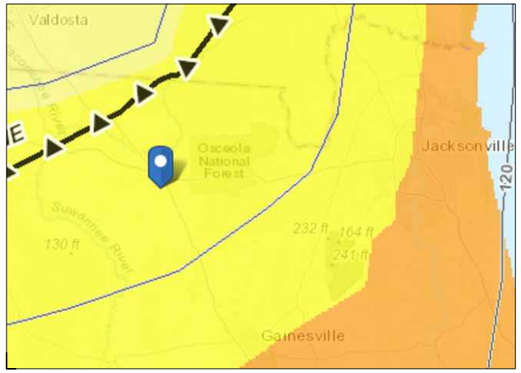
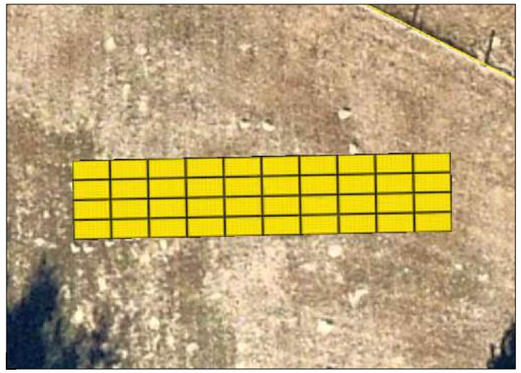
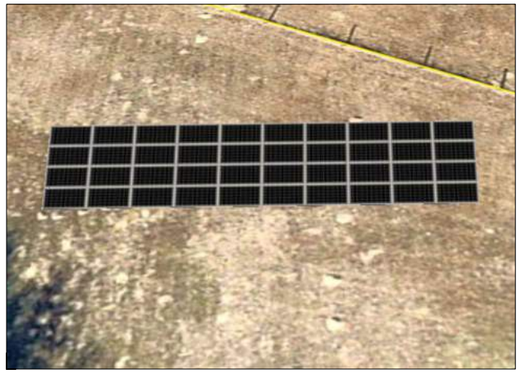


2 LOCATION MAP / WIND ZONES
N.T.S.



3 IRRADIANCE MAP
N.T.S.



4 3D RENDERING
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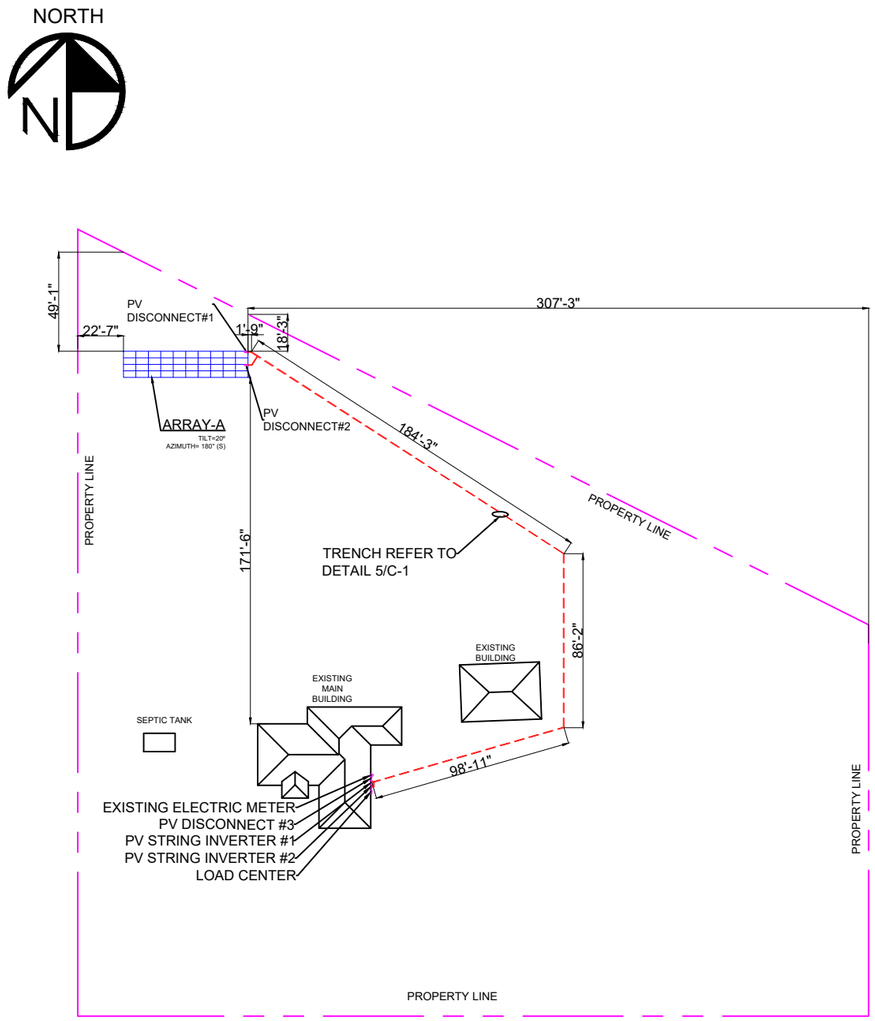

