PROJECT DESCRIPTION

SYSTEM CAPACITY: 9.36 KW DC / 6.96 KW AC

PV PANELS: (24) CS3U-390MS (390W) BY CANADIAN SOLAR

COMBINER: (24) PV LINK BY GENERAC

INVERTER: (1) PWRCELL 7600 BY GENERAC

RACKING SYSTEM: XR100 SYSTEM BY IRON RIDGE SYSTEMS

PROJECT INFORMATION

PROJECT LATITUDE	30.123397	MIN AMBIENT TEMP	-5 ° C
PROJECT LONGITUDE	-82.647421	MAX AMBIENT TEMP	35 ° C
AHJ	COLUMBIA COUNTY	WIND EXPOSURE	C
		DESIGN WIND SPEED	119 MPH

DRAWINGS INDEX

GENERAL NOTES

PER FL. STATUTE 377.705 (REVISED 7/1/2017), I RAFAEL A. GONZALEZ SOTO, P.E. 83104 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE.

APPLICABLE CODES: 2020 FLORIDA BUILDING CODE 7TH EDITION, ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, FFPC 7TH EDITION, NFPA 2018, NFPA 70 AND NEC 2017.

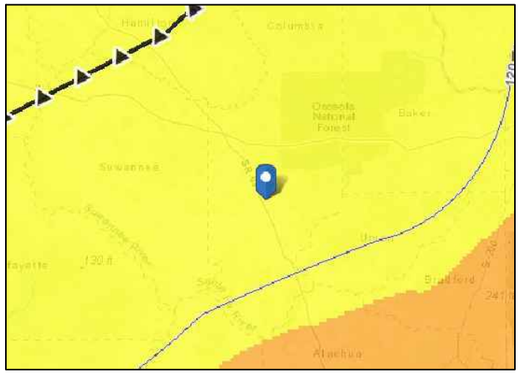
CONTRACTOR SHALL ENSURE ALL ROOF PENETRATIONS TO BE INSTALLED AND SEALED PER 2020 FLORIDA BUILDING CODE 7TH EDITION OR LOCAL GOVERNING CODE.

ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) 2017, LOCAL STATE CODES, AND OTHER APPLICABLE LOCAL CODES. MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS IN THE BUILDING. CONNECTORS TO BE TORQUED PER DEVICE LISTING, OR MANUFACTURERS RECOMMENDATIONS. NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED FOR PROPER GROUNDING.

REQUIRED SAFETY SIGNS AND LABELS SHALL BE PERMANENTLY ATTACHED BY ADHESIVE, OR OTHER MECHANICAL MEANS, LABELS SHALL COMPLY WITH ARTICLE 690 VI OF THE NEC 2017 OR OTHER APPLICABLE STATE AND LOCAL CODES. SEE LABELS AND MARKING PAGE FOR MORE INFORMATION.

RACKING ROOF MOUNT SYSTEM SHALL BE INSTALLED FOLLOWING MANUFACTURERS INSTRUCTION SPEC'S, INCLUDING ALL GROUNDING WEEB CLIPS, GROUND LUGS, AND RAIL SPLICE KITS FOR ELECTRICAL CONTINUITY.

MECAWIND TOOL IS BASED ON THE C&C WIND LOADS FOR ENCLOSED BUILDINGS. DESIGN WIND PRESSURES ARE CALCULATED USING ASCE 7-16 EQUATION 30.6-1. ALL NOTES IN FIGURES ASCE 7-16 30.4-1 AND 30.4-2(A,B AND /67C) HAVE BEEN INCORPORATED. MEAN ROOF HEIGHT MUST BE LESS THAN 60 FEET.



2 LOCATION MAP / WIND ZONES

N.T.S.

3 IRRADIANCE MAP

N.T.S.

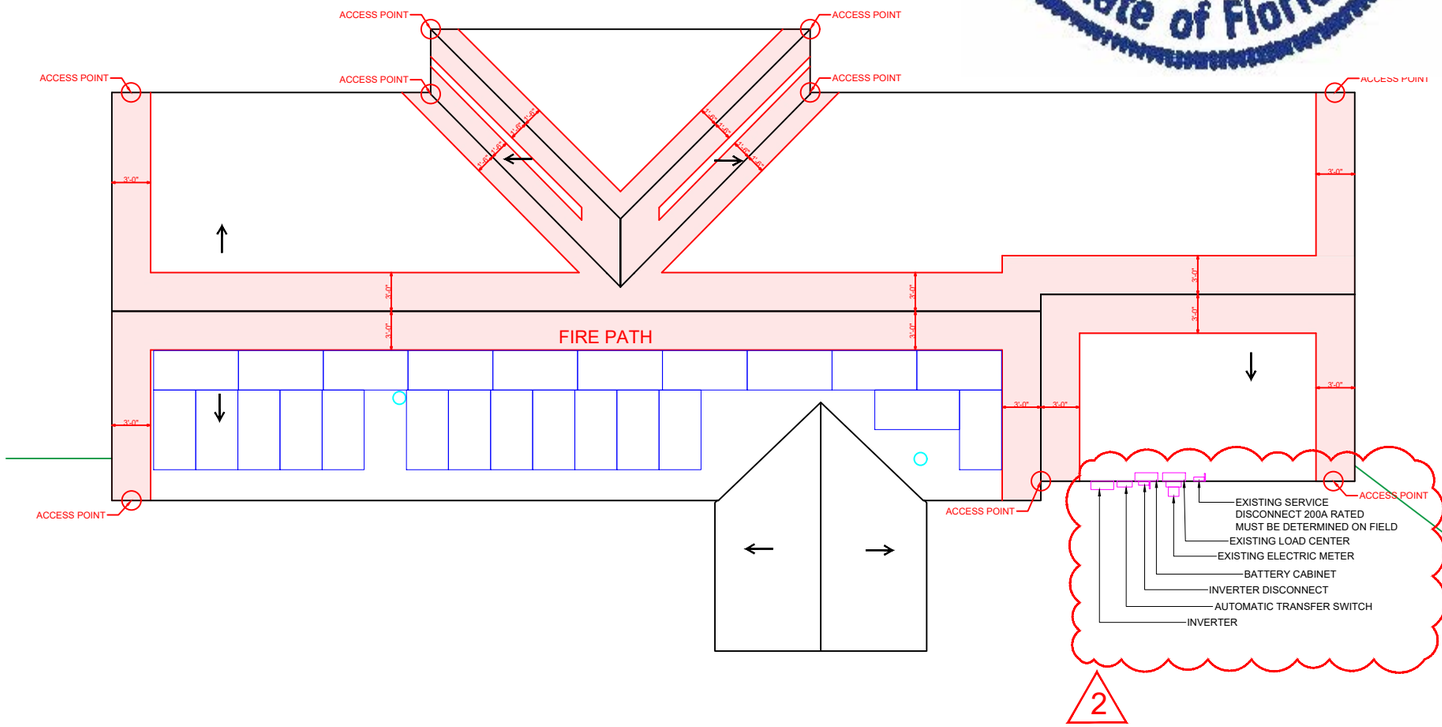
4 3D RENDERING

N.T.S.

NORTH

"PROPERTY SIDE FACING STREET"

Columbia County Building Department
Plans Reviewed for Code Compliance
State of Florida



1 ROOF PLAN VIEW / BOS LOCATION

N.T.S.

DOCUMENT CONTROL		DATE	sCAD	eCAD
ISSUED FOR PERMIT		8-2-22	JH	DM
REV	DESCRIPTION	DATE	sCAD	eCAD
1	INDEX AND EQUIPMENT REVISED	09-14-22	DM	DM
2	ENPHASE EQUIPMENT REVISED TO GENERAC	09-20-22	DM	DM

ENGINEER CONTACT INFORMATION

ENGIPARTNERS LLC
C.A. 32661
1825 PONCE DE LEON BLVD #114
CORAL GABLES, FL 33134

DESIGN@ENGIPARTNERS.COM

833 - 888 - 3644

ENGINEERING STAMP

Rafael A Gonzalez Soto
2022.09.23 14:09:36 -04'00'

