# HISTORIC AND DESIGN REVIEW COMMISSION

**March 07, 2018**

| | |
|---|---|
| **HDRC CASE NO:** | **2018-095** |
| **ADDRESS:** | 536 ADAMS ST |
| **LEGAL DESCRIPTION:** | NCB 2914 (536 ADAMS STREET), BLOCK 3 LOT 23 |
| **ZONING:** | RM-4 H |
| **CITY COUNCIL DIST.:** | 1 |
| **DISTRICT:** | King William Historic District |
| **APPLICANT:** | Wells Solar & Electrical Services |
| **OWNER:** | Henry and Mary Newsom |
| **TYPE OF WORK:** | Installation of solar panels |
| **APPLICATION RECEIVED:** | February 19, 2018 |
| **60-DAY REVIEW:** | April 20, 2018 |

**REQUEST:**

The applicant is requesting a Certificate of Appropriateness for approval to install a solar array on the roof of 536 Adams.

**APPLICABLE CITATIONS:**

*Historic Design Guidelines, Chapter 3,Guidelines for Additions*

C. SOLAR COLLECTORS
i. *Location*—Locate solar collectors on side or rear roof pitch of the primary historic structure to the maximum extent feasible to minimize visibility from the public right-of-way while maximizing solar access. Alternatively, locate solar collectors on a garage or outbuilding or consider a ground-mount system where solar access to the primary structure is limited.
ii. *Mounting (sloped roof surfaces)*—Mount solar collectors flush with the surface of a sloped roof. Select collectors that are similar in color to the roof surface to reduce visibility.
iii. *Mounting (flat roof surfaces)*—Mount solar collectors flush with the surface of a flat roof to the maximum extent feasible. Where solar access limitations preclude a flush mount, locate panels towards the rear of the roof where visibility from the public right-of-way will be minimized.

**FINDINGS:**

a. The primary structure located at 536 Adams is a 1-story single family home constructed circa 1928 in the Craftsman Bungalow style. The home features a primary clipped gabled roof, a prominent asymmetrical front porch with side clipped gable roof, decorative bracketing and exposed rafter tails, and battered columns. The structure is contributing to the King William Historic District.
b. LOCATION – The applicant is requesting approval to install 37 solar panels on the east (rear) and south portions of the roof. Twenty will be located at the extreme rear of the home, one will be located on a side clipped gable, and sixteen will be located on the south portion of the primary roofline. No panels will be located on the northern portion of the primary roof or on the side gable closest to the public right-of-way. According to the Historic Design Guidelines for Additions 6.C.i, solar collectors should be located on a side or rear roof pitch to the maximum extent possible to minimize the visibility from the public right-of-way. Staff finds the proposed location appropriate given their placement behind the front side gable.
c. PITCH – The panels will be installed flush with the roof pitch. Staff finds the proposal consistent with the Guidelines.

**RECOMMENDATION:**

Staff recommends approval as submitted based on findings a through c.

**CASE MANAGER:**

Stephanie Phillips

**CASE COMMENTS:**

The solar array was installed prior to receiving a Certificate of Appropriateness.


N

# Flex Viewer

## Powered by ArcGIS Server

Printed:Feb 22, 2018

Feb 26, 2018 at 9:26:22 AM
538 Adams St
San Antonio TX 78210
United States

536

CITY of SAN ANTONIO
NOTICE of HEARING
HISTORIC & DESIGN
REVIEW COMMISSION

ADDRESS: 536 ADAMS ST
REQUEST: Installation of solar panels

HEARING DATE: March 02, 2018 at 3:00 PM

ALL HDRC MEETINGS TAKE PLACE AT 1901 S. ALAMO

If you have any questions or concerns, please call (210) 207 - 0035 or email info@sapreservation.com

Feb 26, 2018 at 9:26:04 AM
536 Adams St
San Antonio TX 78210
United States
TEXAS
FVT-1723
PILOT

