WYSSLING CONSULTING
CORPORATE EXPERIENCE WITH SMALL BUSINESS VALUE

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July 25, 2022

Posigen Solar
1600 Olden Avenue, Unit 10
Ewing, NJ 08638

Re: Engineering Services
Brown Residence
2215 Adams Street. New Orleans LA
8.300 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of rafters for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.
3. The addition of solar panels will not exceed the height of the existing building
4. The outermost part of the solar panels will be less than 6 inches off the existing slope of the existing roof.

B. Description of Structure:

Roof Framing: 2 x 6 dimensional lumber spaced at 16” on center.
Roof Material: Composite Asphalt Shingles
Roof Slope: 22 & 25 degrees
Attic Access: Accessible
Foundation: Permanent

C. Loading Criteria Used

- **Dead Load**
  - Existing Roofing and framing = 7 psf
  - New Solar Panels and Racking = 3 psf
  - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 0 psf
- **Wind Load** based on ASCE 7-16
  - Ultimate Wind Speed = 144 mph (based on Risk Category II)
  - Exposure Category C

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2018 International Residential Code, including provisions allowing existing structures to not require strengthening if the new loads do not exceed existing design loads by 105% for gravity elements and 110% for seismic elements. This analysis indicates that the existing rafters will support the additional panel loading without damage, if installed correctly.

D. Solar Panel Anchorage

1. The solar panels shall be mounted in accordance with the most recent K-2 installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal force for a $^{5}/_{16}$" lag screw is 235 lbs per inch of penetration as identified in the National Design Standards (NDS) of timber construction specifications. Based on a minimum penetration depth of 2½", the allowable capacity per connection is greater than the design withdrawal force (demand). Considering the variable factors for the existing roof framing and installation tolerances, the connection using one $^{5}/_{16}$" diameter lag screw with a minimum of 2½" embedment will be adequate and will include a sufficient factor of safety.
3. Considering the wind speed, roof slopes, size and spacing of the framing, and condition of the roof, the panel supports shall be placed no greater than 48" on centers.
4. Panel supports connections shall be staggered to distribute load to adjacent framing members.

Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2018 IRC, current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,

Scott E. Wyssling, PE
Louisiana License No. 44582

Date Signed 7/25/22

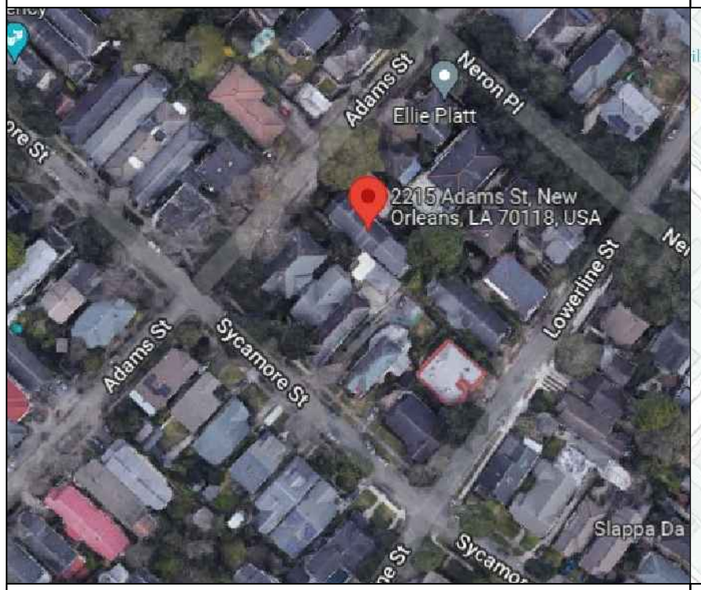
ABBREVIATIONS

A	AMPERE
AC	ALTERNATE CURRENT
BLDG	BUILDING.
CONC	CONCRETE
C	COMBINER BOX
D	DISTRIBUTION PANEL
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
(E)	EXISTING
EMT	ELECTRICAL METALLIC TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
HDG	HOT DIPPED GALVANIZED
I	CURRENT
Imp	CURRENT AT MAX POWER
INVS	INVERTERS
Isc	SHORT CIRCUIT CURRENT
kVA	KILOVOLT AMPERE
kW	KILOWATT
LBW	LOAD BEARING WALL
MIN	MINIMUM
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
P	PANEL BOARD
PL	PROPERTY LINES
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
S	SUBPANEL
SCH	SCHEDULE
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DIAGRAMS
STC	STANDARD TESTING CONDITIONS
SWH	SOLAR WATER HEATER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
Vmp	VOLTAGE AT MAX POWER
Voc	VOLTAGE AT OPEN CIRCUIT
W	WATT
3R	NEMA 3R, RAIN TIGHT

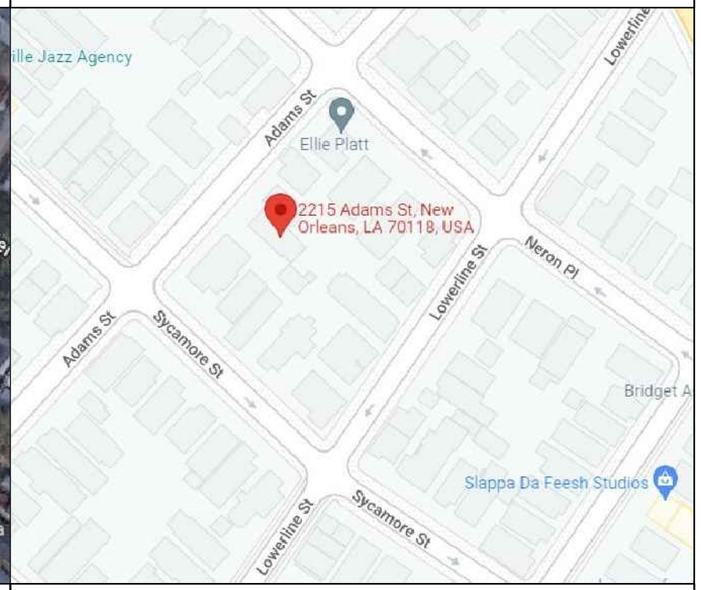
ELECTRICAL NOTES

1. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17.
2. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.
3. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.
4. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH NEC. 250.97, 250.92(B)
5. DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER NEC. 690.31(E).
6. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
7. MODULE FRAMES SHALL BE GROUNDED AT THE UL-LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE.
8. ALL EXPOSED METAL PARTS (MODULE FRAMES, BOXES, ETC.) SHALL BE GROUNDED USING UL LISTED LAY-IN LUGS LISTED FOR THE PURPOSE.
9. MODULE FRAMES AND POSTS SHALL BE ELECTRICALLY CONTINUOUS WITH ATTACHED RAIL.
10. THE DC GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED ACCORDING TO NEC. 250.166(B) & 690.47.

AERIAL VIEW



VICINITY VIEW



APPLICABLE CODE

INTERNATIONAL BUILDING CODE 2018
INTERNATIONAL FIRE CODE 2018
INTERNATIONAL RESIDENTIAL CODE 2018
INTERNATIONAL MECHANICAL CODE 2018
INTERNATIONAL FUEL GAS CODE 2018
NFPA 70 NATIONAL ELECTRICAL CODE 2017

AHJ: ORLEANS PARISH

UTILITY: ENTERGY NEW ORLEANS

GENERAL NOTES

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. ALL INVERTERS AND ARRAYS ARE NEGATIVELY GROUNDED.
4. SOLAR MOUNTING FRAMES ARE TO BE GROUNDED.

