City of Belle Isle Job Site Card Electrical PERMIT 2018-07-039

PERMIT MUST BE POSTED ON SITE - A permit expires in 6 months if approved inspections are not recorded /scheduled within that time frame. You are responsible for scheduling and keeping track of all your inspections -

Permit Number: 2018- 07-039
Site Address: 2320 Homewood Dr 32809
Class: □ Residential

Issue Date: 7/26/2018
Parcel #: 19-23-30-5888-06-230
Subdivision:

Description of Work: **Electrical –Installation of 36 solar panels (PHOTO VOLTAIC)**

Issued To: 15 LIGHTYEARS INC
Name: WAGNER, DANIEL T

Business Phone: 855 438-1515
Contractor License # EC13003104

Payment Date & Method: 8 / 14 / 2018 ☑ Picked up by Jackie

□ Visa □ Master Card □ Amex □ Discover ■ Check / Money Order # 5292

Schedule Inspections via Email at: BIDscheduling@universalengineering.com
SCHEDULE INSPECTIONS BY 3:00 PM CUT OFF TIME
Inspection Results Will Be Sent Out the Following Business Day

"WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IYOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT."

ELECTRICAL	INSPECTOR	DATE	COMMENTS
300 Temp Pole			
310 TUG			
320 Underground			
330 Rough			
340 Footer Steel Bonding			
350 Pool Light			
360 PrePower			
370 Meter ReSet			
380 Final			

Inspection requests are to be emailed to BIDscheduling@UniversalEngineering.com; a confirmation email will be sent back to you upon scheduling. Next-Day Inspection requests must be made by 3pm. Please include the following in your request: Permit #, project address, type of inspection, date of the requested inspection, a contact name & a contact phone number. AM or PM may be requested but cannot be guaranteed

Universal Engineering Sciences - 3532 Maggie Blvd., Orlando, FL 32811 Tel 407-581-8161 Fax 407-581-0313
www.universalengineering.com

City of Belle Isle
Universal Engineering Sciences 3532 Maggie Blvd , Orlando, FL 32811
Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

RECEIVED JUL 18 2018 10:20AM

APPLICATION FOR ELECTRICAL PERMIT

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

DATE OF APPLICATION: 7/17/18 PERMIT NUMBER 2018-07-039

The undersigned hereby applies for a permit to make electrical installations as indicated below. PLEASE PRINT

Project Address 2310 Homewood Dr, Belle Isle FL ☑ 32809 ☐ 32812

Property Owner Brett Llewellyn Phone 407-649-6878

Property Owner's Mailing Address 2310 Homewood Dr. City Belle Isle

State FL Zip Code 32809 Parcel Id Number: 19-23-30-5888-06-230

To obtain this informat on, please visit https://www.ocpafl.org/Searches/ParcelSearch.aspx

Class of Building: Old ☑ New ☐ Type of Building: Residential ☑ Commercial ☐ Other ☐

Type of Work: New ☐ Alteration ☐ Addition ☑ Repair ☐ Low Voltage New ☐ Existing ☐

INDICATE THE QUANTITY OF ALL EQUIPMENT TO BE INSTALLED

Dishwasher	Exhaust Fan	Disposal	Water Heater
Hood Fan	Dryer	Paddle Fan	Outlets
Fixtures	Spa	Pool	Switches
Electric Signs	Meter Resal	Low Voltage	Stoves
Pumps	Motors	Air Conditioning (tons)	Furnace (KW)

Temporary Construction Pole _____ One (1) New Meter Service _____ Amperage/Voltage/Phase

Meter Service Upgrade from _____ to _____ = _____
Amperage/Voltage/Phase Amperage/Voltage/Phase Difference in Size

Relocate Existing Meter Service (No Service Size Change) _____

Other: Installation of 36 solar panels photovoltaic

☐ PERMIT FEE BASED ON METER SERVICE SIZE SCHEDULE ..... $ _____
(IF NO METER SERVICE WORK BEING DONE, USE VALUATION OF JOB FOR PERMIT FEE)

☑ VALUATION OF JOB (VALUATION OF ALL MATERIALS, LABOR, AND FIXTURES INSTALLED $ 34,541.00

Building Official [signature] Date 7-19-18

Verified Contractor's Licenses & Insurance are on file [signature] Date 7-18-2018

W/C Exempt Exempt

Permit Fee = $ 207.-

Review Fee = $ 103.50

2% FL Surcharge = $ 3.11 + 4.66

TOTAL Permit = $ 318.27

I hereby certify that the above is true and correct to the best of my knowledge

I hereby make Application for Permit as outlined above, and if same is granted I agree to conform to all Florida Building Code Regulations and City Ordinances regulating same and in accordance with plans submitted. The issuance of this permit does not grant permission to violate any applicable Town and/or State of Florida codes and/or ordinances

LICENSE HOLDER SIGNATURE [signature] LICENSE # EC13005084

LICENSE HOLDER NAME Daniel Wagner COMPANY NAME 15 Lightyear

Street Address 776 N Bennett Dr. Ste 101

City Longwood State FL Zip Code 32750 Phone Number 855-438-1515

Email Address permits@15lightyears.com

NOTE: The Building Permit Number is required if the Electrical Installation is associated with any construction or alteration where a Building Permit has been issued

Building Permit Number _____

PAID 8-14-2018 check # 5292

37 DT IC
5x34 120
207.2
103.50
310.50

H6886 117833

2018-07-039

Permit Number: _____
Folio/Parcel ID #: 19-23-30-5888-06-230
Prepared by: Jackie Esch/ 15 lightyears

Return to: 776 N Bennett Dr Ste 101
Longwood, Fl 32750

DOC# 20180396840
07/05/2018 12:44:27 PM Page 1 of 1
Rec Fee: $10.00
Phil Diamond, Comptroller
Orange County, FL
IP - Ret To: 15 LIGHTYEARS

NOTICE OF COMMENCEMENT

State of Florida, County of Orange

The undersigned hereby gives notice that improvement will be made to certain real property, and in accordance with Chapter 713, Florida Statutes, the following information is provided in this Notice of Commencement.

1. **Description of property** (legal description of the property, and street address if available)
   NELA ISLE (ISLAND SECTION) O/99 LOT 23 & LAND ON S TO WATERS OF LAKE BLK F
2. **General description of improvement**
   Installation of Rooftop Photovoltaic System
3. **Owner information or Lessee information if the Lessee contracted for the improvement**
   Name Lewellyn, Brett / Lewellyn, Sibyl
   Address 2320 Homewood Drive Orlando, FL 32809
   Interest in Property Owner
   Name and address of fee simple titleholder (if different from Owner listed above)
   Name _____
   Address _____
4. **Contractor**
   Name Daniel Wagner / 15 lightyears, Inc. Telephone Number 855-438-1515
   Address 776 Bennett Drive Suite 101, Longwood, FL 32750
5. **Surety** (if applicable, a copy of the payment bond is attached)
   Name _____ Telephone Number _____
   Address _____ Amount of Bond $ _____
6. **Lender**
   Name _____ Telephone Number _____
   Address _____
7. **Persons within the State of Florida designated by Owner upon whom notices or other documents may be served as provided by §713.13(1)(a)7, Florida Statutes.**
   Name _____ Telephone Number _____
   Address _____
8. **In addition to himself or herself, Owner designates the following to receive a copy of the Lienor's Notice as provided in §713.13(1)(b), Florida Statutes.**
   Name _____ Telephone Number _____
   Address _____
9. **Expiration date of notice of commencement** (the expiration date will be 1 year from the date of recording unless a different date is specified) _____

WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART I, SECTION 713.13, FLORIDA STATUTES, AND CAN RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.