CONTRACTOR CONTACT INFORMATION

SUN4
2222 PONCE DE LEON BLVD,
3RD FLOOR, CORAL GABLES, FL
33134

(786) 833 -7864
#CVC57137
#EC13008093

CONTRACTOR LOGO

SUN4

CUSTOMER: ISAAC HARRIS

PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025

PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: COVER SHEET

PROJECT ID: EP15365

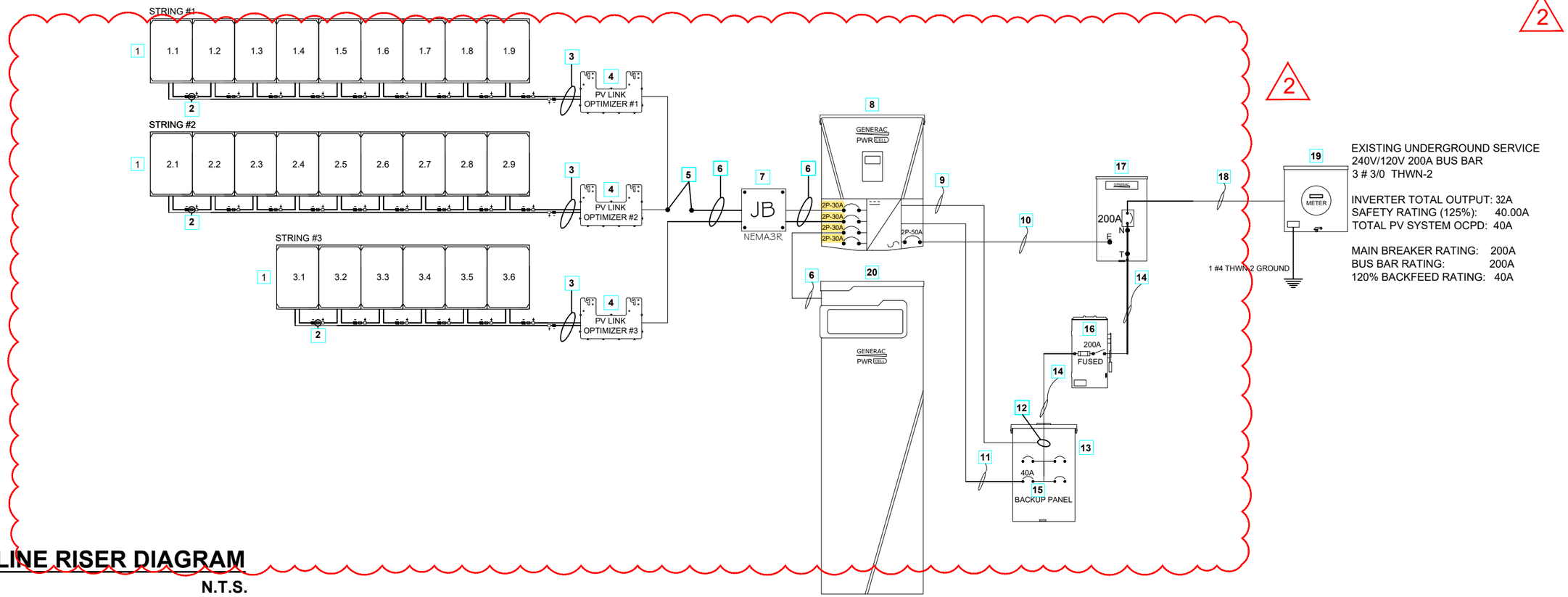
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE: 8-1-22

SHEET TITLE: C-1

WIRE TAG	WIRE SIZES, QUANTITY & TYPE			RACEWAY SIZE, TYPE & LOCATION			WIRE AMPACITY CALCULATIONS							ADDITIONAL INFORMATION			
										WIRE DE-RATED CALCULATION							
	CONDUCTOR QTY. SIZE & TYPE	NEUTRAL QTY. SIZE & TYPE	GROUND QTY. SIZE & TYPE	RACEWAY SIZE & TYPE	RACEWAY LOCATION	RACEWAY HEIGHT ABOVE ROOF	OUTPUT CURRENT	125% OF OUTPUT CURRRENT	MIN OCPD	WIRE RATING	AMBIENT TEMPERATURE COEFFICIENT	# OF CONDUCTORS COEFFICIENT	DE-RATES AMPACITY	DIST.	VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %
DC (BEFORE JB)	(4) #10 AWG PV WIRE	N/A	(1) #8 AWG BARE COPPER	NOT APPLICABLE	UNDER ARRAY	1/2" TO 3-1/2"	15A	18.8A	20A	40A	0.76	1	30A	10 FT.	350V	0.11%	6.4%
DC (AFTER JB)	(4) #10 AWG THWN-2	N/A	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	15A	18.8A	20A	40A	0.76	0.8	24.3A	20 FT.	350V	0.21%	8.1%
AC (INVERTER TO METER)	(2) #8 AWG THWN-2	(1) #8 AWG THWN-2	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	EXTERIOR WALL	"N/A"	32A	40.0A	40A	55A	1	1	55A	5 FT.	240V	0.1%	7.7%

2



2

1 ONE LINE RISER DIAGRAM

N.T.S.

LEGEND:

1	(24) CS3U-390MS (390W) BY CANADIAN SOLAR REFER TO D-1 SHEET	2	GENERAC SNAP RS801 REFER TO D-4 SHEET	3	2 #10 PV WIRE PER STRING 1 #8 BARE WIRE GROUND 3/4" EMT CONDUIT	4	GENERAC PV LINK SUBSTRING OPTIMIZER S2502
5	MULTI-CONTACT 32.0018 PV-AZB4, MC4 Y-CONNECTOR (1) MALE / (2) FEMALE, 1500V, 50A	6	2 #10 THWN-2 1 #10 THWN-2 GROUND 3/4" EMT CONDUIT (21.95% CONDUIT FILL)	7	NEMA 3R JUNCTION BOX	8	PWRCELL7600A BY GENERAC REFER TO D-4 SHEET
9	CAT5 CABLE FOR RJ-45 CONNECTOR BREAKOUT ADAPTER	10	2 #6 L1,L2 THWN-2 1 #6 THWN-2 NEUTRAL 1 #8 TWHN-2 GROUND 3/4" EMT CONDUIT	11	2 #8 L1,L2 THWN-2 1 #8 THWN-2 NEUTRAL 1 #8 TWHN-2 GROUND 3/4" EMT CONDUIT	12	GENERAC PWRCELL CT
13	EXISTING INTERIOR MAIN DISTRIBUTION PANEL	14	2 #3/0 L1,L2 THWN-2 1 #3/0 THWN-2 NEUTRAL 1 #4 THWN-2 GROUND 1 1/2" EMT CONDUIT	15	PV INTERCONNECTION - PV BREAKER	16	EXISTING INTERIOR MAIN PANEL DISCONNECT - 200A RATED W/200A FUSES
17	PWRCELL ATS - 200A SERVICE ENTRANCE RATED BY GENERAC REFER TO D-6 SHEET	18	2 #3/0 THWN-2 1 #3/0 THWN-2 GROUND 1 1/2" EMT CONDUIT	19	UTILITY ELECTRICAL SERVICE	20	PWRCELL 18KW BATTERY BY GENERAC REFER TO D-5 SHEET

2

DOCUMENT CONTROL	DATE	sCAD	eCAD
ISSUED FOR PERMIT	8-2-22	JH	DM

REV	DESCRIPTION	DATE	sCAD	eCAD
1	LEGEND AND EQUIPMENT REVISED	09-14-22	DM	DM
2	ENPHASE EQUIPMENT REVISED TO GENERAC	09-20-22	DM	DM

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ENGINEERING STAMP

Rafael A Gonzalez Soto
2022.09.23 14:09:51 -04'00'

CONTRACTOR CONTACT INFORMATION
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#CVC57137
#EC13008093

CONTRACTOR LOGO

SUN4

CUSTOMER: ISAAC HARRIS

PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025

PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: ONE LINE RISER DIAGRAM

PROJECT ID: EP15365

ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE: 8-1-22

SHEET TITLE: E-1

⚠ WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
AC DISCONNECT,
POINT OF INTERCONNECTION
PER CODE: NEC 690.13 (B)

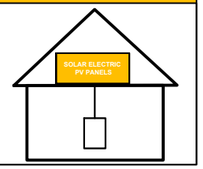
⚠ WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 110.27 (C)
OSHA 1910.145(f)(7)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



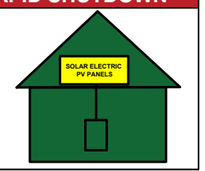
LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 690.56(C)(1)(a)

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SYSTEM SHUTDOWN

LABEL LOCATION:
AC DISCONNECT
POINT OF INTERCONNECTION
PER CODE: NEC 690.56(C)

EMERGENCY RESPONDER
THIS SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN THE ENTIRE PV SYSTEM.



LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: FFPC 7TH EDITION: 11.12.2.1.1.1.1

INVERTER #1

2

NOMINAL OPERATING AC VOLTAGE	240 V
NOMINAL OPERATING AC FREQUENCY	60 HZ
MAXIMUM AC POWER	6.96 KW
MAXIMUM AC CURRENT	32A
MAX OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION	N/A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.52

MAXIMUM VOLTAGE	480 VDC
MAXIMUM CIRCUIT CURRENT	30 A
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)	15A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.53

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:	32 A
NOMINAL OPERATING AC VOLTAGE:	240V

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.54

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

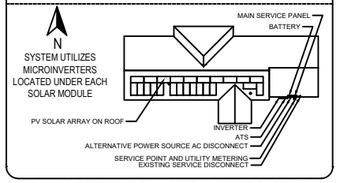
LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.13 (B)

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
MAIN SERVICES
DISCONNECT, DC CONDUIT
PER CODE: NEC 690.31 (G) (3)

⚠ CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:



PER CODE: NEC 690.56 (B) , NEC705.10

⚠ WARNING DUAL POWER SOURCE

SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
POINT OF INTERCONNECTION
PER CODE: NEC 705.12 (B)(3)

⚠ WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF INTERCONNECTION
PER CODE: NEC 705.12(B)(2)(3)(b)

⚠ CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION:
MAIN SERVICE PANEL
PER CODE: NEC 690.45(B)(5)

DO NOT DISCONNECT UNDER LOAD

LABEL LOCATION:
POINT OF INTERCONNECTION
PER CODE:
NEC 690.33(E)(2) & NEC 690.15 (C)

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION: POINT OF INTERCONNECTION
PER CODE: NEC 690.15, NEC 690.13(B)

LABEL LOCATION: ADJACENT TO MAIN DISCONNECT

SUN4

PHONE: 786-833-7864

ADDRESS: 2222 PONCE DE LEON BLVD
3RD FLOOR CORAL GABLES, FL 33134

GENERAL NOTE:

ADHESIVE FASTENED SIGNS:

· THE LABEL SHALL BE VISIBLE, REFLECTIVE AND SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED [NFPA 1, 11.12.2.1]

· 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]

1 **PV SAFETY LABELS DATA**
N.T.S.