INDEX

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POSIGEN SOLAR
819 Central Ave,Suite 210
New Orleans 70121
LICENSES
LA ELECTRICAL LICENSE
ELC.#58174

JOB NUMBER: 153284
UTILITY: ENTERGY NEW ORLEANS
RACKING: K2 CROSS RAIL SYSTEM
MODULES: (20) CANADIAN SOLAR CS3N-415MS
OPTIMIZER: (20) SOLAREDGE OPTIMIZER S440/P505
INVERTER: (1) SOLAREDGE SE7600H-US

OWNER:
DANIEL & KRISTEN KELLEY BROWN
2215 ADAMS ST. NEW ORLEANS LA 70118

Account Number : 96233994

DESCRIPTION:
DANIEL & KRISTEN KELLEY BROWN, RESIDENCE

8.3 kWDC ROOF SOLAR SYSTEM
PRODUCTION: 9,289 kWH

DESIGNED BY:
solaroot

REV:

STAMP:
STATE OF LOUISIANA
SCOTT E WYSSLING
License No. 34582
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
Date Signed 7/25/22

PV-1.0

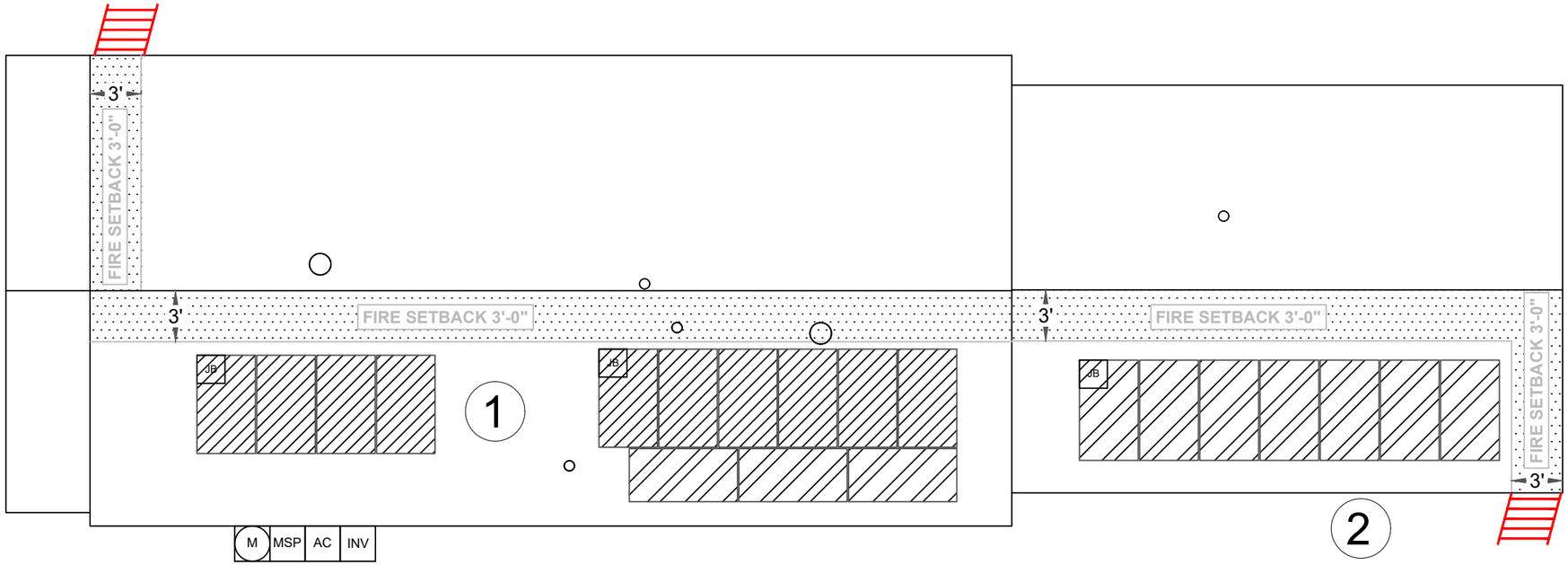
PAGE NAME:
COVER SHEET

SCALE:
NTS

DATE:
7/22/2022

NOTE: 6 INCHES GAP BETWEEN
SHINGLES AND TOP OF PANELS

ADAMS ST.
FOH



LEGEND:

- M — (E) UTILITY METER
- MSP — (E) MAIN SERVICE PANEL
- AC — AC DISCONNECT
- INV — INVERTER
- JB — JUNCTION BOX
- OBSTRUCTION
- MODULE
- FIRE CODE OFFSET
- GROUND ACCESS POINT

STRING'S

- STRING #1 - 10 MODULES
- STRING #2 - 10 MODULES

ROOF SECTION(S):

①	SLOPE:	25
	MODULE:	13
	AZIMUTH:	223
②	SLOPE:	22
	MODULE:	7
	AZIMUTH:	223

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PV-2.0
PAGE NAME: PLOT/SITE PLAN
SCALE: 1/8" = 1'-0"
DATE: 7/22/2022

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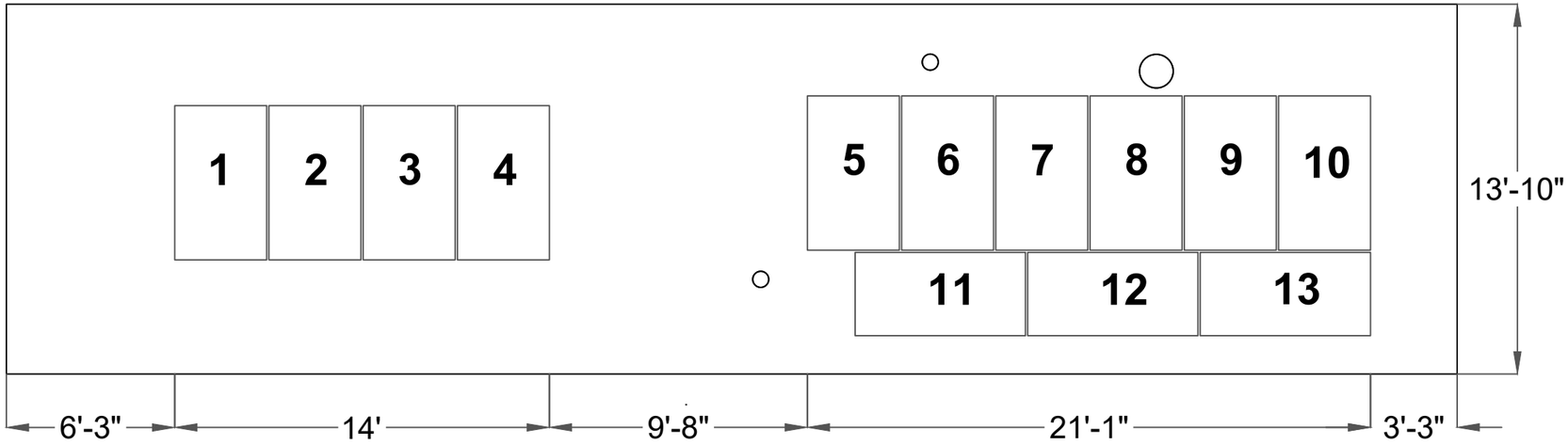