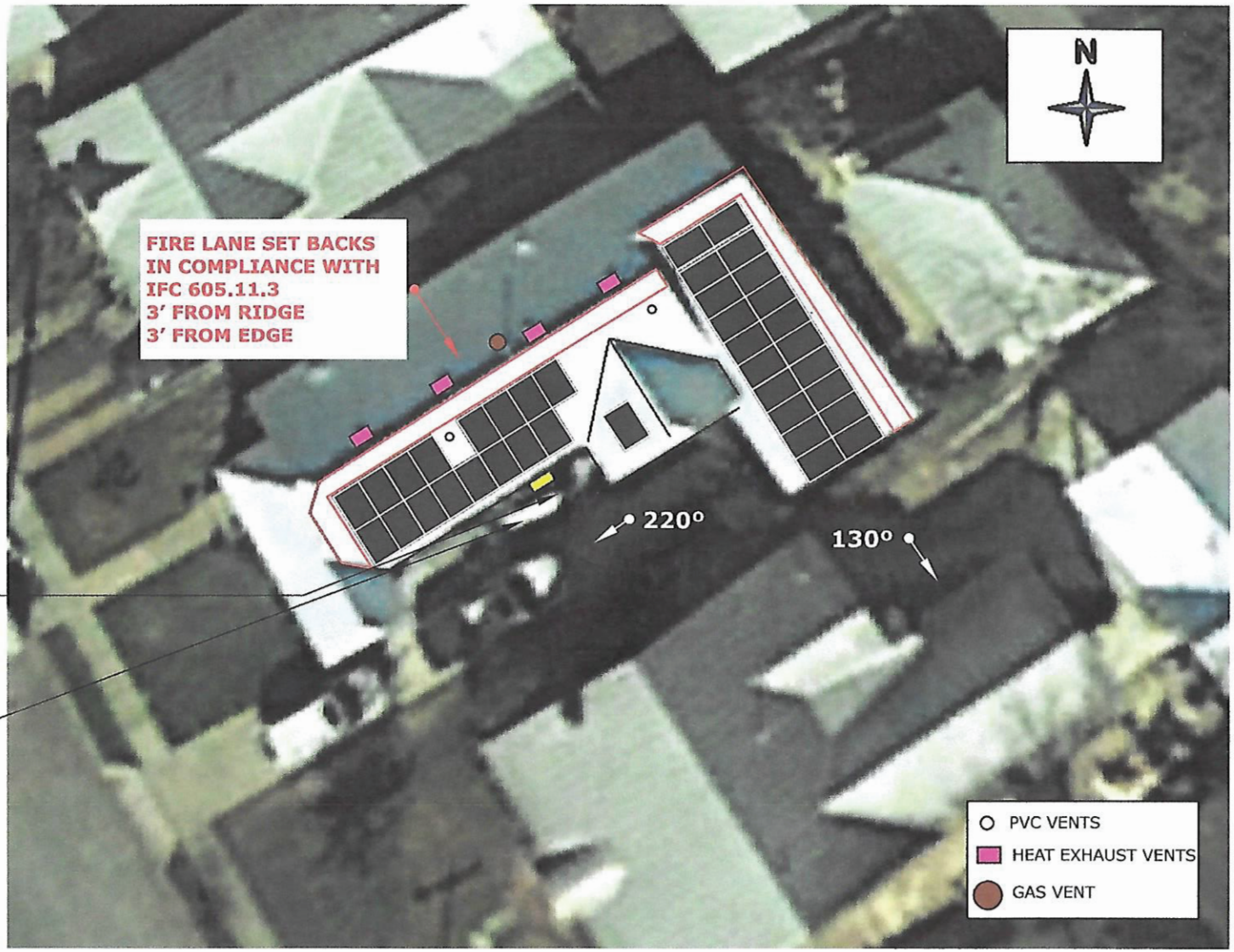
Feb 26, 2018 at 9:25:54 AM
538 Adams St
San Antonio TX 78210
United States


