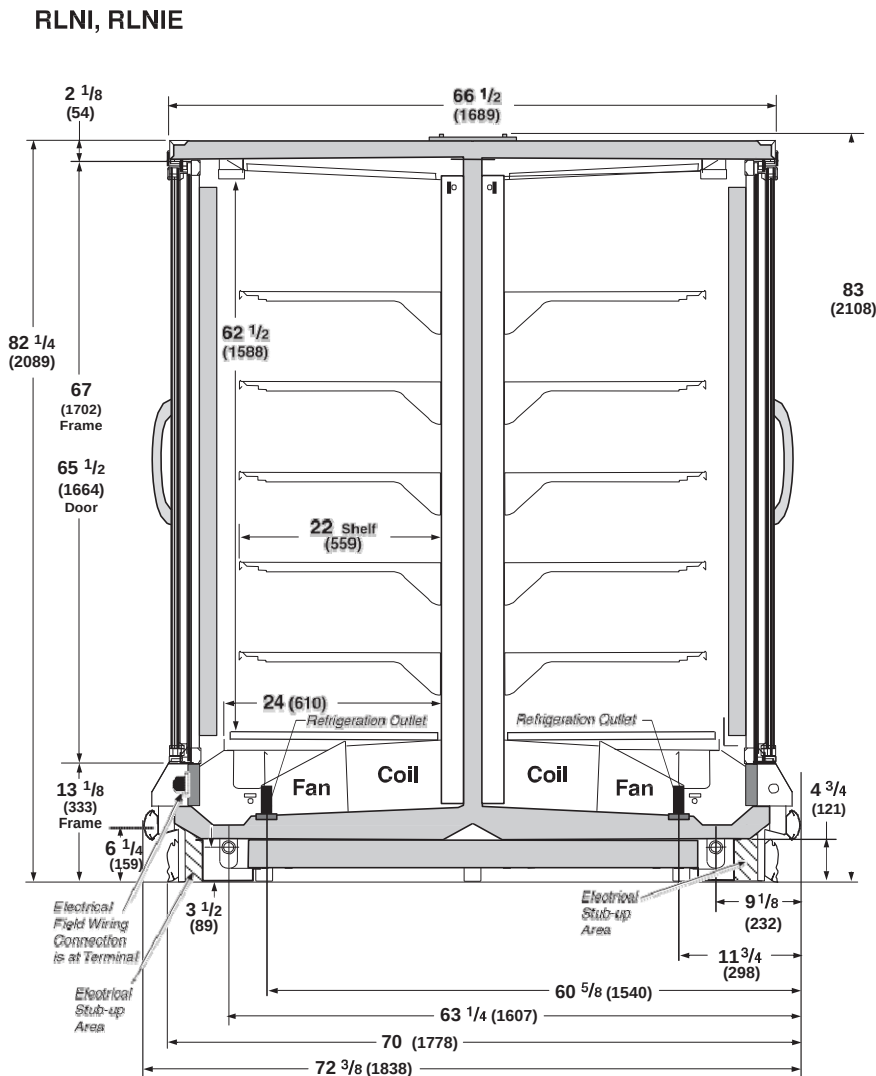
2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

Dimensions shown as in. & (mm).



NSF Certification

This merchandiser model is manufactured to meet ANSI/NSF (National Sanitation Foundation) Standard #7 requirements for construction, materials & cleanability.

Impact RLNI
With INNOVATOR Doors
Frozen Food & Ice Cream

Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

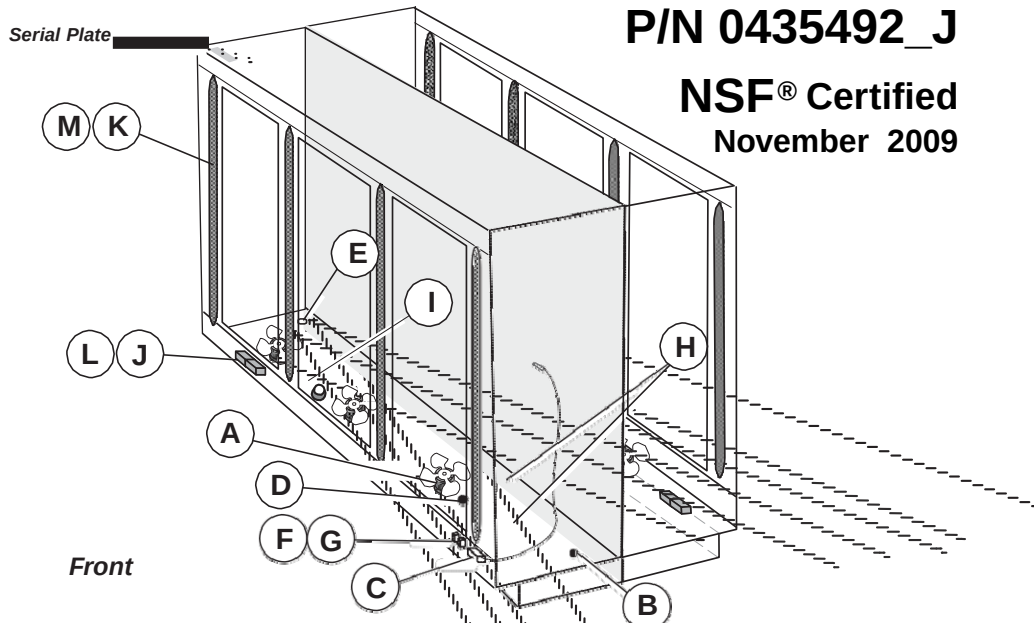
ELECTRICAL DATA IS PER SIDE — TWO CIRCUITS REQUIRED PER CASE.