DOCUMENT CONTROL	DATE	sCAD	eCAD
ISSUED FOR PERMIT	8-2-22	JH	DM

REV	DESCRIPTION	DATE	sCAD	eCAD
2	ENPHASE EQUIPMENT REVISED TO GENERAC	09-20-22	DM	DM

ENGINEER CONTACT INFORMATION
ENGIPARTNERS LLC
C.A. 32661
1825 PONCE DE LEON BLVD #114
CORAL GABLES, FL 33134
DESIGN@ENGIPARTNERS.COM
833 - 888 - 3644

ENGINEERING STAMP
Rafael A Gonzalez Soto
2022.09.23 14:10:05 -04'00'

CONTRACTOR CONTACT INFORMATION
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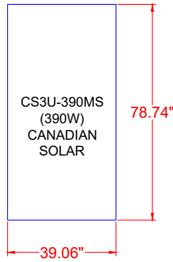
3RD FLOOR, CORAL GABLES, FL 33134
(786) 833 -7864
#CVC57137
#EC13008093

CONTRACTOR LOGO
SUN4

CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: SAFETY LABELS
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: E-2

SOLAR MODULE



UL 1703 CERTIFIED
MAX. DESIGN LOAD: 60.15 psf
APPLIED WIND LOAD :-24.71 psf

NOTES:
-INSTALL MID CLAMPS BETWEEN MODULES AND ENDS CLAMPS AT THE END OF EACH ROW OF MODULES.

-ALUMINUM RAILS SHOULD ALWAYS BE SUPPORTED BY MORE THAN ONE FOOTING ON BOTH SIDES OF THE SPLICE.

WORST CASE MODULE:
ZONE 1: 84%
ZONE 2e: 16%
-24.71(0.84) + -24.71(0.16) = -24.71psf

ULTIMATE WIND SPEED	120	mph
DESIGN WIND SPEED	119	mph
RISK CATEGORY	II	
EXPOSURE CATEGORY	C	
ROOF SLOPE (°)	20	
ROOF TYPE	GABLED	
MATERIAL ROOF TYPE	METAL	
PRESSURE ZONE:	1&2	
MEAN ROOF HEIGHT:	12.58	'
0.5 MEAN ROOF HEIGHT	6.29	'
$2H_2$	12	"
PERIMETER WIDTH:	3.36	'
K_D	0.85	
K_{ZT}	1.0	
K_H	0.849	
VELOCITY PRESSURE (q) = 0.60*0.00256* $K_H K_{ZT} K_D V^2$		
VELOCITY PRESSURE (ASD)	15.69	

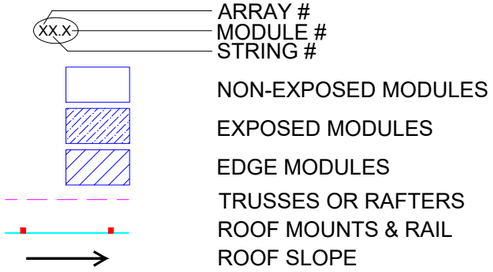
NON EXPOSED	EXPOSED	ARRAY EQUALIZATION FACTOR:
EDGE FACTOR: γ_E = 1.0	EDGE FACTOR: γ_E = 1.5	γ_a = 0.7

EXTERNAL PRESSURE COEFFICIENT Z1	0.7	-1.5
EXTERNAL PRESSURE COEFFICIENT Z2e	0.7	-1.5
EXTERNAL PRESSURE COEFFICIENT Z2n	0.7	-2.5
EXTERNAL PRESSURE COEFFICIENT Z2r	0.7	-2.5
EXTERNAL PRESSURE COEFFICIENT Z3e	0.7	-2.5
EXTERNAL PRESSURE COEFFICIENT Z3r	0.7	-3.6
INTERNAL PRESSURE COEFFICIENT	0.18	

ZONES	PRESSURES (PSF)	NON EXPOSED PRESSURES (PSF)	EXPOSED PRESSURES (PSF)	MAX SPAN (FT)	MAX CANTI-LEVER (IN)
1	-26.37	-16.47	-24.71	4 '	16 "
2e	-26.37	-16.47	-24.71	4 '	16 "
2n	-42.06	-27.46	-41.19	4 '	16 "
2r	-42.06	-27.46	-41.19	4 '	16 "
3e	-42.06	-27.46	-41.19	4 '	16 "
3r	-59.33	-39.54	-59.31	4 '	16 "

TOTAL ROOF AREA	3596.07	sq.-ft
TOTAL MODULES:	24	
TOTAL PHOTOVOLTAIC AREA:	512.53	sq.-ft
TOTAL PERCENTAGE AREA OF PV SYSTEM:	14.25	%
WIND LOAD (PSF):	-24.71	
TOTAL WIND LOAD (LBS):	-12,664.62	
TOTAL ROOF MOUNTS:	50	
TENSION FORCE PER MOUNT (LBS):	-253.29	

LEGEND & SYMBOLS



ROOF'S GENERAL NOTES:

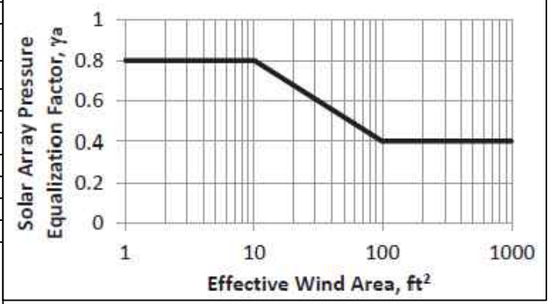
1- CONTRACTOR/INSTALLER TO VERIFY ROOF CONDITIONS FOR PROPER INSTALLATION OF THE PV SYSTEM.
2- CONTRACTOR/INSTALLER TO NOTIFY THE OWNER IMMEDIATELY OF ANY ROOF DEFICIENCIES AND/OR REPAIR REQUIRED TO INSTALL THE PV SYSTEM.
3- EOR DOES NOT ASSUME ANY RESPONSIBILITY FOR THE INSTALLATION OF ANY PV SYSTEM ON DEFICIENT ROOFS.
4-CONTRACTOR/INSTALLER ASSUMES ALL RESPONSIBILITY TO INSTALL AS PER MANUFACTURER STANDARDS.

ROOF INSPECTION NOTE:

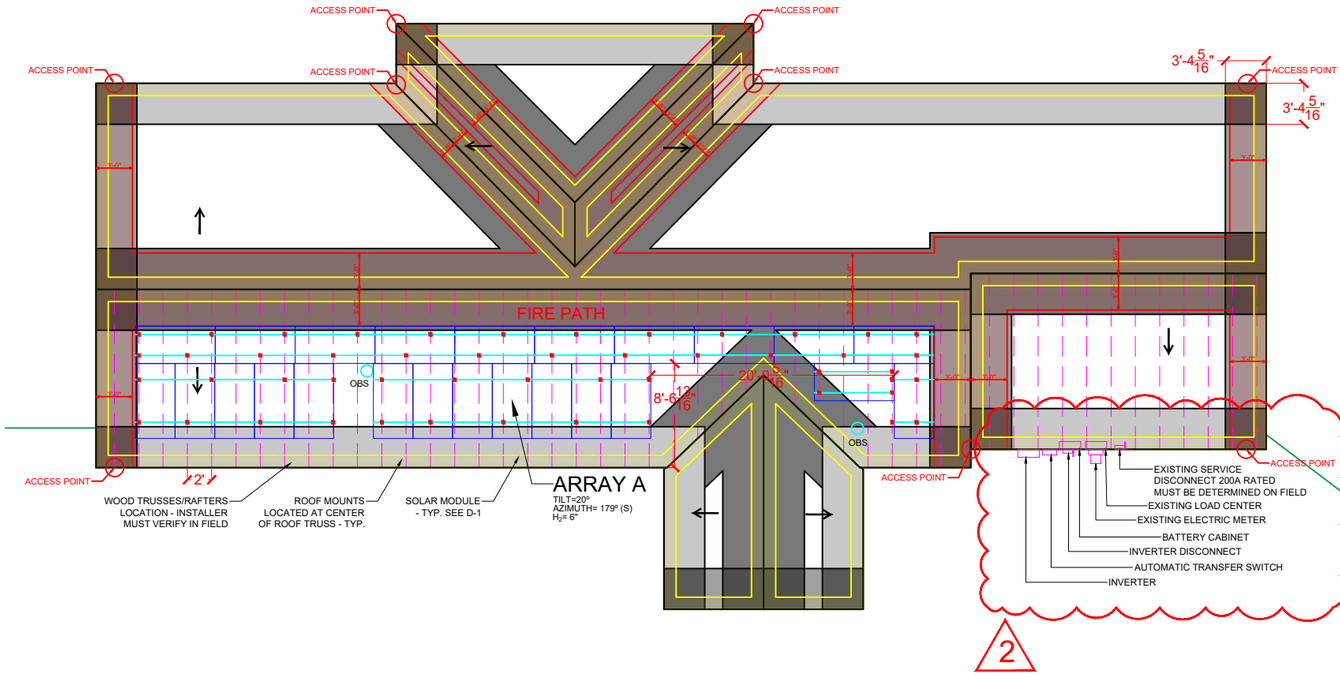
A PANEL IS DEFINED AS
EXPOSED IF D1 TO THE ROOF EDGE >0.5H AND ONE OF THE FOLLOWING APPLIES:
1. D1 TO THE ADJACENT ARRAY > 4 FT (1.2 M) OR
2. D2 TO THE NEXT ADJACENT PANEL> 4 FT. (1.2 M)

ASCE 7.16 - 29.4-7
DESIGNED WIND PRESSURES:

$$p = q_h (GC_p)(\gamma_E)(\gamma_a)$$



NORTH



1 STRUCTURAL ROOF PLAN & PV MODULES LAYOUT

N.T.S.