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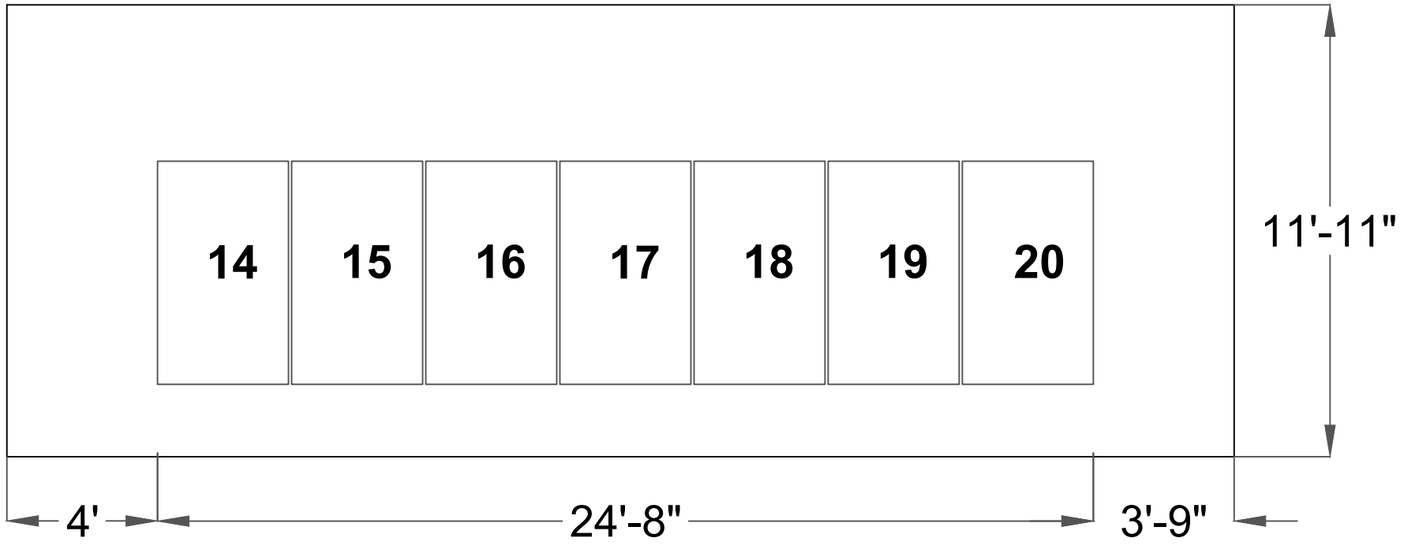

LEGEND

ROOF

OBSTRUCTION

TOTAL PENETRATION **COUNT**: 53

ARRAY #1	
RAFTER PROFILE	2" X 6"
RAFTER SPACING	16"OC
ROOF PITCH	25°
ARRAY PITCH	25°
ROOF AZIMUTH	223°
ARRAY AZIMUTH	223°
ROOF MATERIAL	ASPHALT SHINGLE
TOTAL NO OF PENETRATION	37

ARRAY #2	
RAFTER PROFILE	2" X 6"
RAFTER SPACING	16"OC
ROOF PITCH	22°
ARRAY PITCH	22°
ROOF AZIMUTH	223°
ARRAY AZIMUTH	223°
ROOF MATERIAL	ASPHALT SHINGLE
TOTAL NO OF PENETRATION	16

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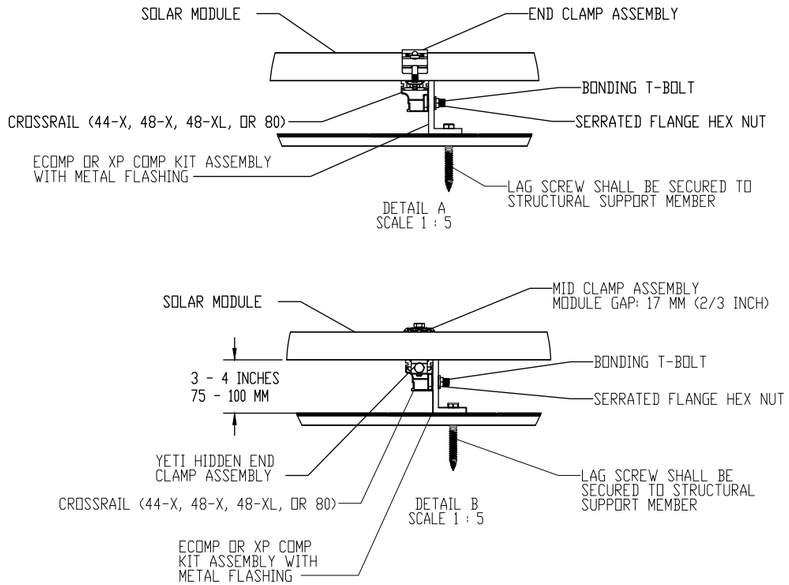
PV-3.0

PAGE NAME:
ATTACHMENT PLAN

SCALE:
3/16" = 1'-0"

DATE:
7/22/2022



1 **ENLARGED VIEW**

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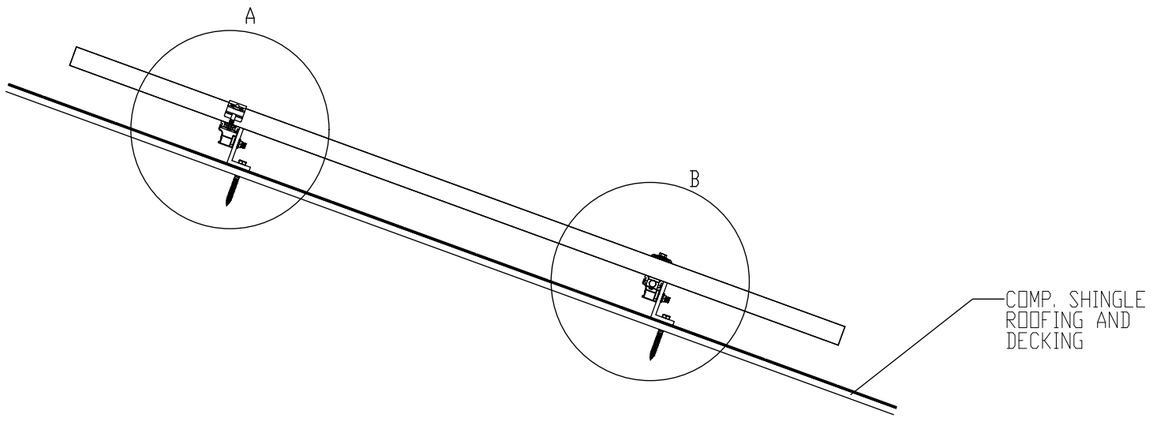
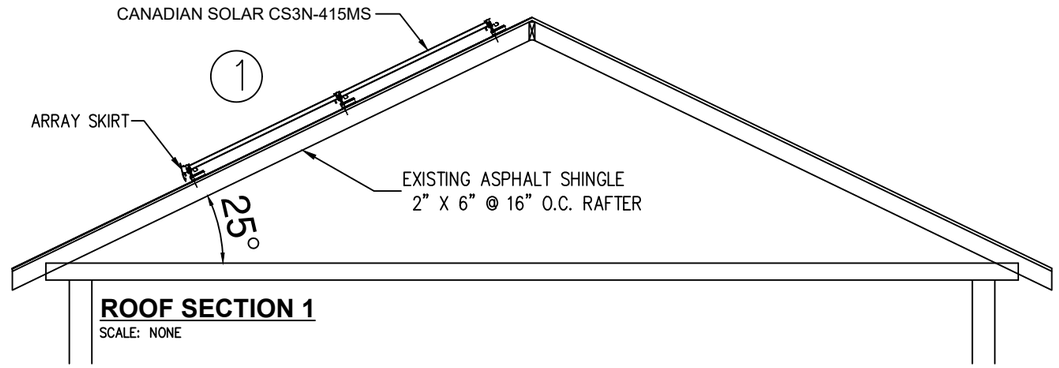