_____ Owner
Signature of Owner or Lessee, or Owner's or Lessee's Authorized Officer/Director/Partner/Manager — Signatory's Title/Office

The foregoing instrument was acknowledged before me this 20 day of 06/18 (month/year) by Brett Lewellyn (name of person)
as owner (Type of authority, e.g., officer, trustee, attorney in fact) for 2320 Homewood Dr Orlando, FL (Name of party on behalf of whom instrument was executed)

_____ Angela Hancock
Signature of Notary Public – State of Florida — Print, type or stamp commissioned name of Notary Public

Personally Known ____ OR Produced ID ✓
Type of ID Produced FL Drivers License

ANGELA HANCOCK
MY COMMISSION # GG140417
EXPIRES: September 04, 2021

State of FLORIDA, County of ORANGE
I hereby certify that this is a true copy of the document as reflected in the Official Records
PHIL DIAMOND, COUNTY COMPTROLLER, D.C.
BY: _____
DATED: JUL 05 2018

Form content revised: 01/23/14

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ELECTRICAL CONTRACTORS LICENSING BOARD
2601 BLAIR STONE ROAD
TALLAHASSEE FL 32399-0783

(850) 487-1395

WAGNER, DANIEL T
15 LIGHTYEARS INC
2025 WILDFIRE CT
APOPKA FL 32703

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto **www.myfloridalicense.com**. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

DETACH HERE

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ELECTRICAL CONTRACTORS LICENSING BOARD

LICENSE NUMBER	
EC13005084	

The ELECTRICAL CONTRACTOR
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2018

WAGNER, DANIEL T
15 LIGHTYEARS INC
776 BENNETT ROAD SUITE 101
LONGWOOD FL 32750

ISSUED: 12/12/2016

DISPLAY AS REQUIRED BY LAW

SEQ # L1612120000721

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 8/11/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Dawn Bennett
Gentry Insurance Agency 175 East Main Street PO Box 2046 APOPKA FL 32704-2046	PHONE (A/C, No, Ext): (407) 886-3301 FAX (A/C, No): (407) 886-9530 E-MAIL ADDRESS: dawn@gentryins.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A: FCCI Insurance Co — 101780
INSURED 15 Lightyears, Inc All Elements Energy, Inc 776 Bennett Rd Suite 101 Longwood FL 32750	INSURER B: Bridgefield Employers Ins. Co. — 10701
	INSURER C:
	INSURER D:
	INSURER E:
	INSURER F:

COVERAGES CERTIFICATE NUMBER: 17-18 Master REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:			CPP0022978-02	8/15/2017	8/15/2018	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS			CA100005648	8/15/2017	8/15/2018	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $			UMB0024151 1	8/15/2017	8/15/2018	EACH OCCURRENCE AGGREGATE	$ 1,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		0830-55867	8/15/2017	8/15/2018	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 500,000 $ 500,000 $ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Belle Isle
1600 Nela Avenue
Belle Isle, FL 32809

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Debra Liebknecht/DAWN Debra Liebknecht

BUSINESS TAX RECEIPT

CITY OF LONGWOOD
175 W. WARREN AVENUE
LONGWOOD, FL 32750

2017-2018

Phone: (407)260-3440
http://www.longwoodfl.org

Receipt #: 18-01574
Issued Date: 09/27/17
Effective Date: 10/01/17
Expiration Date: 09/30/18
License Type: CONTRACTOR/OVER 30 EMP

Business Name: 15 LIGHTYEARS
Business Location:

776 BENNETT DR
LONGWOOD, FL 32750

CITY OF LONGWOOD, FLORIDA IN SEMINOLE COUNTY
SEAL

FINANCE DIRECTOR:

RECEIPT MUST BE CONSPICUOUSLY DISPLAYED AT BUSINESS LOCATION.

15 LIGHTYEARS
776 BENNETT DR
LONGWOOD, FL 32750

solaredge

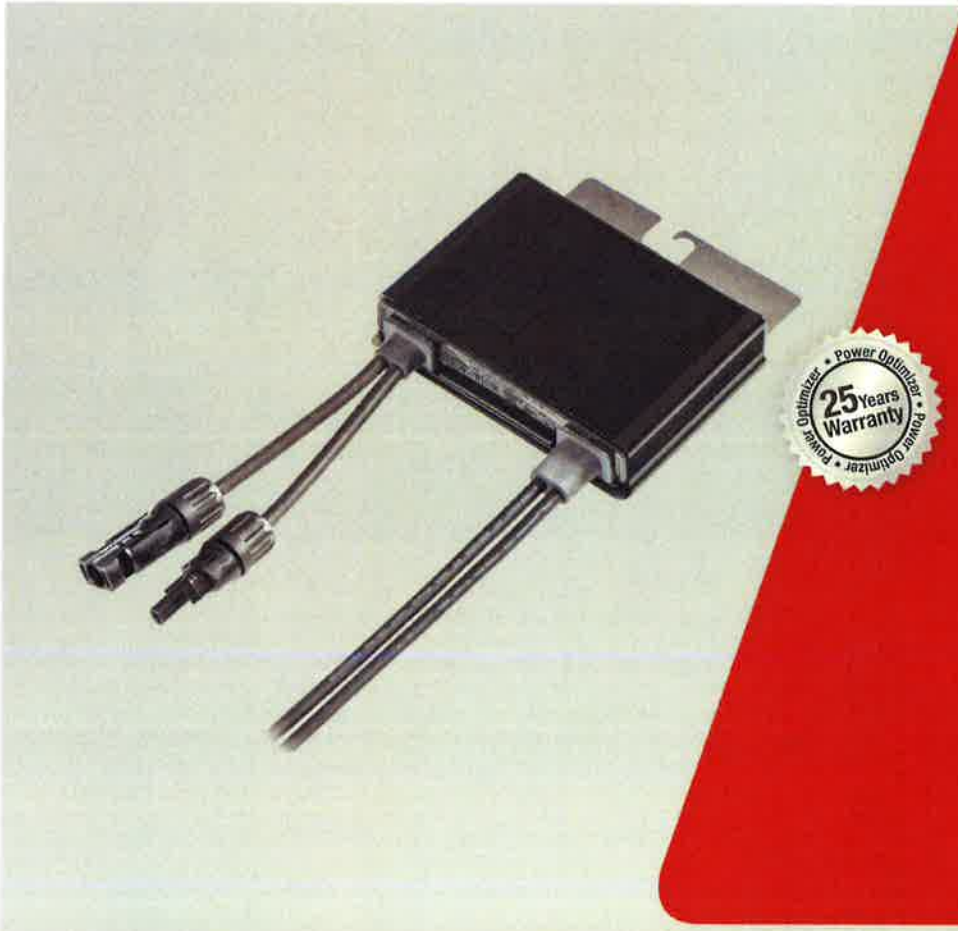
Reviewed for Code Compliance Universal Engineering Sciences

SolarEdge Power Optimizer

Module Add-On For North America

P300 / P320 / P400 / P405

POWER OPTIMIZER



PV power optimization at the module-level

- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety

SolarEdge Power Optimizer

Module Add-On for North America

P300 / P320 / P400 / P405

	P300 (for 60-cell modules)	P320 (for high-power 60-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	
INPUT					
Rated Input DC Power[1]	300	320	400	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		80	125	Vdc
MPPT Operating Range	8 - 48		8 - 80	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	10	11	10.1		Adc
Maximum DC Input Current	12.5	13.75	12.63		Adc
Maximum Efficiency	99.5				%
Weighted Efficiency	98.8				%
Overvoltage Category	II				
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)					
Maximum Output Current	15				Adc
Maximum Output Voltage	60			85	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)					
Safety Output Voltage per Power Optimizer	1				Vdc
STANDARD COMPLIANCE					
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety), UL1741				
RoHS	Yes				
INSTALLATION SPECIFICATIONS					
Maximum Allowed System Voltage	1000				Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters				
Dimensions (W x L x H)	128 x 152 x 27.5 / 5 x 5.97 x 1.08		128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 50 / 5 x 5.97 x 1.96	mm / in
Weight (including cables)	630 / 1.4		750 / 1.7	845 / 1.9	gr / lb
Input Connector	MC4 Compatible				
Output Wire Type / Connector	Double Insulated; MC4 Compatible				
Output Wire Length	0.95 / 3.0		1.2 / 3.9		m / ft
Operating Temperature Range	-40 - +85 / -40 - +185				°C / °F
Protection Rating	IP68 / NEMA6P				
Relative Humidity	0 - 100				%