DOCUMENT CONTROL	DATE	sCAD	eCAD
ISSUED FOR PERMIT	8-2-22	JH	DM

REV	DESCRIPTION	DATE	sCAD	eCAD
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(786) 833 -7864
#CVC57137
#EC13008093

CONTRACTOR LOGO
SUN4

CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: STRUCTURAL PLAN
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: S-1

Grouping of ASCE 7-16 Roof Zones (Gable)

Roof Slope	8° - 27°			28° - 45°		
Group	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
ASCE 7-16 Roof Zones	1 2e	2n 2r 3e	3r	1 2e 2r	2n 3r	3e

= min 72" span = min 64" span = min 48" span
= Shaded cells indicate conditions in which UFO Mid Clamp connection capacity is exceeded.

RAIL: XR100		GABLE ROOF FLUSH MOUNT SYSTEM SPAN TABLE (INCHES) - PORTRAIT OR LANDSCAPE INSTALLATION MAX MODULE LENGTH: 80.0" EXPOSURE C								
WIND SPEED (MPH)	ROOF SLOPE (DEG.)	GROUND SNOW: 0 PSF			EXPOSED MOD.			EDGE MOD.		
		GROUP 1	GROUP 2	GROUP 3	GROUP 1	GROUP 2	GROUP 3	GROUP 1	GROUP 2	GROUP 3
120 MPH	20 TO 27	107	92	88	83	73	69	64	57	52

S-5 BRACKET PULL OUT CALCULATIONS

Ultimate Pull Out Strength per Clamp	798 lbs.
Max. Pull Out Strength Required per Clamp	253.29
Allowable Clamp Pull Out Strength Safety Factor	3.15

DISTRIBUTED LOAD CALCULATIONS

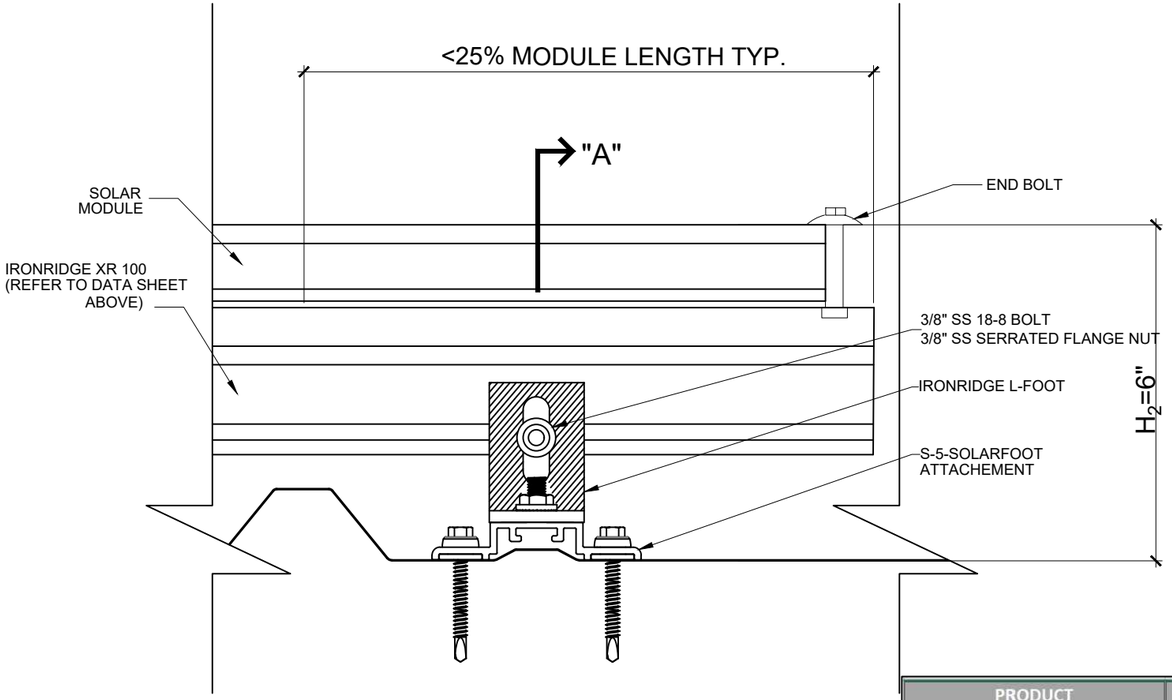
PV MODULES & RACKING WEIGHT = (INDIVIDUAL MODULE WEIGHT + 3.5 LBS) * (MODULE QTY) = (53.10 LBS) * (24) = 1,274.40 LBS

PER SQUARE FEET (PSF) ARRAY LOAD = PV MODULES & RACKING WEIGHT / TOTAL ARRAY AREA = 1,274.40 LBS / 512.53 SQFT = 2.49 PSF

HENCE, ROOF WILL CARRY THE ADDITIONAL SOLAR SYSTEM LOAD

Lag Screw Installation Guidelines

1. Determine location for the Mount on roof by drilling through the center of truss from bottom with 5/32" drill bit.
2. Mark mounting holes for Mount on underlayment. Mounting holes should be centered on the trusses.
3. Drill 15/64" pilot hole.
4. Apply sealant to bottom of Mount.
5. Place Mount over roof underlayment with holes in roof.
6. Apply sealant to bottom of Mount, apply sealant to lag screws and fasten Mount securely to trusses.
7. Apply additional sealant to top assembly to be sure all penetrations are sealed.



1 METAL ROOF MOUNT DETAIL & DATA

N.T.S.

ASCE 7-16 Velocity Pressure
qz10 = 0.00256Kz Kzt Kd V2
Where:
qz10 = ASCE 7-16 velocity pressure evaluated at mean roof height (psf)
Kz = velocity pressure exposure coefficient
Kzt = topographic factor
Kd = wind directionality factor
V = basic wind speed (mph) from ASCE 7-16 maps referred to as ultimate wind speed maps in 2020 FBC.

As an example, for an array having an area of 158.04 sq.-ft., the total uplifting (resultant) force acting on the array would be -39.1 psf x 158.04 sq. ft. = -6,179.364 lb. Knowing this resultant force, the design engineer can now determine the number of attachment points and the size of the mounting hardware necessary to safely carry this load.

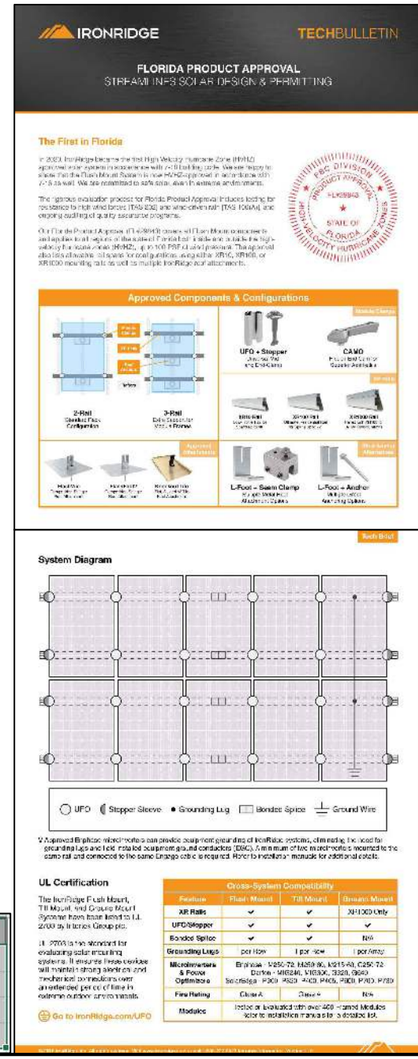
Live Loads:

Live loads associated with photovoltaic systems are usually assumed to be distributed uniformly and are small, on the order of 4 psf or less.

Notes: (1) Thread must be embedded in the side grain of a Trusses or other structural member integral with the building structure.

(2) Lag Bolts must be located in the middle third of the structural member.
(3) These values are not valid for wet services.
(4) This table does not include shear capacities. If necessary, contact a local engineer to specify lag bolt size with regard to shear forces.
(5) Install lag bolts with head ad washer flush to surface (no gap). Do nor over-torque.
(6) Withdrawal design values for lag screw connections shall be multiplied by applicable adjustment factors if necessary. See table 10.3.1 in the American Wood Council NDS for Wood Construction.

PRODUCT	THICKNESS MATERIAL	SCREW TENSION (inch-lbs)	ULTIMATE LOAD (lbs)	FAILURE MODE	ALLOWABLE LOAD (lbs)
Standing Seam 360	24 ga steel	115	1778	B	889
Standing Seam II Panel	24 ga steel	115	1583	B	792
Series 1000 Standing Seam	24 ga steel	115	1032	F	516
Snap-On Standing Seam	24 ga steel	115	748	A/B	374



DOCUMENT CONTROL		DATE	sCAD	eCAD
ISSUED FOR PERMIT		8-2-22	JH	DM
REV	DESCRIPTION	DATE	sCAD	eCAD

ENGINEER CONTACT INFORMATION
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DESIGN@ENGIPARTNERS.COM
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CONTRACTOR CONTACT INFORMATION
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#EC13008093

CONTRACTOR LOGO

CUSTOMER: ISAAC HARRIS

PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025

PARCEL NUMBER: 19-4S-17-08572-001 (31851)