"PROPERTY SIDE FACING STREET"

1 SITE/ROOF PLAN VIEW / BOS LOCATION
N.T.S.

PROJECT DESCRIPTION

SYSTEM CAPACITY: 16.0 KW DC / 12.0 KW AC

PV PANELS: (40) Q.PEAK DUO BLK ML-G10+ 400W BY QCELLS

OPTIMIZERS: (40) P370 BY SOLAREDGE

INVERTER: (2) SE 6000H-US BY SOLAREDGE

RACKING SYSTEM: CROSS RAIL 80 BY K2 SYSTEMS

PROJECT INFORMATION

PROJECT LATITUDE	30.204097	MIN AMBIENT TEMP	1 ° C
PROJECT LONGITUDE	-82.730394	MAX AMBIENT TEMP	35 ° C
AHJ	COLUMBIA COUNTY	WIND EXPOSURE	C
		DESIGN WIND SPEED	108 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.

DOCUMENT CONTROL	DATE	CAD	QC
ISSUED FOR PERMIT	12-01-21	AC	DM

REV	DESCRIPTION	DATE	CAD	QC

ENGINEER CONTACT INFORMATION

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CORAL GABLES, FL 33134
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833 - 888 - 3644

ENGINEERING STAMP

Digitally signed by Rafael A Gonzalez Soto
Date: 2021.12.06 16:58:55 -04'00'