			2Dr	3Dr	4Dr	5Dr				
Number of Fans—12W			2	3	4	5				
			Amperes				Watts			
Merchandise			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Evaporator Fan										
120V	60Hz	Standard	1.30	1.95	2.60	3.25	100	150	200	250
120V	50Hz	Standard	1.50	2.25	3.00	3.75	114	171	228	285
220V	60Hz	Export	0.66	0.99	1.32	1.65	100	150	200	250
220V	50Hz	Export	0.76	1.14	1.52	1.90	114	171	228	285
120V	60Hz	Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V	60Hz	Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	1.54	2.31	3.08	3.86	185	278	370	463
220V	50/60Hz	Export	0.84	1.26	1.68	2.10	185	278	370	463
Frame Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	0.78	1.18	1.57	1.97	94	141	188	236
220V	50/60Hz	Export	0.43	0.64	0.85	1.07	94	141	188	236
Minimum Circuit Ampacity										
120V	60Hz	Standard	3.82	5.64	7.45	9.28				
120V	50Hz	Standard	4.02	5.94	7.85	9.78				
220V	60Hz	Export	2.13	3.09	4.05	5.02				
220V	50Hz	Export	2.23	3.24	4.25	5.27				
120V	60Hz	Energy Efficient	3.12	4.59	6.05	7.53				
220V	60Hz	Energy Efficient	1.77	2.55	3.33	4.12				
Maximum Over Current Protection 120V			20	20	20	20				
Maximum Over Current Protection 220V			15	15	15	15				
Defrost										
Drain Heaters (120V)			0.63	1.25	2.00	2.57	75	150	240	300
(Export: 220V 50 Hz)			0.34	0.76	1.22	1.53	84	168	269	336
208V Electric Defrost			6.72	10.08	13.46	16.82	1400	2100	2800	3500
(Export: 220V 50 Hz)			7.11	10.66	14.24	17.79	1564	2345	3133	3914
Standard Vertical Lighting			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Innovator* Doors (120V)			1.50	2.00	2.50	3.00	180	240	300	360
(Export: 220V 50 Hz)			0.84	1.12	1.40	1.68	185	246	308	370
Optional LED Lighting										
Hussmann EcoShine™ [27 W] (120V)			0.45	0.68	0.90	1.13	54	81	108	135
Hussmann EcoShine™ [27 W] [220V (Export)]			0.25	0.37	0.49	0.61	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)			0.27	0.40	0.53	0.67	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V (Export)]			0.15	0.22	0.29	0.36	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)			0.33	0.50	0.67	0.83	40	60	80	100
Hussmann EcoShine™ [20 W] [220V (Export)]			0.17	0.25	0.33	0.42	40	60	80	100
Gelcore (120V)			0.48	0.73	0.97	1.21	58	87	116	145
Gelcore (120V) [220V (Export)]			0.26	0.40	0.53	0.66	58	87	116	145

* Innovator or Innovator II

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Item	Part #	Description	Wiring Item #	Item	Part #	(Qty)	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS				
A.	12W Standard	Fan Assembly	(1)	H.	Electric Defrost Heaters — Front (208V)	(8)		
	0047000	Fan Motor, Evaporator (MO.4410103)			0441755 (1)	2 Door Models (HE.4850346)		
	0461805	Fan Blade (FB.4780446)			0441756 (1)	3 Door Models (HE.4850337)		
	12W Optional Energy Efficient	Fan Assembly (1)			0441757 (1)	4 Door Models (HE.4850347)		
	0477655	Fan Motor, Evaporator (MO.4410546)			0441758 (1)	5 Door Models (HE.4850323)		
	0461805	Fan Blade (FB.4780446)			Electric Defrost Heaters — Rear (208V)	(8)		
B.	0474033	Standard Non-adjustable Defrost Thermostat (CT.4440726)	(2)		0463891 (1)	2 Door Models (HE.4850358)		
C.		Optional Adjustable Refrigeration Thermostat	(3)		0463892 (1)	3 Door Models (HE.4850359)		
D.	0344662	Defrost Limit Thermostat (CT.4440261)	(4)		0463893 (1)	4 Door Models (HE.4850360)		
E.	0461814	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4481296)	(5)		0463894 (1)	5 Door Models (HE.4850361)		
RELAYS				I.	Drain Pan Heater (Electric & Kool Gas) (120V)	(9)		
F.	0342598	Anti-Sweat Control Relay (120V) (RL.4480238)	(6)		0387036 (1)	2 Door Models (HE.4850239)		
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0387037 (1)	3 Door Models (HE.4850240)		
					0387038 (1)	4 Door Models (HE.4850241)		
					0387039 (1)	5 Door Models (HE.4850242)		
				LAMPS, BALLASTS, LED FIXTURES AND POWER SUPPLY				
				J.	0489698	2 Lamp Ballast (BA.4481596)		
					0489699	3 Lamp Ballast (BA.4481739)		
					0424649	Export Ballast (BA.0424649)		
				K.		Standard Fluorescent Lamp		
						Replace with like fixtures		
				L.	0499399	LED Power Supply (EP.4481668)		
				M.		LED Fixture		
						Replace with like fixtures		

Refer to INNOVATOR REACH-IN GLASS DOOR
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for Innovator and Innovator II door and frame
replacement parts.

NOTE: For LED lighting parts contact your Hussmann
service representative at 1-800-922-1919. Please have
your model and serial number available.

NOTE: Revision J updates electrical data, Page 4.

Refrigeration data is PER SIDE.

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator(°F)	-11	-19
Unit Sizing (°F)	-14	-22
Btu/hr/door/side*		
Parallel	1180	1244
Conventional	1200	1270

*Optional LED lighting reduces the refrigeration load by 100 Btu/hr/Door.
Optional Energy Efficient Fan motors reduce refrigeration load by 109 Btu/hr/door/side.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/side/day)	1.2	1.2

(± 15% based on case configuration and product loading).

	FF	IC
ELECTRIC		
Temp Term (°F)	48°	48°
Failsafe (minutes)	45	45
GAS		
Duration (minutes)	20	20
OFFTIME	Not Recommended	