536
536
UPZ-7243

Solar Modules have black facing with black frames
Racking and conduit are silver to match the silver standing seem metal roof
Height of Modules from the roof surcace is approximately 4", no more than 6"

**Mary Newsome**
**536 Adams**
**San Antonio, Tx. 78210**
**[830]334-7163**

Paul Camp
NABCEP# 091209-28
Expires 10/14/2018




POI @ MSP

SolarEdge SE10000A-US
Inverter
Visible, Lockable
Labeled AC Disconnect
Located Within 2Ft. of
CPS Revenue Meter
#130 963 322

**10.36 kW PV System**

37 MISSION SOLAR 280W modules
37 SolarEdge P300 optimizers
16 @ 130° Azimuth / 25° Tilt
20 @ 130° Azimutrh / 8° Tilt
1 @ 220° Azimuth / 25° Tilt
1 SolarEdge 10000A-US Inverter
Roof: Standing Seam Metal: S-5-U Brackets
Everest SharedRail
Everest Module Clips w/ Integrated Ground
GE: Bus: 200A,Main:150A,PV:60A

Wells
SOLAR & ELECTRICAL SERVICES

FCC ID: OWS-NIC714 IC: 5975A-NIC714

Va

240

A

FOCUS AXR-SD

FORM 2S CL200 240V 3W 60Hz TA=30 K

CPS ENERGY 6 196 704

*NXA 6196704 *

130 963 322

-885
0615

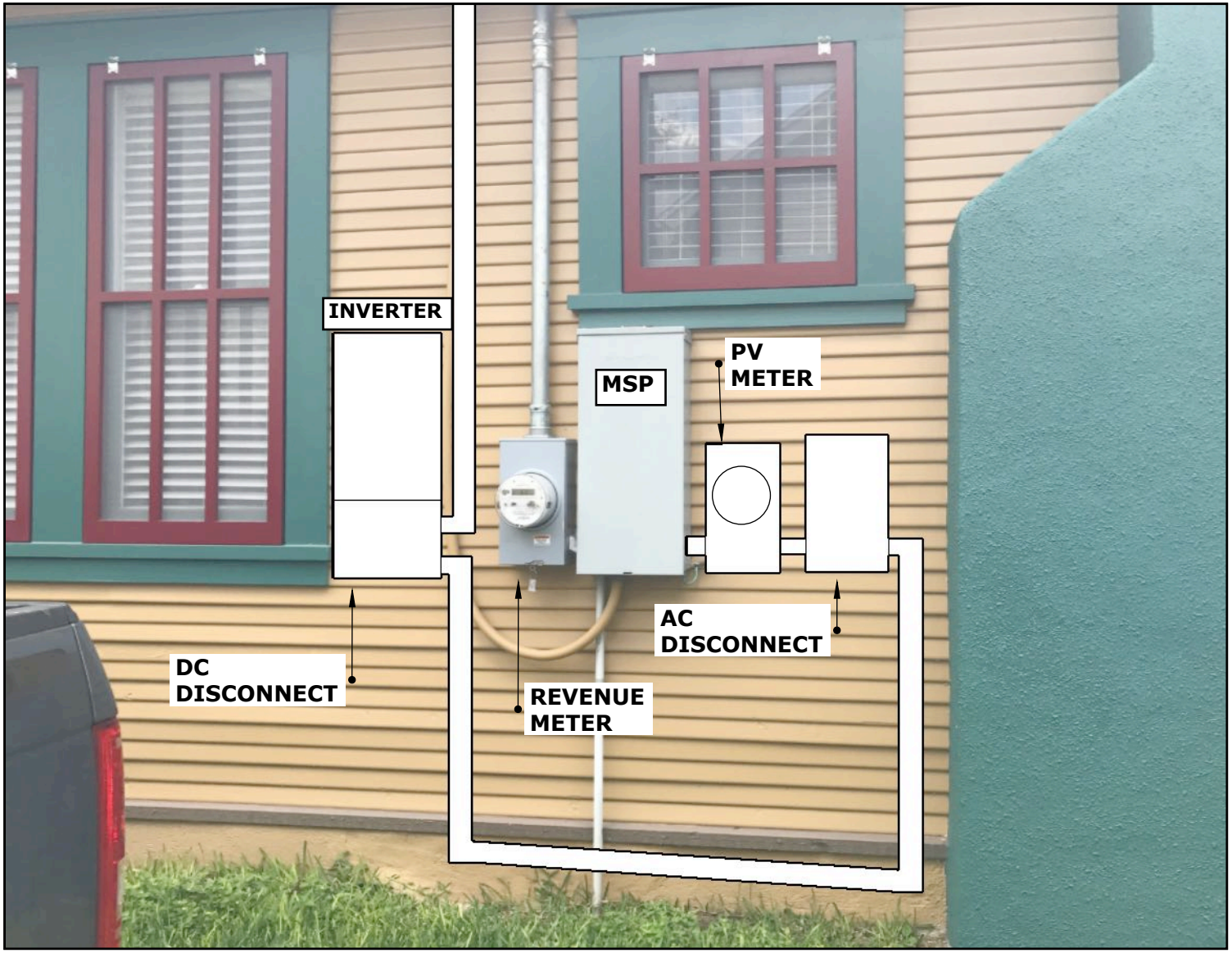
Landis+Gyr


SUPP. PANEL #1
W/H
WATER HEATER
SUPP. PANEL #2
A.C.
CIRCUIT INDEX
A B A B A B
1 12 23 33
2 13 24 34
3 14 25 35
4 15 26 36
5 16 27 37
6 17 28 38
7 18 29 39
8 19 30 40
9 20 31 41
10 21 32 42
11 22

Wells
SOLAR & ELECTRICAL SERVICES

10.36 kW
37 MISSION SOLAR 280W modules
37 SolarEdge P300 optimizers
1 SolarEdge SE10000A-US Inverter
Everest Racking
Everest MC's

Mary Newsome
536 Adams
San Antonio, Tx. 78210



# MSE Mono 60

## High Power Mono Rooftop Module

MISSION SOLAR ENERGY

- Class Leading Output: 280W power
- Advanced P-Type monocrystalline cell technology
- Superior Aesthetics: All-black design coupled with outstanding power output
- Certified Reliability: 3X IEC, salt mist, ammonia
- Buy American Act

**Proudly assembled in the USA**
Mission Solar Energy is headquartered in San Antonio, TX with module facilities onsite. Our hardworking team calls Texas home and is devoted to producing high quality solar products and services. Our supply chain includes local and domestic vendors increasing our impact to the U.S. economy.

**Assembled in the USA**

### Superior Aesthetics
The MSE Mono 60's slick all-black design coupled with outstanding power output makes it ideal for DG installations including commercial and rooftop systems.

### Proven reliability and bankability
Mission Solar Energy panels have been tested by independent testing centers to meet and exceed IEC standards. Our panels are deployed in projects across North America.

### Best in class quality
Mission Solar Energy production lines are fully automated and include multiple quality checks throughout the production process.