CONTRACTOR CONTACT INFORMATION

TITAN SOLAR POWER FL
12221 N US HIGHWAY 301
THONOTASASSA, FL 33592
(813) 982 -9001
#EC13008093

CONTRACTOR LOGO

TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: COVER SHEET

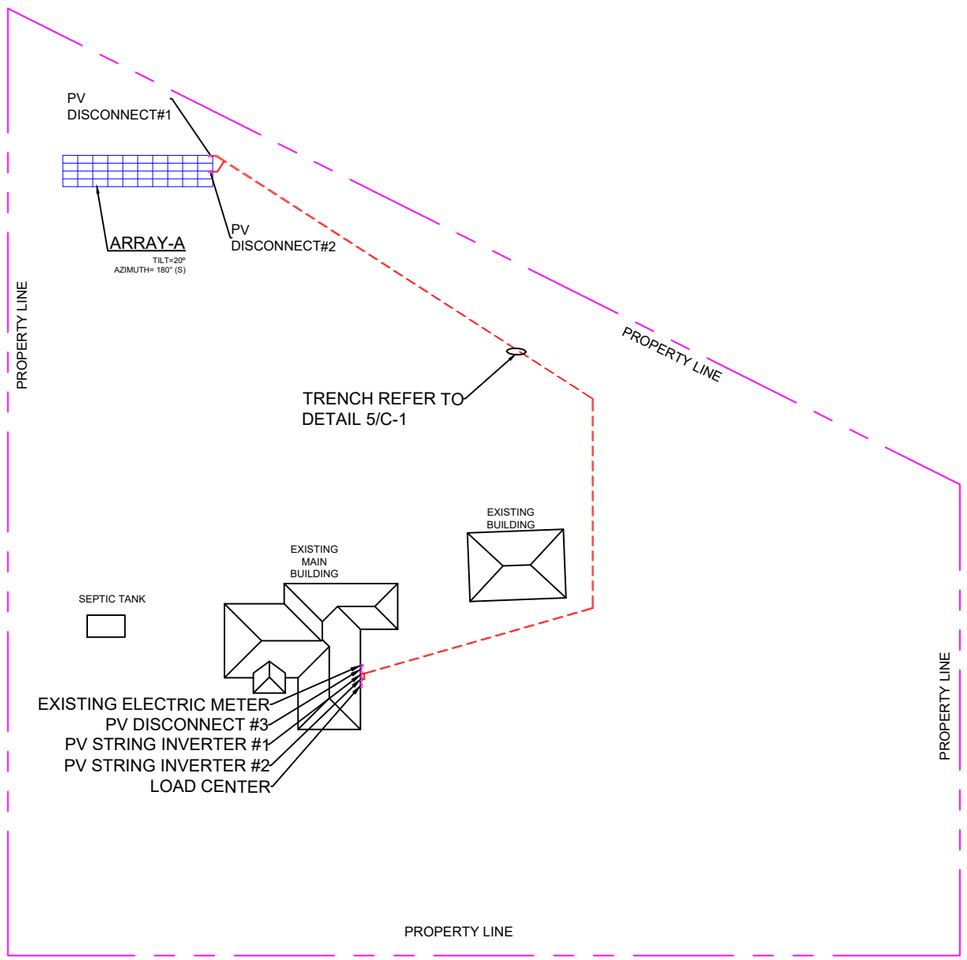
PROJECT ID: TSP101159

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

DATE: 11-30-2021

SHEET TITLE: C-1

SHEETS: 1 OF 9



"PROPERTY SIDE FACING STREET"

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:

ADDRESS:

PHONE NUMBER:

NOTES:

1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME
2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST URGENT CAR FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK

1 SAFETY PLAN
N.T.S.

DOCUMENT CONTROL		DATE	CAD	QC
ISSUED FOR PERMIT		12-01-21	AC	DM
REV	DESCRIPTION	DATE	CAD	QC

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ENGINEERING STAMP

RAFAEL A. GONZALEZ SOTO LICENSE No. 83104 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Rafael A Gonzalez Soto
Date: 2021.12.06 16:59:05 -04'00'

CONTRACTOR CONTACT INFORMATION

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12221 N US HIGHWAY 301

THONOTASASSA, FL 33592

(813) 982 -9001

#EC13008093

CONTRACTOR LOGO

TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST
LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: SAFETY PLAN

PROJECT ID: TSP101159

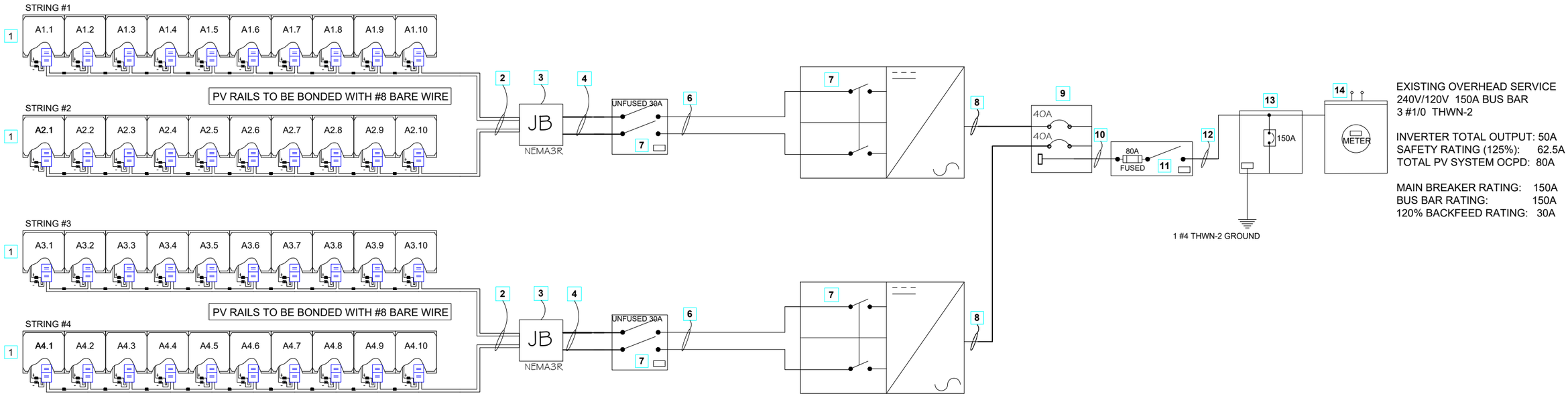
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE

DATE: 11-30-2021

SHEET TITLE: C-2

SHEETS: 2 OF 9

	WIRE SIZES, QUANTITY & TYPE			RACEWAY SIZE, TYPE, LOCATION & INFO.			WIRE AMPACITY CALCULATIONS							ADDITIONAL INFORMATION			
WIRE TAG	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 DE-RATED CALCULATION				DIST.	VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %
										WIRE RATING	AMBIENT TEMP	# OF COND.	FINAL AMPACITY				
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 X 0.76 X 1 = 30.4 A				10 FT.	350V	0.11%	6.4%
DC (AFTER JB)	(4) #8 AWG THWN-2	N/A	(1) #6 AWG THWN-2	1 1/2" PV 80 CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	15A	18.8A	20A	55A X 0.76 X 0.8 = 44.0 A				372 FT.	350V	0.21%	8.1%
AC (INVERTER TO METER)	(2) #4 AWG THWN-2	(1)#4 AWG THWN-2	(1) #6 AWG THWN-2	3/4" EMT CONDUIT	EXTERIOR WALL	"N/A"	50A	62.5A	80A	95A X 0.76 X 1 = 72.2 A				5 FT.	240V	0.1%	7.7%



1 ONE LINE RISER DIAGRAM

N.T.S.

LEGEND:

1	(40) Q.PEAK DUO BLK ML-G10+400W BY QCELLS REFER TO D-1 SHEET	2	2 #10 PV WIRE PER STRING 1 #8 BARE WIRE GROUND 3/4" EMT CONDUIT	3	NEMA3R JUNCTION BOX
4	4 #8 THWN-2 1 #8 THWN-2 GROUND 3/4" EMT CONDUIT	5	PV SYSTEM DISCONNECT #1 & #2	6	2 #8 L1,L2 THWN-2 PER STRING 1 #8 THWN-2 GROUND 1 #8 THWN-2 NEUTRAL 1 1/4" PVC SCH-80 CONDUIT
7	SE6000H-US BY SOLAREDGE REFER TO D-3 SHEET	8	2 #8 L1,L2 THWN-2 1 #8 THWN-2 GROUND 1 #8 THWN-2 NEUTRAL 3/4 " EMT CONDUIT	9	AC LOAD CENTER RATED 125A
10	2 #4 L1,L2 THWN-2 1 #8 THWN-2 GROUND 1 #4 THWN-2 NEUTRAL 3/4 " EMT CONDUIT	11	PV SYSTEM DISCONNECT #3	12	2 #4 L1,L2 THWN-2 1 #4 THWN-2 NEUTRAL 3/4" EMT CONDUIT
13	PV INTERCONNECTION POINT -LINE SIDE	14	UTILITY ELECTRICAL SERVICE	15	NOT USED

DOCUMENT CONTROL	DATE	CAD	QC
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REV	DESCRIPTION	DATE	CAD	QC

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CONTRACTOR CONTACT INFORMATION

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THONOTASASSA, FL 33592
(813) 982 -9001
#EC13008093

CONTRACTOR LOGO

TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: ONE LINE RISER DIAGRAM

PROJECT ID: TSP101159

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

DATE: 11-30-2021

SHEET TITLE: E-1

SHEETS: 3 OF 9

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)

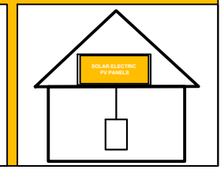
WARNING

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.



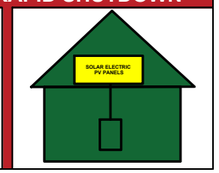
LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 690.56(C)(3)

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.



INVERTER #1 & #2

NOMINAL OPERATING AC VOLTAGE	240 V
NOMINAL OPERATING AC FREQUENCY	60 HZ
MAXIMUM AC POWER	6.0 KW
MAXIMUM AC CURRENT	25 A
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	16.5 A
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)	15 A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.53

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:	25 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)

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

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 SUPPLY SIDE

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

TITAN SOLAR POWER FLORIDA
901 ARMSTRONG BLVD, KISSIMMEE, FL 34741
1-855-SAY-SOLAR

1 PV SAFETY LABELS DATA

N.T.S.