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost

Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

Estimated Charge per Side (lb)***

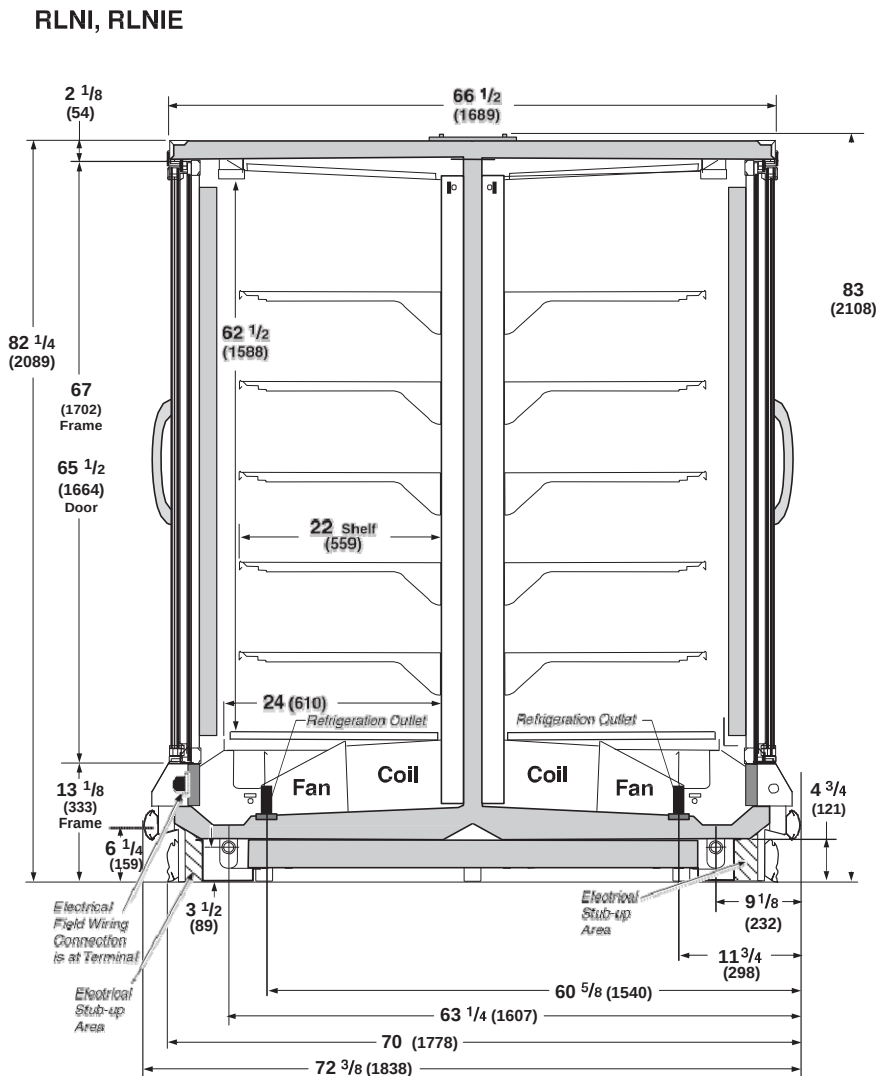
2Dr	1.8
3Dr	2.7
4Dr	3.6
5Dr	4.6

***This is an average for all refrigerant types. Actual refrigerant charge may vary by approximately half a pound.

Length Added to Lineup by each

Standard End (in.)	2
Optional End with Window (in.)	1 1/2
Optional Partition (in.)	1 1/2

Dimensions shown as in. & (mm).



NSF Certification

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Impact RLNI
With INNOVATOR Doors
Frozen Food & Ice Cream

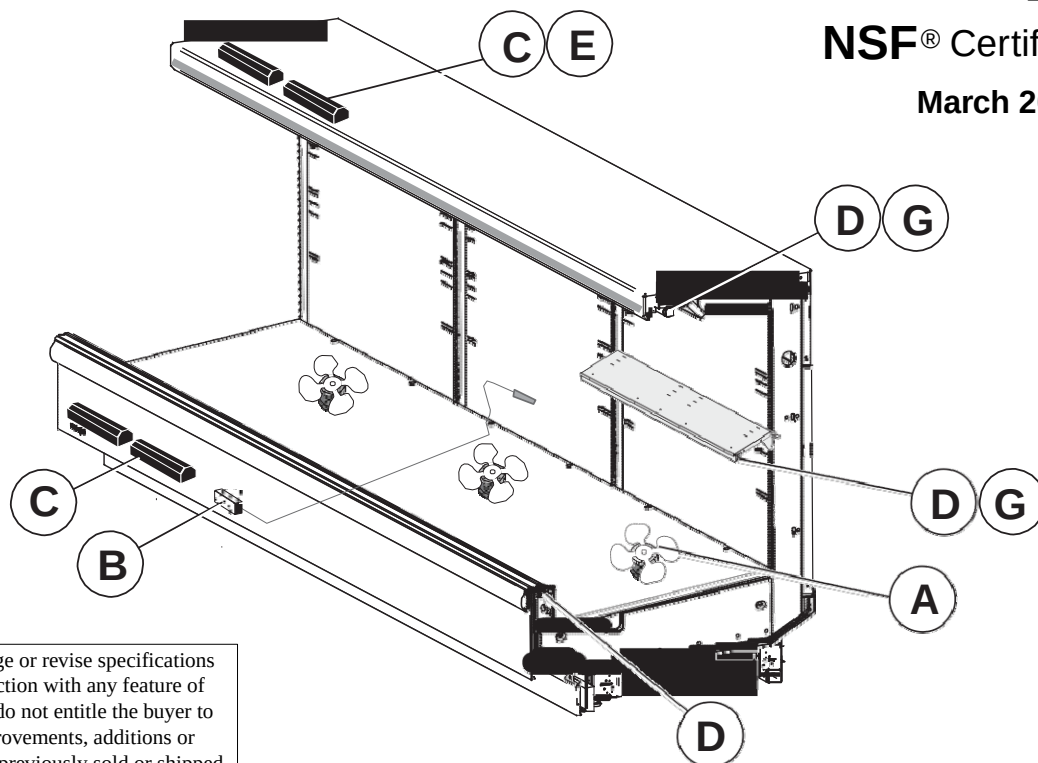
Hussmann recommends against frame heater cycling with Innovator doors to prevent door seals from freezing to the frames and tearing.

Electrical Data

ELECTRICAL DATA IS PER SIDE — TWO CIRCUITS REQUIRED PER CASE.

			2Dr	3Dr	4Dr	5Dr				
Number of Fans—12W			2	3	4	5				
			Amperes				Watts			
Merchandise			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Evaporator Fan										
120V	60Hz	Standard	1.30	1.95	2.60	3.25	100	150	200	250
120V	50Hz	Standard	1.50	2.25	3.00	3.75	114	171	228	285
220V	60Hz	Export	0.66	0.99	1.32	1.65	100	150	200	250
220V	50Hz	Export	0.76	1.14	1.52	1.90	114	171	228	285
120V	60Hz	Energy Efficient	0.60	0.90	1.20	1.50	36	54	72	90
220V	60Hz	Energy Efficient	0.30	0.45	0.60	0.75	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	1.54	2.31	3.08	3.86	185	278	370	463
220V	50/60Hz	Export	0.84	1.26	1.68	2.10	185	278	370	463
Frame Anti-sweat Heaters (on fan circuit)										
120V	50/60Hz	Standard	0.78	1.18	1.57	1.97	94	141	188	236
220V	50/60Hz	Export	0.43	0.64	0.85	1.07	94	141	188	236
Minimum Circuit Ampacity										
120V	60Hz	Standard	3.82	5.64	7.45	9.28				
120V	50Hz	Standard	4.02	5.94	7.85	9.78				
220V	60Hz	Export	2.13	3.09	4.05	5.02				
220V	50Hz	Export	2.23	3.24	4.25	5.27				
120V	60Hz	Energy Efficient	3.12	4.59	6.05	7.53				
220V	60Hz	Energy Efficient	1.77	2.55	3.33	4.12				
Maximum Over Current Protection 120V			20	20	20	20				
Maximum Over Current Protection 220V			15	15	15	15				
Defrost										
Drain Heaters (120V)			0.63	1.25	2.00	2.57	75	150	240	300
(Export: 220V 50 Hz)			0.34	0.76	1.22	1.53	84	168	269	336
208V Electric Defrost			6.72	10.08	13.46	16.82	1400	2100	2800	3500
(Export: 220V 50 Hz)			7.11	10.66	14.24	17.79	1564	2345	3133	3914
Standard Vertical Lighting			2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Innovator* Doors (120V)			1.50	2.00	2.50	3.00	180	240	300	360
(Export: 220V 50 Hz)			0.84	1.12	1.40	1.68	185	246	308	370
Optional LED Lighting										
Hussmann EcoShine™ [27 W] (120V)			0.45	0.68	0.90	1.13	54	81	108	135
Hussmann EcoShine™ [27 W] [220V (Export)]			0.25	0.37	0.49	0.61	54	81	108	135
Hussmann EcoShine™ EP [16 W] (120V)			0.27	0.40	0.53	0.67	32	48	64	80
Hussmann EcoShine™ EP [16 W] [220V (Export)]			0.15	0.22	0.29	0.36	32	48	64	80
Hussmann EcoShine™ [20 W] (120V)			0.33	0.50	0.67	0.83	40	60	80	100
Hussmann EcoShine™ [20 W] [220V (Export)]			0.17	0.25	0.33	0.42	40	60	80	100
Gelcore (120V)			0.48	0.73	0.97	1.21	58	87	116	145
Gelcore (120V) [220V (Export)]			0.26	0.40	0.53	0.66	58	87	116	145

* Innovator or Innovator II



We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.