[1] Rated STC power of the module. Module of up to +5% power tolerance allowed

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER[2]	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8	10	18	
Maximum String Length (Power Optimizers)	25	25	50	
Maximum Power per String	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes			

[2] It is not allowed to mix P405 with P300/P400/P600/P700 in one string

solaredge

INVERTERS

SolarEdge Single Phase Inverters

For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

The best choice for SolarEdge enabled systems

- Integrated arc fault protection for NEC 2011 690.11 compliance
- Rapid shutdown for NEC 2014 690.12
- Superior efficiency (98%)
- Small, lightweight and easy to install on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Outdoor and indoor installation
- Fixed voltage inverter, DC/AC conversion only
- Pre-assembled Safety Switch for faster installation
- Optional – revenue grade data, ANSI C12.20

Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US	
OUTPUT								
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @240V	11400	VA
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @240V	6000	8350	10800 @ 208V 10950 @240V	12000	VA
AC Output Voltage Min.-Nom.-Max.[1] 183 - 208 - 229 Vac	-	-	✓	-	-	✓	-	
AC Output Voltage Min.-Nom.-Max.[1] 211 - 240 - 264 Vac	✓	✓	✓	✓	✓	✓	✓	
AC Frequency Min.-Nom.-Max.[1]	59.3 - 60 - 60.5							Hz
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							Yes
INPUT								
Maximum DC Power (STC)	4050	5100	6750	8100	10250	13500	15350	W
Transformer-less, Ungrounded	Yes							
Max. Input Voltage	500							Vdc
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							Vdc
Max. Input Current[2]	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%
CEC Weighted Efficiency	97.5	98	97 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%
Nighttime Power Consumption	< 2.5					< 4		W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)							
Revenue Grade Data, ANSI C12.20	Optional[3]							
Rapid Shutdown – NEC 2014 690.12	Yes							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, UL1998 , CSA 22.2							
Grid Connection Standards	IEEE1547							
Emissions	FCC part15 class B							
INSTALLATION SPECIFICATIONS								
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG					3/4" minimum / 8-3 AWG		
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG					3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7.2 / 775 x 315 x 184					30.5 x 12.5 x 10.5 / 775 x 315 x 260		in / mm
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7			88.4 / 40.1		lb / kg
Cooling	Natural Convection				Natural convection and internal fan (user replaceable)	Fans (user replaceable)		
Noise	< 25					< 50		dBA
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available[4])							°F / °C
Protection Rating	NEMA 3R							

[1] For other regional settings please contact SolarEdge support.
[2] A higher current source may be used; the inverter will limit its input current to the values stated.
[3] Revenue grade inverter P/N: SExxxxA-US000NNR2 (for 7600W inverter:SE7600A-US002NNR2).
[4] -40 version P/N: SExxxxA-US000NNU4 (for 7600W inverter:SE7600A-US002NNU4).

ETL SUNSPEC **RoHS**

ENGINEERING EXCELLENCE

- Built exclusively with **Suniva's premium ARTisun Select cells**, providing one of the highest power outputs per square meter at an affordable price
- **The leading US-born, US-operated crystalline silicon cell and module manufacturer**, spun out of Georgia Tech's University Center of Excellence in Photovoltaics; one of only two such research centers in the U.S.
- Suniva's state-of-the art manufacturing and module lab facilities feature the most advanced equipment and technology

QUALITY & RELIABILITY

- Suniva Optimus modules are manufactured and warranted to our specifications assuring consistent high performance and high quality.
- Rigorous in-house quality management tests beyond standard UL and IEC standards
- Performance longevity with advanced polymer backsheet
- UL1703 listed Type 2 PV module
- Passed the most stringent salt spray tests based on IEC 61701
- Passed enhanced stress tests[1] based on IEC 61215 conducted at Fraunhofer ISE
- PAN files are independently validated

MANUFACTURED IN

Georgia & Michigan

SUNIVA OPTIMUS® SERIES MONOCRYSTALLINE SOLAR MODULES

OPT SERIES: OPT 60 CELL MODULES (SILVER FRAME)

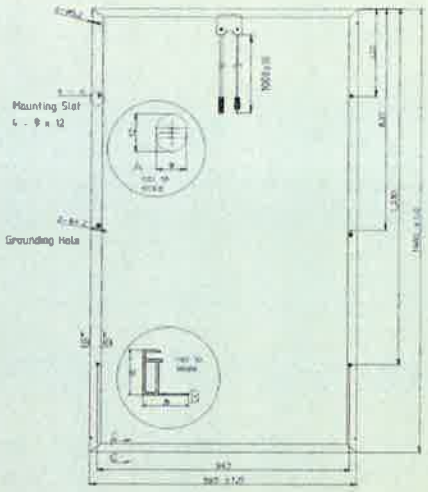
Optimus® modules are known for their superior quality and long-term reliability. These high-powered modules consist of Suniva's premium ARTisun® Select cell technology and are designed and manufactured in the U.S.A. and North America using our pioneering ion implantation technology. Suniva's high power-density Optimus modules provide excellent performance and value.

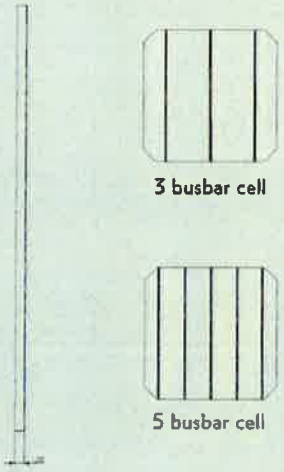
FEATURES

- Utilizes our premier American-made cell technology, ARTisun Select®
- Superior performance and reliability; enhanced stress tests conducted at Fraunhofer ISE
- Module families ranging from 275-290W
- Positive only power tolerance
- Marine grade aluminum frame with hard anodization or powder coating
- Certified PID-free by PV Evolution Labs (PVEL)
- Made in North America
- Qualifies for Ex-Im Financing
- 1000V UL
- 25 year linear power warranty; 10 year product warranty

CERTIFICATIONS

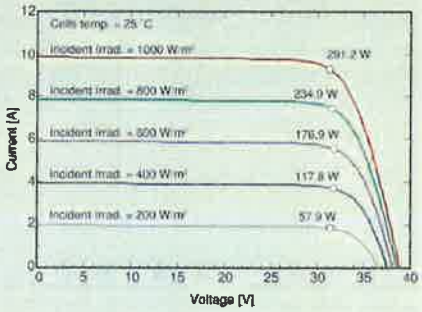
www.suniva.com





PV module: Suniva, OPT290-60-4-100

Current-Voltage (IV) as a Function of Isolation (W/m²) and Temperature



PLEASE RECYCLE

FEBRUARY 2, 2016 (REV. 3) [SAMD_0060]

OPTIMUS SERIES: OPT 60 CELL MODULES

ELECTRICAL DATA (NOMINAL)

The rated power may only vary by -0/+10W and all other electrical parameters by ± 5%

Model Number	OPT275-60-4-100	OPT280-60-4-100	OPT285-60-4-100	OPT290-60-4-100
Power Classification (Pmax)	275 W	280 W	285 W	290 W
Module Efficiency (%)	16.73%	17.04%	17.34%	17.65%
Voltage at Max. Power Point (Vmp)	31.5 V	31.8 V	32.3 V	32.4 V
Current at Max. Power Point (Imp)	8.74 A	8.81 A	8.82 A	8.95 A
Open Circuit Voltage (Voc)	38.6 V	38.8 V	39.4 V	39.6 V
Short Circuit Current (Isc)	9.25 A	9.57 A	9.59 A	9.73 A

The electrical data apply to standard test conditions (STC): Irradiance of 1000 W/m² with AM 1.5 spectra at 25°C

CHARACTERISTIC DATA

Type of Solar Cell	High-efficiency ARTisun Select cells, 3 and 5 busbar options available
Frame	Anodized or powder coated aluminum alloy
Glass	Tempered (low-iron), anti-reflective coating
Junction Box	NEMA IP67 rated; 3 internal bypass diodes
Cable & Connectors	12 AWG (4 mm²) PV Wire with multiple connector options available; cable length 1000 mm

MECHANICALS

Cells / Module	60 (6 x 10)
Module Dimensions	1660 x 990 mm (65.35 x 38.98 in.)
Module Thickness (Depth)	35 mm (1.37 in.)
Approximate Weight	17.9 +/- 0.25 kg (39.5 +/- 0.5 lb.)