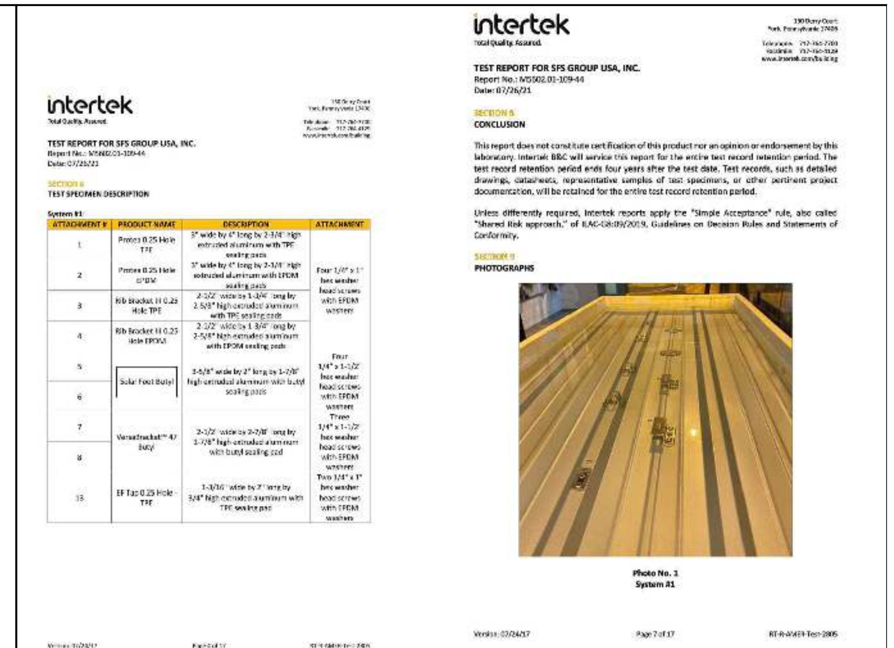
SHEET NAME: RACKING PLAN

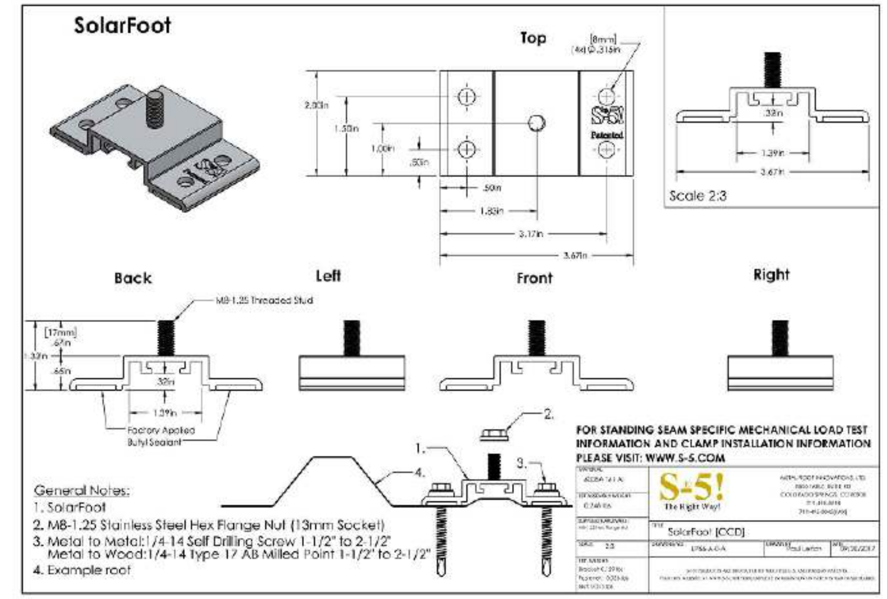
PROJECT ID: EP15365

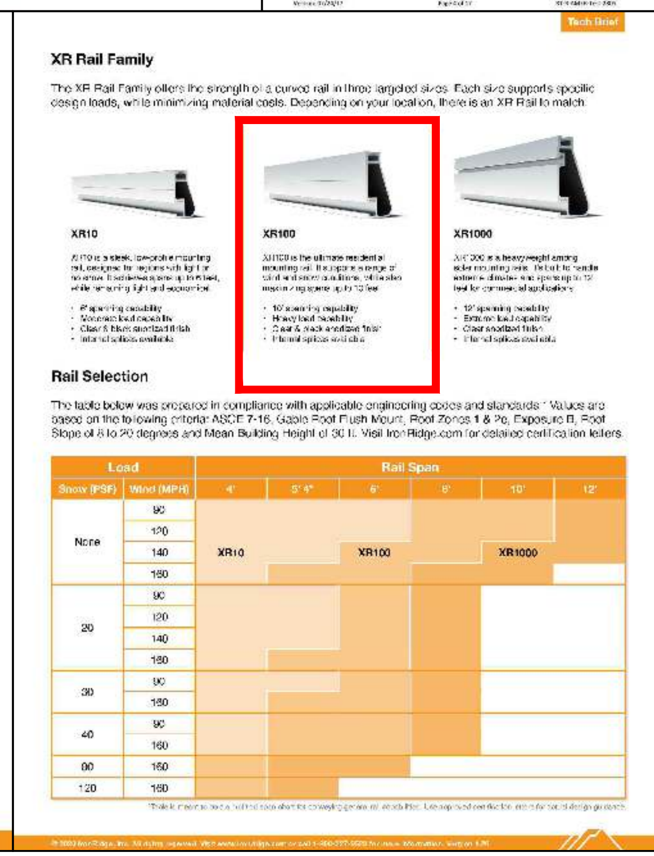
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

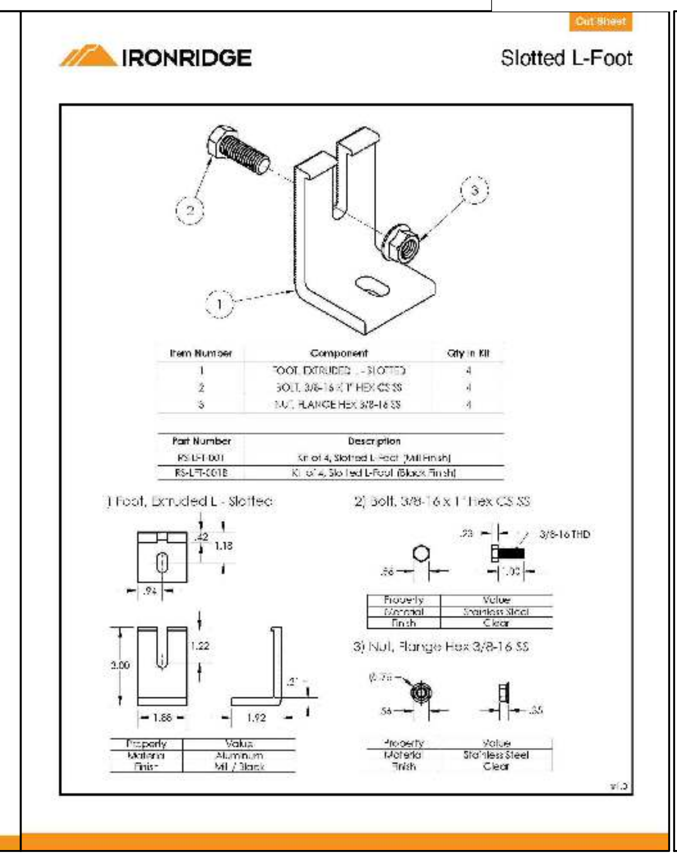
DATE: 8-1-22

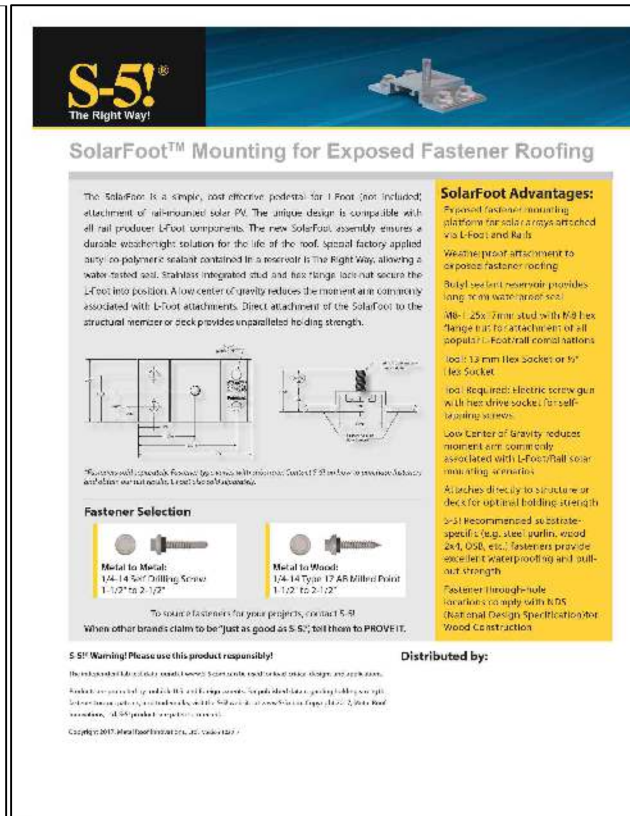
SHEET TITLE: S-2











1 METAL ROOF MOUNT DETAIL & DATA

N.T.S.

DOCUMENT CONTROL	DATE	sCAD	eCAD
ISSUED FOR PERMIT	8-2-22	JH	DM
REV / DESCRIPTION	DATE	sCAD	eCAD

ENGINEER CONTACT INFORMATION
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#EC13008093

CONTRACTOR LOGO

CUSTOMER: ISAAC HARRIS

PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025

PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: RACKING PLAN

PROJECT ID: EP15365

ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE: 8-1-22

SHEET TITLE: S-3

CanadianSolar

KuMax

HIGH EFFICIENCY MONO PERC MODULE

CS3U-380|385|390|395|400MS

(1000 V / 1500 V)

MORE POWER

- Low power loss in cell connection
- Low NMOT: 42 ± 3 °C
  Low temperature coefficient (Pmax): -0.36 % / °C
- Better shading tolerance
- High PTC rating of up to: 93.24 %

25 years — linear power output warranty*

12 years — enhanced product warranty on materials and workmanship*

*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*

IEC 61215 / IEC 61730: VDE / CE / CQC / MCS / KS / INMETRO
UL 1703 / IEC 61215 performance: CEC listed (US) / FSEC (US Florida)
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE / IEC 60068-2-68: SGS
Take-e-way

* 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.