Item	Part #	Description	Wiring Item #	Item	Part #	Description	Wiring Item #
FAN ASSEMBLIES				THERMOSTATS			
8 Ft & 12 Ft				B. Optional Adjustable Refrigeration Thermostat (2)			
A.	12W Standard	Fan Assembly	(1)	LAMPS AND BALLASTS			
	0047000	Fan Motor, Evaporator (MO.4410103)		C.	Ballast, Electronic	(3)	
	0461805	Fan Blade (FB.4780446)			0480130	2 lamps (BA.4481676)	
	12W Energy Efficient	Fan Assembly	(1)		0480131	3 lamps (BA.4481654)	
	0477655	Fan Motor, Evaporator (MO.4410546)			0480132	4 lamps (BA.4481677)	
	0461805	Fan Blade (FB.4780446)		D.	Fluorescent Lamp	(4)	
					Replace with like fixtures		
6 Ft Only				LED FIXTURES AND POWER SUPPLY			
A.	7W Standard	Fan Assembly	(1)	E.	0501213	Power Supply (EP.4481861)	(5)
	0058698	Fan Motor, Evaporator (MO.4410102)		F.	LED Canopy Fixture	(6)	
	0142780	Fan Blade (FB.0142780)			Replace with like fixtures — See Page 5.		
	7W Energy Efficient	Fan Assembly	(1)	G.	LED Shelf Fixture	(7)	
	0477654	Fan Motor, Evaporator (MO.4410545)			Replace with like fixtures — See Page 5.		
	0142780	Fan Blade (FB.0142780)					

Note: Revision D adds Btu note (page 3), EcoShine LED (page 4) and parts (page 5), and revises canopy wiring diagram (page 6). Other changes marked by bar, underline or circle.

Impact Excel **B3XC-LEP**

Bulk Convertible

Electrical Data

	6 ft	8 ft	12 ft			
Number of Fans—12W	—	2	3			
Number of Fans—7W	2	—	—			
	Amperes			Watts		
	6 ft	8 ft	12 ft	6 ft	8 ft	12 ft
Evaporator Fan						
120V 60Hz Standard	1.00	1.30	1.95	78	100	150
120V 50Hz Standard	1.10	1.50	2.25	84	114	171
230V 60Hz Export	0.50	0.66	0.99	78	100	150
230V 50Hz Export	0.56	0.76	1.14	84	114	171
120V 60Hz Energy Efficient	0.38	0.60	0.90	28	36	54
230V 60Hz Energy Efficient	0.20	0.30	0.45	28	36	54
Minimum Circuit Ampacity						
120V 60Hz Standard	1.20	1.50	2.15			
120V 50Hz Standard	1.30	1.70	2.45			
230V 60Hz Export	0.70	0.86	1.19			
230V 50Hz Export	0.76	0.96	1.34			
120V 60Hz Energy Efficient	0.58	0.80	1.10			
230V 60Hz Energy Efficient	0.40	0.50	0.65			
Maximum Over Current Protection 120V	20	20	20			
Maximum Over Current Protection 230V	15	15	15			
Standard Lighting (T-8 fluorescent)						
1 Row Canopy	0.51	0.51	0.77	59	59	85
Optional Lighting (T-8 fluorescent)						
1 Row Rail Light	0.51	0.51	0.77	59	59	85
1 Row of Shelves	0.51	0.51	0.77	59	59	85
2 Rows of Shelves	1.02	1.02	1.54	118	118	170
3 Rows of Shelves	1.53	1.53	2.31	177	177	255
EcoShine Multi-deck Canopy Normal (CRI) — 120VAC, 50/60Hz						
2 Row Canopy (Front & Rear)	0.28	0.55	0.82	33	66	98
1 Row of Shelves	0.10	0.20	0.29	12	24	35
2 Rows of Shelves	0.20	0.39	0.58	24	47	70
3 Rows of Shelves	0.29	0.58	0.88	35	70	105
EcoShine Multi-deck Canopy High CRI — 120VAC, 50/60Hz						
2 Row Canopy (Front & Rear)	0.32	0.63	0.93	38	75	112
1 Row of Shelves	0.12	0.23	0.35	14	28	42
2 Rows of Shelves	0.23	0.47	0.70	28	56	84
3 Rows of Shelves	0.35	0.70	1.05	42	84	126
Optional Always*Bright LED Lighting — 120VAC, 50/60Hz						
2 Row Canopy	0.55	0.71	1.08	66	85	130
1 Row of Shelves	0.19	0.23	0.38	23	28	45
2 Rows of Shelves	0.34	0.47	0.67	41	56	80
3 Rows of Shelves	0.53	0.74	1.11	63	89	133

120V Lighting Circuit Total = Standard Lighting + Total Optional Lighting + Optional Shelf Lighting