## CERTIFICATIONS

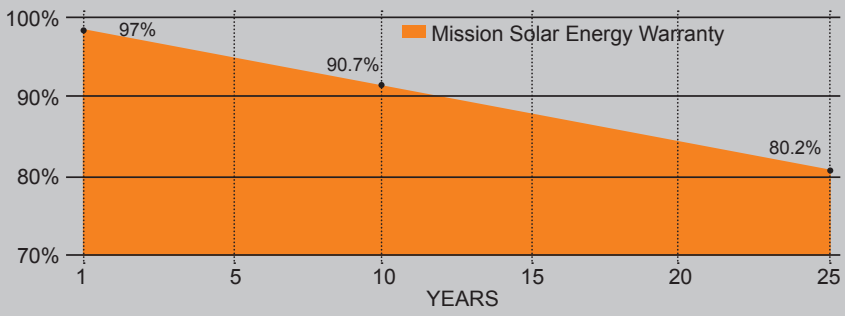
**IEC 61215/ IEC 61730/ IEC 61701**
**UL 1703: CSA**

Independently Audited by SOLARBUYER

PowerGuard SPECIALTY INSURANCE SERVICES

*As there are different certification requirements in different markets, please contact your local Mission Solar Energy sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

## 25-YEAR LINEAR WARRANTY



## ELECTRICAL SPECIFICATIONS

Electrical parameters at Standard Test Condition (STC)

| Module Type | | | MSE270SO5T | MSE275SO5T | MSE280SO5T |
|---|---|---|---|---|---|
| Power Output | Pmax | Wp | 270 | 275 | 280 |
| Module Efficiency | | % | 16.26 | 16.55 | 16.85 |
| Tolerance | | | | 0~+3% | |
| Short-Circuit Current | Isc | A | 9.09 | 9.17 | 9.27 |
| Open Circuit Voltage | Voc | V | 38.21 | 38.45 | 38.60 |
| Rated Current | Imp | A | 8.64 | 8.72 | 8.79 |
| Rated Voltage | Vmp | V | 31.28 | 31.55 | 31.87 |

STC: Irradiance 1000 W/m2, Cell temperature of 25°C, AM 1.5

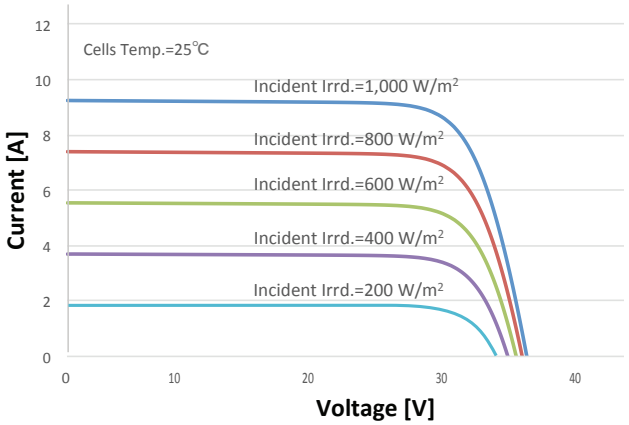
## TEMPERATURE COEFFICIENTS

| | |
|---|---|
| Normal Operating Cell Temperature (NOCT) | 44°C (±2°C) |
| Temperature Coefficient of Pmax | -0.415%/°C |
| Temperature Coefficient of Voc | -0.312%/°C |
| Temperature Coefficient of Isc | 0.042%/°C |

## OPERATING CONDITIONS

| | |
|---|---|
| Maximum System Voltage | 1,000VDC |
| Operating Temperature Range | -40°C (-40°F) to +90°C (194°F) |
| Maximum Series Fuse Rating | 15A |
| Fire Safety Classification | Type 1, Class C |
| Static Load Wind/Snow | 2400Pa/5400Pa |
| Hail Safety Impact Velocity | 25mm at 23 m/s |

## MSE270SO5T: 270WP, 60CELL SOLAR MODULE CURRENT-VOLTAGE CURVE

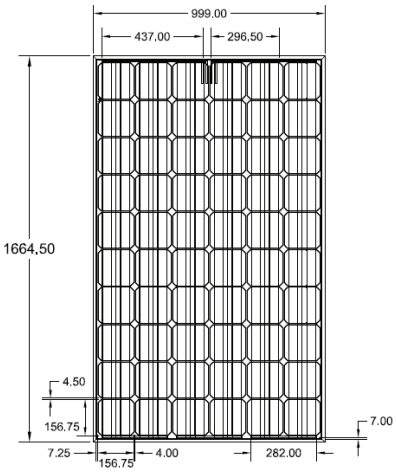



Current-voltage characteristics with dependence on irradiance and module temperature