TEMPERATURE COEFFICIENTS

Voltage	ß, Voc (%/°C)	-0.335
Current	α, Isc (%/°C)	+0.047
Power	γ, Pmax (%/°C)	-0.42
NOCT Avg	(+/- 2 °C)	46.0

LIMITS

Max. System Voltage	1000 VDC for IEC, 1000 VDC for UL
Max Series Fuse Rating	15 Amps
Operating Module Temperature	-40°C to +85°C (-40°F to +185°F)
Storm Resistance/Static Load	Tested to IEC 61215 for loads of 5400 Pa (113 psf); hail and wind resistant

Suniva reserves the right to change the data at any time. Visit suniva.com for the latest.

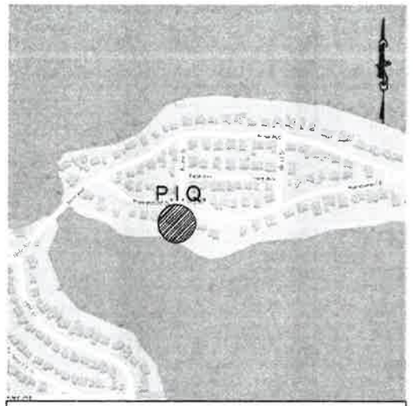
Please read installation manual before installing or working with module.

Product	Modules per pallet	Pallets per 53' truck	Total modules
OPT 60 cell (silver and black)	25	36	900

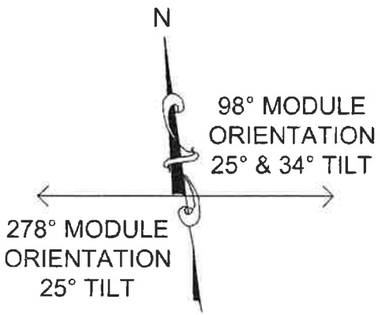
HEADQUARTERS
5765 Peachtree Industrial Blvd.
Norcross, Georgia 30092 USA
tel: +1 404 477 2700
www.suniva.com

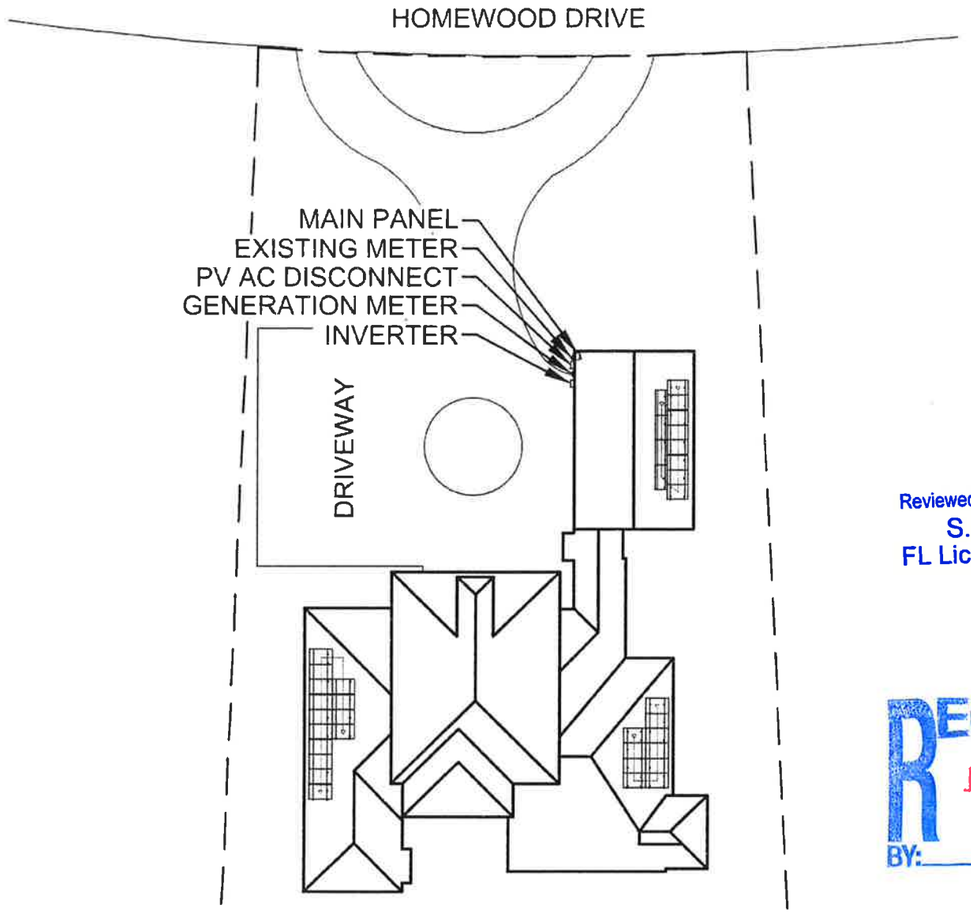
Suniva

2320 Homewood



LOCATION MAP:





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FL License # PX-1830

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PROJECT DATA

CODES	FBC-2017 NEC-2014
BUILDING USE: EXISTING:	R - RESIDENTIAL SINGLE FAMILY
CONST. CLASS	5-B UNPROTECTED

SOLAR ARRAY:	
PANEL:	LG 320N1K-A5 36 MODULES 1 STRING OF 14 1 STRING OF 12 1 STRING OF 10
RACKING:	FLUSH TO ROOF @ 25° & 34°
INVERTER:	(1) SOLAREDGE SE11400-US
SYSTEM RATING:	11,520 Watts DC - STC

LEWELLYN RESIDENCE
Net Metered 11.52-kW DC
11.4-kW AC

ROOF LOADS:

GROUND SNOW	0 PSF
WIND LOAD	140 MPH
SOLAR ARRAY	4.0 PSF

THE EXISTING ROOF STRUCTURE HAS BEEN EVALUATED FOR THE PROPOSED NEW SOLAR LOAD AND DETERMINED TO BE OF SUFFICIENT CAPACITY TO INSTALL THE PROPOSED SOLAR ARRAY AS FOLLOWS:

A) SHINGLE ROOF - MECHANICALLY FASTENED RACK SYSTEM NOT TO EXCEED A WEIGHT OF 4.0 LBS/SQ.FT.

ARC DESIGN
SALEM COUNTY OFFICE
409 NORTH MAIN STREET
ELMER, NEW JERSEY 08318
(856) 712-2166 FAX: (856) 358-1511

PHOTO-VOLTAIC ARRAY

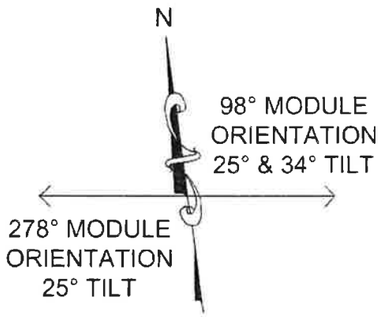
LEWELLYN RESIDENCE
2320 HOMEWOOD DRIVE
ORLANDO, FL 32809