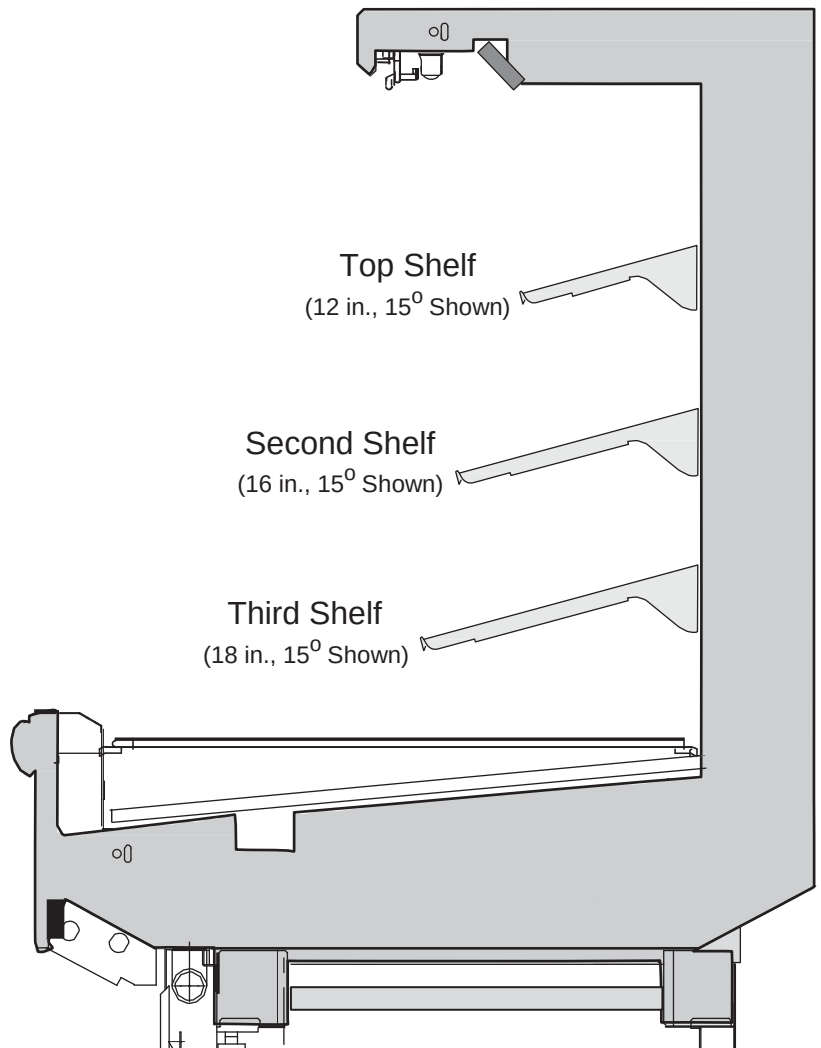
230V Lighting Circuit Total = Multiply 120V Lighting Circuit Total by 0.52

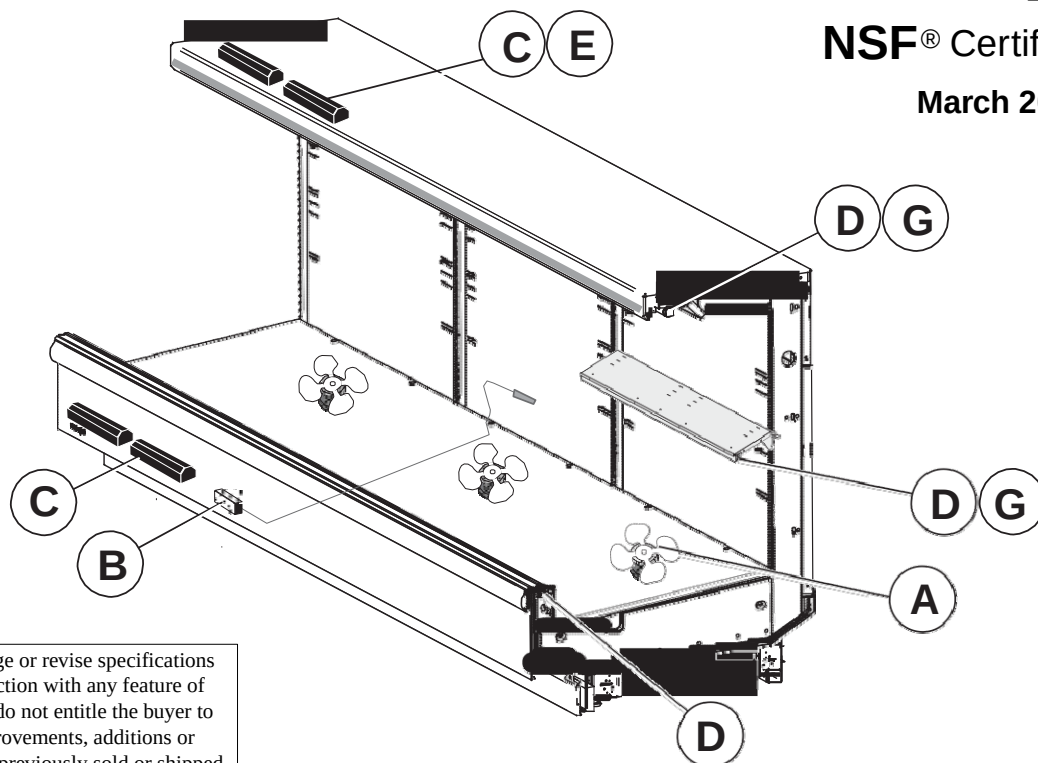
SHELF CONFIGURATION

This case is designed for three (3) shelves.

The depth of each shelf is critical to case performance.

Top Shelf Depth 12 inches or 14 inches
Second Shelf Depth 14 inches or 16 inches
Third Shelf Depth 16 inches or 18 inches or 20 inches





We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.

Item	Part #	Description	Wiring Item #	Item	Part #	Description	Wiring Item #
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8 Ft & 12 Ft				B. Optional Adjustable Refrigeration Thermostat (2)			
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	0461805	Fan Blade (FB.4780446)		D.	Fluorescent Lamp	(4)	
					Replace with like fixtures		
6 Ft Only				LED FIXTURES AND POWER SUPPLY			
A.	7W Standard	Fan Assembly	(1)	E.	0501213	Power Supply (EP.4481861)	(5)
	0058698	Fan Motor, Evaporator (MO.4410102)		F.	LED Canopy Fixture	(6)	
	0142780	Fan Blade (FB.0142780)			Replace with like fixtures — See Page 5.		
	7W Energy Efficient	Fan Assembly	(1)	G.	LED Shelf Fixture	(7)	
	0477654	Fan Motor, Evaporator (MO.4410545)			Replace with like fixtures — See Page 5.		
	0142780	Fan Blade (FB.0142780)					

Note: Revision D adds Btu note (page 3), EcoShine LED (page 4) and parts (page 5), and revises canopy wiring diagram (page 6). Other changes marked by bar, underline or circle.

Impact Excel **B3XC-LEP**

Bulk Convertible

Electrical Data

	6 ft	8 ft	12 ft			
Number of Fans—12W	—	2	3			
Number of Fans—7W	2	—	—			
	Amperes			Watts		
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Evaporator Fan						
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230V 50Hz Export	0.56	0.76	1.14	84	114	171
120V 60Hz Energy Efficient	0.38	0.60	0.90	28	36	54
230V 60Hz Energy Efficient	0.20	0.30	0.45	28	36	54
Minimum Circuit Ampacity						
120V 60Hz Standard	1.20	1.50	2.15			
120V 50Hz Standard	1.30	1.70	2.45			
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230V 50Hz Export	0.76	0.96	1.34			
120V 60Hz Energy Efficient	0.58	0.80	1.10			
230V 60Hz Energy Efficient	0.40	0.50	0.65			
Maximum Over Current Protection 120V	20	20	20			
Maximum Over Current Protection 230V	15	15	15			
Standard Lighting (T-8 fluorescent)						
1 Row Canopy	0.51	0.51	0.77	59	59	85
Optional Lighting (T-8 fluorescent)						
1 Row Rail Light	0.51	0.51	0.77	59	59	85
1 Row of Shelves	0.51	0.51	0.77	59	59	85
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EcoShine Multi-deck Canopy Normal (CRI) — 120VAC, 50/60Hz						
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2 Rows of Shelves	0.20	0.39	0.58	24	47	70
3 Rows of Shelves	0.29	0.58	0.88	35	70	105
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2 Rows of Shelves	0.23	0.47	0.70	28	56	84
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Optional Always*Bright LED Lighting — 120VAC, 50/60Hz						
2 Row Canopy	0.55	0.71	1.08	66	85	130
1 Row of Shelves	0.19	0.23	0.38	23	28	45
2 Rows of Shelves	0.34	0.47	0.67	41	56	80
3 Rows of Shelves	0.53	0.74	1.11	63	89	133