2 **ATTACHMENT DETAIL (SIDE VIEW)**

SCALE: NTS

FRAME SECTION



ROOF SECTION 1

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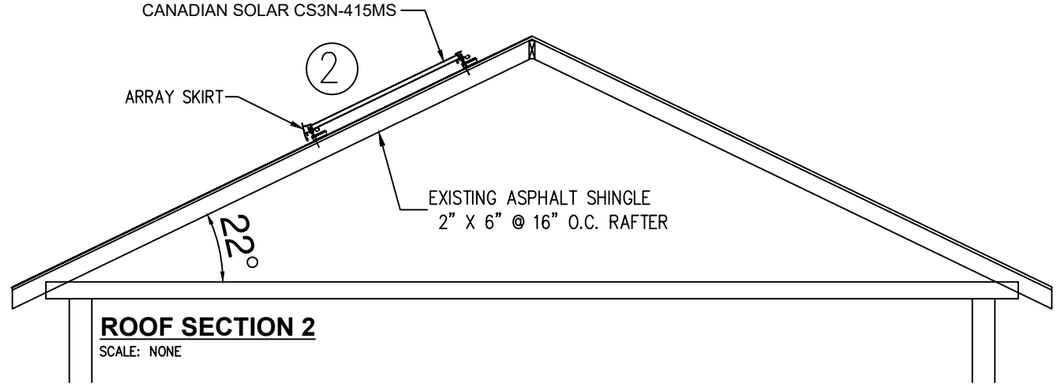

ROOF SECTION 2

SCALE: NONE

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Date Signed 7/25/22

PV-4.0

PAGE NAME:
ATTACHMENT DETAIL

SCALE:
NTS

DATE:
7/22/2022

MODULE SPECIFICATION	
MANUFACTURER & MODEL NO.	CANADIAN SOLAR CS3N-415MS
MAX. POWER-POINT CURRENT (IMP)	10.98 AMPS
MAX. POWER-POINT VOLTAGE (VMP)	37.8 VOLTS
OPEN-CIRCUIT VOLTAGE (VOC)	45.1 VOLTS
SHORT-CIRCUIT CURRENT (ISC)	11.68 AMPS
NOM. MAX. POWER AT STC (PMAX)	415 WATT

INVERTER CHARACTERISTICS - SOLAREDGE SE 7600H-US		
MAX OUTPUT POWER	7600	W
SYSTEM OPERATING VOLTAGE	400	V
MAX CONTINOUS OUTPUT CURRENT	32	A
MAX INPUT VOLTAGE	480	V
SYSTEM SHORT CIRCUIT CURRENT	15	A
MAX EFFICIENCY	99	%

OPTIMIZER CHARACTERISTICS SOLEREDGE P505/S440		
DC INPUT POWER	505W	440W
DC MAX INPUT VOLTAGE	80 V	60V
MAX OUTPUT CURRENT	15A	15A
MINIMUM STRING LENGTH	6	8
MAXIMUM STRING LENGTH	25	25
MAXIMUM POWER PER STRING	6000W	5700W

PHOTOVOLTAIC SYSTEM	
DC SYSTEM SIZE (kW)	8.300
AC SYSTEM SIZE (kW)	7.600
TOTAL NUMBER OF MODULES	20
NOMINAL AC VOLTAGE	240V

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-14°
AMBIENT TEMP (HIGH TEMP 2%)	33°
CONDUIT HEIGHT	1.0"
ARRAY TOP TEMP	65°
CONDUCTOR TEMPERATURE RATE	90°

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

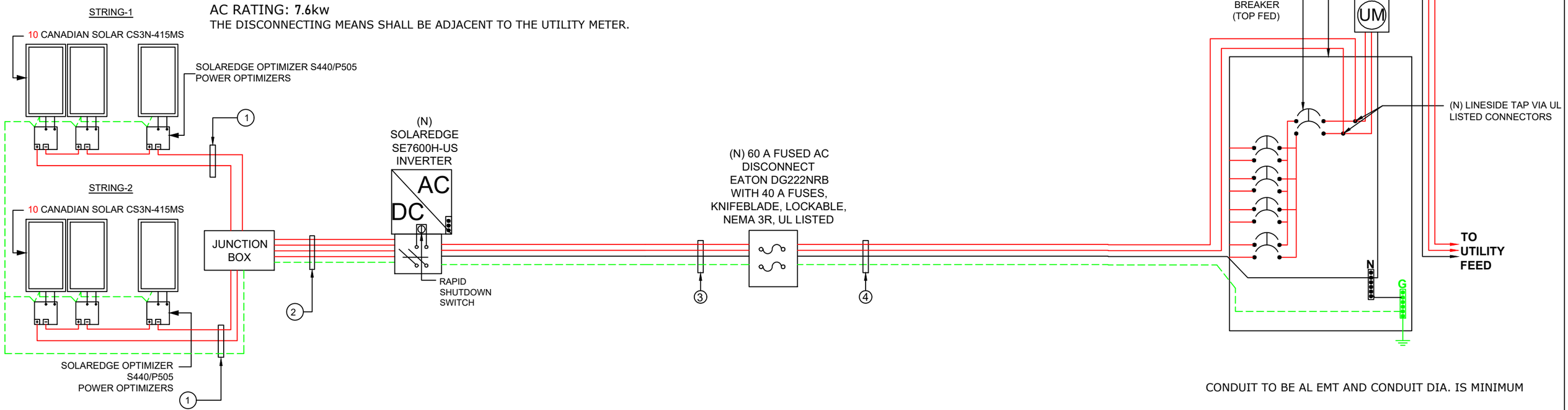
NOTE:-THE OPTIMIZER IS SELECTED AS PER SITE.

METER NUMBER: 10844397

DISCONNECTS	
QUANTITY	1
MAKE AND MODEL NO	EATON DG222NRB
RATED CURRENT	60
MAX RATED VOLTAGE	240V

UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.10 (D).
CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.10 (C).
ALL BOS COMPONENTS WITHIN 10 FT OF UTILITY METER.

AC RATING: 7.6kw
THE DISCONNECTING MEANS SHALL BE ADJACENT TO THE UTILITY METER.



CONDUIT TO BE AL EMT AND CONDUIT DIA. IS MINIMUM

WIRE TAG #	WIRE FROM:	CONDUIT	WIRE QTY	WIRE GAUGE:	WIRE TYPE	WIRE MATERIAL	TEMP RATING:	WIRE AMP		TEMP DE-RATE:		ADJUSTMENT FACTOR :		WIRE OCPD:	STRING WATTAGE	/	OPERATING VOLTAGE	= STRING AMPS	X NEC	= MAX AMPS	MAX. SYSTEM VOLTAGE:	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	IN AIR	2	#10	PV WIRE	COPPER	90°	40A	x	0.96	x	1.00	=	38.4A	4150	/	400	= 10.38	X 1.25	= 12.97A	480	#6	BARE
2	JUNCTION BOX TO INVERTER	AL/EMT-3/4"	4	#8	THWN-2	COPPER	90°	55A	x	0.96	x	0.80	=	42.24A	4150	/	400	= 10.38	X 1.25	= 12.97A	480	#10	THWN-2
3	INVERTER TO AC DISCONNECT	AL/EMT-3/4"	3	#8	THWN-2	COPPER	75°	50A	x	0.94	x	1.00	=	47.0A				= 32A	X 1.25	= 40.00A	240	#8	THWN-2
4	AC DISCONNECT TO MSP	AL/EMT-3/4"	3	#6	THWN-2	COPPER	75°	65A	x	0.94	x	1.00	=	61.1A				= 32A	X 1.25	= 40.00A	240	#8	THWN-2

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MODULES: (20) CANADIAN SOLAR CS3N-415MS
OPTIMIZER: (20) SOLAREDGE OPTIMIZER S440/P505
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2215 ADAMS ST. NEW ORLEANS LA 70118
Account Number : 96233994