MORE RELIABLE

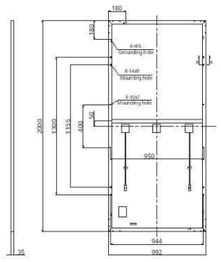
- Lower hot spot temperature
- Minimizes micro-crack impacts
- Heavy snow load up to 5400 Pa, wind load up to 3600 Pa*

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

CANADIAN SOLAR INC.
545 Speedvale Avenue West, Guelph, Ontario N1K 1E6, Canada, www.canadiansolar.com, support@canadiansolar.com

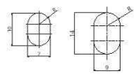
ENGINEERING DRAWING (mm)

Rear View

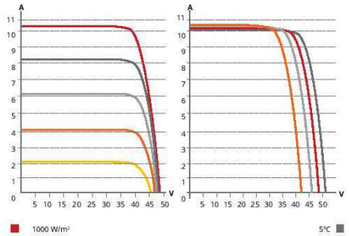


Frame Cross Section A-A

Mounting Hole



CS3U-400MS / I-V CURVES



ELECTRICAL DATA | STC*

CS3U	380MS	385MS	390MS	395MS	400MS
Nominal Max. Power (Pmax)	380 W	385 W	390 W	395 W	400 W
Opt. Operating Voltage (Vmp)	40.0 V	40.2 V	40.4 V	40.6 V	40.8 V
Opt. Operating Current (Imp)	9.50 A	9.58 V	9.66 A	9.73 A	9.81 A
Open Circuit Voltage (Voc)	47.8 V	48.0 V	48.2 V	48.4 V	48.6 V
Short Circuit Current (Isc)	10.01 A	10.09 A	10.17 A	10.25 A	10.33 A
Module Efficiency	19.2%	19.4%	19.7%	19.9%	20.2%
Operating Temperature	-40°C ~ +85°C				
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)				
Module Fire Performance	TYPE 1 (UL 1703) or Class C (IEC 61730)				
Max. Series Fuse Rating	30 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.

ELECTRICAL DATA | NMOT*

CS3U	380MS	385MS	390MS	395MS	400MS
Nominal Max. Power (Pmax)	283 W	287 W	290 W	294 W	298 W
Opt. Operating Voltage (Vmp)	37.2 V	37.4 V	37.6 V	37.8 V	38.0 V
Opt. Operating Current (Imp)	7.60 A	7.66 A	7.72 A	7.78 A	7.84 A
Open Circuit Voltage (Voc)	44.8 V	45.0 V	45.2 V	45.4 V	45.6 V
Short Circuit Current (Isc)	8.08 A	8.14 A	8.20 A	8.27 A	8.33 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.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	144 [2 X (12 X 6)]
Dimensions	2000 X 992 X 35 mm (78.7 X 39.1 X 1.38 in)
Weight	22.5 kg (49.6 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy, crossbar enhanced
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); leap-frog connection: 1670 mm (65.7 in)*
Connector	T4 series or H4 UTX or MC4-EVO2
Per Pallet	30 pieces
Per Container (40' HQ)	660 pieces

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

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.36 % / °C
Temperature Coefficient (Voc)	-0.29 % / °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 adjustments 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.

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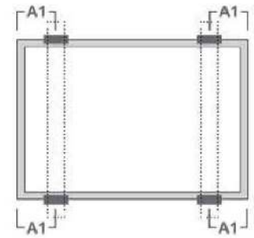
545 Speedvale Avenue West, Guelph, Ontario N1K 1E6, Canada, www.canadiansolar.com, support@canadiansolar.com

6.2.1 Four clamps on long side of frame and rails perpendicularly to the long side frame



Module Types	Max Mechanical Load (Pa)					
	+2000/ -2000	+2400/ -2400	+3600/ -2400	+5400/ -2400	+5400/ -3600	+7000/ -5400
	A1 Range (mm)					
CS1H	0-219	220-440	/	/	270-330	/
CS1VL/CS1HA	0-219	220-440	/	270-330	/	/
CS1V	0-239	331-550	/	240-330	/	/
CS3K	0-239	331-550	/	/	240-330	/
CS3U/CS3W	/	340-550	/	/	410-490	/
CS1U	/	340-550	/	410-490	/	/
CS1Y	/	/	300-600	/	350-550	400-500
CS3L/CS3LA/CS3LB	0-240	331-550	/	/	240-330	/
CS3N 〈F30 Frame〉	/	300-600	/	/	400-500	/
CS3N 〈F23 Frame〉	/	/	200-650	/	300-600	450-550
CS3Y/CS6W/CS7L/CS7N	/	300-600	/	400-500	/	/
CS3SA	/	/	300-600	400-500	/	/
CS6R	0-100	100-600	200-500	300-400	/	/

DOCUMENT CONTROL		DATE	sCAD	eCAD
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REV	DESCRIPTION	DATE	sCAD	eCAD

ENGINEER CONTACT INFORMATION

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CONTRACTOR CONTACT INFORMATION

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#EC13008093

CONTRACTOR LOGO

SUN4

CUSTOMER: ISAAC HARRIS

PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025

PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: PV MODULES DATA SHEET

PROJECT ID: EP15365

ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE: 8-1-22

SHEET TITLE: D-1

GENERAC

PV Link™

2500W MPPT Substring Optimizer
Model #: S2502 (Ordering SKU: APKE00010)

PV Link is the simple solar optimizer for quick installation and long-lasting performance. Connect PV modules to each PV Link to overcome shading and challenging roof lines.

FEATURES & BENEFITS

- Fast, simple installation
- Lower failure risk than module-level optimizers
- 2017/2020 NEC rapid shutdown compliant with SnapRS™
- Quick connections with MC4 connectors
- Exports up to 2500W
- Compatible with PWRcell™ Inverters
- Cost-effective solution for high-performance PV
- Ground-fault protection

SINGLE-STRING PV ARRAY WITH SnapRS DEVICES

Where PV module-level rapid shutdown is required (NEC 690.12), a SnapRS device (RS) is installed to negative (-) lead of each PV module.

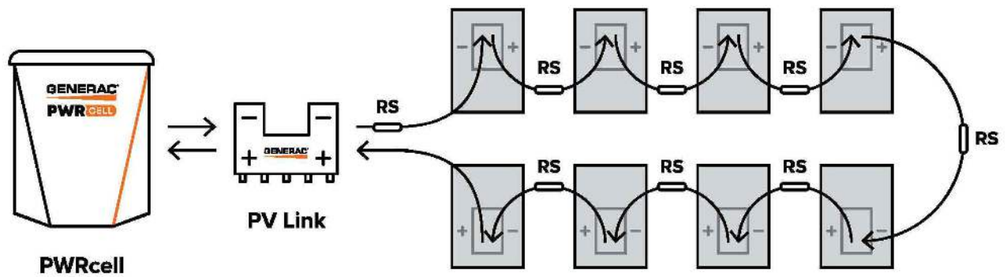

Diagram is applicable for most 60 cell PV modules. Modules with higher cell count may require a different arrangement. Contact Generac for more details.

Specifications

PV Link™ (APKE00010)	
RATED POWER*:	2500W
PEAK EFFICIENCY:	99%
MPPT VOLTAGE RANGE:	60-360 VMP
MAX INPUT VOLTAGE:	420 VOC; max when cold
MAX OUTPUT:	420 VOC
NOMINAL OUTPUT (REbus™):	380 VDC
MAX OUTPUT CURRENT (CONTINUOUS):	8 A
MAX OUTPUT CURRENT (FAULT):	10 A
MAX INPUT CURRENT (CONTINUOUS):	13 A @ 50°C, 10 A @ 70°C
MAX INPUT SHORT CIRCUIT CURRENT (ISC):	18 A
STANDBY POWER:	< 1 W
PROTECTIONS:	Ground-fault, Arc-fault (Arc-fault Type 1 AFCI, Integrated), PVRSE
MAX OPERATING TEMP: FAHRENHEIT (CELSIUS)	158 °F (70 °C)
SYSTEM MONITORING:	PWRview™ Web Portal and Mobile App
ENCLOSURE:	Type 4X
WEIGHT - LB (KG):	7.3 lb (3.3 kg)
DIMENSIONS, L x W x H - IN (MM):	15.4" x 2" x 9.6" (391.2 x 50.8 x 243.8)
COMPLIANCE:	UL 1741, CSA 22.2
WARRANTY:	25 Years

**PV Link can tolerate higher than rated power at its input if Max Input Voltage and Short Circuit Current specifications are not exceeded*

Generac Power Systems, Inc.
S45 W29290 Hwy. 59, Waukesha, WI 53189
www.Generac.com | 888-GENERAC (436-3722)

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GENERAC

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ENGINEER CONTACT INFORMATION
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CONTRACTOR LOGO
SUN4

CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: SMART MONITORING DATA SHEET
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: D-2

GENERAC®

PWRCELL

7.6kW 1Ø PWRcell Inverter with CTs
Model #: X7602 (Ordering SKU: APKE00014)

11.4 kW 3Ø PWRcell Inverter with CTs
Model #: X11402 (Ordering SKU: APKE00013

C ETL LISTED US
Intertek

Solar + storage is simple with the Generac PWRcell™ Inverter. This bi-directional, REbus™-powered inverter offers a simple, efficient design for integrating smart batteries with solar. Ideal for self-supply, backup power, zero-export and energy cost management, the PWRcell Inverter is the industry's most feature-rich line of inverters, available in single-phase and three-phase models.