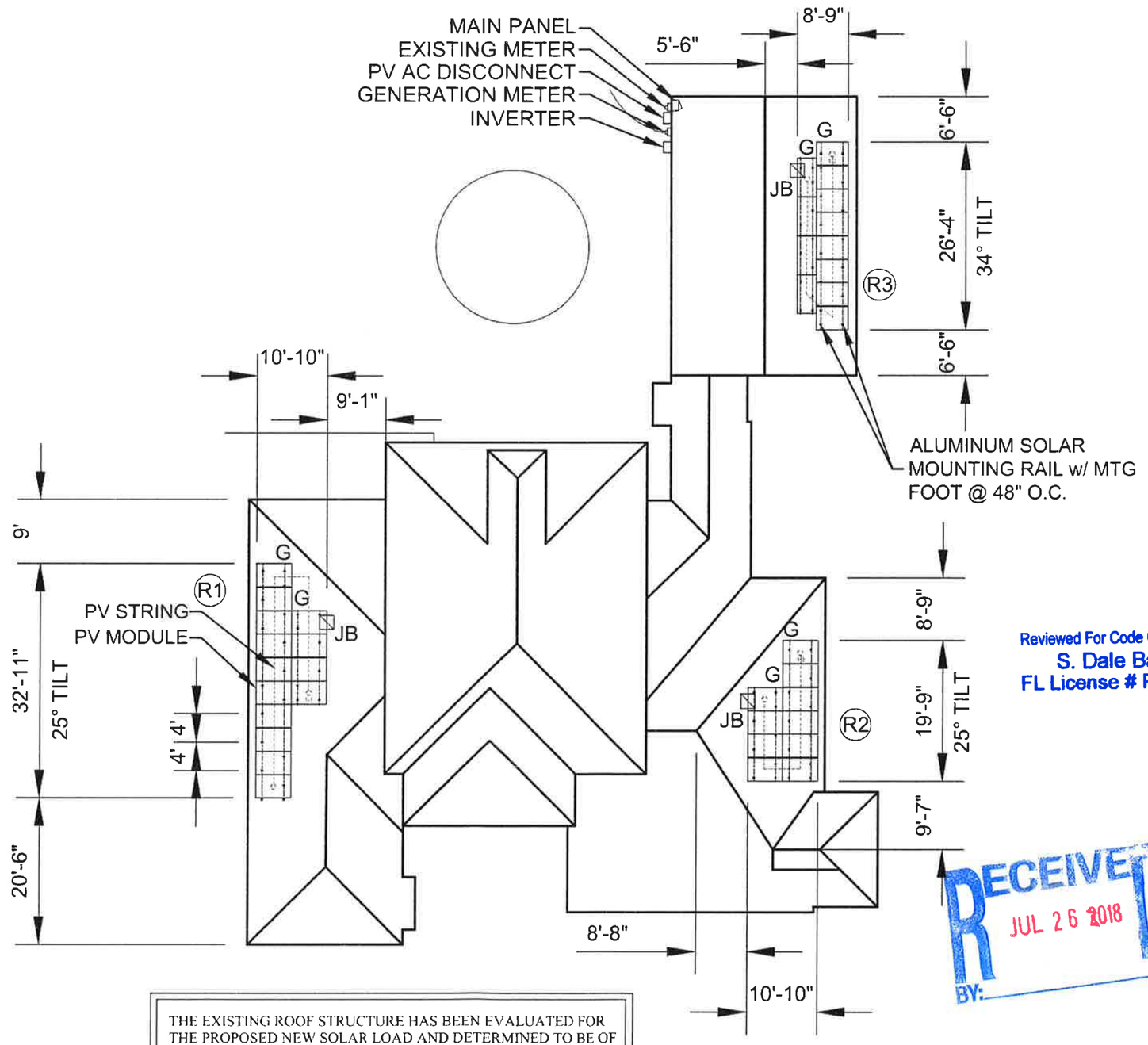
JAMES A. CLANCY
LICENSE
ARC DESIGN
FL PE LIC. # 48484
LICENSE # 31585
STATE OF FLORIDA
PROFESSIONAL ENGINEER

REVISIONS

DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	07-09-2018

A-1





2-1	STRING LABEL (INVERTER-STRING)
G	RACKING GROUND CONNECTION
	INVERTER
	AC LOADCENTER
	AC DISCONNECT
	METER

THE EXISTING ROOF STRUCTURE HAS BEEN EVALUATED FOR THE PROPOSED NEW SOLAR LOAD AND DETERMINED TO BE OF SUFFICIENT CAPACITY TO INSTALL THE PROPOSED SOLAR ARRAY AS FOLLOWS:

A) SHINGLE ROOF - MECHANICALLY FASTENED
RACK SYSTEM NOT TO EXCEED A WEIGHT OF 4.0 LBS/SQ.FT.

NO NEW CONSTRUCTION IS BEING PROPOSED, PV SYSTEM IS TO BE MOUNTED ON EXISTING ROOF STRUCTURE.

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A-2

PV Module
Weight = 46 lbs
Area = 39" x 65" nominal (17.6 SqFt)

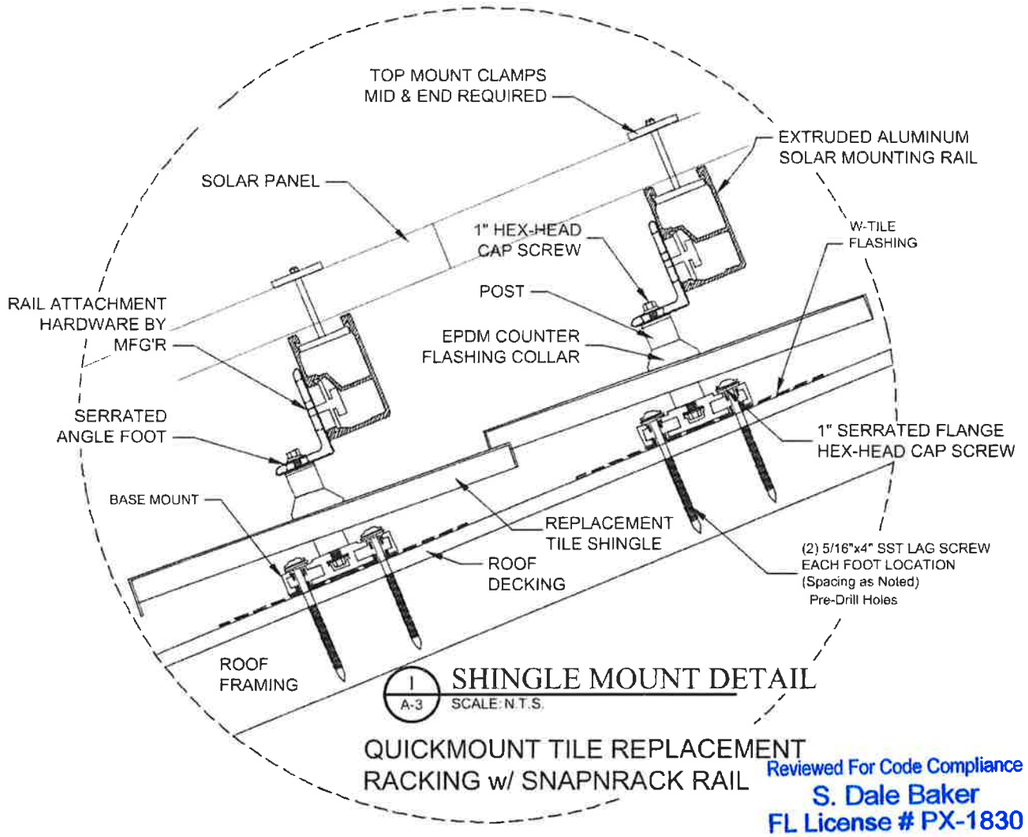
Mounting Rail (Extruded Aluminum)
Weight = 1.03/lf

There are 80" of rail per module = 6.87 lbs
Module + Rail = 52.87 lbs over 17.6 SqFt = 3.00 #/SqFt
Typical rail spacing is 32" o.c. across panel width with 2 rows per module.

Typical layout provides 13 feet on one rail for each 10 modules in a row. This provides for an average of 1.3 feet/module/rail x 2 rails = 2.6 feet/module.

Module + Rail weight distributed per mounting foot =
52.87 lbs / 2.6 feet = 20.33 lbs/mtg foot.

*MOUNTING RAIL SPACING MAY VARY FROM 20" - 54" O.C. CONTRACTOR TO VERIFY PANEL MANUFACTURER'S SPECIFICATIONS AND INSTALLATION REQUIREMENTS. FOOT SPACING SHALL BE MAX. 4'-6" O.C. ALONG RAIL.