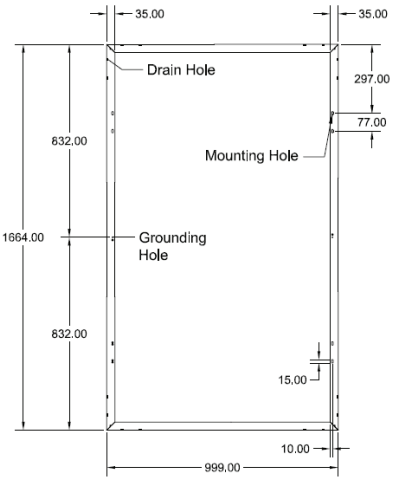
## MECHANICAL DATA

| | |
|---|---|
| Solar Cells | P-type Mono-crystalline Silicon (156.75mm) |
| Cell orientation | 60 cells (6x10), 4 busbar |
| Module dimension | 1664mm x 999mm x 40mm (65.51 in. x 39.33 in. x 1.57 in.) |
| Weight | 18.2 kg (40.1 lb) |
| Front Glass | 3.2mm (0.126 in.) tempered, Low-iron, Anti-reflective coating |
| Frame | Anodized aluminum alloy |
| Encapsulant | Ethylene vinyl acetate (EVA) |
| J-Box | Protection class IP67 with 3 bypass-diodes |
| Cables | PV wire, 1m (39.37 in.), 4mm² / 12 AWG |
| Connector | MC4 or compatible |

## BASIC DESIGN (UNITS: mm)




Front View




Back View

MISSION SOLAR ENERGY



Rev. 7.03

8303 South New Braunfels Ave. | San Antonio | TX | 78235 | missionsolar.com | info@missionsolar.com | (210) 531-8600

1 AC DISCONNECT

2″

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOTAGE ____ VOLTS
OPERATING CURRENT ____ AMPS

4″

2 INVERTER & MSP

3″

WARNING
ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICTED
ALL NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED

4″

3 MAIN SERVICE PANEL

2″

WARNING
DUAL POWER SUPPLY
SOURCES:UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

4″

4 INVERTER @ MSP

3″

WARNING
ELECTRIC SHOCK HAZARD

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

4″

5 AC DISCONNECT & DC DISCONNECT

3″

WARNING
ELECTRIC SHOCK HAZARD

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

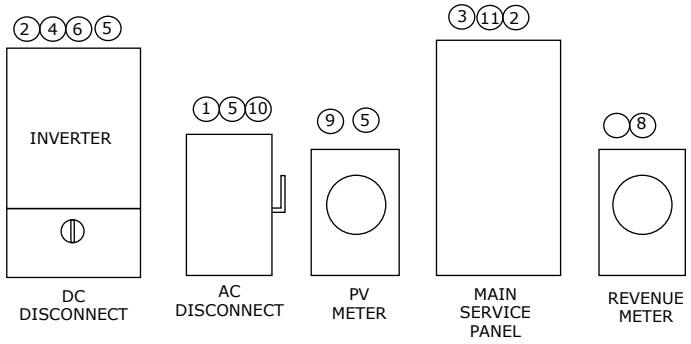
4″

6 INVERTER

2″

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH
RAPID SHUTDOWN

5.25″




7 CONDUIT

EVERY 10' ALONG CONDUITS THAT CONTAIN DC CIRCUITS [ MARKING SHALL BE PERMANENTLY AFFIXED AND VISIBLE AFTER INSTALLATION PER NEC 690.31[G][3]&[4]