DOCUMENT CONTROL	DATE	CAD	QC
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REV	DESCRIPTION	DATE	CAD	QC

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12221 N US HIGHWAY 301
THONOTASASSA, FL 33592
(813) 982 -9001
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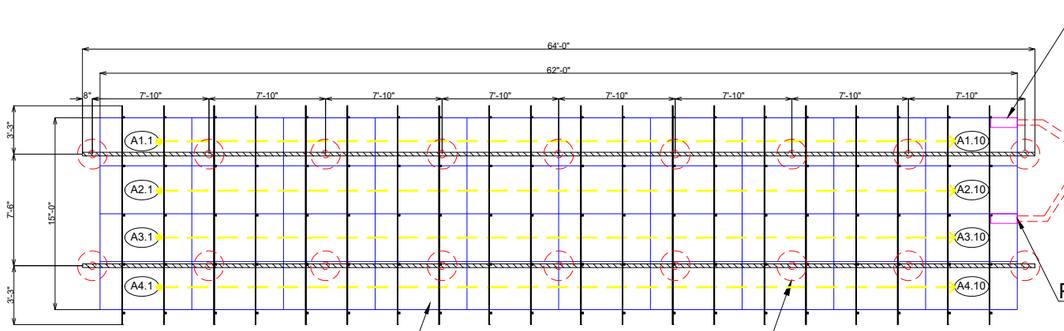
CONTRACTOR LOGO
TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY
PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055
PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: SAFETY LABELS

PROJECT ID: TSP101159
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 11-30-2021
SHEET TITLE: E-2
SHEETS: 4 OF 9



PV DISCONNECT #1

PV DISCONNECT #2

TRENCH PATH

PIPE FITTING
DETAIL A/S-1

18 PIERS Ø3"

ARRAY-A
TILT=20º
AZIMUTH= 180° (S)

1 STRUCTURAL PLAN & PV MODULES LAYOUT
N.T.S.

DESIGN WIND PRESSURE
CALCULATIONS FOR SOLAR
MODULES INSTALLED ON GROUND

ARRAY DETAILS

FBC VERSION	2020	RISK CATEGORY	I
CONFIG	4x10	EXPOSURE CATEGORY	C
MODS / PIERS	2	N-S SPACING	7'- 6"
PIERS	18	PIPE CANTILEVER	0'- 8"
SOUTH PIERS	9 (2'-6")	ULTIMATE WIND SPEED	110mph
NORTH PIERS	9 (4'-6")	TOTAL PIPE LENGTH	65'-10"
DIAGONAL PIPES	YES	GROUND SNOW LOAD	0 psf
TOTAL RAILS	280		
RAIL CANTILEVER	3'-3"		
RAIL TYPE	CROSS RAIL 80		

SUBSTRUCTURE

TILT ANGLE	20°
PIPE SIZE	1.5"
E-W PIER SPACING	7'- 10"
DIAGONAL BRACING	YES
TOTAL FOUNDATIONS	18
SOUTH CLEARANCE	1'- 11"
NORTH CLEARANCE	5'- 1"

FOUNDATION

SOIL CLASS	4
HOLE DIAMETER	1'-8"
TYPE	CONCRETE
MIN HOLE DEPTH	5'-0"

REACTION FORCES

SHEAR	MOMENT	UPLIFT
2,133 lbs	0 ft-lbs	-2,167 lbs

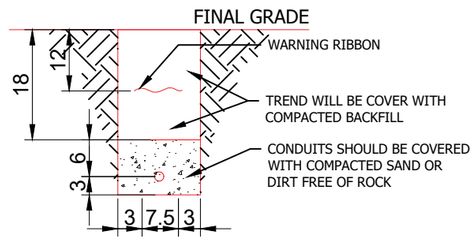
LEGEND & SYMBOLS

OBS ROOF OBSTRUCTIONS

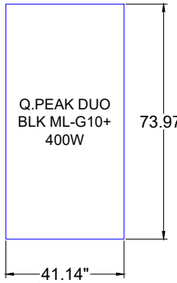
XX.X — ARRAY # / MODULE # / STRING #

PV MODULES

ROOF MOUNTS & RAIL



A PIPE FITTING DETAIL
N.T.S.



UL 1703 CERTIFIED
MAX. DESIGN LOAD: 83.54 psf
APPLIED WIND LOAD : 46.15 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.