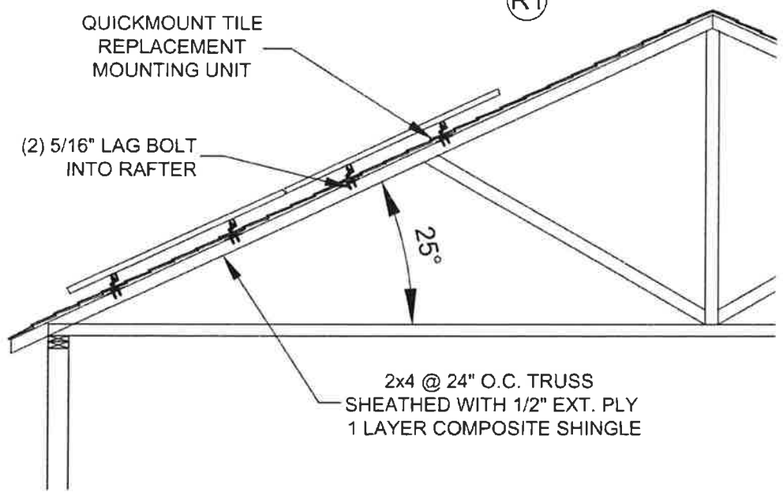


1 A-3 SHINGLE MOUNT DETAIL
SCALE: N.T.S.

QUICKMOUNT TILE REPLACEMENT
RACKING w/ SNAPNRACK RAIL

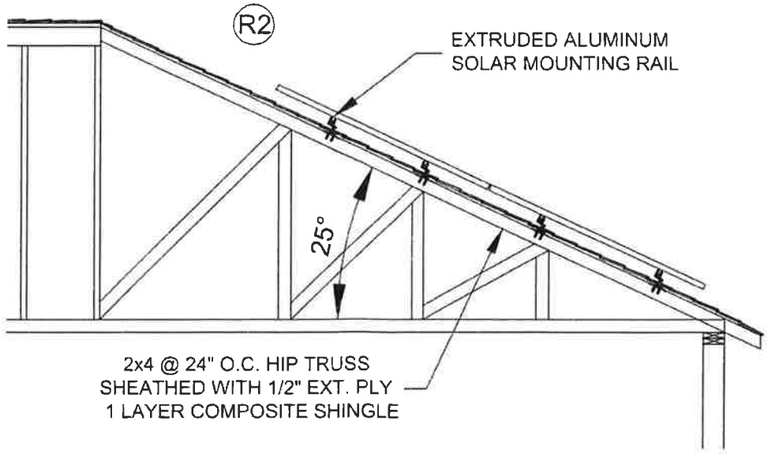
Reviewed For Code Compliance
S. Dale Baker
FL License # PX-1830

R1



2 A-3 ROOF SECTION
SCALE: 1/4"=1'-0"

R2



3 A-3 ROOF SECTION
SCALE: 1/4"=1'-0"

R3

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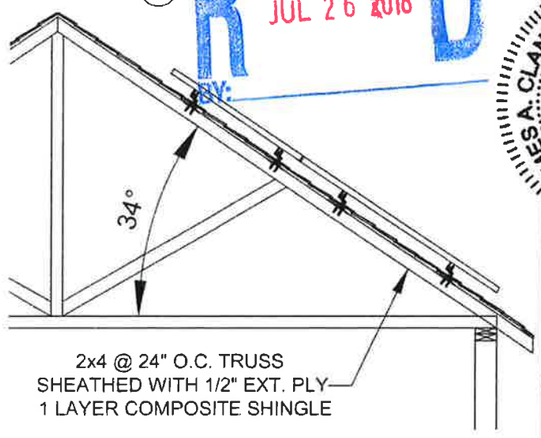

4 A-3 ROOF SECTION
SCALE: 1/4"=1'-0"

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A-3

POWER OUTPUT = PTC RATING x # MODULES x M.INV EFF'
296.8 W x 36 x 0.975 = 10,417.68 W
TOTAL = 10,417.68 W

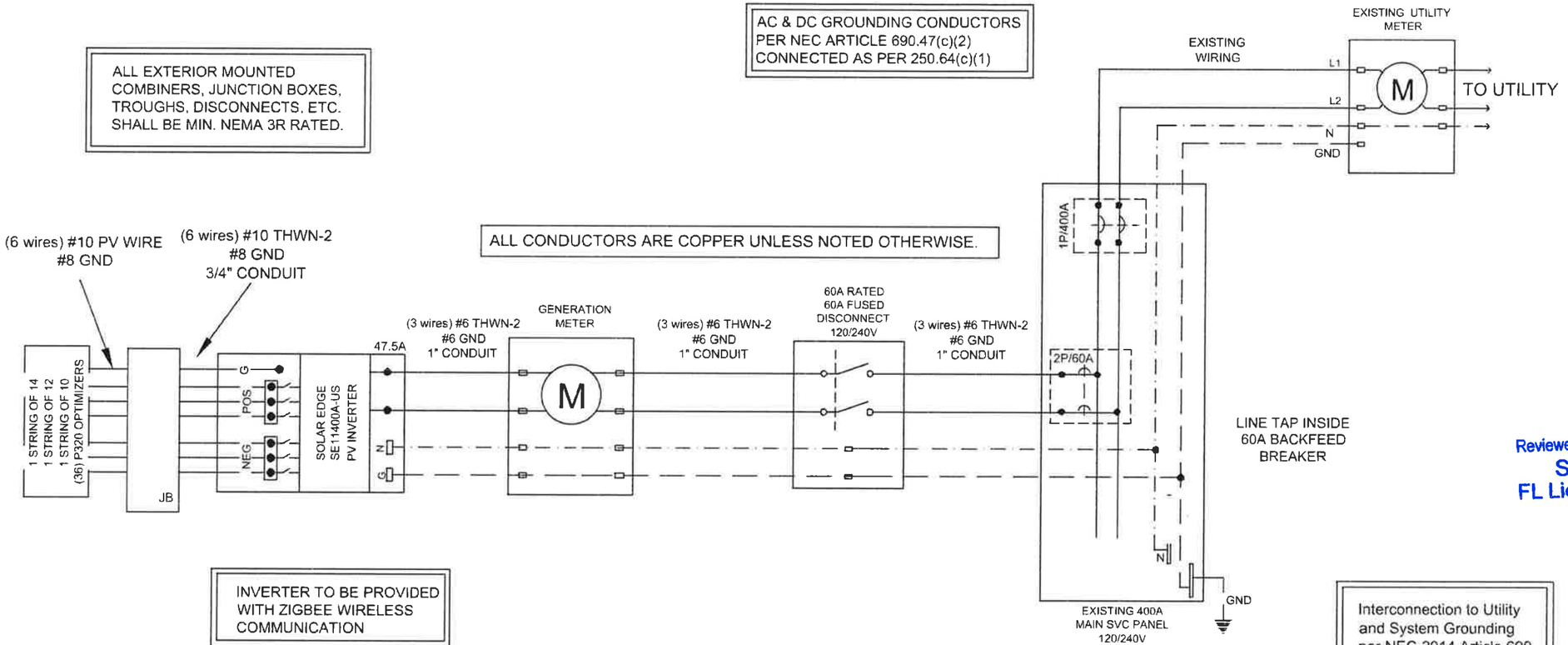
WIRE AMPACITY
NEC TABLE 310.15(B)(16)
#10 THWN Cu 35A RATED
8 THWN Cu 50A RATED
6 THWN Cu 65A RATED

Confirm line side voltage at electric utility service entrance BEFORE connecting inverter and ensure proper operational range required by system inverter.

ALL EXTERIOR MOUNTED COMBINERS, JUNCTION BOXES, TROUGHS, DISCONNECTS, ETC. SHALL BE MIN. NEMA 3R RATED.

AC & DC GROUNDING CONDUCTORS
PER NEC ARTICLE 690.47(c)(2)
CONNECTED AS PER 250.64(c)(1)

ALL CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.