DESCRIPTION:
DANIEL & KRISTEN KELLEY BROWN, RESIDENCE
8.3 kWDC ROOF SOLAR SYSTEM
PRODUCTION: 9,289 kWH

DESIGNED BY:
REV:

STAMP:

PV-5.0
PAGE NAME: **THREE-LINE DIAGRAM**
SCALE: NTS
DATE: 7/22/2022

	GROUNDING NOTES
1	ALL EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690
2	INSTALLER SHALL CONFIRM THAT MOUNTING SYSTEM HAS BEEN EVALUATED FOR COMPLIANCE WITH UL 2703 "GROUNDING AND BONDING" WHEN USED WITH PROPOSED PV MODULE.
3	PV MODULES SHALL BE GROUNDED TO MOUNTING RAILS USING MODULE LUGS OR RACKING INTEGRATED GROUNDING CLAMPS AS ALLOWED BY LOCAL JURISDICTION. ALL OTHER EXPOSED METAL PARTS SHALL BE GROUNDED USING UL-LISTED LAY-IN LUGS.
4	GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLOR CODED GREEN, OR MARKED GREEN IF #4AWG OR LARGER
5	AC SYSTEM GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE A MINIMUM SIZE #8AWG WHEN INSULATED, #6AWG IF BARE WIRE.
6	IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
7	EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC ARTICLE 690.45, AND BE A MINIMUM OF #10AWG WHEN NOT EXPOSED TO DAMAGE, AND #6AWG SHALL BE USED WHEN EXPOSED TO DAMAGE

NOTES :

1. *MATING CONNECTORS SHALL COMPLY WITH NEC 690.33.*
2. *SOLAR EDGE SYSTEM MEETS REQUIREMENTS FOR PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM (PVRSS), AS PER NEC 690.12(B).*
3. *THE SPECIFIED OPTIMIZER CAN BE SUBSTITUTED WITH A P400, P405, P505, P401, OR P485. THESE OPTIMIZERS HAVE AN INPUT VOLTAGE WINDOW WIDE ENOUGH TO ACCOMMODATE THE OUTPUT VOLTAGE RANGE OF THE MODULE AT THE DESIGN TEMPERATURES, HAVE A MAX INPUT CURRENT RATING THAT IS ABOVE THE MAX OUTPUT CURRENT OF THE MODULE, AND A MAX POWER INPUT THAT IS ABOVE THE RATED POWER OUTPUT OF THE MODULE.*
4. *DC PV CONDUCTORS ARE NOT SOLIDLY-GROUNDED. NO DC PV CONDUCTOR SHALL BE WHITE- OR GRAY-COLORED*
5. *ALL METAL ENCLOSURES, RACEWAYS, CABLES AND EXPOSED NONCURRENT-CARRYING METAL PARTS OF EQUIPMENT SHALL BE GROUNDED TO EARTH AS REQUIRED BY NEC 250.4(A) AND PART III OF ARTICLE 250 AND EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45. THE GROUNDING ELECTRODE SYSTEM SHALL ADHERE TO NEC 690.47(A) AND NEC 250.169. THE DC GROUNDING ELECTRODE SHALL BE SIZED ACCORDING TO NEC 250.166 AND INSTALLED IN COMPLIANCE WITH NEC 250.64.*
6. *MAX DC VOLTAGE OF ARRAY FIXED BY THE INVERTER AT 380V REGARDLESS OF TEMPERATURE. THE MAX DC VOLTAGE OF THE MODULE AT -15°C IS 53.2V (-15°C - 25°C) X -0.138V/C + 47.7V = 53.2V).*
7. *POINT-OF-CONNECTION IS ON THE SUPPLY SIDE OF SERVICE DISCONNECT, INSIDE PANELBOARD ENCLOSURE USING UNUSED TERMINALS, TERMINALS THAT ARE SUITABLE FOR DOUBLE LUGGING, OR USING OTHER LOCALLY-APPROVED METHODS AND HARDWARE, IN COMPLIANCE WITH NEC 705.12(A). THE PANELBOARD SHALL HAVE SUFFICIENT SPACE TO ALLOW FOR ANY TAP HARDWARE AS REQUIRED BY NEC 110.3 AND NEC 312.8(A)*
8. *We require the disconnect to be located adjacent to the meter base and have turned down an installation recently that was within 10' of the meter because it was around the corner from the meter base.*

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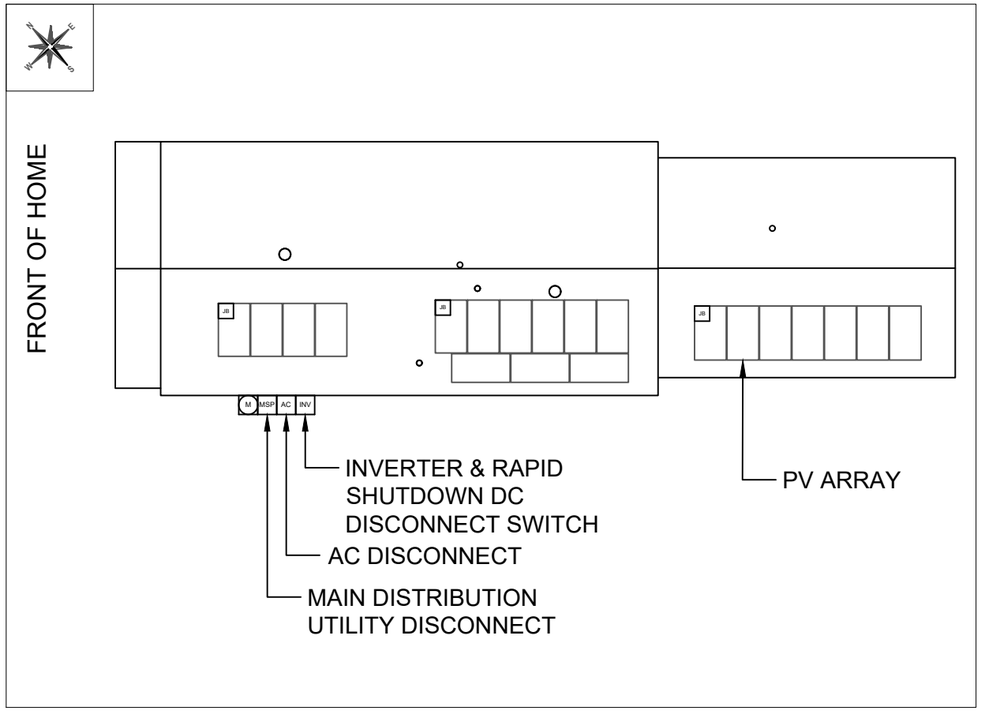
DESIGNED BY:
REV:

STAMP:

PV-5.1
PAGE NAME: **ELECTRICAL NOTES**
SCALE: NTS
DATE: 7/22/2022

CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:



2215 Adams St. New Orleans LA 70118

DIRECTORY

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN: NEC 690.56(B)&(C), [NEC 705.10])

PosiGen
Solar • Energy Efficiency • Roofing

POSIGEN SOLAR
819 Central Ave,Suite 210
New Orleans 70121

LICENSES
LA ELECTRICAL LICENSE
ELC.#58174

JOB NUMBER: 153284

UTILITY: ENTERGY NEW ORLEANS

RACKING: K2 CROSS RAIL SYSTEM

MODULES: (20) CANADIAN SOLAR CS3N-415MS

OPTIMIZER: (20) SOLAREDGE OPTIMIZER S440/P505

INVERTER: (1) SOLAREDGE SE7600H-US

OWNER:
DANIEL & KRISTEN KELLEY BROWN
2215 ADAMS ST. NEW ORLEANS LA 70118

Account Number : 96233994

DESCRIPTION:
DANIEL & KRISTEN KELLEY BROWN, RESIDENCE

8.3 kWDC ROOF SOLAR SYSTEM
PRODUCTION: 9,289 kWH

DESIGNED BY:

REV:

STAMP:

PV-6.0

PAGE NAME:
PLACARD

SCALE:
NTS

DATE:
7/22/2022

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 1
FOR PV DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION.
[NEC 690.13(B)]

WARNING
THIS EQUIPMENT IS FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

LABEL 2
PLACED ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER IF TIE IN CONSISTS OF LOAD SIDE CONNECTION TO BUSBAR.
[NEC 705.12(B)(2)(3)(b)]

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL 3
PLACED ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER IF TIE IN CONSISTS OF LOAD SIDE CONNECTION TO BUSBAR.
[NEC 705.12(B)(2)(3)(c)]

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

LABEL 4
EQUIPMENT CONTAINING OVERCURRENT DEVICES IN CIRCUITS SUPPLYING POWER TO A BUSBAR OR CONDUCTOR SUPPLIED FROM MULTIPLE SOURCES SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES [NEC 705.12(B)(3)]

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 32
NOMINAL OPERATING AC VOLTAGE: 240

LABEL 5
AT POINT OF INTERCONNECTION, MARKED AT AC DISCONNECTING MEANS.
[NEC 690.54, NEC 690.13 (B)]

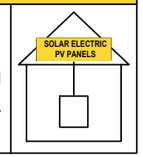
LABELING NOTES:
1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2017 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21(B)(3)]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL 6
AT DIRECT-CURRENT EXPOSED RACEWAYS, CABLE TRAYS, COVERS AND ENCLOSURES OF JUNCTION BOXES, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.
[NEC 690.31(G)(3&4)]

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

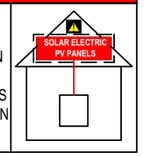
TURN RAPID SHUTDOWN SWICH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY



LABEL 7
FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY:
SIGN TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.
[NEC 690.56(C)(1)(A)]

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT

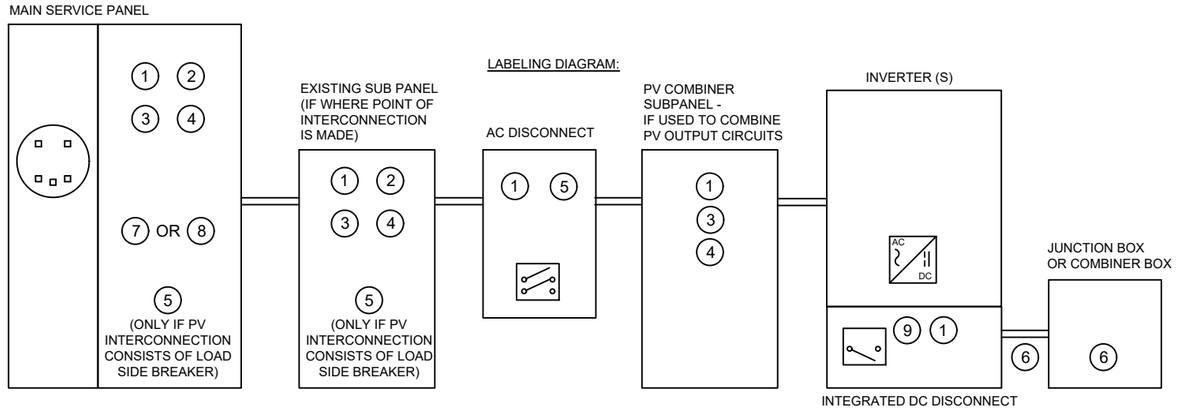


LABEL 8
FOR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY:
SIGN TO BE LOCATED ON OR NO MORE THAN 3 FT AWAY FROM SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.
[NEC 690.56(C)(1)(b)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 9
SIGN LOCATED AT RAPID SHUT DOWN DISCONNECT SWITCH [NEC 690.56(C)(3)].

LABELING DIAGRAM:



*ELECTRICAL DIAGRAM SHOWN ABOVE IS FOR LABELING PURPOSES ONLY. NOT AN ACTUAL REPRESENATION OF EQUIPMENT AND CONNECTIONS TO BE INSTALLED. LABEL LOCATIONS PRESENTED MAY VERY DEPENDING ON TYPE OF INTERCONNECTION METHOD AND LOCATION PRESENTED ON THE ELECTRICAL DIAGRAM PAGE.

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DESCRIPTION:
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8.3 kWDC ROOF SOLAR SYSTEM
PRODUCTION: 9,289 kWH

DESIGNED BY:
REV:

STAMP:

PV-7.0
PAGE NAME: **SAFETY LABELS**
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DATE: 7/22/2022

Bill Of Materials

DANIEL & KRISTEN KELLEY BROWN
2215 ADAMS ST. NEW ORLEANS LA 70118

QTY	Part #	Description
Electrical Equipment		
20	CANADIAN SOLAR CS3N-415MS	CANADIAN SOLAR CS3N-415MS Solar Modules
1	SOLAREDGE SE7600H-US (240V)	SOLAREDGE SE7600H-US (240V) Inverter(s)
20	SOLAREDGE OPTIMIZER S440/P505	SOLAREDGE OPTIMIZER S440/P505 Optimizers
1	SE-GSM-R05-US-S1	SolarEdge GSM w/ 5 Year Plan
1	60A FUSED AC Disconnect	AC Disconnect, NEMA 3R, 60A, 240VAC, 2-Pole
3	Junction Box	Junction Box
2	Tap Connectors	Tap Connectors
Breakers and Fuses		
1	40A Fuses	General 40A Fuses
Racking		
2	4000021 (180" mill)	CrossRail 44-X (shown) all CR profiles applicable
4	4000019 (166" mill)	CrossRail 44-X (shown) all CR profiles applicable
2	4000051 (mill)	CrossRail 44-X Rail Connector
32	4000601-H (mill)	CrossRail Mid Clamp
16	4000429 (mill)	CrossRail (Standard) End Clamp
53	4000630 (mill)	L-Foot Slotted Set
4	4000006-H	Everest Ground Lug

NEW

Preliminary Technical Information Sheet

CanadianSolar

HiKu Mono

400 W ~ 425 W

CS3N-400|405|410|415|420|420|425MS

MORE POWER

- Module power up to 425 W
  Module efficiency up to 20.9 %
- Lower LCOE & BOS cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Better shading tolerance

MORE RELIABLE

- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, enhanced wind load up to 2400 Pa*

12 Years Enhanced Product Warranty on Materials and Workmanship*

25 Years Linear Power Performance Warranty*

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.55%

*According to the applicable Canadian Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

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

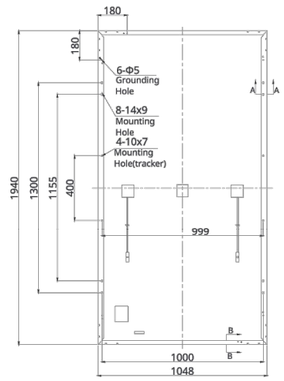
CANADIAN SOLAR (USA), INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. No. 1 module supplier for quality and performance/price ratio in IHS Module Customer Insight Survey. As a leading PV project developer and manufacturer of solar modules with over 46 GW deployed around the world since 2001.

* For detailed information, please refer to the Installation Manual.