2 SOLAR MODULE
N.T.S.

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12221 N US HIGHWAY 301
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(813) 982 -9001
#EC13008093

CONTRACTOR LOGO

TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: STRUCTURAL PLAN

PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:
TSP101159	ENG. RAFAEL A. GONZALEZ SOTO, PE	S-1
	DATE: 11-30-2021	SHEETS: 5 OF 9

CrossRail 80

Material: aluminum
Finish: mill

CrossRail Mid Clamp UL2703+ Set

30-47 mm, 48-50 mm
Material: stainless steel
Finish: silver, dark

CrossRail End Clamp Set

30-50mm
Material: stainless steel
Finnish: silver, dark

Hollaender No. 70 External Coupling

Material: aluminum

Aluminum Hollaender 5EXT Extended Barrel Tee OR Hollaender 5EX

Material: aluminum

Aluminum Hollaender 17 Adj. Elbow

Material: aluminum

Aluminum End Clamp Set

Material: stainless steel
Finish: silver, black
Hardware: stainless steel

Optional: End Cap for CR80

Material: glass fiber reinforced polamide

Optional: External Omega Cable Clip

Material: polyamide, black

Optional: HEY Clip SunRunner Cable Clip SS, S6404

Material: stainless steel

NON UL LISTED COMPONENTS

K 2 Pipe L Bracket Kit

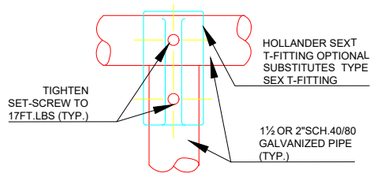
Material: stainless steel, galvanized steel

JF3 MiniRail Screw w/ EPDM 6x32

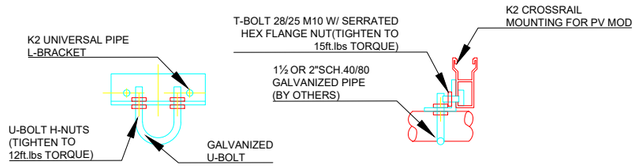
Material: stainless steel

1/2 in Serrated Flange Nut and T-Bolt 28/15 M10

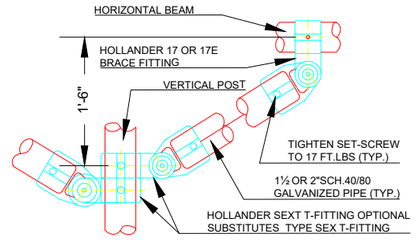
Material: stainless steel



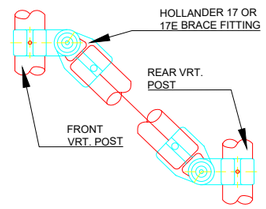
A GROUND MOUNT T-FITTING
SCALE: 3"=1'



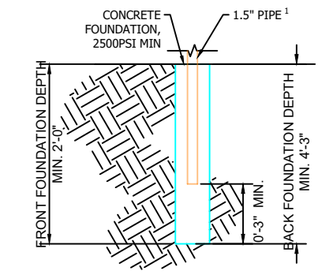
B K2 1.5" PIPE L-BRACKET
SCALE: 3"=1'