120V Lighting Circuit Total = Standard Lighting + Total Optional Lighting + Optional Shelf Lighting

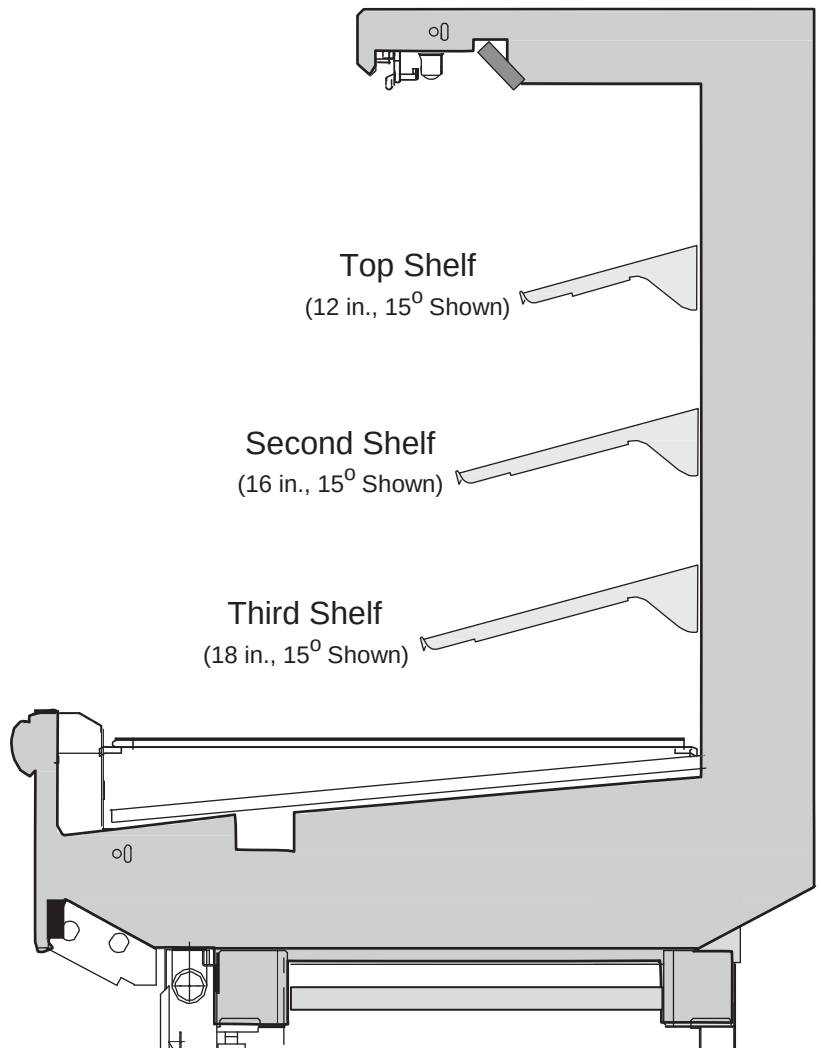
230V Lighting Circuit Total = Multiply 120V Lighting Circuit Total by 0.52

SHELF CONFIGURATION

This case is designed for three (3) shelves.

The depth of each shelf is critical to case performance.

Top Shelf Depth 12 inches or 14 inches
Second Shelf Depth 14 inches or 16 inches
Third Shelf Depth 16 inches or 18 inches or 20 inches





FS-705/FS-755 Wide Angle PIR Occupancy Sensor



PROJECT
LOCATION/TYPE

Product Overview

Description

The FS-705/FS-755 Wide Angle PIR Occupancy Sensors control lighting based on occupancy utilizing passive infrared (PIR) technology. The sensors provide 180 degree coverage and are designed for locations that require wide angle occupancy detection, such as refrigerator and freezer cases, vending machines and aisleway displays.

Operation

The FS-705/FS-755 are self-contained devices. The FS-705 is a 24 VDC device that operates via a 120, 230 or 277 VAC WattStopper power pack, while the FS-755 is a line voltage unit operating at 120/277 VAC. By detecting the difference between infrared energy from a human body in motion and the background space within the controlled area, the sensor turns lighting systems on. When occupants leave the controlled area, it switches lighting off after the user-selectable time delay elapses.

Wide Angle and Sensitivity Range

Equipped with a Fresnel lens and a unique dual pyro, the FS-705/FS-755 can cover more than 40 detection zones in all directions. Coverage is adjustable to 12 or 15 feet. When mounted at seven feet six inches above the floor, the sensor provides true 180 degree horizontal coverage and 70 degree vertical coverage to efficiently monitor the controlled area. The sensor's time delay adjusts to one of four settings: thirty seconds, one minute, two minutes or eight minutes.

Applications

The FS-705/FS-755 offers excellent control of lighting for locations where wide angle coverage is needed, such as refrigerator and freezer cases, vending machines and aisleways. Its wide coverage pattern detects motion before a person reaches the display area to turn lighting on, and turns off lighting when the area is vacant for the user-adjustable time delay. In cold food aisles, one sensor is typically used per case. It is ideally suited to controlling LED lighting. Sensor performance will provide fast payback and many years of energy savings.

Features

- Dual pyro covers more than 40 detection zones
- Coverage pattern adjustable to 12 or 15 feet when mounted 7'6" above the floor
- Time delay selectable to one of four settings (30 seconds, 1 minute, 2 minutes or 8 minutes)
- 180 degree horizontal coverage pattern
- 70 degree vertical coverage pattern
- Line and low voltage options
- LED indicator for occupancy detection
- DIP switch simplifies sensor adjustments
- RoHS compliant



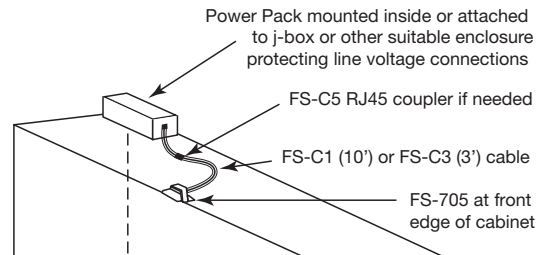
Specifications

- FS-705: Power Supply: 24 VDC from WattStopper Power Pack
- FS-755: 120/277 VAC, 60 Hz
- Current consumption: 7mA @ 24VDC
- Weight: 2.11oz (60 grams)
- Detection indication: green LED