FEATURES & BENEFITS

- Single inverter for grid-tied solar with smart battery integration
- Simplified system design: No autotransformer or battery inverter needed
- User-selectable modes for backup power, self-supply, time-of-use, zero-import and export limiting
- Free system monitoring included via PWRview™ Web Portal and Mobile App

AC OUTPUT/GRID-TIE	MODEL X7602	MODEL X11402
MAX. CONT. GRID-TIED AC POWER @ 50°C (122°F):	7600 W	11400 W
AC OUTPUT VOLTAGE:	120/240, 1Ø VAC	120/208, 3Ø VAC
AC FREQUENCY:	60 Hz	60 Hz
MAXIMUM CONTINUOUS OUTPUT CURRENT:	32 A, RMS	32 A, RMS
GROUND-FAULT ISOLATION DETECTION:	Included	Included
CHARGE BATTERY FROM AC:	Yes	Yes
THD (CURRENT):	< 2%	< 2%
TYPICAL NIGHTTIME POWER CONSUMPTION:	< 7 W	< 7 W

AC OUTPUT/ISLANDED	MODEL X7602	MODEL X11402
MAX. CONT. AC POWER @ 40°C (104°F) W/ SINGLE 6 MODULE BATTERY CABINET[1]:	9,000 W	9,000 W
MAX. CONT. AC POWER @ 40°C (104°F) WITH 2 BATTERY CABINETS (8 MODULES MINIMUM):	11,000 W	9,600-11,000 W[2]
MAX. CONT. AC POWER @ 50°C (122°F):	8,800 W	7,500-8,800 W[2]
PEAK MOTOR STARTING CURRENT (2 SEC):	50 A, RMS	
AC BACKUP OUTPUT VOLTAGE:	120/240, 1Ø VAC	120/208, 1Ø VAC
AC FREQUENCY:	60 Hz	60 Hz
THD (VOLTAGE):	< 2%	< 2%
AUTOMATIC SWITCHOVER TIME:	< 1 Seconds	< 1 Seconds

DC INPUT	MODEL X7602	MODEL X11402
DC INPUT VOLTAGE RANGE:	360-420 VDC	360-420 VDC
NOMINAL DC BUS VOLTAGE:	380 VDC	380 VDC
DC DISTRIBUTION INPUT BREAKERS:	4 x 2P30 A	4 x 2P30 A
MAX INPUT CURRENT PER DC INPUT:	30 A	30 A
REVERSE-POLARITY PROTECTION:	Yes	Yes
TRANSFORMERLESS, UNGROUNDED:	Yes	Yes
TYPICAL NIGHTTIME POWER CONSUMPTION:	< 7 W	< 7 W
DC BUS EXPORT FUSES (+/-):	40 A	40 A
2-POLE DISCONNECTION:	Yes	Yes

EFFICIENCY	MODEL X7602	MODEL X11402
PEAK EFFICIENCY:	97.3%	97.7%
CEC WEIGHTED EFFICIENCY:	96.5%	97.5%

[1]*Peak Performance*
[2]*In Island mode X11402 protected loads only supply 2 phases 120 VAC L-N, 208 L-L which results in lower power than in grid tied 3 phase mode. The low value of the range is for full L-L loading while high value of the range is full L-N loading*

Specifications

FEATURES AND MODES	
ISLANDING[3]:	Yes
GRID SELL:	Yes
SELF CONSUMPTION:	Yes
PRIORITIZED CHARGING FROM RENEWABLES:	Yes
GRID SUPPORT - ZERO EXPORT:	Yes
ESS PCS OPERATION MODES (IMPORT ONLY, EXPORT ONLY):	Yes

ADDITIONAL FEATURES	
SUPPORTED COMMUNICATION INTERFACES:	REbus™, CANbus, Ethernet
SYSTEM MONITORING:	PWRview™ Web Portal and Mobile App
BACKUP LOADS DISCONNECT[3]:	Yes, 50 A Circuit Breaker
INVERTER BYPASS SWITCH:	Automatic
WARRANTY:	10 Years

STANDARDS COMPLIANCE	
SAFETY:	UL 1741 SA, CSA 22.2, UL 1998
GRID CONNECTION STANDARDS:	IEEE 1547, Rule 21, Rule 14H, CSIP, UL 1741 PCS CRD (Import Only, Export Only)
EMISSIONS:	FCC Part 15 Class B

DIMENSIONS AND INSTALLATION SPECIFICATIONS	
ENCLOSURE KNOCKOUTS - QTY, SIZE - IN (MM):	6 x Combo 3/4" x 1" (19 x 25.4) 7 x Combo 1/2" x 3/4" (12.7 x 19)
DIMENSIONS L x W x H - IN (MM):	24.5" x 19.25" x 8" (622.3 x 488.9 x 203.2)
WEIGHT - LB (KG):	62.7 (28.4)
COOLING:	Forced convection
AUDIBLE NOISE:	< 40 dBA
OPERATING TEMPERATURE - FAHRENHEIT (CELSIUS):	-4 to 122 °F (-20 to 50 °C)[4]
PROTECTION RATING:	NEMA 3R

INSTALLATION GUIDELINES	
BATTERY TYPES SUPPORTED:	PWRcell™ Battery
MODULE STRING SIZE PER PV LINK OPTIMIZER:	Varies, refer to PV Link Installation Manual
MAXIMUM RECOMMENDED DC POWER FROM PV:	15 kW

[3]*3Ø inverters offer islanding for 1Ø loads.*
[4]*Includes ambient temperature rising from inverter operation. Reduced power at extreme temperatures.*
Specifications listed in this document are achieved with firmware version 13310 or greater. Confirm inverter has latest firmware to ensure full performance.

Generac Power Systems, Inc.
S45 W29290 Hwy. 59, Waukesha, WI 53189
www.Generac.com | 888-GENERAC (436-3722)

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GENERAC®

DOCUMENT CONTROL	DATE	sCAD	eCAD
ISSUED FOR PERMIT	8-2-22	JH	DM
REV DESCRIPTION	DATE	sCAD	eCAD
1 GENERAC INVERTER ADDED	09-14-22	DM	DM
2 ENPHASE EQUIPMENT REVISED TO GENERAC	09-20-22	DM	DM

ENGINEER CONTACT INFORMATION
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ENGINEERING STAMP
Rafael A Gonzalez Soto 2022.09.23 14:12:24 -04'00'

CONTRACTOR CONTACT INFORMATION
SUN4
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#CVC57137
#EC13008093

CONTRACTOR LOGO
SUN4

CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: INVERTER DATA SHEET
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: D-3

GENERAC®

SnapRS™

Inline Disconnect Switch
Model: APKE00011
Certification Model Reference: RS801

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Generac SnapRS are a simple way to satisfy rapid shutdown compliance for solar + storage systems. Generac SnapRS are 2017/2020 NEC 690.12 compliant, don't require any extra hardware to mount, and need no pairing or fussy digital communications.

FEATURES & BENEFITS

- Fast, easy, and simple to install
- One SnapRS device per PV module
- Achieves PVRSS Compliance
- Low cost, high efficiency solution

SYSTEM DESIGN

Snap a Generac SnapRS disconnect device (RS) to the negative lead (-) of each module in the solar array for simple module-level rapid shutdown compliance. SnapRS devices isolate array voltage when a rapid shutdown is initiated at a PWRcell™ Inverter. When rapid shutdown is initiated, SnapRS units isolate each PV module in the array, reducing array voltage to <80V in seconds.

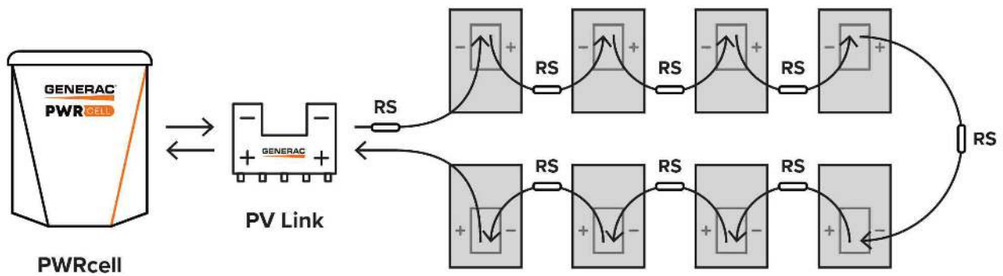

Diagram is applicable for most 60 cell PV modules. Modules with higher cell count may require a different arrangement. Contact Generac for more details.

Specifications

SnapRS® (APKE00011)	
PV MODULE MAX VOC:	75 V
EFFICIENCY:	99.8%*
MAX INPUT CURRENT:	13 A
SHUTDOWN TIME:	< 10 Seconds
ENCLOSURE RATING:	NEMA 6P
OPERATING TEMPERATURE - FAHRENHEIT (CELSIUS):	-40 to 158 °F (-40 to 70 °C)
CERTIFICATIONS:	UL1741
PROTECTIONS:	PVRSE
WEIGHT - LB (KG):	0.17 (0.08)
DIMENSIONS, L x W x H - IN (MM):	7" x 1" x 1" (177.8 x 25.4 x 25.4)
WARRANTY:	25 Years

**When used with a 50V panel*

Connect one SnapRS device to the negative lead of each PV module in the PV Link controlled array for complete PV Rapid shutdown performance

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ISSUED FOR PERMIT	8-2-22	JH	DM

REV	DESCRIPTION	DATE	sCAD	eCAD
1	GENERAC INVERTER ADDED	09-14-22	DM	DM
2	ENPHASE EQUIPMENT REVISED TO GENERAC	09-20-22	DM	DM

ENGINEER CONTACT INFORMATION
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SUN4

CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: RAPID SHUTDOWN DATA SHEET
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: D-4

GENERAC®

PWRCELL

PWRcell Battery Cabinet (Ordering SKU: APKE00007)
3.0kWh PWRcell EX Battery Module
Model # / Ordering SKU: G0080000
2.85kWh PWRcell DCB Battery Module
Model #: BJ-DCB05ZKAX (Ordering SKU: A0000391219)

The PWRcell™ Battery Cabinet is a modular smart battery platform that allows for a range of configurations to suit any need, small or large. No other smart battery offers the power and flexibility of PWRcell. Whether for backup power or smart energy management, PWRcell has power and capacity options for every need, without sacrificing flexibility or function.