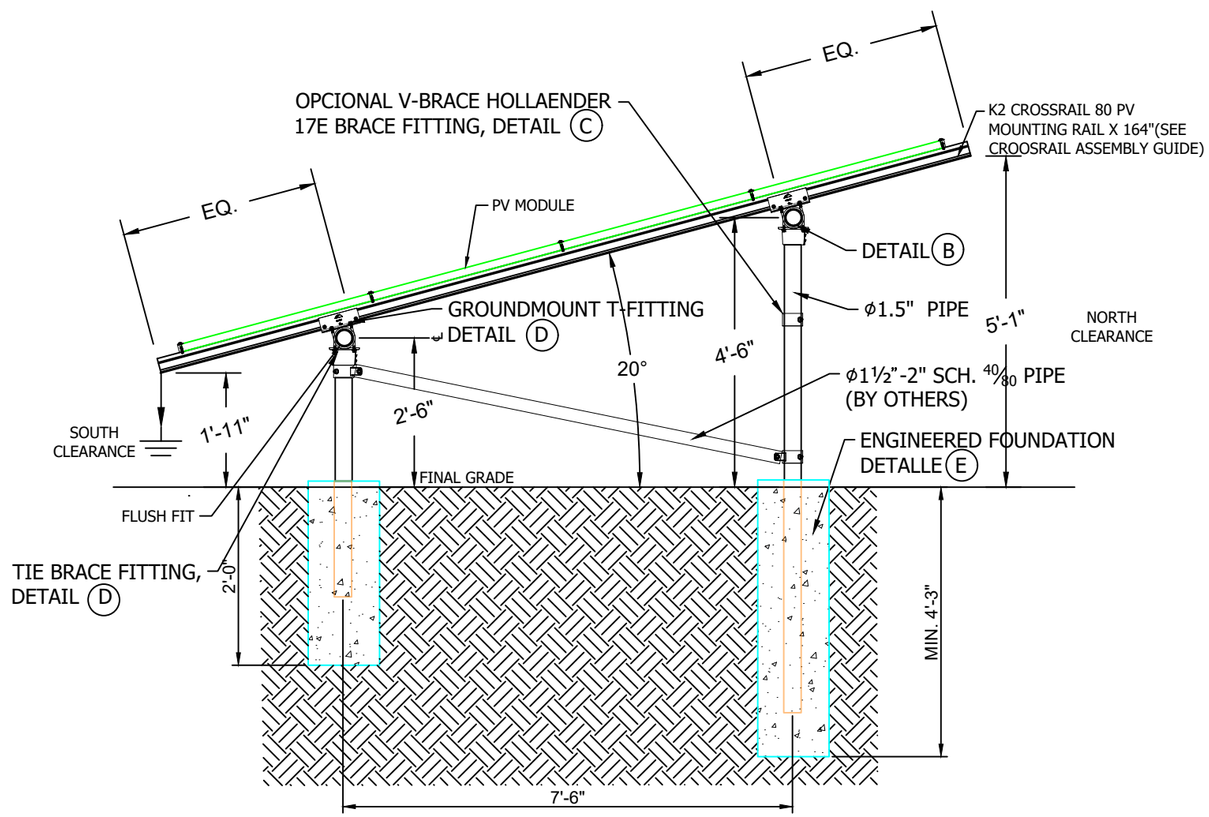
C OPTIONAL V-BRACE (TYP. EACH POST)
SCALE: 3"=1'



D TIE BRACE CONNECTIONS
SCALE: 3"=1'



E FOUNDATION DETAILS
SCALE: 1/2"'= 1'



PV SYSTEM SIDE SECTION

SCALE: 3/4"=1'

DOCUMENT CONTROL	DATE	CAD	QC
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ENGINEER CONTACT INFORMATION

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ENGINEERING STAMP

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CONTRACTOR CONTACT INFORMATION

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CONTRACTOR LOGO

TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: RACKING PLAN

PROJECT ID: TSP101159

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

DATE: 11-30-2021

SHEET TITLE: S-2

SHEETS: 6 OF 9

powered by Q.ANTUM DUO Z

Q.PEAK DUO BLK ML-G10+

385-410

ENDURING HIGH PERFORMANCE

EUPD RESEARCH TOP BRAND PV MODULES AUSTRALIA 2017 2018 2021 2020 2019

25 YR Warranty Product & Performance

Q CELLS Yield Security

BREAKING THE 20% EFFICIENCY BARRIER
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.1%.

THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 25-year linear performance warranty[1].

[1] See data sheet on rear for further information.

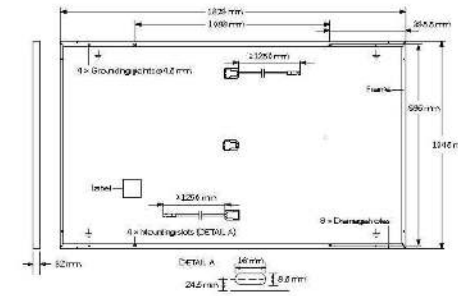
THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	1879 mm × 1045 mm × 32 mm (including frame)
Weight	22.0 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1250 mm, (−) ≥1250 mm
Connector	Stäubli MC4, IP68

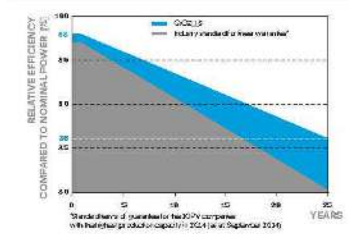


ELECTRICAL CHARACTERISTICS

POWER CLASS				385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC}	[A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage[1]	V_{OC}	[V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I_{MPP}	[A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V_{MPP}	[V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency[1]	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I_{SC}	[A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V_{OC}	[V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I_{MPP}	[A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V_{MPP}	[V]	34.59	34.81	35.03	35.25	35.46	35.68