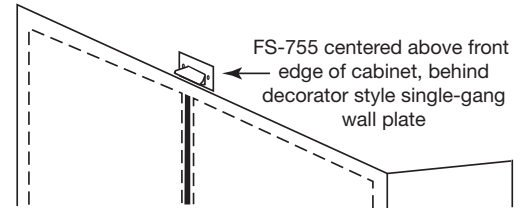
- Operating temperature range: 32-131°F (0-55°C)
- Storage temperature range: -22-176°F (-30-80°C)
- UL and CUL listed
- Five year warranty

Mounting Diagrams

FS-705 Mounting

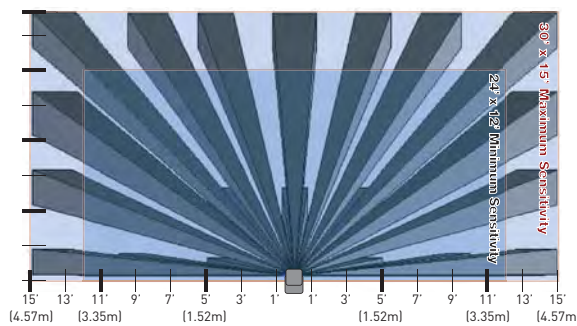


FS-755 Mounting

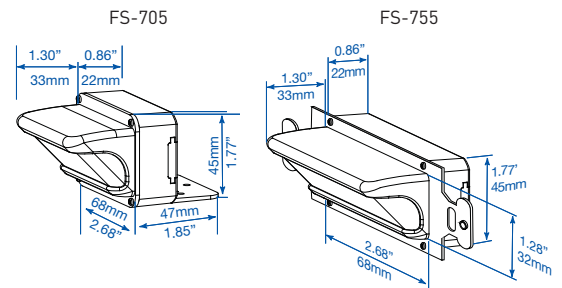


Coverage and Dimensions

Top View

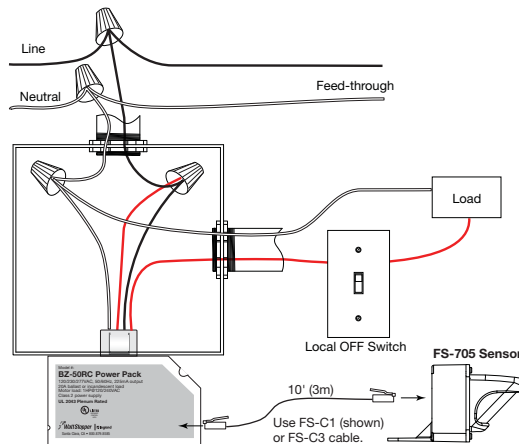


Dimensions

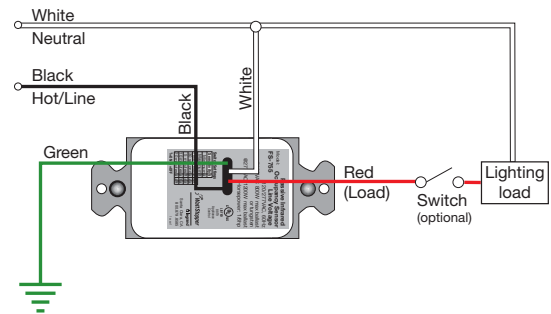


Wiring

FS-705 wiring with a BZ-50RC Power Pack



FS-755 wiring

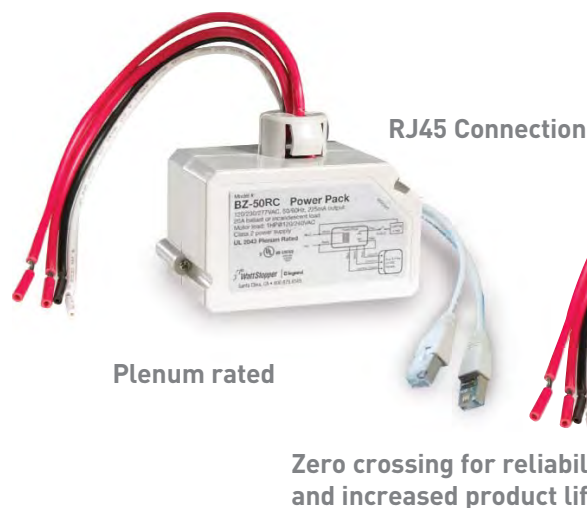


Ordering Information

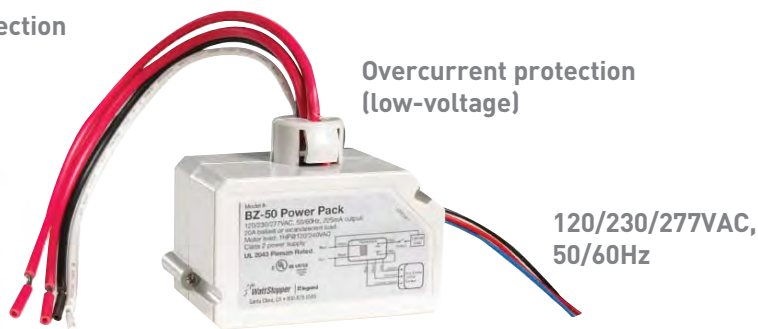
Catalog No.	Description
☐ FS-705	Wide Angle PIR Occupancy Sensor, 24 VDC
☐ FS-755	Wide Angle PIR Occupancy Sensor, 120/277 VAC
☐ FS-C1	10' (3.048m) cable with shielded RJ45 male connectors at each end
☐ FS-C1-20	20' extension cable with shielded RJ45 male connectors at each end
☐ FS-C2	6" (1.828m) cable with 3 flying leads at one end and a shielded RJ45 male connector on the other
☐ FS-C2-J	RJ45 override jumper
☐ FS-C3	3' (0.914m) cable with shielded 90° male RJ45 on one end and a shielded straight male RJ45 at the other
☐ FS-C4	Shielded RJ45 splitter with female to dual female receptacles
☐ FS-C5	Shielded RJ45 male to male coupler
☐ FS-C6	24" cable with 90° RJ45 connector and three flying leads
☐ BZ-50	Univ. Volt. Power Pack, 120/230/277VAC Input, 50/60Hz, 24 VDC; 225 mA* Output w/flying leads
☐ BZ-50RC	Univ. Volt. Power Pack, 120/230/277VAC Input, 50/60Hz, 24 VDC; 225 mA* Output w/RJ45 connector
☐ BZ-150	Univ. Volt. Power Pack, 120/230/277VAC Input, 50/60Hz, 24 VDC; 225 mA* Output w/flying leads, manual/auto-on option

NOTE: *Output is 225 mA with relay connected.

BZ-50/BZ-50RC Universal Voltage Power Pack



High-efficiency switching power supply



PROJECT

LOCATION/TYPE

Product Overview

Description

The BZ-50 series Universal Voltage Power Pack provides 24 VDC operating voltage to Watt Stopper's low-voltage occupancy sensors. This device is constructed with environmentally friendly materials and is RoHS-compliant.