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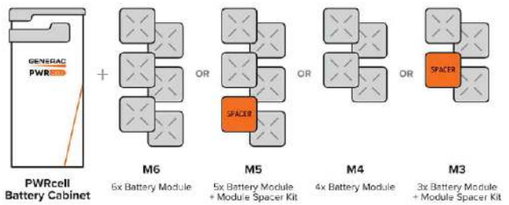
PWRcell BATTERY CABINET DESIGN

The PWRcell Battery Cabinet allows system owners the flexibility to scale from an economical 8.6kWh to a massive 18kWh by installing additional battery modules to the PWRcell Battery Cabinet. When needs change, an existing PWRcell Battery Cabinet can be upgraded with additional modules. Use the graphic below and the chart on the back of this sheet to understand what components you need for your chosen PWRcell configuration.

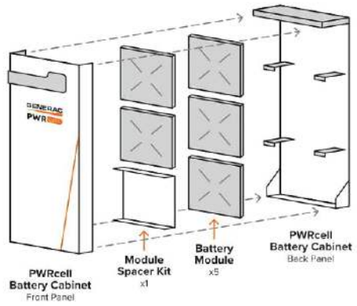
FEATURES & BENEFITS

- Connect 2 PWRcell Battery Cabinets to a single PWRcell Inverter for up to 36kWh of storage
- Best-in-class battery backup power
- Plug-and-play with PWRcell Inverter and PV Link™
- Time-of-use (TOU) and zero-export ready
- Residential and commercial application ready.
- Outdoor-rated battery cabinet available as an upgrade

BATTERY CONFIGURATION GUIDE



BATTERY CABINET ASSEMBLY



Specifications

PWRcell™ BATTERY CONFIGURATIONS								
BATTERY MODULE SERIES:	EX				DCB			
BATTERY MODULES:	3	4	5	6	3	4	5	6
USABLE ENERGY:	9 kWh	12 kWh	15 kWh	18 kWh	8.6 kWh	11.4 kWh	14.3 kWh	17.1 kWh
AVG. AC POWER OVER COMPLETE DISCHARGE CYCLE:	3.4 kW	4.5 kW	5.6 kW	6.7 kW	3.4 kW	4.5 kW	5.6 kW	6.7 kW
MAX. CONT. AC POWER @ 40°C (104°F):	4.5 kW	6 kW	7.5 kW	9 kW	4.5 kW	6 kW	7.5 kW	9 kW
PEAK MOTOR STARTING CURRENT (2 SEC) - A, RMS	25	33	42	50	25	33	42	50
REbus™ VOLTAGE - INPUT/OUTPUT:	360-420 VDC							
NOMINAL VOLTAGE:	43.2 VDC				46.8 VDC			
DC-DC ROUND-TRIP EFFICIENCY:	96.5%							
MAX. AMBIENT OPERATING TEMPERATURE RANGE:	14 to 122 °F (-10 to 50 °C)				41 to 113 °F (5 to 45 °C)			
RECOMMENDED AMBIENT OPERATING TEMPERATURE (FULL POWER)*:	32 to 104 °F (0 to 40 °C)				55 to 86 °F (13 to 30 °C)			
MAXIMUM INSTALLATION ALTITUDE - FT (M):	9834 (3000)							
DIMENSIONS, L x W x H - IN (MM):	22" x 10" x 68" (559 x 254 x 1727)							
WEIGHT, ENCLOSURE - LB (KG):	111 (50)							
WEIGHT, INSTALLED - LB (KG):	282 (128)	340 (154)	397 (180)	454 (206)	276 (125)	331 (150)	386 (175)	441 (200)
WARRANTY - LI-ION MODULES:	10 Years, (7.56MWh)							
WARRANTY - ELECTRONICS AND ENCLOSURE:	10 Years							
COMMUNICATION PROTOCOL:	REbus™ DC Nanogrid™							
COMPLIANCE:	UL 9540, UL 1973, UL 1642, CSA 22.2 #107.1							

*Performance may be limited outside of recommended operating temperature range

PWRcell ACCESSORIES

The PWRcell Battery Cabinet (APKE00007) is rated for indoor use only. If installing outdoors, the PWRcell Outdoor Rated Battery Cabinet (APKE00028) must be used. Inside of the PWRcell Battery Cabinet, battery modules are stacked two deep on three levels, allowing for up to six modules to be connected in series. You can upgrade an existing PWRcell Battery Cabinet by adding Battery Modules and a Module Spacer (APKE00008). A Module Spacer is only required for battery configurations with an odd number of modules (i.e. 3 or 5).

Generac offers a convenient PWRcell Battery Upgrade Kit (APKE00009) to help replace lost or misplaced hardware.

Note: When adding modules, be sure all modules within an individual cabinet are of the same series type (i.e. EX or DCB).

PWRcell MODEL BUILDER

PRODUCT SERIES	ENCLOSURE TYPE	# OF MODULES	BATTERY SERIES
PWRcell	IR	M3	EX
	IR (Indoor Rated) OR (Outdoor Rated)	3 Modules 4 Modules 5 Modules 6 Modules	DCB EX

Sample Model Name: PWRcell IR M3 EX

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REV	DESCRIPTION	DATE	sCAD	eCAD
1	GENERAC BATTERY ADDED	09-14-22	DM	DM

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CONTRACTOR LOGO
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CUSTOMER: ISAAC HARRIS
PROJECT ADDRESS: 456 SW HARMONY LN, LAKE CITY FL, 32025
PARCEL NUMBER: 19-4S-17-08572-001 (31851)

SHEET NAME: BATTERY DATA SHEET
PROJECT ID: EP15365
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 8-1-22
SHEET TITLE: D-5

GENERAC®

PWRCELL

AUTOMATIC TRANSFER SWITCH

100A Non-Service Entrance Rated
Model #: CXSC100A3
UPC #: 696471081701

100A Service Entrance Rated
Model #: CXSW100A3
UPC #: 696471081718

200A Service Entrance Rated
Model#: CXSW200A3
UPC #: 696471081725

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An integraged solar + storage system with load management for whole home coverage is made easy with the PWRcell™ Automatic Transfer Switch (ATS). Power the entire home and manage up to four individual HVAC (24 Vac controlled) loads with the PWRcell ATS. This built-in capability requires no additional hardware. When used in tandem with Generac Smart Management Modules (SMM) up to eight additional circuits can be controlled by the PWRcell Inverter. Make the most of your Generac solar + storage system with this comprehensive load management solution.

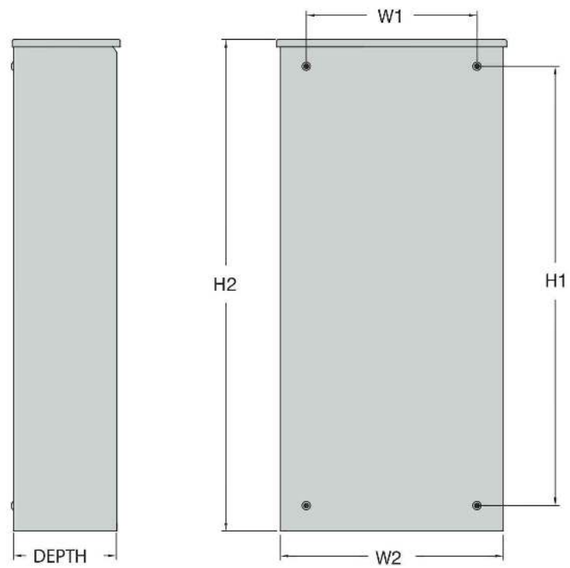
FEATURES & BENEFITS

- Unlock whole home backup power capability for PWRcell solar + storage systems
- Manage up to four HVAC systems, and an additional eight circuits with optional Smart Management Modules (SMMs)
- Aluminum type 3R enclosure with durable finish for indoor or outdoor installation
- Heavy Duty Generac Contactor is an ETL recognized device, designed for years of service and reliability

Specifications

SPECIFICATIONS	CXSC100A3	CXSW100A3	CXSW200A3
AMPS:	100	100	200
VOLTAGE	120/240 1Ø	120/240 1Ø	120/240 1Ø
LOAD TRANSITION TYPE (AUTOMATIC)	OPEN TRANSITION	OPEN TRANSITION SERVICE RATED	OPEN TRANSITION SERVICE RATED
ENCLOSURE TYPE	NEMA 3R	NEMA 3R	NEMA 3R
COMPLIANCE	UL 1008	UL 1008	UL 1008
WITHSTAND RATING (AMPS)	10,000	10,000	20,000
LUG RANGE	1/0 - #14	1/0 - #14	250 MCM - #6

DIMENSIONS		CXSC100A3	CXSW100A3	CXSW200A3
HEIGHT (IN/MM)	H1	17.24/437.9	17.24/437.9	26.75/679.4
	H2	20/508	20/508	30/762
WIDTH (IN/MM)	W1	12.5/317.5	12.5/317.5	10.5/266.7
	W2	14.6/370.8	14.6/370.8	13.5/342.9
DEPTH (IN/MM)		7.09/180.1	7.09/180.1	6.3/160.1
WEIGHT (LBS/KG)		20/9.07	22.5/10.21	39/17.69



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REV	DESCRIPTION	DATE	sCAD	eCAD
1	GENERAC ATS ADDED	09-14-22	DM	DM

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ISAAC HARRIS

PROJECT ADDRESS:
456 SW HARMONY LN,
LAKE CITY FL, 32025

PARCEL NUMBER:
19-4S-17-08572-001 (31851)

SHEET NAME:
ATS DATA SHEET

PROJECT ID:
EP15365

ENGINEER OF RECORD:
ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE:
8-1-22

SHEET TITLE:
D-6