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5

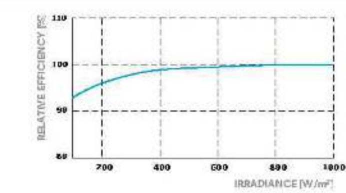
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	PV module classification	Class II
Maximum Reverse Current	I_R	[A]	20	Fire Rating based on ANSI / UL 61730	C / TYPE 2
Max. Design Load, Push / Pull		[Pa]	3600 / 2660	Permitted Module Temperature on Continuous Duty	−40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 4000		

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland; IEC 61215:2016; IEC 61730:2016. This data sheet complies with DIN EN 50380. QCPV Certification ongoing. Certification holder: Hanwha Q CELLS GmbH

PACKAGING INFORMATION

Horizontal packaging	1940 mm	1100 mm	1220 mm	751 kg	28 pallets	24 pallets	32 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Made in Korea

Hanwha Q CELLS Australia Pty Ltd
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Engineered in Germany

Q CELLS

DOCUMENT CONTROL	DATE	CAD	QC
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ENGINEER CONTACT INFORMATION: ENGIPARTNERS LLC, C.A. 32661, 255 GIRALDA AVE, CORAL GABLES, FL 33134, DESIGN@ENGIPARTNERS.COM, 833 - 888 - 3644

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CONTRACTOR LOGO: TITAN SOLAR POWER

CUSTOMER: CATHY PELLEY

PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055

PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: PV MODULES DATA SHEET

PROJECT ID: TSP101159

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

DATE: 11-30-2021

SHEET TITLE: D-1

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / 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

solaredge.com

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Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P405 (for high-voltage modules)	P485 (for high voltage modules)	P505 (for higher current modules)	
INPUT									
Rated Input DC Power[1]	320	350	370	400	405		485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	60	125[2]		83[2]	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8-60	12.5 - 105		12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	11.02	11	10.1	11.75	11		14	Adc
Maximum DC Input Current	13.75			12.5	14.65	12.5		17.5	Adc
Maximum Efficiency	99.5								%
Weighted Efficiency	98.8							98.6	%
Overvoltage Category	II								
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)									
Maximum Output Current	15								Adc
Maximum Output Voltage	60					85			Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)									
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc
STANDARD COMPLIANCE									
EMC	FCC Parts Class B, IEC61000-6-2, IEC61000-6-3								
Safety	IEC62109-1 (class II safety), UL1741								
Material	UL 94 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]						Single or dual MC4[3][4]	MC4[3]	
Input Wire Length	0.16 / 0.52			0.16 or 0.9 /0.52 or 2.95[5]		0.16 / 0.52			m / ft
Output Wire Type / Connector	Double Insulated / MC4								
Output Wire Length	0.9 / 2.95		1.2 / 3.9						m / ft
Operating Temperature Range[6]	-40 to +85 / -40 to +185								°C / °F
Protection Rating	IP68 / NEMA6P								
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) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals
(5) Longer inputs wire length are available for use. For 0.9m input wire length order P401-xxxLxxx
(6) 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

PV System Design Using a SolarEdge Inverter[7][8]		Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401	8		10	18	
	P405, P485, P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[9]	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000[10]	12750[11]	W
Parallel Strings of Different Lengths or Orientations		Yes				

(7) For details string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(8) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string
(9) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
(10) For 208V grid it is allowed to install up to 6,000W per string when the maximum power difference between each string is 1,000W
(11) 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

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CUSTOMER: CATHY PELLEY
PROJECT ADDRESS: 871 N W HORIZON ST, LAKE CITY, FL 32055
PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: SMART MONITORING DATA SHEET
PROJECT ID: TSP101159
ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE
DATE: 11-30-2021
SHEET TITLE: D-2
SHEETS: 8 OF 9

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

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PARCEL NUMBER: 29-3S-16-02390-025

SHEET NAME: INVERTER DATA SHEET

PROJECT ID: TSP101159

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

DATE: 11-30-2021

SHEET TITLE: D-3

SHEETS: 9 OF 9