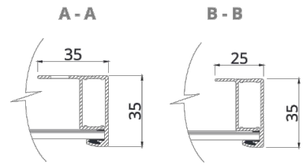
CANADIAN SOLAR (USA), INC.
3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

ENGINEERING DRAWING (mm)

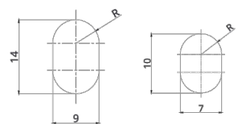
Rear View



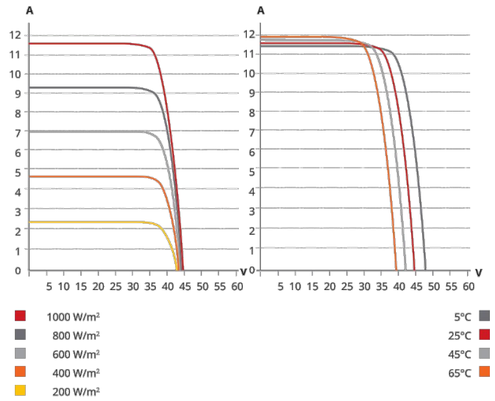
Frame Cross Section



Mounting Hole



CS3N-410MS / I-V CURVES



ELECTRICAL DATA | STC*

CS3N	400MS	405MS	410MS	415MS	420MS	425MS
Nominal Max. Power (Pmax)	400 W	405 W	410 W	415 W	420 W	425 W
Opt. Operating Voltage (Vmp)	37.2 V	37.4 V	37.6 V	37.8 V	38.0 V	38.2 V
Opt. Operating Current (Imp)	10.76 A	10.83 A	10.92 A	10.98 A	11.06 A	11.13 A
Open Circuit Voltage (Voc)	44.5 V	44.7 V	44.9 V	45.1 V	45.3 V	45.5 V
Short Circuit Current (Isc)	11.50 A	11.56 A	11.62 A	11.68 A	11.74 A	11.80 A
Module Efficiency	19.7%	19.9%	20.2%	20.4%	20.7%	20.9%
Operating Temperature	-40°C ~ +85°C					
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)					
Module Fire Performance	TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730)					
Max. Series Fuse Rating	20 A					
Application Classification	Class A					
Power Tolerance	0 ~ + 10 W					

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	132 [2 X (11 X 6)]
Dimensions	1940 X 1048 X 35 mm (76.4 X 41.3 X 1.38 in)
Weight	22.5 kg (49.6 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4 mm² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	Portrait: 400 mm (15.7 in) (+) / 280 mm (11.0 in) (-); landscape: 1250 mm (49.2 in)*
Connector	T4 series or MC4
Per Pallet	30 pieces
Per Container (40' HQ)	720 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

ELECTRICAL DATA | NMOT*

CS3N	400MS	405MS	410MS	415MS	420MS	425MS
Nominal Max. Power (Pmax)	298 W	302 W	306 W	310 W	313 W	317 W
Opt. Operating Voltage (Vmp)	34.7 V	34.9 V	35.1 V	35.2 V	35.4 V	35.6 V
Opt. Operating Current (Imp)	8.60 A	8.66 A	8.72 A	8.81 A	8.85 A	8.91 A
Open Circuit Voltage (Voc)	41.9 V	42.1 V	42.2 V	42.4 V	42.6 V	42.8 V
Short Circuit Current (Isc)	9.28 A	9.33 A	9.38 A	9.42 A	9.47 A	9.52 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.35 % / °C
Temperature Coefficient (Voc)	-0.27 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Canadian Solar Inc. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

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Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

[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

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

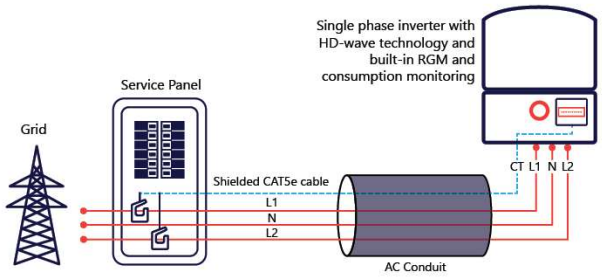
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional[3]							
Consumption metering								
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG					1" Maximum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG					1" Maximum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25				<50			dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4 . For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

[4] Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



RoHS

Power Optimizer
For Residential Installations

S440, S500

POWER OPTIMIZER

Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

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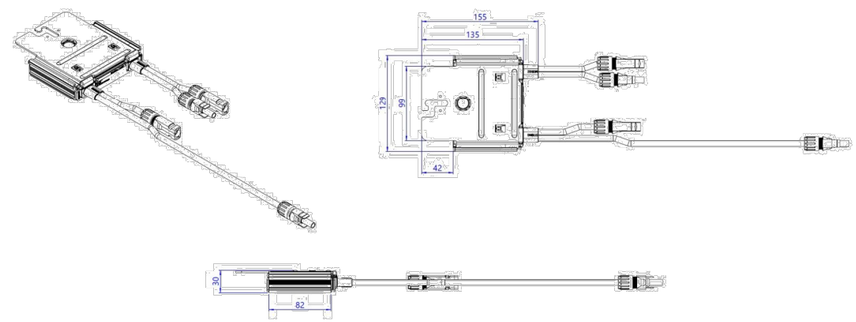
Power Optimizer
For Residential Installations
S440, S500

	S440	S500	UNIT
Rated Input DC Power(1)	440	500	W
Absolute Maximum Input Voltage (Voc)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15	Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	15		Adc
Maximum Output Voltage	60		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1		Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 155 x 30		mm
Weight (including cables)	655 / 1.5		gr / lb
Input Connector	MC4(2)		
Input Wire Length	0.1		m
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10		m
Operating Temperature Range(3)	-40 to +85		°C
Protection Rating	IP68 / NEMA6P		
Relative Humidity	0 - 100		%

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed
(2) For other connector types please contact SolarEdge
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter		Single Phase HD-Wave	Three Phase	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500	8	16	18	
Maximum String Length (Power Optimizers)		25	50		
Maximum Nominal Power per String(4)		5700	11250(5)	12750(6)	W
Parallel Strings of Different Lengths or Orientations		Yes			

(4) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(5) For the 230/400V grid: it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W
(6) For the 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W
(7) It is not allowed to mix S-series and P-series Power Optimizers in new installations



CE RoHS

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- 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
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

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Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

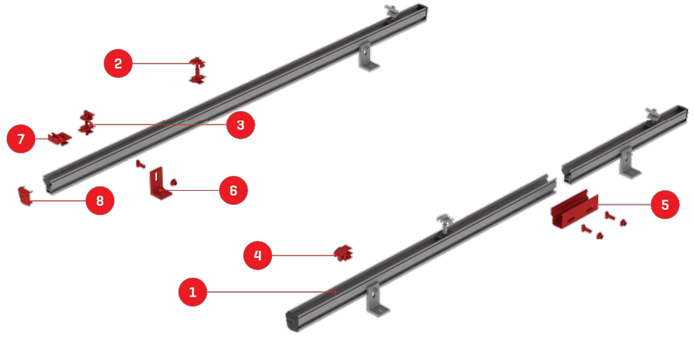
Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power(1)	370	400	430	485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125(2)	83(2)	Vdc
MPPT Operating Range	8 - 60	8 - 80	8-60	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	10.1	12.5	11	14	Adc
Maximum DC Input Current	13.75	12.5	14.65	12.5	17.5	
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			80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)						
Safety Output Voltage per Power Optimizer	1 ± 0.1					Vdc
STANDARD COMPLIANCE						
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class II safety), UL1741, NEC/PVRSS					
Material	UL94 V-0 , UV Resistant					
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)	129 x 153 x 27.5 / 5.1 x 6 x 1.1	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4	750 / 1.7	655 / 1.5	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4(3)			MC4(3)	MC4(3)	
Input Wire Length	0.16 / 0.5					m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range(4)	-40 to +85 / -40 to +185					°C / °F
Protection Rating	IP68 / Type6B					
Relative Humidity	0 - 100					%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed
(2) NEC 2017 requires max input voltage be not more than 80V
(3) For other connector types please contact SolarEdge
(4) Longer inputs wire lengths are available for use. For 0.9m input wire length order P401-xxxLxxx
(5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