1″

WARNING : PHOTOVOLTAIC
POWER SOURCE

5.75″

8 REVENUE METER

1″

REVENUE
METER

4″

9 PV METER

1″

PHOTOVOLTAIC SYSTEM
kWh METER

4″

10 AC DISCONNECT

3″

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOTAGE ____ VDC
OPERATING CURRENT ____ AMPS
MAX SYSTEM VOLTAGE ____ VDC
SHORT CIRCUIT CURRENT ____ AMPS
CHARGE CONTROLLER MAX ____ AMPS

4″

11 MAIN SERVICE PANEL

NEXT TO PV BACKFED BREAKER

2″

WARNING
INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS
OVERCURRENT DEVICE

4″

| | | | |
|---|---|---|---|
| Wells SOLAR & ELECTRICAL SERVICES | WELLS SOLAR & ELECTRICAL SERVICES<br>3900 DROSSET LN. Unit -H<br>AUSTIN , TX. 78744 | 10.36 kW PV System | Mary Newsome<br>536 Adams<br>San Antonio, Tx. 78210 |

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 (Type 1) for NEC 2011 690.11 compliance
- 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 C12.1

# 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<br>10000 @240V | 11400 | VA |
| Max. AC Power Output | 3300 | 4150 | 5400 @ 208V<br>5450 @240V | 6000 | 8350 | 10800 @ 208V<br>10950 @240V | 12000 | VA |
| AC Output Voltage Min.-Nom.-Max.[1]<br>183 - 208 - 229 Vac | - | - | ✓ | - | - | ✓ | - | |
| AC Output Voltage Min.-Nom.-Max.[1]<br>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<br>21 @ 240V | 25 | 32 | 48 @ 208V<br>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<br>15.5 @ 240V | 18 | 23 | 33 @ 208V<br>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<br>98 @ 240V | 97.5 | 97.5 | 97 @ 208V<br>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: SExxxxA-US000NNR2 (for 7600W inverter:SE7600A-US002NNR2).
(4) Rapid shutdown kit P/N: SE1000-RSD-S1.
(5) -40 version P/N: SExxxxA-US000NNU4 (for 7600W inverter:SE7600A-US002NNU4).

RoHS

# SolarEdge Power Optimizer

## Module Add-On For North America

P300 / 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 / P400 / P405

| | | P300 (for 60-cell modules) | P400 (for 72 & 96-cell modules) | P405 (for thin film modules) | |
|---|---|---|---|---|---|
| **INPUT** | | | | | |
| Rated Input DC Power[1] | | 300 | 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 | | | Adc |
| Maximum DC Input Current | | 12.5 | | | Adc |
| Maximum Efficiency | | 99.5 | | | % |
| Weighted Efficiency | | 98.8 | | | % |
| Overvoltage Category | | II | | | |
| **OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING INVERTER)** | | | | | |
| Maximum Output Current | | 15 | | | Adc |
| Maximum Output Voltage | | 60 | | 85 | Vdc |
| **OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR 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 |
| Dimensions (W x L x H) | Pxxx-2 series | 141 x 212 x 40.5 / 5.55 x 8.34 x 1.59 | | | mm / in |
| | Pxxx-5 series | 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 48 / 5 x 5.97 x 1.89 | mm / in |
| Weight (including cables) | Pxxx-2 series | 950 / 2.1 | | | gr / lb |
| | Pxxx-5 series | 770 / 1.7 | 930 / 2.05 | 930 / 2.05 | gr / lb |
| Input Connector | | MC4 Compatible | | | |
| Output Wire Type / Connector | | Double Insulated; Amphenol | | | |
| Output Wire Length | | 0.95 / 3.0 | 1.2 / 3.9 | | m / ft |
| Operating Temperature Range | | -40 - +85 / -40 - +185 | | | ˚C / ˚F |
| Protection Rating | Pxxx-2 series | IP65 / NEMA4 | | | |
| | Pxxx-5 series | 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.