Operation

The BZ consists of a high-efficiency switching power supply and a high-current relay. It has an input of 120/230/277 VAC, 50/60Hz, and an output of 24VDC, 225mA. It turns the connected load on and off automatically based on occupancy sensor input.

Plenum Rated

The BZ is comprised of Teflon-coated low-voltage leads and an ABS, UL 2043 and 94V-0 plastic resin enclosure that is plenum-rated. As a result, the BZ does not require installation into the junction box, but can be cost-effectively installed directly into the plenum.

Applications

The BZ is designed to be flexible enough to control almost any lighting or HVAC load, such as lighting circuits, self-contained air conditioners, pumps, fans, motors, VAV systems, motorized damper controls and setback thermostats. The BZ-50 is well-suited for any application which requires high-voltage switching through low-voltage controls. By linking power packs and sensors, an almost unlimited number of configurations can be obtained.

Features

- Self-contained power supply relay system
- Efficient switching power supply providing optimized current output based on number of sensors
- LED indicates status of relay or if there is a low-voltage overcurrent
- RoHS-compliant
- Zero crossing circuitry for reliability and increased product life
- UL 2043 plenum rated for cost-effective installation
- 1/2" snap-in nipple attaches to standard electrical enclosures through 1/2" knockouts
- 14 AWG wires on the relay for 20A operation

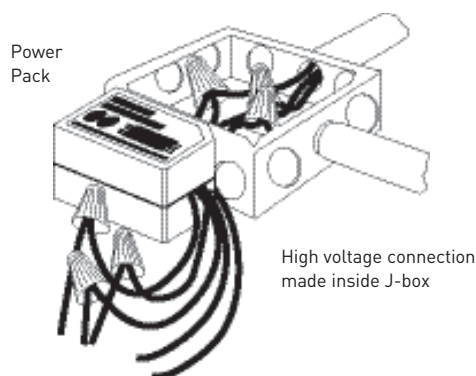


Specifications

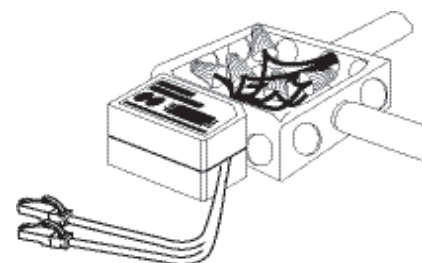
- 120/230/277VAC, 50/60Hz voltage input
- Secondary voltage of 24 VDC
- Secondary output of 225 mA (with relay connected)
- Connection:
BZ-50 with flying leads
BZ-50RC with RJ45 connections
- Low-voltage leads are rated for 300 volts
- UL-rated 94 V-0 grey plastic enclosure
- Dimensions: 1.6" x 2.75" x 1.6"
(40.6mm x 69.9mm x 40.6mm) H x W x D
with a 1/2" (12.7mm) snap-in nipple
- UL and CUL listed; five year warranty

System Layout & Wiring

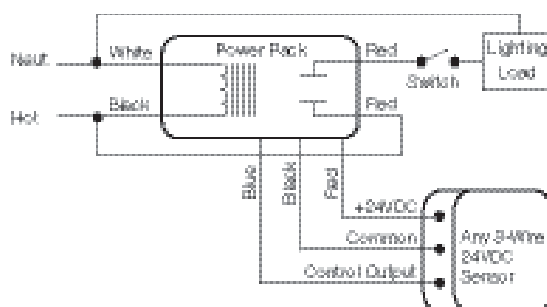
Installation Diagram



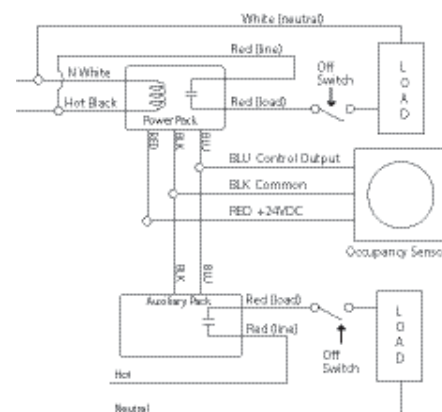
Installation Diagram



Wiring with Occupancy Sensor



Auxiliary Relay Pack with Sensor



Ordering Information

Installation Notes

Catalog No.	Input Voltage	Load Ratings			Output
		Ballast(A)	Incan(A)	Motor(HP)	
☐ BZ-50	120/230/277VAC; 50/60Hz	20	20	1*	24 VDC; 225 mA**
☐ BZ-50RC	120/230/277VAC; 50/60Hz	20	20	1*	24 VDC; RJ45 connection

*1 Hp rated at 120/250 VAC. **Output is 225 mA with relay connected.

- 1) All Watt Stopper power packs should be installed in accordance with state, local, and national electrical codes and requirements.
- 2) Power packs are designed to attach to existing or new electrical enclosures with .5" 125.40mmJ knockout (check electrical codes in your area).
- 3) Most applications require UL-listed, 18-22 AWG, 3-conductor, Class 2 cables for low-voltage wiring. For plenum return ceilings use UL-listed plenum-approved cables.

[illegible]

Mercantile Customer Project Commitment Agreement
Cash Rebate Option

THIS MERCANTILE CUSTOMER PROJECT COMMITMENT AGREEMENT ("Agreement") is made and entered into by and between The Cleveland Electric Illuminating Company, its successors and assigns (hereinafter called the "Company") and Wal-Mart Stores, Inc., Taxpayer ID No. 71-0862119 its permitted successors and assigns (hereinafter called the "Customer") (collectively the "Parties" or individually the "Party") and is effective on the date last executed by the Parties as indicated below.

WITNESSETH

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

consultants and agents have been advised of the confidential nature of this information and through such disclosure are deemed to be bound by the terms set forth herein.

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

If to the Company:

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

If to the Customer:

Wal-Mart Stores, Inc.
Sam Walton Development Complex
2001 S.E. 10th Street
Bentonville, AR 72716-5530
Attn: Richard Mynatt
Telephone: 479-277-9086
Fax: 479-273-6851
Email: richard.mynatt@wal-mart.com

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

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

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

The Cleveland Electric Illuminating Company_
(Company)

By: John C. Parnis

Title: V.P. Of Energy Efficiency

Date: 4-2-13

Wal-Mart Stores, Inc._
(Customer)

By: Debra J. Hines

Title: Director of Energy Strategies

Date: 3/20/2013

This foregoing document was electronically filed with the Public Utilities

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in

Case No(s). 13-0576-EL-EEC

Summary: Application to Commit Energy Efficiency/Peak Demand Reduction Programs of Ohio Edison Company and Wal-Mart Stores, Inc. electronically filed by Ms. Jennifer M. Sybyl on behalf of Ohio Edison Company and Wal-Mart Stores, Inc.