PV System Design Using a SolarEdge Inverter(6)(7)		Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P370, P400, P401	8		10	18	
	P485, P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50	
Maximum Power per String		5700(8) (6000 with SE7600-US - SE11400-US)	5250(8)	6000(9)	12750(10)	W
Parallel Strings of Different Lengths or Orientations		Yes				

(6) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(7) It is not allowed to mix P485/P505 with P370/P400/P401 in one string
(8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
(9) For 208V grid: it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W
(10) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

Intertek RoHS



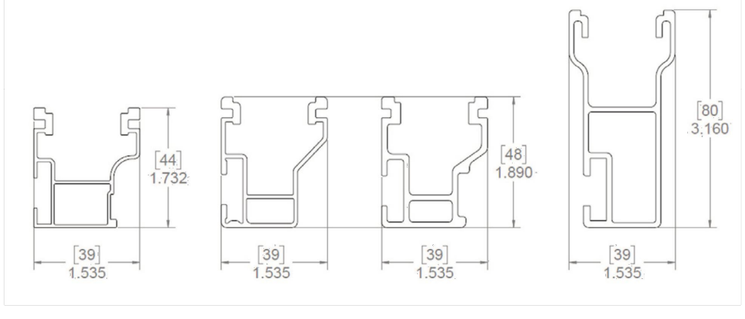
CrossRail System

TECHNICAL SHEET

Item Number	Description	Part Number
1	CrossRail 44-X (shown) all CR profiles applicable	4000019 (166" mill), 4000020 (166" dark) , 4000021 (180" mill), 4000022 (180" dark)
2	CrossRail Mid Clamp	4000601-H (mill), 4000602-H (dark)
3	CrossRail (Standard) End Clamp	4000429 (mill), 4000430 (dark)
4	Yeti Hidden End Clamp for CR	4000050-H
5	CrossRail 44-X Rail Connector (shown) CR 48-X, 48-XL Rail Connector available	4000051 (mill), 4000052 (dark)
6	L-Foot Slotted Set	4000630 (mill), 4000631 (dark)
7	Everest Ground Lug	4000006-H
8	CrossRail 44-X End Cap (shown) CrossRail 48-X, 48-XL and 80 available	4000067

We support PV systems
Formerly Everest Solar Systems

Units: [mm] in



Technical Data

	CrossRail System
Roof Type	Composition shingle, tile, standing seam
Material	High corrosion resistance stainless steel and high grade aluminum
Flexibility	Modular construction, suitable for any system size, height adjustable
PV Modules	For all common module types
Module Orientation	Portrait and landscape
Roof Connection	Drill connection into rafter
Structural Validity	IBC compliant, stamped engineering letters available for all solar states
Warranty	25 years

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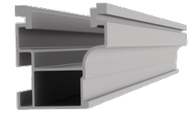
CROSSRAIL 44-X



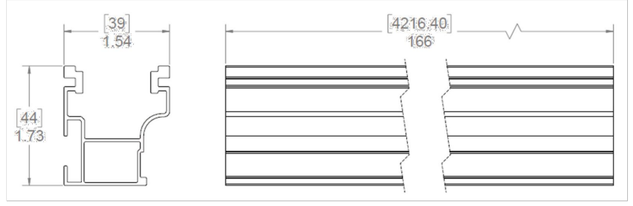
Mechanical Properties

	CrossRail 44-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi (260 MPa)
Yield Strength	34.8 ksi (240 MPa)
Weight	0.47 lbs/ft (0.699 kg/m)
Finish	Mill or Dark Anodized

Sectional Properties

	CrossRail 44-X
Sx	0.1490 in3 (0.3785 cm3)
Sy	0.1450 in3 (0.3683 cm3)
A (X-Section)	0.4050 in2 (1.0287 cm2

Units: [mm] in



Notes:

- Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- UL2703 Listed System for Fire and Bonding

KUP-L-Tap®
Insulation Piercing Connectors
Dual Rated

RoHS Compliant

UL LISTED 453G

SA LR-29601

TYPE
IPC

Insul-Eater®

Features
- Body is molded from tough, resilient glass-filled nylon
- Compact design
- Tin plated copper contact teeth
- Insulation piercing
- Perforated end tabs
- Pre-filled with silicone lubricant
- Versatile
- Increased safety

- Horizontal line grid
- Temperature rating 90˚ C

Benefits
- Provides high degree of breakage resistance and long dependable use
- Saves space
- Easily penetrates most types of insulation
- No need to strip the conductor which saves installation time
- Break out easily by hand
- Prevents oxidation and moisture from entering the contact area
- Can be used as a splice or tap connector
- Contains no external energized parts. Can be installed "hot" on energized conductors providing tap conductor is not under load.
- Provides a visual guide for proper installation of conductors

C

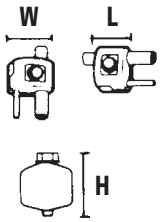



Fig. 1


Fig. 2


Fig. 3


Fig. 4

Catalog Number	Figure Number	Wire Range		Volts	Current Rating		Dimensions			Torque	Bolt Head
		Main	Tap		CU	AL	L	W	H	Ft. Lbs.	Size
IPC-1/0-2	3	1/0-8	2-8	300 (480 Grounded Y System)	130	100	1-7/32	1-15/32	2-5/16	16	1/2
IPC-4/0-6	2	4/0-4	6-14	600	75	60	1-27/64	1	1-7/8	13	1/2
IPC-4/0-2/0	3	4/0-2	2/0-6	600	195	150	1-21/32	1-7/8	2-7/8	25	1/2
IPC-250-4/0	2	250kcmil-1	4/0-6	600	260	205	1-7/8	2-11/32	3-11/32	30	5/8
IPC-350-4/0	3	350kcmil-4/0	4/0-10	300 (480 Grounded Y System)	260	205	1-43/64	2-7/16	3-1/8	25	5/8
IPC-350-350	4	350kcmil-4/0	350kcmil-4/0	300 (480 Grounded Y System)	350	280	2-43/64	2-23/32	3-1/4	25	5/8
IPC-500-12	1	500kcmil-250kcmil	10-12	300 (480 Grounded Y System)	40	35	1-43/64	2-7/16	3-1/4	25	5/8
IPC-500-250	1	500kcmil-250kcmil	250kcmil-4	600	290	230	2-27/64	2-29/32	3-3/4	55	5/8-11/16
IPC-500-500	1	500kcmil-300kcmil	500kcmil-250kcmil	600	430	350	3-3/16	3-5/8	5	75	7/8-7/8
IPC-750-500	1	750kcmil-500kcmil	500kcmil-350kcmil	600	430	350	3-3/16	3-5/8	5	75	7/8-7/8

All wire sizes, unless noted otherwise, are American Wire Gauge (AWG)

Tested to UL 486A/B, UL File E6207

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In Canada: 1050 Lakeshore Road East, Mississauga, Ontario, Canada L5E 1E4 | PH: 905.274.2341 | FAX: 905.274.8763

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 101608**

Certificate Holder:

K2 Systems GmbH
Industriestr. 18
71272 Renningen
Germany

Scope: Development, production and distribution of innovative and customer-specific mounting systems for solar technology, including customer-oriented design calculations and services

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2020-03-09 until 2023-02-27.
First certification 2017
Date of recertification audit: 2020-02-28
Expiry date of last certification cycle: 2020-02-27

2020-03-09

TÜV Rheinland Cert GmbH
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