INVERTER TO BE PROVIDED WITH ZIGBEE WIRELESS COMMUNICATION

-Electrical contractor to verify interconnection requirements with Electrical Utility for connection location and standards.
-Electrical Contractor to provide expansion joints and anchoring of all conduit runs as per NEC requirements.
-Provide label/placard at existing utility connection with "WARNING - CUSTOMER OWNED ELECTRICAL GENERATION EQUIPMENT CONNECTED" with appropriate hazard and output ratings of PV System.

Interconnection to Utility and System Grounding per NEC-2014 Article 690

Provide signage as req'd by NEC-2014 Article 690.

ALL outdoor equipment shall be a minimum of NEMA-3R rated.

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REVISIONS

DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	07-09-2018

A-4

Email: BRITTANIE@ARCDESIGNLLC.NET

solaredge

Project:

Lewellyn

Monday, July 09, 2018 2:23 PM

Location:

Orlando, Florida, United States

System data:

Installed power: 11.52 kWp

Max achieved DC power: 10.63 kW

Inverter active power: 11.40 kW

Maximum apparent power: 11.40 kVA

PV Array # 1: PV Array # 1

Tilt	Azimuth	Mounting
25°	278°	Co-planar with roof

LG Solar, LG320N1K-A5, 320.00 W

PV Array # 2: PV Array # 2

Tilt	Azimuth	Mounting
34°	98°	Co-planar with roof

LG Solar, LG320N1K-A5, 320.00 W

PV Array # 3: PV Array # 3

Tilt	Azimuth	Mounting
25°	98°	Co-planar with roof

LG Solar, LG320N1K-A5, 320.00 W

Inverter design

Inverter 1: SE11400A-US

String 1: PV Array # 1: 14 x P320

String 2: PV Array # 2: 10 x P320

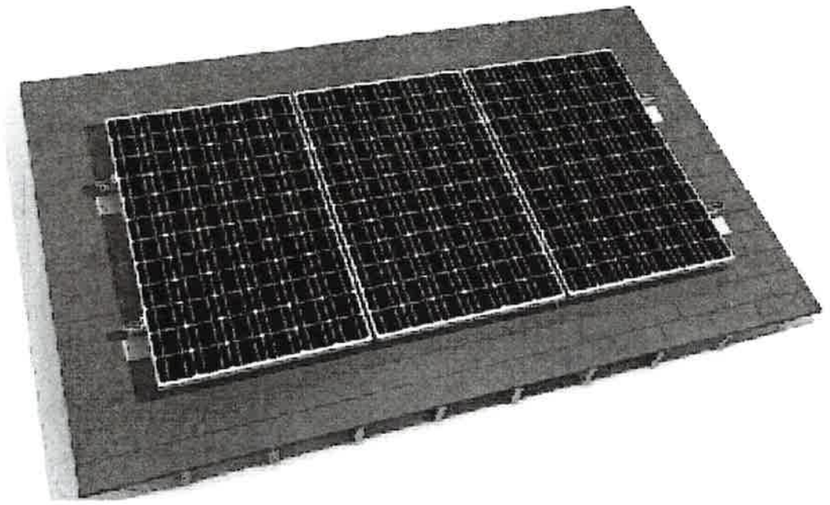
String 3: PV Array # 3: 12 x P320

Power optimizer extreme operating conditions

P320

	Calculated	Limit	
Max input power	320 W	320 W	✓
Min input voltage	35 V	8 V	✓
Max input voltage	44 V	48 V	✓
Max input current	10 A	11 A	✓
Max output current	13 A	15 A	✓

* Calculated values are the absolute min/max of all arrays using this power optimizer configuration.



SNAP AND RACK RACKING

Wind Load

Ground Snow Load (psf)		Vult	110	115	120	125	130	135	140	145	150	155	160	170	180	190
		q_h	15.5	16.9	18.4	20.0	21.6	23.3	25.1	26.9	28.8	30.7	32.8	37.0	41.5	46.2
P_E	P_s		-10.7	-11.7	-12.7	-13.8	-14.9	-16.1	-17.3	-18.6	-19.9	-21.2	-22.6	-25.5	-28.6	-31.9
0	0		116	110	104	99	93	91	87	83	80	77	75	70	65	62
10	8		114	110	104	99	93	91	87	83	80	77	75	70	65	62
20	15		80	80	80	80	80	80	87	83	80	77	75	70	65	62
30	23		75	75	75	75	75	75	75	75	75	75	75	70	65	62
40	31		66	66	66	66	66	66	66	66	66	66	66	66	65	62
50	39		60	60	60	60	60	60	60	60	60	60	60	60	60	60
60	46		55	55	55	55	55	55	55	55	55	55	55	55	55	55
70	54		51	51	51	51	51	51	51	51	51	51	51	51	51	51
80	62		48	48	48	48	48	48	48	48	48	48	48	48	48	48

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PHOTO-VOLTAIC ARRAY

LEWELLYN RESIDENCE
2320 HOMEWOOD DRIVE
ORLANDO, FL 32809

JAMES A. CLANCY
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LICENSE # 31585
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DRWN	RCA
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SCALE	AS NOTED
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A-5

⚠ WARNING

ELECTRIC SHOCK HAZARD

IF A GROUND FAULT IS INDICATED NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION:
DC DISCONNECT, INVERTER
(PER CODE: NEC 690.35(F))
[To be used when inverter is ungrounded]

⚠ WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.17(E))

⚠ WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
PER CODE: NEC 690.17(E), CB

WARNING - Electric Shock Hazard
No user serviceable parts inside
Contact authorized service provider for assistance

LABEL LOCATION:
INVERTER, JUNCTION BOXES (ROOF), AC DISCONNECT
(PER CODE: NEC690.13.G.3 & NEC 690.13.G.4)

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
CONDUIT, COMBINER BOX
(PER CODE: NEC690.31(G)(3)(4) & NEC 690.13(G)(4)

⚠ WARNING

ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

LABEL LOCATION:
DC DISCONNECT, INVERTER
(PER CODE: NEC 690.35(F))
[To be used when inverter is ungrounded]

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OPERATING CURRENT 47.5 AMPS
AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC690.54)

SOLAR DISCONNECT

LABEL LOCATION:
DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC690.13(B))

PHOTOVOLTAIC
INVERTER INPUT
DC DISCONNECT

WARNING
ELECTRIC
SHOCK HAZARD !

DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

INTERACTIVE SOLAR PV SYSTEM RATING

RATED DC CURRENT	34.5	AMP
RATED DC VOLTAGE	350	VDC
MAXIMUM SYSTEM VOLTAGE	500	VDC
SHORT CIRCUIT CURRENT	45	AMP

SYSTEM INSTALLER: _____
FOR SERVICE CALL: _____

DC INPUT WARNING LABEL #1

CAUTION: SOLAR CIRCUIT

LABEL LOCATION:
MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, AND CABLE ASSEMBLIES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUCTION BOXES. (PER CODE: IFC605.11.1.4)

⚠ WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

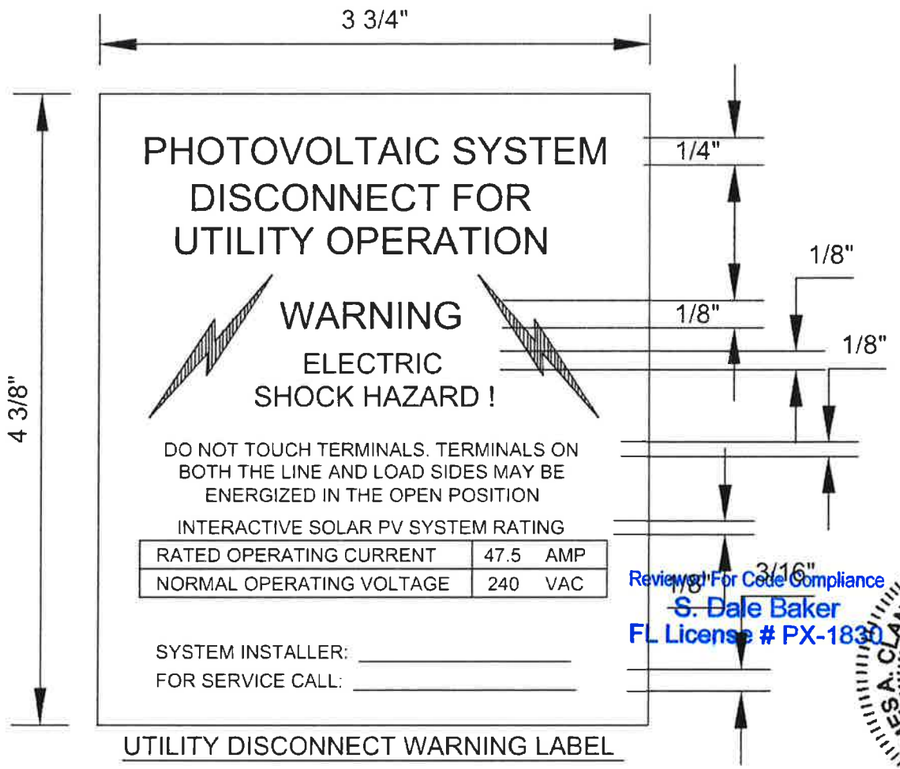
LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: CEC 705.12(D)(4))

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: CEC690.15, 690.13(B))

WARNING
INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(D)(7))
[Not required if panelboard is rated not less than sum of ampere ratings of all overcurrent devices supplying it]



UTILITY DISCONNECT WARNING LABEL

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

ADHESIVE FASTENED SIGNS:
- THE LABEL SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED.
- WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNINGS, AND MARKINGS SHOULD COMPLY WITH ANSI Z535.4 [NEC 110.21(B) FIELD MARKING].
- ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]

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A-6

solaredge

Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US / SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US	
OUTPUT								
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @240V	11400	VA
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @ 240V	6000	8350	10800 @ 208V 10950 @240V	12000	VA
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229 Vac)	-	-	✓	-	-	✓	-	
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264 Vac)	✓	✓	✓	✓	✓	✓	✓	
AC Frequency Min.-Nom.-Max.[1]	59.3 - 60 - 60.5 (with HI country setting 57 - 60 - 60.5)							Hz
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							Yes
INPUT								
Maximum DC Power (STC)	4050	5100	6750	8100	10250	13500	15350	W
Transformer-less, Ungrounded	Yes							
Max. Input Voltage	500							Vdc
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							Vdc
Max. Input Current[2]	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%
CEC Weighted Efficiency	97.5	98	97.5 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%
Nighttime Power Consumption	< 2.5					< 4		W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)							
Revenue Grade Data, ANSI C12.1	Optional[3]							
Rapid Shutdown - NEC 2014 690.12	Functionality enabled when SolarEdge rapid shutdown kit is installed[4]							
STANDARD COMPLIANCE								
Safety	UL1741, UL1699B, UL1998, CSA 22.2							
Grid Connection Standards	IEEE1547							
Emissions	FCC part15 class B							
INSTALLATION SPECIFICATIONS								
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG					3/4" minimum / 8-3 AWG		
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG					3/4" minimum / 1-2 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7.2 / 775 x 315 x 184					30.5 x 12.5 x 10.5 / 775 x 315 x 260		in / mm
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7			88.4 / 40.1		lb / kg
Cooling	Natural Convection			Natural convection and internal fan (user replaceable)		Fans (user replaceable)		
Noise	< 25					< 50		dBA
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to -60 version available[5])							°F / °C
Protection Rating	NEMA 3R							

[1] For other regional settings please contact SolarEdge support.
[2] A higher current source may be used; the inverter will limit its input current to the values stated.
[3] Revenue grade inverter P/N: SE3000A-US002NNR2 / SE7600A-US002NNR2.
[4] For detailed advice for PV power optimization and rapid shutdown, please refer to SolarEdge application note "Module Level Power Electronics and Rapid Shutdown per NEC 2014".
[5] 60 version P/N: SE3000A-US060NNU4 / SE7600A-US060NNU4.

ETL SUNSPEC RoHS

LG NeON 2 Black LG320N1K-A5

Mechanical Properties

Cells	6 x 10
Cell Vendor	LG
Cell Type	Monocrystalline / N-type
Cell Dimensions	161.7 x 161.7 mm / 6 inches
# of Busbar	12 (Multi Wire Busbar)
Dimensions (L x W x H)	1640 x 1000 x 40mm 64.56 x 39.37 x 1.57 inch
Front Load	6000Pa
Rear Load	5400Pa
Weight	18.5kg
Connector Type	MC4
Junction Box	IP68 with 3 Bypass Diodes
Cables	1000mm x 2ea
Glass	High Transmission Tempered Glass
Frame	Anodized Aluminum

Certifications and Warranty

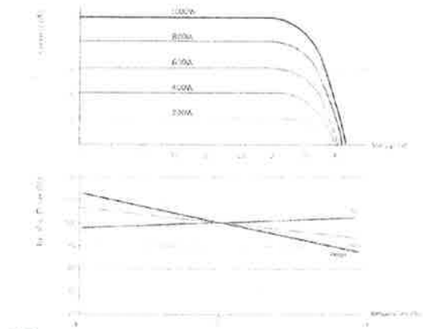
Certifications	IEC 61215, IEC 61730-1/-2 UL 1703 IEC 61701 (Salt mist corrosion test) IEC 62716 (Ammonia corrosion test) ISO 9001
Module Fire Performance (USA)	Type 2
Fire Rating (CANADA)	Class C
Product Warranty	12 years
Output Warranty of Pmax	Linear warranty**

** 1st year: 98%, after 1 year: minus 0.6%/year, after 25 years: 84.8%

Temperature Characteristics

NOCT	45 ± 3°C
Pmpp	-0.37%/°C
Voc	-0.27%/°C
Isc	0.03%/°C

Characteristic Curves



Electrical Properties (STC *)

Module	LG320N1K-A5
Maximum Power (Pmax)	320
MPP Voltage (Vmpp)	33.5
MPP Current (Impp)	9.62
Open Circuit Voltage (Voc)	40.8
Short Circuit Current (Isc)	10.19
Module Efficiency	19.4
Operating Temperature	-40 ~ +90
Maximum System Voltage	1000
Maximum Series Fuse Rating	20
Power Tolerance (%)	0 ~ +3

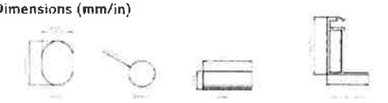
* STC (Standard Test Condition) : Radiation 1000W/m², Module Temperature 25°C, AM 1.5
** Measurement uncertainty of ±3% for Pmax and ±10% for Isc, Voc and FF are applied when measuring the output power.

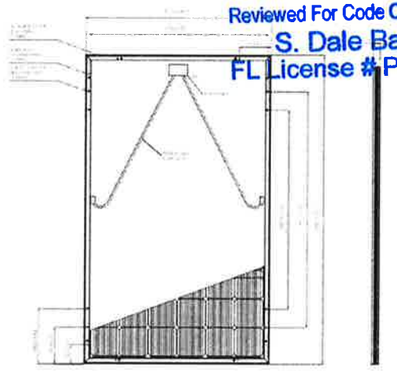
Electrical Properties (NOCT*)

Module	LG320N1K-A5
Maximum Power (Pmax)	236
MPP Voltage (Vmpp)	30.8
MPP Current (Impp)	7.65
Open Circuit Voltage (Voc)	38.0
Short Circuit Current (Isc)	8.20

* NOCT (Nominal Operating Cell Temperature) : Irradiance 800W/m², Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s

Dimensions (mm/in)





Reviewed For Code Compliance
S. Dale Baker
FL License # PX-1830

LG Life's Good

Innovation for a Better Life

RECEIVED
JUL 26 2018

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PHOTO-VOLTAIC ARRAY

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2320 HOMEWOOD DRIVE
ORLANDO, FL 32809

JAMES A. CLANCY
ARC DESIGN
FL PE LIC. NO. 68845
LICENSE # 31585
STATE OF FLORIDA
PROFESSIONAL ENGINEER

REVISIONS

DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	07-09-2018

A-7